Queensland Statewide Cancer Treatment Services Plan

2010–17

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Queensland Government
Queensland Health

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Contents

Executive summary 1
Queensland cancer treatment services—Summary of Planned Objectives and Strategies 3
Background 22
Analysis of policy context 23
Assessment of needs 26
Key Points 26
Geographic issues 26
Population to be serviced 29
Health profile and relevant features 31
Analysis of current service arrangements 34
Key Points 34
Queensland Health services 34
Model of service delivery 36
Levels of clinical service capacity 37
Statewide and superspecialty services 38
Organisation of services 39
Current service capacity 40
Private sector services 42
Workforce profile 43
Funding arrangements 44
Service delivery initiatives 46
Overview of current utilisation 49
Key Points 49
Service delivery setting 49
Inpatient services—utilisation 50
Outpatient services—utilisation 52
Key service issues 55
Projected demand for cancer treatment services 56
Key Points 56
Cancer incidence projections 56
Inpatient care activity 58
Day-only and outpatient activity 58
Radiation oncology 59
Palliative care beds 60
Capital works requirements 61

Key service issues and priorities 63
Critical Priorities 63
Conceptual framework and planning objectives 64
Cancer treatment service objectives and strategies 66
Objective 1 66
Objective 2 67
Objective 3 71
Objective 4 74
Objective 5 79
Objective 6 81
Objective 7 83
Objective 8 84
Objective 9 90
Objective 10 92
Objective 11 93
Resource implications 94
Actions within existing resources 94
Expansion in system capacity 95
Implementation and evaluation 98
Implementation arrangements 98
Evaluation 99
Risk assessment 100
Glossary 101
Abbreviations 111
Appendixes 114
Appendix 1 Eight national priority actions for change 114
Appendix 2 Queensland's cancer control objectives 115
Appendix 3 Clinical Service Capability Framework—summary of draft cancer module 117
Appendix 4 Health Action Plan—cancer funding highlights 130
Appendix 5 Day-only treatment places 137
Appendix 6 Radiation therapy services—projected activity by area 139
Appendix 7 Summary of methodology for determining projected bed requirements 140
Appendix 8 Palliative care projections 143
Appendix 9 Situational analyses and recommendations 145

Contributors

The Queensland Health Cancer Clinical Leadership Group and Cancer Control Team prepared this plan (2008) in partnership with the Planning and Coordination Branch. The Cancer Clinical Leadership Group and Cancer Control Team have now reviewed the plan eighteen months after its release to reflect changes over this period in this current and revised *2010-17* version.

P.J. Milne and Associates provided some technical planning assistance in 2007.

The Health Statistical Centre provided data on incidence of cancer, projections, and treatment services activity. Other data was sourced from hospitals, Health Service Districts (HSDs), Area Clinical Networks and the Queensland Cancer Control Analysis Team.

A committee with broad representation oversaw the development and review of the initial (2008) plan, and contributed to its publication. The Clinical Leadership Group, in consultation with the Executive Director, Policy Strategy and Resourcing Division, and subsequently the Queensland Health's Executive Management Team, gave final endorsement to this current 2010 -17 version of the plan.

All stakeholders provided feedback which was incorporated as appropriate. The main message received was to ensure that the plan identifies accurately (based on available best evidence) the resources required to support and develop statewide cancer treatment services. The plan represents a majority view among the cancer clinical leaders and relevant corporate office staff. Consultants and independent clinical experts (from other jurisdictions) contributed their expertise to the planning methodology used in 2008 and critically reviewed the draft of the plan. The 2010 -17 version relies on this same methodology.

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Executive Summary

The *Statewide Cancer Treatment Services Plan 2010 -2017* (the Plan*)* will inform the development of safe and sustainable statewide cancer treatment services and assist the systematic implementation of the *Queensland Cancer Control Strategic Directions 2005 - 2010*[1]*.* It proposes priority-based short, medium and long-term strategies to enhance cancer treatment services across Queensland.

Under the *Queensland Statewide Health Services Plan 2007–12*[2], Queensland Health must improve access to safe and sustainable health services and better meet people's needs across the health continuum. The incidence of cancer is projected to grow an average 4% per annum, and although the *Health Action Plan*[3] provided significant funding to address capacity issues in this clinical stream, demand continues to outstrip Queensland Health's ability to meet it. Recognising the significant challenges this presents, Cabinet requested the undertaking of statewide service planning to identify service demand and guide the delivery of treatment services in the future.

In cancer control, the health continuum includes, screening, early detection, treatment, palliative care and psychosocial and supportive care. While recognising the critical links with cancer prevention, screening, rehabilitation and the community sector, the Plan focuses *exclusively* on cancer treatment services (and associated diagnostics) in both inpatient and ambulatory settings. The structure of the Plan defines current and projected demographics, health need, gaps in service delivery, and issues related to cancer treatment services. Health services will localise application of the plan as appropriate for cancer treatment services within their areas. Other Queensland Health initiatives, such as its Chronic Diseases Strategy targeting prevention, will guide activity focusing on other parts of the cancer health continuum.

Queensland's population has been increasing annually by 2.6%, while cancer incidence has been increasing by 3.5%. In every week of 2006, approximately 407 Queenslanders were diagnosed with cancer, and this figure is expected to rise to 578 by 2016. These figures, and Queensland's projected rapid population growth and ageing population make it imperative to plan for the development of cancer treatment services.

Currently, each area based Cancer Services (Clinical) Network supports an informal delivery network of cancer treatment services comprising a hub (Cancer Centre), spokes (Cancer Unit) and other linked services. The levels of existing services within the informal networks are defined in accordance with *Clinical Services Capability Framework*[4].The plan places strong emphasis on the formalised networking of these services to provide integrated care and establish efficient links with statewide and superspecialty services.

In the treatment of cancer, service delivery settings range from inpatient hospital care to ambulatory care. Several factors, including efficiency and patient preference, have influenced a change from inpatient hospital care towards ambulatory care. There is also an increasing evidence-based trend towards combined modality treatments. The plan recommends a multidisciplinary focus and implementation of care coordination as essential to providing safe effective and integrated care. These models rely on appropriate resourcing.

Overall, separations of cancer inpatients (for public and private medical oncology and haematology) increased by an average 4% per year over the five-year period to 2004–05. However, as large numbers of patients receive ambulatory care as outpatients, particularly in

[1] Queensland Health 2006, Queensland Cancer Control Strategic Directions 2005–2010.
[2] Queensland Health 2007, Statewide Health Services Plan 2007–2012.
[3] Queensland Government 2005, Action Plan – Building a better health service for Queensland.
[4] Queensland Health 2006, 'Clinical Services Capability Framework" – Draft Cancer Services Module'.

the public sector, there is not sufficient data available that truly represents all ambulatory care service delivery in Queensland. The plan recognises this as a critical gap that needs to be addressed when planning future service delivery.

Ambulatory services are reportedly absorbing the excess demand for treatment which, due to lack of capacity, has not been manageable in an inpatient setting. Queensland is not currently meeting demand for some cancer care services, such as radiation oncology.

This plan draws on recent patterns of service utilisation and available benchmarks to project estimated future requirements for hospital beds, day treatment and radiotherapy services. Based on projections of demand for inpatient overnight and multi-day stay hospitalisation Queensland Health will require an estimated additional 195 inpatient beds by 2016. The projected requirement for ambulatory care treatment places is up to 383 by 2016 – an 80% increase on the 212 places currently available. Queensland's radiotherapy capacity also needs to expand, with an additional 24 to 26 linear accelerators (linacs) required statewide by 2016. Projected demand also indicates an increased need for acute palliative care beds.

This plan identifies a significant expansion of physical infrastructure as a key priority. A number of infrastructure developments are underway or in the planning stage statewide. Recent investment impacting cancer services are located at the Cairns, Townsville, Rockhampton and Princess Alexandra Hospitals and the planned developments at the Gold and Sunshine Coasts. Expanding the capacity of treatment services will be complex. This plan also identifies as critical, recruitment, training and retention of the workforce, along with operational resourcing to match the growth in capacity. Some of this work has already begun, with implementation of service and workforce development initiatives of the *Action Plan—Building a better health service for Queensland* [5].

The section on Objectives (from page 67) outlines specific strategies for dealing with key issues. In particular, the plan recognises the increasing complexity of cancer treatment, and a shortage of specialised knowledge and skills in the workforce. It highlights issues inherent in sustaining a skilled cancer treatment workforce incorporating medical, nursing, allied health and support staff for now and the future.

The key outcomes expected through implementing the strategies in the Plan are:

- improved access to better coordinated, quality cancer services
- improved outcomes for patients
- more efficient cancer services better supported by technology and information sharing
- a focus on quality improvement
- an expanded and well-trained workforce.

The aim of the *Queensland Cancer Treatment Services Plan 2010 –17* is to promote greater collaboration between Queensland Health, Health Services, and other public, private and non-government organisations, to drive and support further improvements in cancer care.

[5] Queensland Government 2005, Action Plan—Building a better heath service for Queensland.

Summary of planned objectives and strategies

While it is recognised that the Executive Management Team is ultimately accountable for implementing the *Statewide Cancer Treatment Services Plan 2010 –17* at a statewide level, Cancer Clinical Networks at an area level and District Chief Executive Officers (CEOs) at a District level, other parties will be responsible for leading the implementation.

The Summary of Planned Objectives and Strategies below identifies the lead parties responsible for the implementation of each strategy. Those highlighted by bold type represent the primary lead party.

Queensland Statewide Cancer Treatment Services – Summary of planned objectives and strategies

While it is recognised that the Executive Management Team is ultimately accountable for implementing the *Statewide Cancer Services Treatment Plan 2010 -17* at a statewide level, Cancer Clinical Networks at an area level and District CEOs at a District level, other parties will be responsible for leading the implementation. The summary tables identify the lead parties responsible for the implementation of each strategy. Those highlighted by bold type represent the primary lead party.

Legend

CCLG	Cancer Control Clinical Leadership Group	**DDG-PSR**	Deputy Director-General – Policy, Strategy and Resourcing	**MAPSU**	Medicines and Pharmacy Services
CHO	Chief Health Officer	**ED-RD**	Executive Director, Reform and Development	**PAH**	Princess Alexandra Hospital
CIO	Chief Information Officer	**EMT**	Executive Management Team	**IPB**	Infrastructure and Planning Branch
CN	Clinical Network	**FRB**	Funding and Resourcing Branch	**RBWH**	Royal Brisbane and Women's Hospital
CPIC	Clinical Practice Improvement Centre	**CEO**	Chief Executive Officer	**QCAT**	Qld Cancer Analysis Team
DDG-CS	Deputy Director-General – Corporate Services	**GPQ**	General Practice Queensland	**QPHON**	Queensland Paediatric Haematology Oncology Network
CEO-CaSS	Chief Executive Officer – Clinical and Statewide Services	**HSPLB**	Health Service Planning and Logistics Branch	**SRS**	Statewide Radiology Support
DCEO	District Chief Executive Officer				

Objective 1: Establish an appropriate governance structure to oversee and guide the development of cancer services in Queensland

Timeframe	Strategy	Responsibility level		Resourcing	% Complete
		Statewide	Regions/District	E = existing A = additional	P = partial C = complete N = yet to begin
Short term	1. Strengthen statewide and Area Clinical Networks	**DDG-PSR** with CCLG	Statewide and Area Clinical Networks	E	P

Objective 2: Develop clearly defined service networks that encompass both public and private sector services and provide formal links between smaller cancer services and specialised referral centres					
Timeframe	**Strategy**	**Responsibility level**		**Resourcing**	**% Complete**
		Statewide	**Regions/District**	**E = existing A = additional**	**P = partial C = complete N = yet to begin**
2.1 Service network development					
Short to medium term	2. Establish Gold Coast University Hospital (GCUH) as Cancer Centre (on commissioning)	**DDG-CS** (HSPLB) with CCLG	DCEO-Gold Coast and Cancer services	A	P
Longer term	3. Develop: a) Cairns (Cancer Unit)	**DDG-CS** (HSPLB) with CCLG	DCEOs and Area Clinical Networks	A	P
	b) Rockhampton (Cancer Unit)			A	P
	c) Redlands (Linked Service)			A	N
	d) Ipswich (Cancer Unit)			A	N
	4. Establish Sunshine Coast Hospital (SSCH) as Cancer Centre upon commissioning	**DDG-CS** (HSPLB**)** with CCLG	DCEO Sunshine Coast-Wide Bay HSD- with Sunshine Coast Cancer services	A	-
2.2 Develop service networks for the delivery of specialty services requiring coordination at Area level					
Short to medium term	5. Implement Area/statewide mentoring and coordination training programs for:	**DDG-PSR** (WPCB) with CCLG/ QPHON and ED-RD (CPIC)	DCEOs and Area Clinical Networks	E	C
	a) oncology pharmacy (statewide)	**CEO-CaSS** (MAPSU) with CCLG/QPHON and DDG-PSR (CWPCB)			
	b) lymphoedema services	**DDG-PSR** (WPCB) with CCLG/QPHON			
	c) psychosocial care services				
	d) adolescent and young adult (AYA) services		DCEO QCH and QPHON		
	e) paediatrics (statewide)				
	6. Develop and implement a model for adolescent transitional cancer care			A	P
	7. Establish age-appropriate facility/service	**DDG-CS** (HSPLB**)** with CCLG/QPHON	DCEO QCH and QPHON	A	P
	8. Monitor progress and impact of mentoring and training programs.	**DDG-PSR** (WPCB), with CCLG and CEO-CaSS (MAPSU, SRS),		E	P

Objective 2: Develop clearly defined service networks that encompass both public and private sector services and provide formal links between smaller cancer services and specialised referral centres (continued)					
Timeframe	**Strategy**	**Responsibility level**		**Resourcing**	**% Complete**
		Statewide	**Regions/District**	**E = existing A = additional**	**P = partial C = complete N = Yet to begin**
2.3 Links with service providers in the private and non-government sectors					
Short to medium term	9. Explore options for collaborative service structures in rural and regional areas including:		**DCEOs** with Area Cancer Networks	E	P
	a) innovative funding and business models	**DDG-PSR** (FRB) with CCLG			
	b) shared access schemes to medical aids and pharmaceuticals	**DDG-CaSS** (MAPSU) with CCLG and DDG-PSR (FRB),			
	c) joint appointments	**DDG-PSR** (WPCB) with CCLG, ED-RD (CPIC), CEO-CaSS (MAPSU, SRS) and CHO			
	d) shared continuing professional development/education				
	e) common accreditation and quality improvement mechanisms	**ED-RD** (CPIC) with CCLG, DDG-PSR (WPCB), CHO and CEO-CaSS (MAPSU,SRS)			
	10. Work with non government organisations (NGOs) to further develop support services for cancer patients, survivors and their families, building on existing successful models.	**DDG-PSR** (PB) with CCLG, ED-RD (CPIC) and NGOs		E	P
	11. Review findings regarding potential collaborations in rural and regional areas and define pilot projects for implementation	**DDG-PSR** (PB) with CCLG, ED-RD (CPIC) and NGOs	**DCEOs** with Area Cancer Networks	E	N

Objective 3: Implement a statewide framework based on the Clinical Service Capability Framework (CSCF) cancer module and building upon defined service networks to plan and coordinate delivery of services across the continuum of care					
Timeframe	**Strategy**	**Responsibility level**		**Resourcing**	**% Complete**
		Statewide	**Regions/District**	**E = existing A = additional**	**P = partial C = complete N = Yet to begin**
3.1 Define the service capability of all sites within the service networks currently and predicted over the next 10 years					
Short to medium term	12. Develop service capability: a) Cairns palliative care from Level 1 to 3	**ED-RD** (CPIC) with CCLG, DDG-PSR (CWPCB) and CEO-CaSS (MAPSU, SRS),	**DCEOs** with Area Cancer Networks	A	P
	b) Nambour medical oncology from Level 2 to 3			A	
	c) Toowoomba medical oncology from Level 2 to 3			A	
	d) Toowoomba haematology from Level 1 to 2			A	
	e) GCH medical oncology from Level 2 to 3			A	
	f) Nambour haematology from Level 2 to 3	**ED-RD** (CPIC) with CCLG, DDG-PSR (CWPCB) and CEO-CaSS (MAPSU, SRS),	**DCEOs** with Area Cancer Network s	A	
	g) Redcliffe haematology from Level 2 to 3 h) Redcliffe radiation oncology from Consultative to Level 2			A	
	i) Ipswich haematology from no existing service to Level 2			A	
	j) Logan medical oncology and haematology from Consultative to Level 2			A	
	k) GCUH medical oncology and haematology from Level 3 to Superspecialty (on commissioning 2012) l) GCUH radiation oncology from C to Level 3 (on commissioning 2012)			A	
	m) Bayside medical oncology, haematology and radiation oncology from no existing service to consultative			A	
Longer term	n) Cairns radiation oncology from Consultative to Level 1	**ED-RD** (CPIC) with CCLG, DDG-PSR (CWPCB) and CEO-CaSS (MAPSU, SRS),	**DCEOs** with Area Cancer Networks		N
	o) Bundaberg medical oncology and haematology from Level 1 to Level 2			A	
	p) SSCH medical oncology from Level 3 (Nambour) to SS on (commissioning 2014) q) SSCH haematology from Level 3 (Nambour) to Superspecialty (commissioning 2014) r) SSCH radiation oncology from Consultative (Nambour) to Level 2 (commissioning 2014) s) SSCH palliative care from Level 2 (Nambour) to Level 3 (commissioning 2014)			A	
	t) Hervey Bay/Maryborough medical oncology and haematology from Level 1 to Level 2			A	

	u) Rockhampton medical oncology and haematology from Level 2 to Level 3			A	
	v) Rockhampton radiation oncology from consultative to Level 2			A	

Objective 3: Implement a statewide framework based on the Clinical Service Capability Framework (CSCF) cancer module and building upon defined service networks to plan and coordinate delivery of services across the continuum of care (continued)					
Timeframe	**Strategy**	**Responsibility level**		**Resourcing**	**% Complete**
		Statewide	**Regions/District**	**E = existing A = additional**	**P = partial C = complete N = Yet to begin**
3.2 Identify statewide and superspecialty services and plan for their delivery over the next 10 years					
Short to medium term	13. Establish services: a) Low-dose brachytherapy services in Townsville.	**DDG-CS** (HSPLB) with CCLG, DDG-PSR (CWPCB), ED-RD (CPIC) and CEO CaSS (MAPSU, SRS)	**DCEOs** with Area Cancer Networks	A A	N
	b) Stereotactic surgery with tomotherapy equipment at RBWH c) Low-dose brachytherapy services in RBWH			A	
	d) Low dose brachytherapy at PAH/Mater (and GCUH 2012 on commissioning) e) High dose brachytherapy at PAH/Mater (and GCUH 2012 on commissioning)	**DDG-CS** (HSPLB) with CCLG, DDG-PSR (CWPCB), ED-RD (CPIC) and CEO CaSS (MAPSU, SRS)	**DCEOs** with Area Cancer Networks	A	
	f) Autologous haematopoietic SCT at GCUH 2012 (on commissioning) g) High-grade lymphoma treatment at GCUH 2012 (on commissioning).			A	
	h) Possibly develop allogeneic SCT at Townsville Hospital			A	
Longer term	14. Establish high-grade lymphoma treatment SSCH 2015	**DDG-CS** (HSPLB) with CCLG, DDG-PSR (CWPCB) ED-RD (CPIC), and CEO CaSS (MAPSU, SRS),	**DCEO Sunshine Coast – Wide Bay** with Area Cancer Network	A	N

Objective 4: Develop service capacity in line with population distribution and growth					
Master/service/facility planning being undertaken/completed at PAH, RBWH, Townsville, Redcliffe, Ipswich, Rockhampton and Cairns will inform/identify options and determine timelines in relation to increasing capacity and developing services					
Timeframe	**Strategy**	**Responsibility level**		**Resourcing**	**% Complete**
		Statewide	**Regions/District**	**E = existing A = additional**	**P = partial C = complete N = Yet to begin**
4.1 Hospital inpatient beds					
Short to medium term	15. Develop inpatient capacity a) 50 beds (enabling an additional 2,500 overnight admissions pa)	**DDG-CS** (HSPLB) with CCLG and DDG-PSR (CWPCB)	**DCEOs** with Area Cancer Networks	A	P
Longer term	b) 159 beds (enabling 10,500 overnight admissions pa in total by 2016)			A	N
4.2 day only treatment places					
Short to medium term	16. Develop ambulatory treatment capacity a) 50 treatment places (enabling up to an extra 21,000 patient treatments pa)	**DDG-CS** (HSPLB) with CCLG and, DDG-PSR (CWPCB)	**DCEOs** with Area Cancer Networks	A	P
Longer term	b) 126 additional treatment places enabling up to an extra 52,920 patient treatments pa in total by 2016			A	N
4.3 Radiation oncology					
Short to medium term	17. Develop radiation treatment service capacity a) PAH—building of three bunkers and installation of two linacs	**DDG-CS** (HSPLB) with CCLG, DDG-PSR (PCB, CWPCB)	**DCEOs** with Area Cancer Networks	A	P
	b) RBWH—building of three bunkers and installation of two linacs			A	N
	c) Cairns—building of three bunkers and installation of two linacs and building of supporting infrastructure for new service to commence 2012	**DDG-CS** (HSPLB) with CCLG and DDG-PSR (CWPCB)	**DCEOs** with Area Cancer Networks	A	P
	d) Townsville—building of four bunkers and installation of one additional linac			A	N
	e) Redcliffe—building of three bunkers and installation of two linacs and building of supporting infrastructure for new service to commence 2012			A	N
	f) GCUH—new service (commissioning 2012)			A	
Longer term	g) SSCH—new service (commissioning 2014)	**DDG-CS** (HSPLB) with CCLG, DDG-PSR (CWPCB)	**DCEO Sunshine Coast – Wide Bay HSD** with Area Cancer Network	A	N
4.4 Palliative care beds					
Short to	18. Develop inpatient palliative care capacity			A	P

medium term	a) 15 additional inpatient beds	**DDG-CS** (HSPLB) with CCLG, DDG-PSR (CWPCB)	**DCEOs** with Area Cancer Networks		
Longer term	b) 34 additional inpatient beds			A	N

Objective 4: Develop service capacity in line with population distribution and growth (continued)

Master/service/facility planning being undertaken/completed at PAH, RBWH, Townsville, Redcliffe, Ipswich, Rockhampton and Cairns will inform/identify options and determine timelines in relation to increasing capacity and developing services

Timeframe	Strategy	Responsibility level		Resourcing	% Complete
		Statewide	Regions/District	E = existing A = additional	P = partial C = complete N = Yet to begin
4.5 Clinical support services					
Short to medium term	19. Increase capacity of clinical support services a) Cairns—installation of wide bore CT Scanner	**DDG-CS** (HSPLB) with CCLG, DDG-PSR (CWPCB) ED-RD (CPIC) and CEO-CaSS (SRS)	**DCEOs** with Area Cancer Network s **DCEO Cairns and Hinterland HSD** with Area Cancer Networks	A	P
	b) Rockhampton—installation of wide bore CT Scanner		**DCEO Central Queensland HSD** with Area Cancer Network s	A	N
	c) PAH—establishment of PET service		**DCEO Metro South** with Area Cancer Networks	A	P
	d) Review pharmacy workforce and business processes in line with CSCF	**DDG-PSR** (CWPCB) with CCLG, ED-RD (CPIC) and CEO-CaSS (MAPSU)		E	P
	e) Define pharmacy recruitment and training requirements			E	P
	f) Develop advanced level competencies for cancer pharmacists in conjunction with the Safe Medicines Practice Unit.			E	P
	g) Review business rules and practices for efficient pharmacy services provision (see also 10.10)			E	P
	h) Implement pharmacy oncology information system (POIMS) and standardised protocols.	**CIO** (InfoInvestment) with CCLG/QCAT and CaSS (MAPSU)		E	P
Short to medium term	i) GCUH establishment of PET service.	**DDG-CS** (HSPLB) with CCLG, DDG-PSR (CWPCB) ED-RD (CPIC) and CEO-CaSS (SRS)	**DCEO Metro South** with Area Cancer Network	A	P
	j) Townsville—establishment of PET service.		**DCEO Townsville** with Area Cancer Network	A	N
	k) Implement findings of pharmacy reviews and monitor progress.	**DDG-PSR** (CWPCB) with CCLG, ED-RD (CPIC) and CEO-CaSS (MAPSU)	**DCEOs** with Area Cancer Networks	A	N

	l) Review progress of POIMS implementation and impact of systems changes.	**CIO** (InfoInvestment) with CCLG/QCAT and CaSS (MAPSU)		E	N
Longer term	m) RBWH – expand existing PET services by installing one additional machine	**DDG-CS** (HSPLB) with CCLG, DDG-PSR (CWPCB) ED-RD (CPIC) and CEO-CaSS (SRS)	**DCEO Metro North** with Area Cancer Network	A	
4.6 Clinical trials					
Short to medium term	20. Implement statewide clinical trials data management support program in partnership with The Cancer Council Queensland (2007–10)	**ED-RD** (CPIC) with CCLG, ED-CaSS (MAPSU, SRS) and The Cancer Council Queensland	**DCEOs** with Area Cancer Network s	E	C
	21. Monitor progress and impact of the clinical trials data management support program.			E	C

Objective 5: Enhance multidisciplinary care models including developing and implementing mechanisms to improve communication among health care professionals, cancer patients and their families					
Timeframe	**Strategy**	**Responsibility level**		**Resourcing**	**% Complete**
		Statewide	**Regions/District**	**E = existing A = additional**	**P = partial C = complete N = Yet to begin**
Short to medium term	22. Review current referral pathways, communication strategies and tumour board provision with recommendations for future development.		**DCEOs** with Area Cancer Networks	E	P
	23. Ensure tumour boards have adequate space and technology to perform role—incorporate needs into master and facility plans.	**DDG-CS** (HSPLB) with CCLG and CIO		E	P
	24. Provide administrative support for tumour boards.			A	P
	25. Evaluate existing care coordination model and implementation, recommendations for future development.			E	P
	26. Establish additional care coordination positions to support tumour boards.			A	P
	27. Establish additional case management positions to support patient care.			A	P
	28. With the university sector and General Practice Queensland develop a plan to promote GP involvement in cancer care.	**DDG-PSR** (PB) with CCLG, ED-RD (CPIC), CHO, university sector and GPQ	**DCEOs** with Area Cancer Networks	E	P
	29. Establish additional tumour boards so that Cancer Centre boards cover all common cancers and low incidence/rare cancers, Cancer Units cover common cancers and both link with cancer services.			A	N
	30. Expand care coordination to support additional tumour boards.			A	N

Objective 6: Develop and implement consistent, evidence-based referral and treatment protocols, guidelines and standards to promote consistency of care across the state					
Timeframe	**Strategy**	**Responsibility level**		**Resourcing**	**% Complete**
		Statewide	**Regions/District**	**E = existing A = additional**	**P = partial C = complete N = Yet to begin**
Short to medium term	31. Review and finalise, endorse and communicate the Cancer Services CSCF module.	**DDG-PSR** (PCB) with **CCLG** and ED-RD (CPIC)	**DCEO** with Area Cancer Network s	E	P
	32. Review application and utility of the Cancer Services CSCF and amend as necessary.			E	P
	33. Develop guidelines tying individual cancer chemotherapy and surgical treatments/protocols to clinical service capability levels.	**ED-RD** (CPIC) with CCLG and CEO-CaSS (MAPSU, SRS)		E	N
	34. Develop an educational strategy to promote statewide use and compliance with these guidelines.			E	N
	35. Establish an ongoing review process to ensure that the protocols are up to date and reflect current evidence.			E	P
	36. Within each Area, progressively establish tumour reference groups for main tumour types, linked to Area Cancer Clinical Networks.			A	P
	37. Establish statewide reference groups based at RCH/QCH for key paediatric cancers.		DCEO QCH and QPHON	E	P
	38. Collate evidence/guidelines and investigate aligning with clinical service levels for the safe and appropriate delivery of individual radiation therapy procedures within tumour streams according to CSCF.	**ED-RD** (CPIC) with CCLG and CEO-CaSS (SRS)	**DCEOs** with Area Cancer Network s	E	N
	39. Conduct audit to monitor uptake of protocols and compliance with recommended CSCF levels for tumour type and stage.	**ED-RD** (CPIC) with CCLG	**DCEOs** with Area Cancer Networks	E	N
	40. Review and evaluate the tumour group model/s and operation to ensure value for money and delivery of improved quality of life.			E	N

Objective 7: Strengthen quality and safety systems in relation to service accreditation; credentialling and support for clinical decision-making, service monitoring and performance evaluation					
Timeframe	**Strategy**	**Responsibility level**		**Resourcing**	**% Complete**
		Statewide	**Regions/District**	**E = existing A = additional**	**P = partial C = complete N = Yet to begin**
Short to medium term	41. Monitor progress of the national accreditation model and implement when appropriate, ensuring consistency with the CSCF for cancer services.	**ED-RD** (CPIC) with CCLG	**DCEOs** with Area Cancer Networks	E	P
	42. Support development of Queensland Health Guide re credentialling and scope of practice for medical, nursing and allied health, to support Area credentiallng and Clinical Privileges Committees.	**ED-RD** (CPIC) with CCLG, DDG-PSR (CWPCB,CNO) and CHO	**DCEOs** with Area Cancer Network s	E	P
	43. Implement the 'Safe Doctors—Fair Processes' policy July 2007.	**ED-RD** (CPIC) with CCLG and DDG-PSR (CWPCB),	**DCEOs** with Area Cancer Networks	E	P
	44. Implement a three yearly cancer service accreditation process across all cancer services when a suitable process becomes available.	**ED-RD** (CPIC) with CCLG DDG-PSR (CWPCB) and CHO	**DCEOs** with Area Cancer Networks	E	P

Objective 8: Build workforce capacity in line with planned service development					
Timeframe	**Strategy**	**Responsibility level**		**Resourcing**	**% Complete**
		Statewide	**Regions/District**	**E = existing A = additional**	**P = partial C = complete N = Yet to begin**
8.1 General workforce					
Short to medium term	Undertake a three-months project to:		**DCEOs** with Area Cancer Network s	A	P
	45. identify and assess current work activities, roles, processes and flow of Queensland Health cancer services	**DDG-PSR** (CWPCB, CNO) with CCLG			
	46. identify work designs to make best use of available staff	**DDG-PSR** (CWPCB, CNO) with CCLG, ED-RD (CPIC) and CEO-CaSS			
	47. identify tasks/duties that could be performed by other areas/disciplines (This has been undertaken in other specialties.)				
	48. Explore and implement alternative models of care, employment models and staffing to enable better use of scarce clinical skills.			E	N
	49. Develop and implement employment models allowing key staff to work between/across HSDs and areas	**DDG-PSR** (CWPCB, CNO) with CCLG		E	P
	50. Develop a coordinated overseas recruitment plan targeting areas of specific deficit e.g. medical specialists, experienced registered nurses, radiation oncology medical physicists, nuclear physicists.			E	P
	51. Develop strategies to support and facilitate involvement in clinical and other professional research activities.	**DDG-PSR** (CWPCB, PB, CNO) with CCLG, ED-RD (CPIC), CHO, and CEO CASS	**DCEOs** with Area Cancer Networks	E	C
	52. Explore and trial models to accommodate various workforce designs (all disciplines) including part-time work while supporting best practice principles e.g. continuity of care.	**DDG-PSR** (CWPCB, CNO) with CCLG, ED-RD (CPIC) and CEO-CaSS		E	P
	53. Develop an education and training plan to support and enable implementation of necessary workforce redesign to support adopted workforce models.			A	N
Longer term	54. Create additional positions incrementally in line with demand projections and service development, taking into account of outreach responsibilities, training and professional development.			A	N

Objective 8: Build workforce capacity in line with planned service development (continued)					
Timeframe	**Strategy**	**Responsibility level**		**Resourcing**	**% Complete**
		Statewide	**Regions/District**	**E = existing A = additional**	**P = partial C = complete N = Yet to begin**
8.2 Medical workforce					
Short to medium term	55. Recruit appropriately trained overseas specialists and support them to achieve required specialist registration.	**DDG-PSR** (CWPCB) with CCLG and ED-RD (CPIC)	**DCEOs** with Area Cancer Networks	E	P
	56. Explore opportunities for specialists and overseas graduates to be employed under alternative models e.g. by Networks, areas or cross HSDs to enable more flexible use of expertise and facilitate medical coverage and supervision			E	
	57. Investigate a centralised funding model to allow the training workforce to move through sites and specialty areas to meet their training requirements while operational management is centralised (as in other specialties e.g. orthopaedics).			E	
	58. Continue activities designed to recruit and retain Australian trained specialists.			E	
	59. Progressively create additional positions in line with demand projections, service development and education imperatives.			A	
	60. Determine the composition of the palliative care medical workforce in Queensland based on a model that includes and supports specialist, advanced trainees, registrars and clinical diploma candidates.			E	
	61. Implement a coordinated training strategy to increase the numbers of palliative care specialists and uptake of the Clinical Diploma	**DDG-PSR** (CWPCB) with CCLG and ED-RD (CPIC)	**DCEOs** with Area Cancer Networks	A	P
	62. Investigate opportunities for public–private partnerships in relation to trainees, including trainees working across public and private settings or being trained in the private sector in partnership with colleges.	**DDG PSR** (CWPCB) with CCLG, CHO and ED-RD (CPIC)		E	
	63. Review success of recruitment and retention strategies and revise as necessary	**DDG-PSR** (CWPCB) with CCLG and ED-RD (CPIC)		E	
	64. Define and implement a coordinated recruitment and training strategy for the specialist palliative medicine workforce based on a model to be determined			E	

Objective 8: Build workforce capacity in line with planned service development (continued)					
Timeframe	**Strategy**	**Responsibility level**		**Resourcing**	**% Complete**
		Statewide	**District**	**E = existing A = additional**	**P = partial C = complete N = Yet to begin**
8.3 Nursing workforce					
Short to medium term	65. In collaboration with Office of the Chief Nurse, Workforce Planning and Coordination Branch, and in conjunction with the 'whole-of-service project', explore: a) skills mix and undertake nursing workforce modeling to determine nursing workforce requirements b) alternative workforce models that may be applied in cancer nursing.	**DDG-PSR** (CWPCB, CNO) with CCLG and ED-RD (CPIC)	**DCEOs** with Area Cancer Network s	E	P
	66. Participate in the statewide review of clinical education and training needs for cancer care nurses being undertaken by the Office of the Chief Nurse.			E	
	67. Participate in the development of national competencies through involvement in EdCan[6]. Identify QH sponsor lead.			E	
	68. Explore partnership opportunities with TAFE colleges, tertiary and professional bodies to develop education opportunities for registered and enrolled nurses e.g. competency certificates.			E	
	69. Participate in statewide recruitment program and develop a coordinated recruitment plan for key cancer nursing positions.			E	
	70. Pilot and evaluate alternate nursing skills mix models at selected Cancer Centres and Cancer Units.	**DDG-PSR** (CWPCB, CNO) with CCLG and, ED-RD (CPIC)	**DCEOs** with Area Cancer Network s	A	N
	71. Evaluate outcomes of education and training needs review and EdCan and implement as appropriate.			E	
	72. Following robust evaluation of the education network projects in Central and Southern areas, consider recommendations for implementation across areas/statewide.			E	

[6] Explanatory note: EdCan is a federally funded Cancer Australia project to develop and implement a national training framework and training resource package for nurses to specialise in cancer care (see www.canceraustralia.gov.au).

Objective 8: Build workforce capacity in line with planned service development (continued)					
Timeframe	**Strategy**	**Responsibility level**		**Resourcing**	**% Complete**
		Statewide	**Regions/District**	**E = existing A = additional**	**P = partial C = complete N = Yet to begin**
8.4 Allied health workforce					
Short to medium term	73. In conjunction with the 'whole-of-service' study determine: a) current profile of the allied health component of the workforce	**DDG-PSR** (CWPCB) with CCLG, ED-RD (CPIC) and ED-RD-CaSS (MAPSU. SRS)	**DCEOs** with Area Cancer Networks	A	P
	b) roles and responsibilities for allied health in accordance with the proposed cancer service networks and CSCF.				
	74. Undertake a project with other jurisdictions to define benchmarks/standards to describe appropriate allied health staffing in accordance with CSCF and service provision.			A	
	75. Develop flexible models to accommodate professional development year requirements.			E	
	76. Develop formalised networks, reflecting service networks and CSCF capability at each site, in combination with strategies such as telehealth to facilitate mentoring and education, and support delivery of specialist services.	**DDG-PSR** (PCB, CWPCB) with CCLG, ED-RD (CPIC) and ED-RD-CaSS (MAPSU. SRS), CIO		E	
	77. Support Queensland Health sterile production pharmacy training.	**CEO-CaSS** (MAPSU) with CCLG, DDG-PSR (CWPCB), ED-RD (CPIC)		E	
	78. Develop an implementation plan for the Queensland Cancer Physics Collaborative physicist recruitment/retention plan following business plan completion	**DDG-PSR** (CWPCB) with CCLG, ED-RD (CPIC), CHO and the Qld Cancer Physics Collaborative		E	

Objective 8: Build workforce capacity in line with planned service development (continued)					
Timeframe	**Strategy**	**Responsibility level**		**Resourcing**	**% Complete**
		Statewide	**District**	**E = existing A = additional**	**P = partial C = complete N = Yet to begin**
Short to medium term	79. As part of 'whole- of- workforce' strategy and allied health project recommendations: a) implement models and strategies enabling more efficient utilisation of scarce specialist allied health knowledge and skills e.g. tele-health, therapy assistants and statewide support networks	**DDG-PSR** (CWPCB) with CCLG, ED-RD (CPIC) and CEO-CaSS (MAPSU, SRS)	**DCEOs** with Area Cancer Networks	E	P
	b) implement systems to facilitate consistent training for pharmacists and other allied health professionals as required in accordance with defined roles and CSCF.			E	P
	80. Monitor and evaluate the success of recruitment and retention strategies, including overseas recruitment, and adapt accordingly	**DDG-PSR** (PCB) with CCLG and CEO-CaSS (MAPSU, SRS)		E	P

Objective 9: Develop or procure the capital infrastructure required to support efficient implementation of planned service development					
Timeframe	**Strategy**	**Responsibility level**		**Resourcing**	**% Complete**
		Statewide	**Regions/District**	**E = existing A = additional**	**P = partial C = complete N = Yet to begin**
Short to medium term	81. Explore options to improve costs associated with high-cost capital equipment such as contracts based on clinical functionality.	**DDG-CS** (HSPLB) with CCLG	**DCEOs** with Area Cancer Networks	E	P
	82. Explore options to centrally manage equipment and service contracts.			E	
	83. Explore options to collocate services in order to better use human and physical resources.			E	

Objective 10: Build a statewide network of cancer information systems to support timely communication and the delivery of effectively networked cancer service					
Timeframe	**Strategy**	**Responsibility level**		**Resourcing**	**% Complete**
		Statewide	**Regions/District**	**E = existing A = additional**	**P = partial C = complete N = Yet to begin**
Short to medium term	80. Monitor service quality through the Queensland Cancer Control Safety and Quality Partnership	**ED-RD** (CPIC) with CCLG/QCAT and CIO (Infoinvest)	**DCEOs** with Area Cancer Network s	E	P
	81. Implement QCR recommendations as appropriate			A	P
	82. Extend clinical information and QOOL into private environment			E	P
	83. Provide online clinical summary for care in the community.			E	P
	84. Support clinical decision making using electronic decision support tools: a) Queensland Oncology on line (QOOL)	**ED-RD** (CPIC) with CCLG/QCAT and CIO (Infoinvest)	**DCEOs** with Area Cancer Network s	E	P
	b) OASys—a web based analysis system				
	c) Radiation Oncology Information System (ROIS)	**CIO** (Infoinvest) with CCLG/QCAT, ED-RD (CPIC), and CEO-CaSS (SRS, MAPSU)			
	d) Pharmacy Oncology Information Management System (POIMS).				
	85. Make routinely collected clinical and administrative data available to clinicians and cancer services providers for service improvement and research activities.	**CIO** (Infoinvest) with CCLG/QCAT, DDG-PSR (CWPCB) and ED-RD (CPIC)		E	P
	86. Use technology infrastructure in networks to support clinical training and peer support for clinical streams across cancer networks.			E	P
	87. Recruit and/or train technical staff with expertise in oncology information management systems.			E	P
	88. Maintain whole-of-cancer information systems approach to development, implementation and maintenance of IT infrastructure.	**CIO** (Infoinvest) with CCLG/QCAT and ED-RD (CPIC)		E	P
	89. Continue the development of QOOL, implement to multidisciplinary cancer meetings and evaluate its impact.	**ED-RD** (CPIC) with CCLG/QCAT and CIO (Infoinvest)		E	P

Objective 11: Influence the development of appropriate funding arrangements to support efficient delivery.					
Timeframe	**Strategy**	**Responsibility level**		**Resourcing**	**% Complete**
		Statewide	**Regions/District**	**E = existing A = additional**	**P = partial C = complete N = Yet to begin**
Short to medium term	90. Monitor the impact of the new funding model and appropriateness to support the delivery of efficient, high quality cancer services	**DDG-PSR** (FRB) with CCLG and ED-RD (CPIC)	**DCEOs** with Area Cancer Networks	E	P
Longer term	91. Refine Casemix funding model to reflect disease staging and associated resource utilisation			E	N

Background

Rationale

Every week in 2006, approximately 407 Queenslanders were diagnosed with cancer.

By 2011 this figure is expected to rise to 491 and to 578 per week by 2016[7].

Queensland's rapid population growth, ageing population, and the predicted increase in the disease burden for cancer make it imperative to plan for the development of cancer treatment services. Ensuring equitable access to appropriate treatment, safe and sustainable delivery of care, and supply of efficient public and private services, requires a statewide approach to inform and guide future delivery of cancer treatment services.

In Queensland, varying socio-economic status, geographic factors and the widely dispersed population are challenges to ensuring equitable access to safe and sustainable services throughout the state. This is further compounded by the current international shortage of health professionals, especially those with specialised skills in areas such as cancer care.

Queensland Health is committed to addressing these challenges by building on existing services and taking a systematic approach to planning and delivering future health services.

Aims of the Statewide Cancer Services Treatment Plan

The purpose of the *Queensland Statewide Cancer Treatment Services* Plan *2010 -17* is to inform the development of safe and sustainable cancer treatment services throughout Queensland, and to assist in the systematic and organised implementation of the *Queensland Cancer Control Strategic Directions 2005–2010*[8]. While recognising critical links with cancer prevention, screening and the community sector, this plan:

- focuses exclusively on cancer treatment services (and associated diagnostics) in Queensland's public sector and, where information was available, related links with the private sector
- describes current and projected demographics, health needs, gaps in service delivery, and issues related to cancer treatment services
- proposes priority-based short, medium and long-term actions for cancer treatment services throughout Queensland.

Key service gaps and issues

Ongoing consultation with and feedback from service delivery partners, consumers and health practitioners revealed gaps and issues in relation to:

- a systematic statewide approach to cancer care services including clinical pathways through and across formal service networks
- development of new models of care across the state including varied use of multidisciplinary teams in patient care
- resource constraints, workforce shortages and other infrastructure gaps
- coordination between public, private and non-government partners in cancer care.

6 Queensland Health 2006. *Cancer Incidence and Mortality*, Queensland.
7 Queensland Health 2006. *Queensland Cancer Control Strategic Directions 2005–2010*.

Analysis of policy context

This section discusses the policies underpinning development of the *Statewide Cancer Treatment Services Plan 2010 -2017* and elements directly related to cancer services within the scope of this plan. Refer to each policy in its entirety for its full set of principles, strategies, initiatives, and other details.

National Service Improvement Framework for Cancer

This *Statewide Cancer Treatment Services Plan 2010 -2017* sits within a complex set of national, statewide and HSD health policies and directives of which the *National Service Improvement Framework (NSIF)*[9] is core. This framework is intended to support and complement state and territory governments' local service plans and clinical frameworks, and represents a shared responsibility across all providers within the sector. The principles that underpin the framework and are relevant to this plan include:

- The best possible cancer care should be available to all Australians through development of appropriate service delivery models for people living in regional, rural and remote areas; through the public and private sectors, and for treatment provided outside major centres.
- Some communities and individuals need special programs and services to ensure that they can access appropriate cancer care.

The framework also identifies eight national priority actions for change, including actions relating to networked services, quality management approaches and tools, multidisciplinary care, culturally appropriate programs, and assistance for primary health care providers.

See Appendix 1 for the complete list of these actions for change.

Action plan—building a better health service for Queensland

The *Health Action Plan*[2] released in October 2005 announced the government's intention to reform the public health system. It identified an agenda highlighting:

- improvement of health services to all Queenslanders regardless of where they live
- creation of new models for service delivery
- strengthening of partnerships and arrangements with non-government and nonprofit organisations.

It also highlighted training, recruitment and retention of health professionals as a critical component to be included in health service planning.

Towards Q2: Tomorrow's Queensland

In 2008 the Government released *Towards Q2: Tomorrow's Queensland*[10]. Q2 frames the Government's five ambitions for the state covering the economy, environment and lifestyle, education and skills and health and the community. Within each of these areas long term targets for 2020 are set. Those for health relate to healthier lifestyles to lessen the impact of preventable chronic disease (including cancer) and improving access to elective surgery and emergency department care. Promoting healthier lifestyles will ultimately impact those cancers associated with behaviours such as poor diet, lack of exercise, obesity and smoking.

[9] Queensland Government 2005, Action Plan – Building a better health service for Queensland.
[10] Queensland Government 2008, Towards Q2: Tomorrow's Queensland.

Queensland Health strategic and statewide health services plans

The *Statewide Health Services Plan 2007–12* outlines the vision for health service reform in Queensland over the next five years. It highlights the two key *reform agenda initiatives*:

1. Improving access to safe and sustainable health services

   Queenslanders will be able to access high quality and safe services organised to ensure they are sustainable.

2. Better meeting people's needs across the health continuum

   Queensland Health, in collaboration with its partners, will provide a comprehensive suite of health services to Queenslanders.

These two initiatives have been incorporated into the four strategic directions contained in the *Queensland Health Strategic Plan 2007 – 2012.* The four *strategic directions* are:

1. Improving access to safe and sustainable health services
2. Better meeting people's needs across the health continuum
3. Enhancing organizational work processes and systems to support service delivery and business effectiveness

   To deliver services and business value, Queensland Health will focus on providing services that are user-centred and efficient and we will target performance monitoring, evidence-based practice and continuous improvement.

4. Developing our people in a way that recognizes and supports their role in the delivery of health services

   The people working in Queensland Health are the foundation of our services. We will develop the capacity of staff, building consistency in managing people, engaging staff in new and innovative work models and processes, and valuing the workforce through improved and standardised recognition and reward practices.

Queensland Cancer Control Strategic Directions 2005–2010

The *Cancer Control Strategic Directions 2005–2010* provides a statewide framework to strategically guide the investment of resources and improve health outcomes for all patients with cancer. This key document identifies the need to plan services from a patient-focused perspective, mapping service planning and delivery of cancer services to the phases in the patient journey along the continuum of care. Goals are clustered around the broad cancer issues of access, coordination, integration, quality, safety and workforce capacity. The outcomes (relevant to the *Statewide Cancer Treatment Services Plan 2010 -2017 expected* to be achieved by implementing the *Strategic Directions* include:

- better access to quality cancer services that are better coordinated to improve outcomes for patients
- better access to expert advice for patients, their families, health professionals and the community
- better continuity of care, enhanced multidisciplinary care and decision making based on evidence
- better quality of life and improved cancer survival for cancer patients
- better access to clinical trials and opportunities to participate in these
- better services for children with cancer by establishment a single statewide service
- better services and support for the survivors of cancer
- better access to end-of-life care

- more efficient cancer services that are supported by technology, information sharing, a focus on quality improvement and a well trained workforce.

The above outcomes arise from the key objectives for improving cancer treatment services as outlined in the *Queensland Cancer Control Strategic Directions 2005–2010* (see Appendix 2).

Assessment of needs

This section describes the demographic characteristics of Queensland and analyses future projections, examines the state's health profile; and discusses the impact of state, area-wide and HSD geographic features on health service requirements.

Key points

- Queensland's population increased from 3,522,044 in 2001, to 4,042,035 in 2006[11]—an average annual growth rate of 2.6%.
- People in older age groups are at greatest risk of developing cancer. As Queensland has an ageing population, this will result in significant increases in the incidence of cancer.
- Older people are likely to have more complex care needs due to reduced functional levels and multiple co-morbidities associated with the ageing process.
- The number of new cancers in 2006 was 25% higher than in 2000, representing an average growth of 3.6% per year.
- With improved treatment, cancer-related death and disability are expected to fall, but cancer is expected to remain the largest contributor to the overall health burden over coming decades.
- To improve effectiveness and meet the growing needs of this population, it will be necessary to implement different options for organising treatment services in Queensland.

Geographic issues

The main population centres of Queensland are in the south-east corner of the state and along the coastal regions. Centres become more concentrated and dispersed in Northern and Far North Queensland. Based on estimates for 2006, about 27% of Queenslanders live in regional areas, 17.5% in remote areas and 3% in very remote areas[12].

Providing access to effective and integrated cancer treatment services for such a dispersed population is especially challenging. Travel time and transport options between major centres vary significantly and affect access to health services generally, and particularly affect high incidence conditions such as cancer. The large geographic areas to be supported highlight the need to incorporate strategies such as integrated networked services, specialist outreach and telemedicine into planning and service delivery.

Area catchments for cancer services

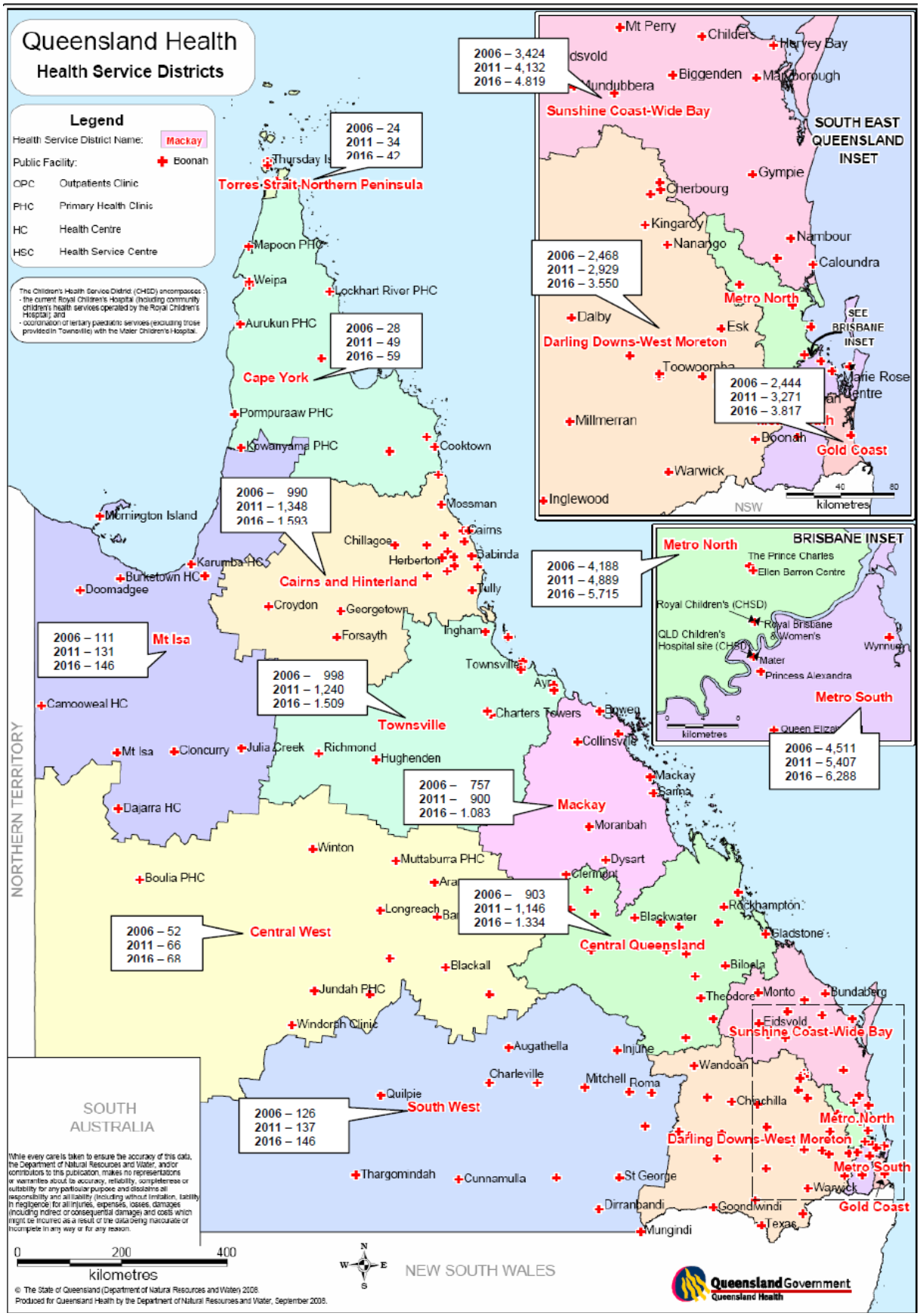
Queensland Health has three separate geographically-based Cancer Services Clinical Networks: the geographic areas they support include Northern, Central and Southern Queensland — refer map below (Figure 1). These areas reflect service and referral arrangements. Each area contains a major Cancer Centre responsible for providing cancer care to Queensland's large dispersed populations at a highly specialised level. Currently, these major Cancer Centres are in Brisbane Metropolitan North (Royal Brisbane and Women's Hospital), Metropolitan South (Princess Alexandra Hospital/Mater), and Townsville.

[11] Australian Bureau of Statistics, Population Projections (Medium Series) by Age and Sex 2006 to 2026 for Health Districts (based on 2001 census figures by Local Government Area), Department of Local Government and Planning, October 2006 Version – 2nd edition.

[12] Queensland Health 2006, *Estimated Resident Population by Statistical Local Areas, Sex and Age Groups, Queensland as at 30 June 2006 (revised).* Source: Population by Age and Sex, Australia 2006 (Australian Bureau of Statistics cat. no. 3235.0) (Area grouping added by Health Statistical Centre).

Figure 1 Map of Queensland Districts and facilities, 2009

(Incorporates Cancer Incidence actual for 2006 and projections for 2011, 2016)



The following is a broad overview of the characteristics of each Cancer Network area.

Cancer Services Northern:

- accounts for 14% of cancer incidence
- accounts for approximately 43% of the total area of the state
- has a population of some 640,000 people (16% of Queenslanders)
- has a population density of 0.9 people per square km [13]
- has major health facilities in Cairns and Townsville.

Cancer Services Central:

- accounts for 41% of cancer incidence
- accounts for approximately 32% of the total area of the state
- has a population of some 1.5 million people (37% of Queenslanders)
- has a population density of 2.8 people per square km [14]
- has major health facilities in North Brisbane, Redcliffe, Rockhampton and on the Sunshine Coast.

Cancer Services Southern:

- accounts for 45% of cancer incidence
- accounts for approximately 25% of the total area of the state
- has a population of approximately 1.8 million people (47% of Queenslanders)
- has a population density of 4.3 people per square km [15]
- has its major health facilities located in South Brisbane, Toowoomba and on the Gold Coast.

These areas include Health Service Districts as outlined in the table below.

Table 1 Queensland Health Cancer Clinical Network Service areas and HSDs, 2009

Cancer Services	Health Service Districts
Northern QLD	Townsville Mount Isa Cairns and Hinterland Cape York Torres Strait - Northern Peninsula Mackay
Central QLD	Brisbane Metropolitan North Children's Health Services Sunshine Coast - Wide Bay Central Queensland Central West
Southern QLD	Brisbane Metropolitan South Gold Coast South West West Moreton - Darling Downs

[13] Queensland Health 2007, Northern Area Health Service Population Report 2007–2008.
[14] Queensland Health 2007, Central Area Health Service Population Report 2007–2008.
[15] Queensland Health 2007, Southern Area Health Service Population Report 2007–2008.

Population to be serviced

Census projections show that Queensland has 20% of Australia's resident population, which increased from 3,522,044 in 2001, to 4,042,035 in 2006, with an average annual growth rate of 2.6%. Approximately equal numbers of males and females reside in Queensland[16].

Two key demographic factors related to this growth which will have a major impact on the health care needs of Queenslanders over the next decade or so are:

- sustained population growth
- an increasing aged population.

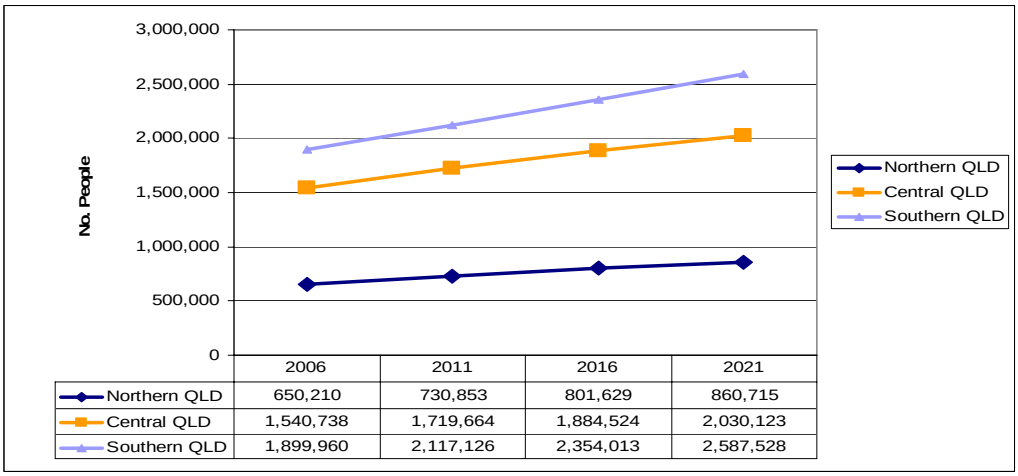
Population growth

Queensland attracts an increasing share of the Australian population, with relatively higher growth than other states evident over the past 20 to 30 years. Queensland's population is projected to increase by 1.17 million people between 2006 and 2021, taking the projected population to approximately 5.2 million by 2021[17].

Area population growth

The population projections by Cancer Network areas are demonstrated below. The increase in total numbers and percentage is largest for the Cancer Services Southern (21%). The Cancer Services Central population is predicted to grow by 20% and the Cancer Services Northern by 17%. Figure 2 illustrates this trend.

Figure 2 Projected population growth Queensland by Cancer Network areas, 2006–21



	2006	2011	2016	2021
Northern QLD	650,210	730,853	801,629	860,715
Central QLD	1,540,738	1,719,664	1,884,524	2,030,123
Southern QLD	1,899,960	2,117,126	2,354,013	2,587,528

Source: Population Projections (Medium Series) by Age and Sex, for Health Service Districts (V2008_2), Queensland (based on 2006 census figures; 2008 reformed LGAs), Department of Infrastructure and Planning, August 2008

This pattern reflects the population growth in the two key corridors of South East Queensland—from Brisbane to the Gold Coast, and to the north along the Sunshine Coast corridor. In response to this population growth, these are key areas for investment in new infrastructure by Queensland Health, with new hospitals to be built at the Gold and Sunshine

[16] Australian Bureau of Statistics. Population Projections (Medium Series) by Age and Sex 2006 to 2026 for Health Districts (based on 2001 census figures by Local Government Area), Department of Local Government and Planning, October 2006 Version - 2nd edition.

[17] Australian Bureau of Statistics. Population Projections (Medium Series) by Age and Sex 2006 to 2026 for Health Districts (based on 2001 census figures by Local Government Area), Department of Local Government and Planning, October 2006 Version - 2nd edition.

Coasts. The new Gold Coast Hospital is due to open 2012 and the Sunshine Coast Hospital in the latter part of the planning period.

Age structure and population ageing

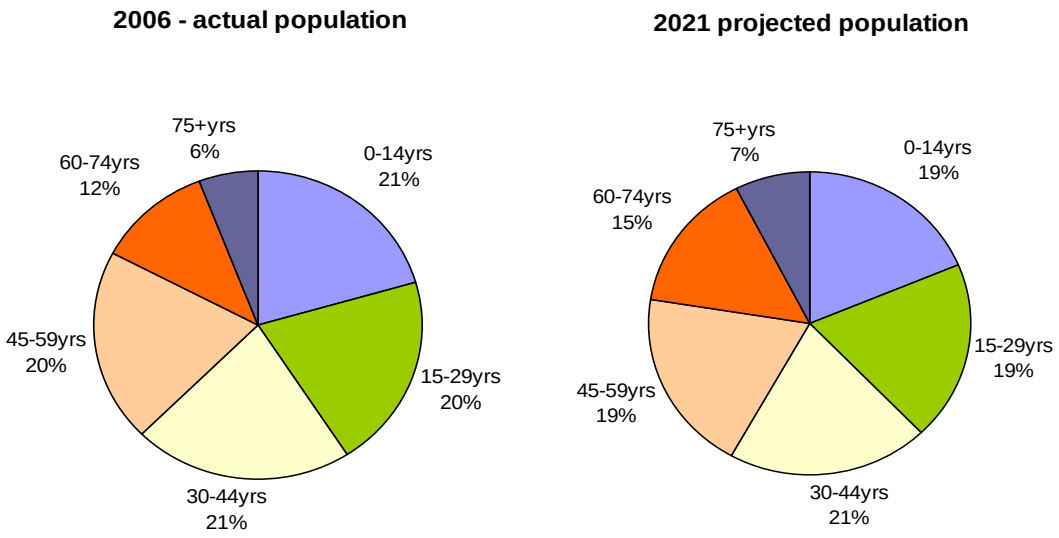
As people in older age groups are at greatest risk of developing cancer, the incidence of cancer will increase with an aging population.

The age structure of Queensland's population is similar to that throughout Australia, and in other developed countries. This ageing population reflects relatively low fertility rates, low infant mortality rates and generally low premature mortality. Between 1985 and 2006, the median age of Queenslanders increased from 29.9 years to 36.0 years[18].

A recent study of the burden of disease in Australia demonstrates that the cancer-related disease burden increases dramatically from age 45 to 75 years, with the peak age for developing cancer in the 55–75 year range. People in this age group, represent 32% of the total population[19] and are likely to have more complex care needs due to reduced functional levels and multiple co-morbidities associated with the ageing process.

This age group will continue to grow as a percentage of the population, which is significant for the planning horizon of the *Statewide Cancer Treatment Services Plan*. Figure 3 below, showing expected growth in the age groups 60–74 and 75 plus years (further breakdown of age data not available) demonstrates this. This is up from 2001 actual where these age groups accounted for 16.7% of the Queensland population.

Figure 3 Queensland population by age composition, 2006 and projected composition 2021



(a) Source: 2006 Census of Population and Housing, Basic Community Profile DataPak, Australian Bureau of Statistics, First Release September 2007, (b) Source: 2. Population Projections (Medium Series) by Age and Sex, for Health Service Districts (V2008_2), Queensland (based on 2006 census figures; 2008 reformed LGAs), Department of Infrastructure and Planning, August 2008

Disadvantaged groups

[18] Australian Bureau of Statistics 2006, Census Data Online, viewed September 2007, www.censusdata.abs.gov.au/ABSNavigation/prenav/ViewData?subaction=-1&producttype=QuickStats&areacode=3&action=401&collection=Census&textversion=false&breadcrumb=PL&period=2006&javascript=true&navmapdisplayed=true&#Age.

[19] Begg S, Vox T, Barker B, Stenvson C, Stanley L, Lopex AD 2007, *The burden of disease and injury in Australia 2003.* PHE 82. Canberra: AIHW.

Socioeconomic disadvantage, Aboriginal or Torres Strait Islander status, and living in rural and remote areas can increase the risk of developing cancer due to poor or risky lifestyle behaviours such as inactivity and smoking[20]. For example, more than 90% of the cases of lung cancer are caused by smoking and only about 2% of people with lung cancer are life-long non smokers[21]. As people in these groups also tend to have increased difficulty accessing health care, they are at further risk of poorer health outcomes as a result. Services need to be responsive (and culturally appropriate) to the needs of all disadvantaged groups, and models of care should support this.

Aboriginal and Torres Strait Islanders make up 4% of the Queensland population, nearly half of whom (48% or nearly 68,404) reside in the Northern area. Fifty-five per cent of all cancer deaths in Aboriginal and Torres Strait islanders in 2004 occurred within the Northern area[22]. It will therefore be necessary to design services and models of cancer care in this area to improve access for this population. Clinical Network cancer services action plans will address these issues.

Health profile and relevant features

Incidence of cancer

Based on the most recent data available, a total of 21,250 Queenslanders (11,236 men and 8,853 women) developed a new cancer in 2006. That is, for every week of 2006, approximately 407 Queenslanders were diagnosed with cancer[23]. In 2006 some 48% of these new cancers occurred in people aged 55–74 years (see *Population to be serviced* following).

The five most common cancers making up 61% of the total 2006 cancer incidence for Queensland were:

- prostate cancer – 3,266 men (14%)
- colorectal cancer – 2,741 persons (13%)
- melanoma – 2,452 persons (13%)
- breast cancer – 2,491 women (12%)
- lung cancer – 1,942 persons (9%)

All other cancers made up the remaining 39%.

There is a higher incidence of the three non-gender related cancers listed above in males than in females. Some of these cancers are known to be associated with lifestyle behaviour and occupational exposure. For example, smoking and occupational exposure to substances such as asbestos[24] causes lung cancer. Older people with cancers related to lifestyle behaviour also tend to have a range of general health issues, often presenting with other co-morbid disease[25].

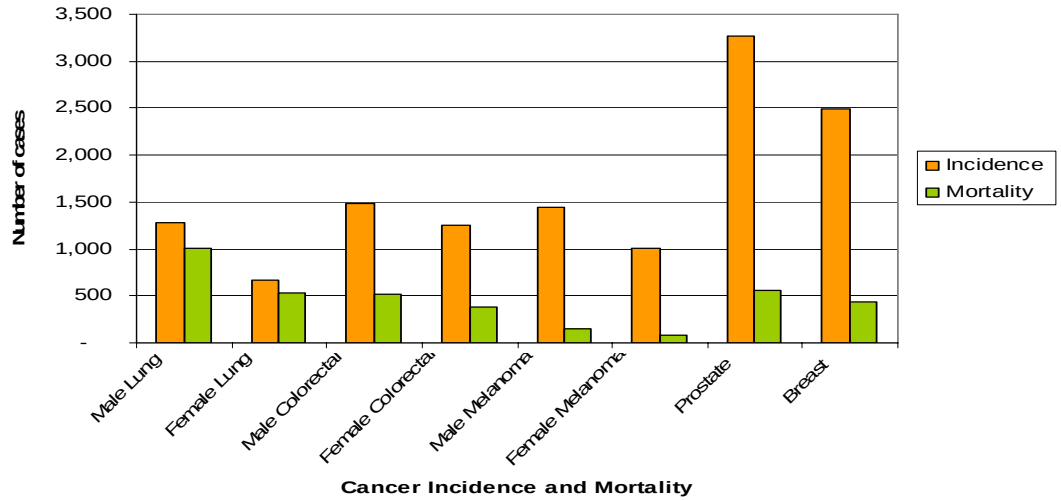
[20] Queensland Health 2006, *The Health of Queenslanders 2006*: Report of the Chief Health Officer, Queensland.
[21] Davila DG, Willaims DE. The etiology of lung cancer. *Mayo Clin Proc* 1993;68:170-82.
[22] Source: ABS Indigenous and Non-Indigenous estimated resident Queensland population by Queensland Health District – 30 June 2006
[23] Queensland Health 2006, Cancer Incidence and Mortality.
[24] Queensland Health 2006, The Health of Queenslanders 2006: Report of the Chief Health Officer, Queensland; Allen Consulting Group 2007, Report: Access to Treatment for Mesothelioma Patients.
[25] Coory M. Fong K. Bowman R. Hall L. 2006, 'Why we need a population-based approach to clinical indicators for cancer: a case study using microscopic confirmation of lung cancer in Queensland'. Internal Medicine Journal. 36(6):389–92.

Mortality

In 2006, 7,085 Queenslanders (4,134 men and 2,951 women) died from cancer[22]. This represents 136 people dying of cancer each week. Of the total number of cancer deaths, 1,540 (22%) were due to lung cancer. This reflects the high incidence and poor survival associated with this preventable smoking-related disease. However overall, there is an increasing number of cancer survivors associated with a reduction in overall death rates from cancer for both men and women since the mid 1990s.

The following graph combines incidence and mortality data for the five most common cancers, highlighting that many survive their cancers. This improvement reflects better screening, early detection, treatment options and services.

Figure 4 Cancer incidence and mortality by gender for the five most common cancers, 2006



Source: Queensland Cancer Incidence (QCR), Queensland Health

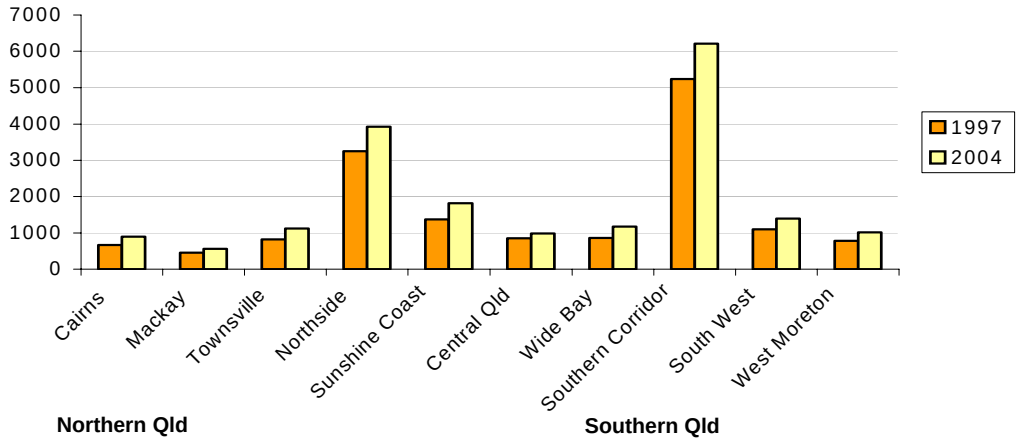
Trends

Incidence of cancer in Queensland has been increasing over recent years reflecting increasing population and ageing. The number of new cancers in 2006 was 25% higher than in 2000, representing an average growth of nearly 3.6% per year.

Trends by Health Service Districts

The following analysis is based on 2006 actual incidence data. In 2006, the ranked distribution of cancer incidence (all cancers), shows that Queenslanders living in the Southern area had the greatest incidence of cancer in the state (45%), compared with Central area (41%) and Northern area (14%). Cancer incidence from 1997 to 2006 by previous Queensland Health Districts shows that cancer incidence grew in all regions (refer Figure 5 below). The 1997 data is not available in the 2009 Queensland Health Districts. The increases were most apparent in regions with increasing population growth, including the South East corner and the Sunshine Coast which together accounted for over half of growth.

Figure 5 Growth in cancer incidence by planning cluster, 1997–2004



Source: Queensland Cancer Incidence (QCR), Queensland Health.

Burden of disease

Burden of disease is a useful measure of the health impact of disease, combining information on incidence, mortality and living with disease-related disability[26]. In 2003, cancer was the leading cause of disease burden in Australia (19%), followed by cardiovascular disease (18%), mental health disorders (13%) and neurological disease (12%)[27]. In Queensland, cancer accounts for 18.4% of the total health burden for the population[28].

Cancer is expected to retain its share of Australia's total health burden. Though age-standardised rates of death and disability are expected to fall, cancer is predicted to remain the largest contributor to the health burden in 20 years time[27]. This reflects the growing prevalence of this disease and the increasing number of people in the community who will be living with cancer and the related health impact.

Living with cancer

Cancer survival in Australia (and Queensland) is among the highest in the world. More than half of all cancers diagnosed are successfully treated, and survival rates for many common cancers have increased by more than 30% in the past two decades. Five-year survival rates for the most common cancers (excluding lung cancer) are now more than 80%[29]. Comparing cancer incidence and mortality data illustrates these good survival outcomes (refer Figure 4).

[26] Explanatory note: Burden of Disease is measured by Disability Adjusted Life Years (DALY = YLL + YLD, where YLL = number of deaths x standard life expectancy at age of death and YLD = incidence of the disease x duration x severity weight).
[27] Begg S, Vox T, Barker B, Stenvson C, Stanley L, Lopex AD, 2007. *The burden of disease and injury in Australia 2003*. PHE 82. Canberra: AIHW.
[28] Queensland Health 2006, *The Health of Queenslanders 2006*, Report of the Chief Health Officer, Queensland.
[29] Australian Bureau of Statistics 2004, *Cancer in Australia: A snapshot.* Canberra.

It is estimated that there are currently some 60,000 Queenslanders living with cancer—a number that will increase over time as survival rates continue to improve.

Improved survival has implications for the delivery of cancer treatment service delivery, which include:

- the need to help individuals and carers cope with the ongoing effects of the disease and the side effects of treatment
- the need for ongoing care, surveillance and monitoring
- increased demand for ongoing psychosocial and supportive care
- increased demand for rehabilitation services and return-to-work assistance
- the need to provide access to ongoing support and care as people return to their homes across the state after treatment.

Analysis of current service arrangements

This section describes the overall mix and distribution of existing cancer-related health services (both public and private) within the state, and in each Cancer Clinical Network areas

Key points

- Each Cancer Clinical Network area currently has in place an informal delivery network of cancer services comprising a hub, spokes and other linked services. Each of these services has a defined clinical capability and physical capacity to deliver cancer care.
- Current service delivery initiatives include: multidisciplinary care, cancer care coordination, provision of telehealth and clinical information systems for quality and safety.
- Specialised cancer services need a broader population base to maintain clinical expertise and maximise health outcomes. Statewide services target the entire Queensland population, and superspecialty services focus on area-level populations.
- Private health care providers and non-government organisations also provide a range of key cancer treatment and supportive services. Links between the two sectors are currently informal.

Queensland Health services

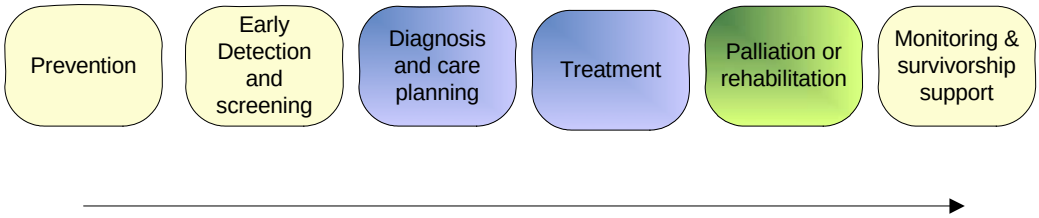
Governance

Queensland Health has established Clinical Networks to provide clinical governance and input into service delivery and planning. There are three area-based cancer Clinical Networks with clinicians appointed to lead each. The governance team from each area network meets regularly as the Cancer Clinical Leadership Group. This statewide coordination is equivalent to a statewide Clinical Network.

Scope

Cancer care services extend across the healthcare continuum from prevention to palliation or survivorship.

Figure 6 The healthcare continuum



However this *Queensland Cancer Treatment Services Plan 2010-2017* only considers treatment services from diagnosis and care planning (which may start at the primary health care level), through to treatment in both ambulatory and inpatient settings. These services are delivered through Health Service Districts. For the purposes of this plan, treatment includes some aspects of inpatient/acute palliative care services recognising their role in end-of-life care as a key interface, but excludes surgical requirements. Though it is acknowledged that they are important parts of the full continuum of care[30], prevention, screening (and associated diagnostics), rehabilitation or hospice-type services are not included. The need for familial cancer genetics services for people with cancer and their families is also acknowledged, although these services are not within the scope of this plan.

In cancer care, treatment options depend on the type of cancer, the stage (size and extent of spread) of the disease, and patients' preferences. The main options are surgery, chemotherapy (drug therapy), radiation therapy, monitoring, and/or supportive care. Both the public and private health sectors offer all these services.

Key cancer treatment services include[31]:

- **Surgical oncology** – a sub-division of surgery dealing with solid tumours and other malignant diseases. The majority of patients who develop solid organ cancers undergo surgery as primary, salvage, or palliative treatment.
- **Medical oncology** – a branch of cancer medicine that primarily uses systemic therapies such as chemotherapy, hormonal therapies and immunotherapy.
- **Clinical haematology** – a branch of cancer medicine that assesses and manages patients with haematological malignancies and bone marrow failure (e.g. acute and chronic leukaemias and lymphomas) particularly by using systemic therapies such as chemotherapy and haematopoietic stem cell transplants.
- **Radiation oncology** – a branch of cancer medicine that primarily uses ionizing radiation[32]. The most common treatment machines used to generate this are linear accelerators (linacs). Radiation treatment requires more capital infrastructure than other forms of cancer treatment.
- **Palliative care** – the active, total care of people whose disease is not responsive to curative treatments. Controlling pain and other symptoms, and addressing psychological, social and spiritual needs are paramount. The goal of palliative care is to achieve the best possible quality of remaining life for patients and their families. Palliative care also covers end-of-life care not related to cancer.

[30] Queensland Health, 2006, Queensland Cancer Control Strategic Directions 2005–2010.
[31] Queensland Health. 2006, 'Clinical Services Capability Framework – Draft Cancer Services Module'.
[32] Commonwealth of Australia. 2002, The Report of the Radiation Oncology.

Depending on the range and complexity of cancer management options provided by individual cancer services, essential clinical support services required include:

- diagnostic imaging for diagnosis and monitoring response to treatment
- nuclear medicine and functional imaging for diagnosis and monitoring response to treatment
- emergency and critical care support
- pathology—including anatomical pathology for diagnosis, and haematology/ microbiology for monitoring treatment response and/or side effects. Other specialised pathology services such as cryopreservation capacity for stem cell transplantation may be required
- pharmacy services including clinical pharmacy and manufacturing
- familial cancer genetics counselling.

Model of service delivery

The model of cancer service delivery varies from inpatient hospital care to ambulatory care settings reflecting care pathways and treatment options.

Although the majority of patients admitted for cancer surgery stay in hospital overnight or for several days, many diagnostic surgical procedures (e.g. biopsies) are routinely performed during a day-only hospital stay. This plan does not address surgery requirements, as cancer surgery is considered part of surgery in general.

Medical oncology and clinical haematology treatment involves administering chemotherapeutic drugs and other systemic therapies such as hormonal agents. The cytotoxic nature of chemotherapy means that patients are at risk of toxic reactions to the drugs and adverse effects related to immunosuppression.

Historically, hospitals have given this care on an inpatient basis; however, research carried out in the late 1980s provided clear evidence that selected cancer patients normally treated on an inpatient basis could be safely treated in outpatient hospital care[33]. The cited benefits of changing the care setting included greater service efficiency, perceived patient preference for returning home at night, and lower overall cost. The study found no adverse health outcomes or safety concerns with delivery of chemotherapy and care in the ambulatory setting. Over the last 20 years, delivery of chemotherapy cancer treatment services has consequently shifted from inpatient to outpatient settings. Other cancer treatments such as radiotherapy are provided on a predominantly ambulatory basis.

There is an increasing evidence-based trend towards combined modality treatment, particularly with combined chemotherapy and radiotherapy (chemoradiation), depending on the type and stage of the cancer involved. Patients receiving chemoradiation often require periods of hospitalisation or intensive outpatient/day services to complete and recover from treatment.

Patient travel and accommodation

The increasing complexity of cancer treatment makes it more difficult to deliver many services safely in rural and remote areas. This means that many patients have to travel away from home for the treatment they need to manage their cancer, making access to appropriate patient transport and accommodation, (which recognises cultural needs), critical. Specific issues that need to be considered include:

- improving access to community-based transport for those requiring treatment

[33] Mor, V et al, 1988, 'Day hospital as an alternative to inpatient care for cancer patients: A random assignment trial', *J Clin Epidemiol.* Vol 41 (8). Pp. 771–85.

- providing adequate financial assistance for travel and accommodation
- providing access to appropriate accommodation for patients and escorts (if required)
- Queensland Health's current transport guidelines don't reflect contemporary treatment regimens, which require frequent, multiple occasions of service (e.g. radiation therapy).

The Integrated Patient Transport Reform Project led by Queensland Health recently considered transport and accommodation issues. The project identified specific strategies such as the Government's $15M commitment for patient accommodation options statewide. An invitation to tender process to allocate these funds will be completed during 2009-10.

Levels of clinical service capacity

The capability of a health facility to deliver core services safely, consistently and sustainably is critical to delivering effective and efficient clinical services. This depends on having the appropriate mix of medical, nursing, allied health and ancillary health care staff with the qualifications, skills and experience required for the defined level of care in the clinical area. Access to appropriate levels of support services (including diagnostic imaging, pathology and pharmacy) and infrastructure capacity is also necessary.

This concept is dealt with fully in the *Clinical Services Capability Framework* (CSCF)[34] which:

- provides a standard set of capability requirements for public and private hospitals
- provides consistent service-planning descriptors
- encourages explicit clinical risk management where services do not meet minimum patient-safety requirements.

The CSCF outlines the minimum support services, staffing, safety standards and other requirements necessary in health facilities to ensure safe and appropriately supported clinical services. When properly applied across facilities, the CSCF helps to ensure a stronger capacity to address safety, risk management, quality and planning issues across the total health sector. The CSCF service modules, including cancer services, were reviewed during 2009 with the updated version scheduled for release in 2010.

The 2007 draft cancer modules of the CSCF identify varying levels of complexity for cancer surgery, medical oncology, haematology, radiotherapy and palliative care services, from level 1 service provision, to highest complexity at superspecialty level (level 6 in the 2010 version). Higher-level services should provide consultative services to lower level facilities with formal arrangements for specialist outreach and providing expert advice. Refer to a summary of the draft CSCF cancer module in Appendix 3 for more detail.

The following tables describe Queensland Health facilities and an assessment of their CSCF level for each service type based on the original draft version. Data on each facilities' projected CSCF level according to the anticipated 2010 version of the CSCF cancer module are provided in brackets following. The Palliative Care module from version 2 of the CSCF has not yet been revised and so the original allocation of levels for palliative care services is unchanged in this 2009 edition of the Plan.

[34] Queensland Health. 2005. Clinical Services Capability Framework version 2.0. Version 3 update to be released 2010.

Table 2 Current CSCF levels for cancer treatment services by area and HSD

Area/HSD	Service	Medical oncology	Haematology	Radiation oncology	Palliative care
Royal Children's Hospital HSD	RCH	SS* (6)	SS (6)	C^	3
Northern QLD					
Cairns & Hinterland HSD	Cairns	3 (5)	3 (5)	C	1
	Innisfail	1 (3)	1 (3)	Nil	1
	Atherton	1 (3)	1 (3)	Nil	1
Mackay HSD	Mackay	2 (4)	2 (4)	C	2
Mt Isa HSD	Mt Isa	1 (3)	Nil	Nil	1
Townsville HSD	Townsville	SS (6)	SS (6)	3 (6)	3
Central QLD					
Central Qld HSD	Gladstone	1 (3)	1 (3)	Nil	1
	Rockhampton	2 (4)	2 (4)	C	3
Central West HSD	Longreach	1 (3)	1 (3)	C	1
Sunshine Coast – Wide Bay	Nambour	3 (5)	2 (4)	C	2
	Gympie	1 (3)	Nil	Nil	1
	Bundaberg	1 (3)	1 (3)	C	1
	Hervey Bay	1 (3)	1 (3)	C	1
	Maryborough	1 (3)	1 (3)	C	1
Metro North	Caboolture	1 (3)	Nil	C	C
	Kilcoy	C	Nil	Nil	Nil
	Redcliffe	3 (5)	2 (4)	C	3
	TPCH	3 (5)	2 (4)	C	3
RBWH HSD	RBWH	SS (6)	SS (6)	3 (6)	2
Southern QLD					
Metro South					
	Logan	C	C	C	2
	Mater	SS (6)	SS (6)	3 (6)	C
	PAH	SS (6)	SS (6)	3 (6)	3
Gold Coast	GC Southport	3 (5)	3 (5)	C	1
West Moreton - Darling Downs	Toowoomba	2 (4)	1 (3)	C	2
	Ipswich	2 (4)	Nil	C	3

* SS refers to super-specialty CSCF level ^ C refers to consultative CSCF level

The above CSCF levels for each facility were obtained using survey and self report methods. This information has not been independently assessed and verified.

Statewide and superspecialty services

For patients with rare cancers requiring highly specialised treatment, service delivery needs to be concentrated to facilitate the development and maintenance of expertise. This care may also depend on costly infrastructure and equipment, and access to a wide range of other services and professionals. Specialised cancer services need a broad population base

to ensure that the volume of activity is sufficient to maintain high clinical standards and expertise for best patient health outcomes.

Within this context, Queensland Health provides statewide services to the target populations and superspecialty services on regional populations.

The following clinical disease groups or services are considered superspecialties and are available only from Cancer Centres that provide highly specialised clinical services. The terms used are explained in the Glossary (from page101).

- Treatment of complex head and neck cancers
- Neuro-oncology (brain and nervous system cancers) services
- Treatment of certain high-grade lymphomas
- Autologous haematopoietic stem cell transplants
- Treatment of complex gynaecological (female reproductive system) cancers.

The following clinical disease groups or services are low volume and highly specialised and therefore defined as statewide superspecialties (level 6):

- Allogeneic stem cell transplant and thyroid services
- All paediatric solid cancer and haematology services
- Bone and soft tissue tumours
- Brachytherapy for ocular (eye) melanoma
- Radiation unsealed source[35] for thyroid cancer.

Organisation of services

Within Queensland, many of the elements of cancer care services are in place, but they are not always well integrated or formally networked. Integrating and coordinating cancer care is complex as it must link all components of treatment along the patient journey, across service settings and geographical localities. Effective communication and cooperation within formally linked services is critical to safe and effective ‘best care’ cancer management.

Patients may need a range of treatment services based on their care needs, the phase of their treatment journey, and individual preferences. The need for patients to travel to Cancer Centres or Cancer Units for specialised treatments has implications for subsidy programs for travel and accommodation—a key issue for equity of access.

Each Clinical Network area currently operates an informal network for delivering cancer services, which consists of a hub (Cancer Centre), spokes (one or more linked Cancer Units) and a varying number of other linked services (including private providers). Not all hospitals in each area provide cancer services and accordingly are not part of such networks. The Area Clinical Networks have taken a lead in strengthening service coordination and integration (networks) within their regions of responsibility. These coordination efforts involve activities such as clinical leadership and support, formal outreach, telehealth, cancer care coordination and referral pathways. Health Action Plan investment has supported this work.

The following outlines current key cancer service locations within Clinical Network as.

Cancer Services Northern

Northern Queensland has one Cancer Centre at Townsville, which is linked with two Cancer Units at Cairns and Mackay. Each of these is linked with individual cancer services. There

[35] Explanatory note: Treatment involves use of Iodine that gives off radiation.

are three private facility links in the North, which could be formally linked into cancer networks.

Cancer Services Central

Central Queensland has one Cancer Centre (Royal Brisbane and Women's Hospital) and Cancer Units at Nambour and Redcliffe. There are 11 linked cancer services and nine private providers, which could be formally linked into cancer networks.

Cancer Service Southern

Southern Queensland has one Cancer Centre (Princess Alexandra Hospital/Mater) and two Cancer Units at the Toowoomba and Gold Coast Hospitals. There are also eight linked cancer services, and seven private sector providers which could be formally linked into cancer networks.

Current service capacity

Data collected (in 2008) from facilities providing cancer treatment services shows the existing physical capacity in Queensland Health facilities. The following table displays this information for each of the Clinical Network areas by Health Service District describing the availability of dedicated inpatient beds, day treatment places and number of linear accelerators (linacs). These data are self-reported and have not yet been independently assessed and verified.

Table 3 Cancer treatment service capacity by HSD 2008

Area /HSD	Dedicated oncology beds	Dedicated palliative ^ care beds	Day + treatment places	No. of linacs	Total daily machine hours	Days of operation per week
Total paediatric (RCH)	**20**	**0**	**14**	**-**	**-**	**-**
Cairns & Hinterland	4	16	23	-	-	-
Mackay	4	6	10	-	-	-
Townsville	17	12	11	3	-23	-5
Mt Isa	0	0	2	-	-	-
Northern QLD	**25**	**34**	**46**	**3**	**-23**	**-5**
Central QLD	0	9	9	-	-	-
Sunshine Coast – Wide Bay	0	10	36	-	-	-
Metro North	67	32	47	5	60	5
Central QLDQLD	**67**	**51**	**92**	**5**	**60**	**5**
Metro South	52	9	50	6	-62.5	-10
South West	0	0	0	-	-	-
West Moreton – Darling Downs	0	6	14	-	-	-
Gold Coast	18	20	10	-	-	-
Southern QLDrn QLD	**70**	**35**	**74**	**6**	**-62.5**	**-10**
TOTAL TOTAL ADULT	**162**	**120**	**212**	**14**	**145.5**	**20**

NOTE: Nambour working to increase CSCF from 2 - 3

^ This table only includes palliative care beds in a facility where they are co-located with a cancer service.

+ Day treatment places are actual numbers although not all places are currently used because of staffing limitations

In many hospitals other than major referral hospitals, cancer patients requiring access to inpatient care occupy general medical or surgical beds. This places extra pressure on bed management when caring for cancer patients, particularly those with complications who require special care (e.g. isolation for immunosuppression). A further issue is that in some locations existing capacity is currently underutilised due to a lack of clinical staff. This is particularly so in the regional areas. Recruitment of cancer specialist staff during 2008 and 2009 has alleviated this situation somewhat (for example at the Gold Coast Hospital).

Some day-only treatment places operate on a part-time basis, while others provide services more than five days per week. While part-time operation requires fewer resources, the amount of care provided is also reduced. To directly compare service *capacity*, in table 4 all day-only treatment services have been converted to 'five-day equivalent' places (places that are staffed and operate five days per week).

It should be noted that a five-day equivalent place is only an indication of capacity and not of actual patients treated.

Table 4 Queensland Health day therapy services by HSD, 2007

Area / HSD	Service *	Day treatment places	Days/ week	5-day equivalent places
Total Paediatrics (RCH)		14	-	20
Northern QLD				
Cairns & Hinterland HSD	Cairns	8	5	8
	Innisfail	5	1	1
	Atherton	10	1	2
Mackay HSD	Mackay	6	5	6
	Proserpine	4	1	1
Mt Isa HSD	Mt Isa	2	2	1
Townsville HSD	Townsville	11	5	11
Total		46	-	30
Central QLD				
Sunshine Coast - Wide Bay	Bundaberg	5	5	5
	Hervey Bay	10	5	10
	Maryborough	4	3	3
	Nambour	10	5	10
	Gympie	7	3	4
Central Qld HSD	Gladstone	3	4	2
	Rockhampton	6	5	6
Metro North	Redcliffe	10	5	10
	TPCH	8	5	8
	RBWH	29	6	35
Total		92	-	93
Southern QLD				
Gold Coast HSD	Southport	10	5	10
Metro South	Logan-Beaudesert	6	5	6

	Mater	22	5	22
	PAH	22	6	26
West Moreton - Darling Downs	Toowoomba	8	5	8
	Ipswich	6	1.5	2
Total		74		74
TOTAL QLD (Adults)		212	-	197

*Only HSDs where services are provided have been identified in this table

Private sector services

Private health service providers

Table 5 describes the location of relevant private sector facilities by area planning cluster. It is not possible to assign CSCF levels to these facilities as the cancer module of the CSCF is currently in draft form and the private sector has not yet been mapped against this framework.

Table 5 Availability of private sector cancer services by HSD, 2009

Area/HSD	Hospital	Medical oncology	Haematology	Radiation oncology	Palliative care
Northern QLD					
Cairns & Hinterland	Cairns Private	√	X	X	X
Mackay	Mackay Mater Private	√	X	X	√
Townsville	Townsville Mater Private	√	√	X	√
Central QLD					
Metro North	Wesley / Premion Cancer Care	√	√	√	√
	Brisbane Private	√	√	X	X
	Holy Spirit Northside	√	√	X	√
	Premion Cancer Care (Chermside)	N/a	N/a	√	N/a
Sunshine Coast	Noosa Private	√	√	X	√
	Premion Cancer Care (Nambour)	N/a	N/a	√	N/a
Wide Bay Burnett	St Stephens	√	√	X	√
	Friendlies	√	√	X	√
Central Queensland	Rockhampton Mater	√	√	X	√
	Gladstone Mater	√	√	X	X
Southern QLD					
Gold Coast	Premion Cancer Care (Southport)	N/a	N/a	√	N/a
	Pindara	√	X	X	√
	Allamanda /Pacific Private	√	√	X	√
	John Flynn / Premion Cancer Care	√	√	√	√

Metro South	Mater Private	√	√	X	√
	Greenslopes Private	√	√	X	X
West Moreton – Darling Downs	St Andrew's Toowoomba	√	√	√	√
	St Vincent's Toowoomba	√	√	X	√
	St Andrew's Ipswich	X	X	X	√
Key	√ - Treatment service present		X - No service		N/a - Not applicable as provides radiation oncology only

Examples of links between the public and private sectors in Queensland are outlined below:

- Visiting medical officers are formally contracted by Queensland Health to provide medical specialist services within the public sector. These clinicians also operate private medical specialist practices.
- Some public–private partnerships involve formal agreements for providing services (e.g. negotiated agreements for private providers to deliver radiotherapy services to public patients in regional areas to improve patient access to these services.)
- Contracting or use of local clinical support services such as pathology, pharmacy and specialised diagnostic imaging services, across both sectors in regional or rural areas.

Currently, the majority of links with the private sector are informal or not well articulated. Ongoing work of the Area Clinical Networks and HSDs will be to explore opportunities to work more closely with the private sector to improve overall service delivery.

Non-government organisations

Non-government organisations work closely with Queensland Health cancer services and patients to provide clinical and health education, psychosocial and supportive care and other practical support such as assistance with mobility and daily living aids, travel and accommodation. These organisations include the Cancer Council Queensland, the Leukaemia Foundation, Cancer Voices, and other local or cancer-specific groups. Domiciliary nursing agencies also provide other specific health care. A number of specialised community-based groups such as Canteen and Red Kite work with children, young people and their families.

Area Clinical Networks need to continue to work with these groups, developing coordinated programs with them to improve patient care and ongoing support for cancer survivors. Recent examples of joint initiatives include a statewide Clinical Trials Data Management Program (CCQ), Adolescent and Young Adult services (CanTeen) and new patient accommodation at Rockhampton.

Workforce profile

The safe and effective delivery of cancer care services requires a multidisciplinary mix of staff with appropriate skill levels and defined roles, employed in the right place at the right time. Staffing levels of specialist and non-specialist cancer clinicians, and support and supervision structures affect patient outcomes.

By applying broad population benchmarks, it is possible to estimate the number of medical specialists required for a given population. There are no benchmark figures available for paediatric oncology however it is accepted by the paediatric oncology community that present funded positions fulfill the requirements for children with cancer in Queensland. Neither is there a private paediatric oncology service. Future staffing for all specialties should increase in line with changes in population and cancer incidence.

Table 6 outlines the current medical specialist workforce in Queensland. This information highlights that recent investment in the medical workforce under the *Health Action Plan* has been effective in creating the required specialist positions—the current challenge is recruitment. Positions cited are full-time equivalent (FTE) positions.

Since 2008 Queensland Health has succeeded in recruiting some additional medical specialists. As at November 2009 there are reduced vacancies across the disciplines statewide, with medical oncology unfilled positions dropping to approximately 2.5 FTE.

Table 6 Current total and public sector cancer treatment specialist FTE positions, 2008

Clinical specialty/ positions	Medical oncology	Clinical haematology	Paediatric oncology/haem/ Palliative medicine	Radiation oncology	Palliative medicine
2006 statewide requirement					
	51.1	21.9	-	43	40
Public sector requirement					
Required FTE	25.5	11	-	28	20 (minimum)
Funded positions	27.25	13.2[36]	9.5	25.4	15
Filled positions	17.75	9.5	7.3	21.5	14
Unfilled positions	9.5	3.7	2.2	3.9	1
Trainee positions	20.5	22.8	3	18	4.1

Some of the trainee positions are currently unfilled, but this partly reflects the academic year which is a calendar year. All 2010 trainee positions will be filled, with trainees starting early in the year.

Data on other workforce groups such as nursing and allied health professionals is less clearly linked to benchmarks based on population numbers. For these groups, the model of care, tumour types, acuity of specific patient populations, available treatment options and the mix of professional graduate to technical support staff are relevant considerations. Some modeling of the workforce requirement for these groups has been undertaken for this plan, but this needs to be used with caution due to the above cited issues. As this requires further work it is not presented here.

Funding arrangements

Public sector

To guide the distribution of resources, in the 2007–08 financial year Queensland Health introduced a New Funding Model (NFM) that has two levels:

1. The top level, the Resource Allocation Model (RAM), allocates Queensland Health's budget to the Central, Northern and Southern area Health Services, based principally on the imputed health needs of their populations.
2. The lower level, the Casemix Funding Model (CFM), will be used to fund 23 of the state's largest public hospitals based on the types and number of services they provide.

[36] Explanatory note: Clinical haematologist numbers include the 50% clinical component of the total workforce consisting of 26.43 FTE joint clinical and laboratory positions. A further 2.1 FTE haematologist positions are purely laboratory based and are excluded.

The types of services covered under the CFM relevant to cancer treatment include acute, sub-acute, outpatient and emergency department categories. Pharmaceutical costs for inpatient care are funded as part of the CFM unless they are for high-cost drug funded through Commonwealth Government schemes.

Some cancer services provided on an ambulatory basis may be funded as a day-only admitted case. Alternatively, ambulatory services may be provided in the community or on an outpatient basis with funding through the Medicare Australia program (Medicare Benefits Schedule [MBS]) under rights of private practice. Pharmaceutical costs are funded under the national Pharmaceutical Benefits Scheme (PBS) or through special hospital programs.

Health Action Plan

The government's *Health Action Plan* (2005) has also funded a range of cancer-related initiatives, allocating $463.7M to cancer services over the five years starting in the 2005–06 financial year.

This funding has made it possible for Queensland Health to improve its services by maximizing use of existing capital resources, developing models of multidisciplinary care and improving staffing levels and training opportunities to manage existing workloads and to support workforce recruitment and retention. It has also enabled work to progress on implementation of critical information technology and infrastructure for improved clinical governance, quality and safety, communication and system performance.

Table 7 summarises initiatives relevant to cancer treatment services. This summary shows the initial investment of $11.85 million in 2005–06 (growing to $15.67 million recurrently from 2006–07) to address immediate pressures, and improvements in treatment services from 2006–07 ($60.1 million recurrent). Appendix 4 includes a more detailed table highlighting funded initiatives.

Table 7 Summary of cancer care initiatives funded by the Health Action Plan

Cancer Initiative Funding 06–07					
Category	Area	Medical Oncology/Haematology/Palliative Care		Radiation Oncology	
		Initiative	Funding $M	Initiatives	Funding $M
Service Networks and Models of Care	North	• Additional medical staff, nursing and allied health professional positions • Additional care coordination positions • Hospital enhancement Cairns • Outreach services • Increased treatment across Central Qld • Rural and remote palliative care services across Central Qld • Increased BMT capacity at RHWH and PAH • Increased treatment capacity at Logan • Inpatient palliative care service at QE11 • Implement a statewide care coordination program • Increased surgical activity	3.683	• Support for brachytherapy and commissioning 3rd linear accelerator at Townsville	6.2
	Central		14.64		
	South		8.04	• Outreach services from PAH to GC • Additional PAH radiotherapy staff • Extra shifts at PAH/Mater	7.516
	Statewide	• Increased treatment and diagnostic services • Additional funding for Limited Indication cancer drugs	3.35		
Total			**29.71**		**13.72**
Paediatric Oncology	Statewide	• Increased treatment and diagnostic services • Additional medical staff	5.227		
Total			**5.23**		
Drugs	Central	• Additional drug and treatment services at RBWH	1.528		
	Statewide	• Additional funding for Limited Indication drugs	3.5		

Total		•	**5.03**		
Screening and Diagnostics	Statewide	• Enhanced screening programs, • Enhanced prevention programs, • Establishment statewide PET	6.23		
Total			**6.23**		
Service Development and support	North	• Area Clinical Network service development			
	Central		1.85		
	South		2.155		
	Statewide	• Statewide coordination and support of governance	0.51		
Total			**4.52**		
IT Dev, Data and MDT support	Statewide	• Pharmacy IT • Development of PET services scheduling systems • Integration of cancer data and Quality Assurance	8.18		6.13
Total			**8.18**		**6.13**
Workforce Development and Training	North	• 8 Additional advanced trainee medical training positions (registrars)			
	Central			• Fellow in RO at RBWH	0.2
	South			• Fellow in RO at PAH	0.2
	Statewide		2.82	• Funding for 9 radiation therapist PDY	0.5
Total			**2.82**		**0.9**
		Total Med Onc/Haem/Pall care	**61.71**	**Total Rad Onc**	**20.75**
Total (all funding 06/07)- $88.459M *					

*Includes $6 million rolled over from initial investment (2005–06) to address immediate pressures

Private sector

In the private sector, the Medical Benefits Scheme (MBS), private health insurance, other insurance schemes (such as worker's compensation, Veterans Affairs) and/or the individual on a user-pays basis fund cancer services. MBS and patient co-payments typically fund the services of specialists and ambulatory services provided in the community or private medical clinics. Private pharmaceutical costs are funded through the national Pharmaceutical Benefits Scheme(PBS), health insurance or on a user-pays basis.

Service delivery initiatives

Since the release of the *Queensland Cancer Control Strategic Directions 2005–2010*, and investment in cancer care under the Health Action Plan, Queensland Health has begun implementing key service delivery initiatives. These represent priorities for the cancer care program and Clinical Networks and aim to improve the models of care and quality of services provided, thus improving patient's' experiences and health outcomes.

Multidisciplinary care

In multidisciplinary care, all relevant health professionals discuss management options and make joint decisions about a patient's treatment and supportive care plan, taking into account the patient's personal preferences[37]. Referral through multidisciplinary 'tumour boards' to multidisciplinary care teams are patient-focused, and effective multidisciplinary

[37] National Breast Cancer Centre and National Cancer Control Initiative 2003, *Clinical guidelines for the psychosocial care of adults with cancer.*

care maintains this focus in ongoing decision making. Queensland Health already has a number of multidisciplinary care teams in cancer treatment services. Health Action Plan (HAP) funding has purchased new videoconferencing equipment and enabled 14 FTE Multidisciplinary Meeting coordinators to be appointed statewide to improve access to multidisciplinary care. To expand this approach, additional resources would be required to provide supportive infrastructure and formalised multidisciplinary care processes. Refer to *Objective 5* (page 80) for a more detailed description.

Care coordination

The aim of care coordination (including case management) is to smooth the patient's journey between primary care, acute care (hospital), multidisciplinary 'tumour board' meetings and supportive and palliative care services consistent with defined referral and care pathways. Care coordination also aims to ensure that patients and carers have appropriate and timely access to expert clinical advice and support. Queensland Health is currently implementing a statewide care coordination program under the banner of the Commonwealth Government's Australian Better Health Initiative. Care coordination occurs at two levels:

- At a broad service level, the care coordinator plans delivery of a patient's cancer care across different settings including primary care, acute care, tumour boards and palliative care services using a systematic approach involving referral pathways, care plans, resource networks, communications and service improvement strategies. Care coordination, at this level, supports both patients and staff by providing specialist clinical information on multiple treatment modalities.
- For individual patients, a case manager coordinates referral and care, ensuring they receive timely review and referral, information, education and practical assistance, and that both patient and referral services are kept informed of the care process. The case manager helps the patient along identified care pathways and, with other members of the multidisciplinary team, identifies and resolves issues and areas for improvement.

Although these two roles are described separately, the model used varies in different settings and for discrete populations. In some instances the two roles are combined, particularly when servicing a dispersed regional area and/or a small number of cancer patients (e.g. paediatric cancer patients). Queensland Health will be evaluating this program during 2010.

Telehealth

In recent years, Queensland Health has been investing in telehealth infrastructure. However, uptake in cancer treatment service networks has been slow to date because of technological limitations on issues such as safe image transfers, variable band width, and lack of convenient clinician access. Over the next decade the eHealth initiative must further upgrade telehealth technology, infrastructure and statewide support to improve access and reliability. This will be important in supporting expanded outreach services and networking cancer services. During 2009-10 Queensland Health is undertaking a statewide telehealth initiative including a focus on *Tele-oncology* to improve cancer outpatient telehealth opportunities.

Clinical information systems

Another new service initiative is building a statewide network of pharmacy (POIMS) and radiation oncology (ROIS) cancer information systems to support the delivery of networked cancer services. These systems aim to:

- give clinicians throughout Queensland access to a clinical summary
- electronically generate documentation
- improve communication
- provide electronic access to statewide data for service planning and service improvement
- enable electronic prescribing
- enable clinicians to view multiple sources of public and private pathology.

To date ROIS has been implemented at three of the four Queensland Health radiation therapy services with the fourth service anticipated to be live during 2009-10. The first of the initial four sites to implement POIMS went live in October 2009 with the other three sites to be implemented during 2009-10.

These two major information technology investments are being supported by the use of other real-time, electronic decision-support tools such as the Queensland Oncology On line (QOOL), and the Oncology Analysis System (OASYS). Overall, the system changes:

- make it easier for consumers to engage with providers within the cancer care system and participate in the treatment of their cancer
- help clinicians provide the best care
- improve access to multidisciplinary care regardless of where patients live
- create opportunities for research into new therapies and models of care.

This investment in information technology will continue for the next four years.

Overview of current utilisation

This section provides an analysis of current patterns of service utilisation. The data presented are then used in the following section on *Projected demand for cancer treatment services* as the baseline for estimating future requirements. Data analysed include inpatient activity (multi-day and day-only) and ambulatory activity. Public and private sector activity data have been included where available and appropriate. The majority of this data analysis was undertaken in 2007 and has not been refreshed for this 2010 edition of the Plan on the assumption that no significant change has occurred.

Key points

- Cancer treatment occurs in a variety of care settings depending on the treatment type. The three key categories are hospital inpatient (multi-day), hospital inpatient (same-day), and outpatient (clinic-based) services. The latter two can be considered ambulatory care, and sometimes the distinction between them appears arbitrary.
- The trend in providing cancer treatment has been away from inpatient hospital care to delivering it on an ambulatory care basis. Decisions about the setting for particular treatments vary across sectors, facilities and modes of treatment depending on clinical need, resources and financing incentives.
- As Queensland Health data systems do not capture all information on cancer service activity, it is difficult to obtain a global view of the services provided.
- Cancer inpatient activity, (for medical oncology and haematology) increased by an average 4% each year over the five-year period to 2004–05. This is consistent with the observed 3.5% growth in the incidence of cancer.
- Overnight or multi-day use of beds by inpatients in Queensland is equally divided between the public and private sectors.
- In 2007, Queensland public hospitals, statewide, treated approximately 90,800 cancer patients in ambulatory care settings. (Table 10 – from survey)
- Queensland Health cancer services report capacity constraints and excess demand.

Service delivery setting

Describing and understanding cancer treatment service utilisation requires an understanding of the settings in which these services are delivered and managed. These vary according to mode of treatment (surgical, medical oncology, haematology or radiotherapy) and care pathway. The different models are described under *Analysis of current service arrangements* in the previous section.

As will be discussed later, the lack of reliable data on non-admitted hospital activity, compounded by the split in financing of services between states and the Commonwealth makes it difficult to accurately track the pattern of service delivery across settings.

Finance drivers

In addition to clinical factors, funding arrangements can also influence decisions about the setting for treatment. Some ambulatory care treatments, if provided by Queensland Health medical specialists under their right of private practice, attract Commonwealth funding under the MBS. In the private sector, some private health insurance arrangements may fund same-day admission hospital treatments not covered by MBS. Access to drugs under the Commonwealth's PBS also depends on the care setting, with the subsidy not applying to public inpatient hospital care.

These funding arrangements have affected care delivery over time and across sectors and geographical areas, causing shifts in activity between hospital inpatient and outpatient

ambulatory care[38]. Queensland Health services have therefore adopted different admitting practices depending on local needs and financial considerations, which makes it difficult to compare activity across sites. The data presented below should be interpreted with this in mind.

Inpatient services—utilisation

Inpatient services utilisation can be measured by the number of inpatient separations (the number of episodes of inpatient care) for Queensland residents, and the total number of bed days or bed equivalents used by these patients. Inpatient stays are measured as length of stay, with same-day or day-only admissions separated from the overnight or multi-day stays. This information is collected as part of the Queensland Health Admitted Patient Data Collection (QHAPDC). Cancer-related activity data presented here are selected from QHAPDC based on the coded diagnosis and treatment information collected for each patient[39].

Some people from interstate and overseas access cancer services in Queensland, and some Queensland residents access cancer services in other states. In general, inflows of interstate residents for cancer treatment exceed outflows, due to cross-border flows from Northern NSW. However, overall net cross-border flows are small compared with total demand.

Overall cancer inpatient separations (for public and private medical oncology and haematology) have been increasing by an average 4% each year over the prior five-year period. This relatively modest annual increase may reflect constrained inpatient capacity with a relatively fixed number of beds. This may particularly apply in the public sector where the average annual growth rate is only 2.1% (compared with 6% in the private sector).

Multi-day stay inpatient hospital utilisation

Data related to multi-day inpatient hospital utilisation will be presented in this section.

Data presented:

- relates to inpatient activity in Queensland hospitals regardless of patients' state of residence
- uses 2004–05 Admitted Patient Data Collection (the most reliable hospital data available)
- includes services based on the Service Related Groups[38] (SRG) for haematology and medical oncology (but excludes surgery, chemotherapy and radiation oncology)
- includes all age groups, including children
- assumes 85% bed occupancy rate for overnight stays.

The following tables show overnight and multi-day inpatient activity data for Queensland public hospitals by sector and by area. The activity approximately reflects the relative population distribution in Queensland. Differences in the ratio of activity between haematology and medical oncology reflect the relative cancer incidence between

[38] Explanatory note: For example, in response to the trend to reduce the range of outpatient services provided in the public sector by shifting the costs of these services to the MBS-funded private sector, the Australian Government introduced a requirement in the current Australian Health Care Agreement for all states and territories to provide at least the same volume and range of outpatient services as they did on 1 July 1998.

[39] Explanatory note: Data grouped by Service Related Grouping (SRG), which is a classification based on Australian Refined Diagnostic Related Group (AR-DRG) aggregations for categorising admitted patient episodes into groups representing clinical divisions of hospital activity.

haematological malignancies and solid tumours and treatment options. Approximately two-thirds of all bed days are occupied by medical oncology patients.

In the private sector, overnight and multi-day utilisation equated to 205 beds, which parallels that in the public sector. Because of the confidentiality of private sector data it is not possible to directly compare actual patient numbers. However clinicians report utilisation may be lower in the private sector reflecting a longer length of stay.

Table 8 Queensland hospital overnight and multi-day stay inpatient activity by sector, area and service 2004–05

Public sector services									
Service / Area	Haematology			Medical oncology			Total public		
	Seps^	Bed days	Beds	Seps	Bed days	Beds	Seps	Bed days	Beds
Northern QLD	749	4,309	14	1,024	7,209	23	1,773	11,518	37
Central QLD	1,900	10,902	35	2,439	15,314	49	4,339	26,216	84
Southern QLD	1,889	10,060	33	2,450	16,217	52	4,339	26,277	85
Total	**4,538**	**25,271**	**82**	**5,913**	**38,740**	**124**	**10,451**	**64,011**	**206**
Private sector services									
Service	Haematology			Medical Oncology			TOTAL PRIVATE		
	Seps^	Bed days	Beds	Seps	Bed days	Beds	Seps	Bed days	Beds
Total	**3,910**	**25,781**	**83**	**5,205**	**37,969**	**122**	**9,115**	**63,750**	**205**

Source: QHAPDC 2004–05 ^ *Seps = Separations*

Day-only inpatient utilisation

Use of day-only cancer treatment services is generally not well reflected in inpatient data, because large numbers of patients are treated on an outpatient basis, particularly in the public sector. Day-only admission rates (number of episodes of care) tend to be higher in the private sector because of differences in funding arrangements.

Differences between haematology and medical oncology services are more apparent when looking at day-only inpatient activity where haematology services account for approximately 80% of admissions. This pattern occurs in both public and private sector data.

Table 9 Queensland hospital day-only activity by sector, area and service, 2004–05

Public sector services						
Service / Area	Haematology		Medical Oncology		Total public	
	Episodes	Treatment places	Episodes	Treatment places	Episodes	Treatment places
Northern QLD	1,578	4	413	1	1,991	5
Central QLD	2,331	6	1,077	3	3,408	9
Southern QLD	4,139	10	1,145	3	5,284	13
Total	**8,048**	**20**	**2,635**	**7**	**10,683**	**27**
Private sector services						
Service	Haematology		Medical oncology		Total private	
	Episodes	Treatment places	Episodes	Treatment places	Episodes	Treatment places
Total	**13,695**	**33**	**3,774**	**9**	**17,469**	**42**

Source: QHAPDC 2004/05

Given the limitations of the data, in that only a proportion of all haematology and medical oncology activity is captured through the QHAPDC, it is difficult to draw accurate conclusions about service activity based on the above analysis. Same-day only type services are delivered on an ambulatory basis.

Outpatient services—utilisation

For selected patients, shifting treatment from admitted to ambulatory service delivery has documented benefits (refer previous section *Model of service delivery*). In this mode of service delivery, data may be recorded as either day-only admitted hospitalisations or as non-admitted outpatient services activity.

As Queensland Health has no non-admitted data collection equivalent to its admitted patient collection, it is not possible to present data that truly represent delivery of all ambulatory cancer care. Under the HAP funding, work has begun to develop and implement clinical information systems to support oncology and radiotherapy services (refer to sections on *Service delivery initiatives*, page 48 and *Objective 10*, page 93). As these systems are implemented across the state over the coming years, it will be possible to collect more reliable patient activity data regardless of the setting.

Despite the lack of information, where possible, data related to the use of services by non-admitted public patients is presented in this section. Non-admitted services occur in two key settings:

- Defined day-treatment services for providing medical oncology and haematology treatments and care
- Radiation therapy services for providing radiotherapy treatments and care.

Data presented:

- relates to activity in Queensland hospitals regardless of patients' state of residence
- includes estimates of use of day-therapy units, which are predominantly supplied by service providers and not independently verified
- includes haematology and medical oncology services (chemotherapy and supportive therapy) and radiation oncology
- includes all age groups, including children
- includes day-only treatment places calculated at 420* patients per place per annum.

*420 patients treated based on 2 sessions/day x 5 days/week x 42 weeks/year per place

Medical oncology and haematology services utilisation

Medical oncology and haematology day-treatment places are important in delivering cancer care. The following services are included in these specialties:

- medical consultations and review
- systemic chemotherapy
- other supportive treatment (e.g. blood transfusions, bisphosphonate therapy, pharmacy)
- nursing and allied health interventions
- patient education
- minor procedures (e.g. bone marrow aspirates and peritoneal taps).

Collecting data from service providers on the number of day-treatment places available across the state and average throughputs made it possible to calculate estimated total annual outpatient activity (based on 2007 levels). Data is presented on average number of patients per day and per week, as individual services operate for varied numbers of days per week.

Table 10 Queensland Health day-only activity by area, 2007

Area	Average patients/day	Average patients/wk	Estimated patients p.a
Northern QLD	74	281.5	14,075
Central QLD	155	830	41,500
Southern QLD	148	704.5	35,225
Total	**377**	**1,816**	**90,800**

Using a benchmark throughput of 420 patients per place per year[40], Queensland public hospitals statewide are using about 197 five-day equivalent day-only places for cancer treatment. [41]

This information is important when calculating *projected* service requirements as outlined in the section on *Projected demand for cancer treatment services* (page 58).

Radiotherapy service utilisation

Almost all radiation oncology patients are treated on an ambulatory, non-admitted basis. This specialty service includes:

- specialist radiation oncologist consultations
- planning and treatment
- nursing and allied health interventions
- patient education.

Table 11 provides activity data for public sector radiotherapy services over 2005–06. In total, an average of 150 machine hours was available each day. Following HAP funding, use of existing infrastructure was maximised by increasing shifts and total machine hours. The data below demonstrates the percentage increase achieved over 2005–06. One additional machine became operational in 2008 and during 2009 extended shifts were implemented to help manage demand.

[40] Based on each treatment place providing 2 sessions per day, 5 days per week over 42 weeks per year (allows for downtime for public holidays, staffing availability, scheduled maintenance and unanticipated breakdown)

[41] A five-day equivalent place is one that is staffed and operates five days per week. In practice, because some centres operate only part-time, the actual number of places is higher (refer to *Current service capacity,* page 40).

Table 11 Percentage increase in Queensland Health radiation therapy services by area, from 2005–06

Area/ Year		Total no*. of courses	Total patient attendances	Total fields^ treated	Average available daily machine hours
Northern QLD	2005	855	16,782	56,556	15.8
	2006	910	18,343	61,817	19.5
Central QLD	2005	2,156	41,700	133,056	52.5
	2006	2,203	44,046	145,121	52.5
Southern QLD	2005	2,770	48,247	137,074	78
	2006	3,093	55,290	160,621	82.5
Total	2005	**5,781**	**106,729**	**326,686**	**146.3**
	2006	**6,206**	**117,679**	**367,559**	**154.5**
% Change statewide		7%	10%	13%	6%

*Course refers to a course of radiation therapy treatment of a patient's cancer. A radiation therapy course may be from 1 to 35 or more treatments; a treatment may consist of 1 to 6 or more beams.
^'Field refers to the area coved by a radiotherapy beam. Usually several 'beams' are used for external radiotherapy and so there are several fields.

Medicare services

Considerable ambulatory cancer treatment occurs in the private sector. Medicare Australia data on MBS activity[42] show that in Queensland, privately billed chemotherapy services increased by an average 27% each year over the five-year period to 2005–06, compared with an overall increase of 12% per year for Australia. Although this rate of average growth has slowed since that time the total percentage change in Medicare billings for Queensland from 2001-02 to 2008-09 was a staggering 209% compared to 109% for Australia as a whole. Queensland now raises more Medicare billings for chemotherapy each year than Victoria (a more populous state).

These findings could indicate an under-resourcing in the public sector, such that patients sought treatment in the private sector, and/or an element of over servicing in the private sector. Given the variance, compared with the other states, it is more likely to reflect the former.

MBS billed radiotherapy services show a yearly average increase of 4%, which is consistent with increases in other jurisdictions and increases in incidence. Medicare data for 2006-07 to 2008-09 show a modest average increase of 5% per annum. However, it should be noted that radiotherapy services rely on access to linear accelerator equipment, and this is relatively fixed in the short term[43]. This information is relevant when trying to interpret changes in activity within hospital data sets and when considering levels of unmet demand.

Key service issues

During the planning consultation for this publication, a number of issues surfaced which suggest that Queensland Health's existing cancer treatment services face particular challenges which include:

[42] Explanatory note: Access MBS data at <www.medicareaustralia.gov.au/statistics/dyn_mbs/forms/mbsgtab4.shtml>.
[43] Explanatory note: A new 'greenfield' radiation therapy service could take in excess of three years to establish, requiring; Australian Government licensing, special shielded buildings, linear accelerators and planning equipment imported from overseas, time for commissioning and set-up, and a workforce for which there is currently a worldwide shortage.

- Queensland is currently unable to meet the demand for some cancer care services, particularly radiation oncology. As at October 2009 there were 28 linacs for 4.1 million Queenslanders (or for 22,000 new cancer cases annually). This equates to 1.3 linacs per 1000 new cancer cases—the Australian benchmark is 1.6 linacs per 1000 new cases. Using this benchmark, 11,500 (of the 22,000) people diagnosed with cancer annually, should receive radiation therapy treatment. However, while some 8,900 people are estimated to have access to radiation treatment (based on machine numbers), the estimated remaining 2,500 people, who could benefit from radiation treatment, are currently missing out.
- Clinicians report that ambulatory cancer services are absorbing the excess demand for inpatient treatment because of insufficient capacity, evidenced by the modest yearly average increase of 2.1% in hospitalisations. The significant increases in MBS services over the five years to 2005–06 may reflect this (as well as other possible factors such as number of items claimed per patient). Attempts have been made to increase capacity by investing some HAP funds on refurbishing and expanding day-treatment places at a number of sites, extending their ability to meet demand.
- Though evidence shows that combined treatments (e.g. surgery with radiotherapy and/or chemotherapy) often achieve the best health outcomes, cancer services at some sites are unable to offer these combined options. As shown in Table 2, CSCF levels and capacity to provide the various cancer treatment modes vary within HSDs and many patients requiring combined treatments must travel to access this care. Planning for cancer services needs to ensure that, the option of multi-modality treatment is available where possible by co-locating services at Comprehensive Cancer Centres, and to avoid exacerbating the current situation by developing sites independent of the networked services model .
- Data collected on capacity and utilisation of day-treatment places shows that some services are underutilised while others are at the maximum of capacity. Planning for growth within regions must take account of these inefficiencies, which have contributed to current stress in the networked system delivering cancer treatment services.

Projected demand for cancer treatment services

In this section, current patterns of service use have been projected to estimate future requirements for hospital beds, day treatment and radiotherapy services.

Projections for paediatric cancer treatment services are not specifically included, as this work has been undertaken as part of the planning for the new Queensland Children's Hospital.

Key points

- The incidence of new cancer cases is expected to grow by 42% [44]over the period 2006 to 2016. In 2016 it is projected that approximately 578 Queenslanders will be diagnosed with cancer each week (compared to 385 in 2005 and 407 in 2006).
- Based on the demand projections of inpatient overnight and multi-day stay hospitalisation, Queensland Health will require up to an estimated additional 209 beds by 2016.
- The requirement for Queensland Health (adult) day-only therapy places is estimated to increase from the current 212 actual places to 388 by 2016—an 83% increase in capacity.
- There is a need to expand Queensland's radiotherapy capacity, with an additional 20 linacs required statewide by 2016. Six linacs are already under construction with delivery by 2012-13 and a further 2 private linacs are planned for Sunshine Coast-Wide Bay.
- Palliative care beds also need to increase to cope with projected demand (based on modeling) and it is estimated that Queensland Health will need to increase bed numbers by between 20% and 30%.

Cancer incidence projections

The incidence of cancer in the Queensland population is increasing at an average 4.2% per year [45] and demand for cancer treatment services is generally expected to parallel this trend. Other reasons for increasing demand include improvements in technology and the expanding availability of treatment options.

The rates of growth in cancer incidence vary across cancer types, with more rapid growth projected between 2006 and 2016 for prostate cancers. In the previous projections series (based on 2004 cancer incidence) melanoma was expected to increase by 35.1% over the period to 2016, these current projections revise this to a 42% increase. The five most common cancers will continue to account for around 60% of all diagnoses (refer to *Health profile and relevant features*, page 32).

The incidence of new cancer cases is expected to increase by 42% from just over 21,250 in 2006 (actual) to almost 30,200 in 2016 as shown in Table 12 over page. This growth represents an expected 491 new cancers each week by 2011 and 578 new cases each week by 2016. These projections are based on 2006 actual cancer incidence data, which was the most recent data available when the projections were calculated in October 2009.

[44] Explanatory note: Cancer incidence projections show a 42% increase over the period 2006 to 2016 (refer Table 12), which is 3.57% compounding or an average growth of 4.2% per year over the period.

[45] Same as above

Table 12 Projected incidence: all cancers and common cancers, Queensland 2004, 2006–16

Cancer type	2004 actual	2006 actual	2011	2016	% change 2006 to 2016
Prostate[46]	2,917	3,266	3,876	4,674	43.1%
Colorectal	2,488	2,741	3,253	3,894	42.1%
Melanoma	2,336	2,452	3,876	4,674	42.1%
Breast	2,260	2,491	2,872	3,295	32.3%
Lung	1,737	1,942	2,297	2,762	42.2%
All cancers	**19,153**	**21,250**	**25,628**	**30,179**	**42%**

Source: Queensland Health Epidemiology Service Unit, Health Statistical Centre[47]

Projected rates of growth also vary across Clinical Network areas, largely reflecting differing age structures and projected increases in the older resident population. Projected incidence and percentage change by Clinical Network areas are shown in Table 13 below.

Table 13 Projected incidence: all cancers by Clinical Network areas 2006–16

Area	2006 actual	2011	2016	% change 2006 to 2016
Northern QLD	2,908	3,702	4,431	52%
Central QLD	8,567	10,233	11,938	39.4%
Southern QLD	9,549	11,691	13,801	44.5%
Total—Queensland	**21,250**	**25,628**	**30,179**	**42%**

Source: Queensland Health Epidemiology Service Unit, Health Statistical Centre

Southern Queensland will retain the largest share of new cancer cases, the rate of increase is greater in the North. However, it is expected that the Northern Queensland's share of new cancer cases will continue to account for only 14 to 15% of the total, due to slower population growth and a younger age profile.

[46] Explanatory note: Prostate cancer incidence projections impacted by opportunistic screening and method of calculation.

47 Data sources:

1. Cancer in Queensland, Incidence and Mortality 1982–2004 Queensland Cancer Registry, December 2004;
2. Australian Institute of Health and Welfare (AIHW) & Australasian Association of Cancer Registries (AACR) 2004. Cancer in Australia 2001. AIHW cat. no. CAN 23. Canberra: AIHW.
3. Australian Institute of Health and Welfare (AIHW) 2005. Cancer incidence projections, Australia 2002 to 2011, Supplementary report: states and territories. Canberra: AIHW;
4. AIHW, AACR & NCSG: Ian McDermid 2005 Cancer incidence projections, Australia 2002 to 2011. Canberra: Australian Institute of Health and Welfare (AIHW), Australasian Association of Cancer Registries (AACR) and the National Cancer Strategies Group (NCSG);
5. Population Projections (Medium Series) by Age and Sex 2006 to 2026 for Health Districts (based on 2001 census figures by LGA) Department of Local Government and Planning, October 2006 Version – 2nd edition;
6. Population projections Medium Series by 5 Year Age groups and Sex, Queensland, 2004 to 2051, Queensland Government, Office of Economic and Statistic Research (OESR), June 2006.

Inpatient care activity

While the trend to provide cancer care on an ambulatory basis is expected to persist and probably increase, the need for inpatient beds for patients having overnight or multi-day stays is expected to also continue increasing as a result of the population ageing, new technology and improved survival rates of cancer patients.

An inpatient activity projections model developed by Hardes and Associates is commonly used by Queensland Health to project inpatient activity. The Hardes methodology is based on an analysis of utilisation patterns in previous years, with age–sex standardised rates for individual diagnosis related groupings (DRGs) being applied to Australian Bureau of Statistics (ABS) population projections. This analysis describes patients admitted to all Queensland public hospitals with cancer diagnoses, not just patients in designated cancer beds. However, the reliability of Hardes projections for this planning process is questionable, in that the 2006 projection for medical oncology estimates a level of demand, which is slightly lower than the 2004–05 *actual* use, and the projections estimate almost no growth in inpatient activity between 2006 and 2016, which is highly improbable given the increases in cancer incidence.

Given the unreliability of Hardes projections, various alternative projection scenarios were considered in the development of the Plan. This analysis is detailed in Appendix 7. The approach settled on was to increase the 2006 utilisation level in line with increasing demand (based on an 85% occupancy rate) by applying a 4% per year growth factor plus a further 4% to address the current deficit and allow for expansion associated with technology changes and the new statewide screening program for colorectal cancer over the Plan's 10-year horizon[48].

Increasing Queensland Health's cancer bed numbers by an average 8% per year, results in a projected need of around 371 overnight and multi-day public beds statewide by 2016. This is an additional 209 beds across the state. This additional capacity should allow Queensland Health to provide for an additional 10,500 overnight admissions per annum by 2016.

The rate of this expansion will depend on the timing of capital works and the availability of workforce.

Statewide and superspecialty capacity requirements are not well documented and are likely to be affected by the early adoption of new technology and aggressive evidence-based treatment options. Further planning work to fully assess the demand for these services may reveal a bed capacity requirement that is in excess of the projections made here.

Day-only and outpatient activity

Similarly, the projections of day only activity obtained using the Hardes methodology were not considered sufficiently reliable to serve as a basis for future ambulatory care planning.

Instead, estimates for ambulatory care activity have been obtained using the same methodology used in calculating future inpatient activity (2006 utilisation level and then applying a 4% per year growth factor plus a further 4% to address the current deficit and allow for expansion associated with technology changes). This analysis is also detailed in Appendix 7.

This would imply a need for about 388 ambulatory care places over the life of this Plan, a statewide increase of 176 treatment places over the 212 current in 2007 (83% growth). The

[48] Explanatory note: Recent research and evidence have led to improved survival with 2nd and 3rd line treatment options for patients who previously would have been referred for end-of-life care; Introduction of screening programs can lead to a 'harvesting effect' with a short term increase in incidence (capturing prevalence) of cancers; in the decade prior to 2006 cancer incidence also increased some 3.45% per year with very little investment in treatment services until the HAP in 2006–07.

projected additional capacity should allow Queensland Health to provide up to an additional 74,000 treatments per annum by 2016.

Since 2007 treatment places have been added to the statewide stock through increased activity and additional places are planned including places at the Gold Coast University Hospital (17) and Cairns Hospital (5).

The location and configuration of additional treatment places will depend on a number of factors, including:

- the current sites of day treatment places
- the ability to adequately staff and provide clinical support services to ambulatory care services
- the need to plan for a minimum number of places at locations for safe practice
- the timing of capital works, including ensuring expansion occurs in the most cost-effective manner, and
- networking of services and outreach.

Area Clinical Networks and Health Service District plans will need to fully explore the most efficient and safest service configurations for day treatment within networked services. This will also influence the final number of additional places required.

Again, statewide and superspecialty day treatment capacity requirements are not well documented and are likely to be affected by the early adoption of new technology and aggressive evidence-based treatment options. Further planning work to fully assess the demand for these services may reveal a capacity requirement that is in excess of the projections made here.

Radiation oncology

Evidence indicates 52.3% of cancer patients may benefit from radiation therapy treatment[49]. In Queensland it is estimated (based on linac numbers 2009) that only about 40% of cancer patients receive radiation treatment due to a lack of capacity and services. There is a clear shortfall in the number of linear accelerators in Queensland. To enable Queensland to reach the national benchmarks for radiation treatment services there is a need to invest significantly in infrastructure. Table14 below provides information on the number of linear accelerators (linacs) currently operating in Queensland. Of the 28 linacs currently operating, 13 machines are owned and operated in the private sector and the remaining 15 are in the public sector. The Table also presents information on the numbers required in Queensland in 2006, 2011 and 2016 based on Queensland's cancer incidence projections and the benchmark formula[49].

49 Delaney GP, Jacob S, Featherstone C, Barton MB. 2003, Radiotherapy in cancer care: estimating optimal utilisation from a review of evidence-based clinical guidelines. Collaboration for Cancer Outcomes Research and Evaluation (CCORE), Liverpool Hospital, Sydney, Australia.

Table 14 Queensland linear accelerator numbers actual 2009 and projected, 2006–16

Area	2006 Required linacs	2009 Actual linacs	2011 Required linacs	2016 Required linacs
Northern QLD	5	3 *	6	7
Central QLD	14	11**	16	19
Southern QLD	15	15***	19	22
Total—Queensland	**34**	**28**	**41**	**48**

* All Public

**5 Public, 6 Private

***7 Public, 8 Private

Currently construction is underway to accommodate six additional linacs at Cairns, Gold Coast and Princess Alexandra Hospitals. This additional capacity will be delivered in the period 2010-13.

The private sector has also indicated plans for delivery of a two-linac service on the Sunshine Coast by 2011.

Further detailed work has been undertaken to plan for staged growth in public sector radiotherapy capacity. This work examines where expansion of infrastructure can realistically be achieved taking into account:

- current and anticipated workforce availability
- co-location with other cancer services (approximately 40% of patients receiving radiotherapy will also require chemotherapy treatment)
- current master planning for new hospitals and hospital expansions
- equipment replacement schedules[50]
- safety, technical and clinical support required for a service
- statewide and superspecialty radiotherapy services.

Details of this staged implementation plan are provided in the section on *Objective 4* (page 75). Additional detailed projections of the delivery of radiation therapy service (based on current activity data in the section on *current (service) utilisation* (from page 52) and modeling of planned expansion) are provided in Appendix 6.

Palliative care beds

There were 24,473 deaths in Queensland during 2006. Of these, just over 7000 were from cancers[51]. The Palliative Care Association (PCA) considers that 70% of people who die from cancer should be referred to palliative care services. As a result of ageing and the use of increasingly aggressive treatments, there is an increase in acuity of illness and disability of patients who need palliative care. Using a benchmark of 23 days average length of stay[52] for the most complicated palliative care, there was a need for 278 palliative care beds (total public and private) in 2005 for cancer patients. This is consistent with the figures achieved using the population based benchmarks developed by PCA.

50 Explanatory note: Linacs require periodic major upgrades of operating systems and generally require replacement every 10 years. An equipment upgrade and replacement schedule is a necessary adjunct to this plan.
51 OESR (2006) Information Brief: Death Australia 2006 and Queensland Health (2006) Cancer Incidence and Mortality.
52 Palliative Care in Western Australia—Final Report December, 2005, Department of Health Western Australia.

Future public sector palliative care bed requirements have been determined by applying by the PCA[53] benchmark of 6.7 beds per 100,000 population, then discounting the estimates to allow for private sector provision. According to the Private Health Insurance Council, approximately 41% of Queenslanders hold private health insurance.[54] Private health fund membership can be used to estimate private sector utilisation however in relation to palliative care feedback from clinicians indicates that more than 60% of activity occurs in the public sector.

Given this uncertainty, an assumption of 65% of inpatient activity occurring in the public sector has been applied. Using this methodology, it is estimated that 213 public palliative care beds (or about 50 extra beds) will be needed statewide by 2016, a 30% increase on current public sector 2006 bed numbers. Table 15 identifies the current total number of palliative care beds required for Queensland as a whole and, the projected requirements in the public sector.

Table 15 Projected palliative care bed requirements statewide and by area, 2011–16

Area	Column A Total (public/private) palliative care beds		Column B Public sector beds (65% of total)	
	2011	2016	2011	2016
Northern QLD	47	50	30	33
Central QLD	112	122	74	80
Southern QLD	138	153	89	100
Total	**297**	**325**	**193**	**213**

More detailed analyses of palliative care bed requirements showing breakdown by area and HSD are provided in Appendix 8. Networked and HSD cancer treatment and palliative care service planning will need to consider local needs and networks to determine specific service expansion requirements in conjunction with expansion and development of other cancer treatment services.

Capital works requirements

Expanding radiation therapy, inpatient beds and treatment places will require significant investment in capital infrastructure and equipment. In many cases, these service expansions will need to include additional accommodation space for offices, consulting rooms, waiting rooms, expanded clinical support services (e.g. pharmacy) as well as the direct treatment service space. Consistent with planning principles and objectives within this Plan, expansion of services in isolation should not be considered.

Expansion will require networked, HSD and local master planning that is timed to bring these capital works on-line to deliver the required accommodation space in coordination with the development of other services integral to cancer care. The logistics and marginal costing of building may cause some variation to the actual capacity delivered, acknowledging that for some service provision there is a minimum critical mass required to reduce unit costs.

Expanded capacity will be achieved unevenly in the short term, as new builds are completed over the planning cycle. As the availability of an appropriate workforce is critical to the

53 Palliative Care Australia 2003, Service Provision in Australia: a planning guide.
54 www.phiac.gov.au/statistics/membershipcoverage/table1.htm 051207.

expansion of services, it is essential that workforce development strategies continue in conjunction with the timing and sequencing of additional capital and growth in the scope and planned capacity of services. Ongoing review and monitoring of activity and demand as well as assessment of workforce availability may also affect the timing and quantum of infrastructure expansion over the life of this Plan.

Key service issues and priorities

This section contains key service issues and priorities for changes to the delivery of cancer treatment services in Queensland. A full table of these issues is contained in Appendix 9. In prioritising these issues, the following criteria were considered:

- importance/seriousness of the issue
- urgency of the need to address the issue
- amenability to intervention
- feasibility of any intervention
- initiatives currently being progressed.

The following section defines these priorities and locates them within Queensland Health's conceptual planning framework and links them with the *Queensland Cancer Control Strategic Directions 2005–10* objectives.

Critical priorities

The top critical priorities (in no particular order) are:

- ensuring that treatment capacity and services expand in line with population growth and meet unmet needs in the community
- undertaking the necessary capital works planning and building to expand treatment capacity including, clinic space, office accommodation, inpatient beds (wards), day treatment places and radiation therapy services
- ensuring that clinical support services (e.g. diagnostics and pharmacy) expand to support growth in treatment capacity
- strengthening and supporting clinical governance structures
- strengthening and supporting formalised networked cancer treatment services, including addressing networks and capability gaps to ensure safe and sustainable service delivery
- strengthening and supporting multidisciplinary care models
- developing strategies for workforce recruitment, training and retention to ensure the specialised workforce required to support service growth is available. This includes ensuring sufficient training workforce positions are created and supported as well as addressing ongoing training and development needs for the range of health professions involved in cancer care.

Additional priorities

The critical priorities above are identified as important across the time horizon of this Plan, and reflect the long lead time required to address many of these issues. As service capacity is addressed, other issues concerning service quality emerge. These include:

- improving access to clinical outcomes and system performance data to support quality improvement activities
- developing (and adhering to) referral pathways and standardised care pathways and treatment protocols
- fully implementing a model of care that comprehensively incorporates psychosocial support
- continuing to develop the care coordination model to deliver the best outcomes for patients and their families.

Conceptual framework and planning objectives

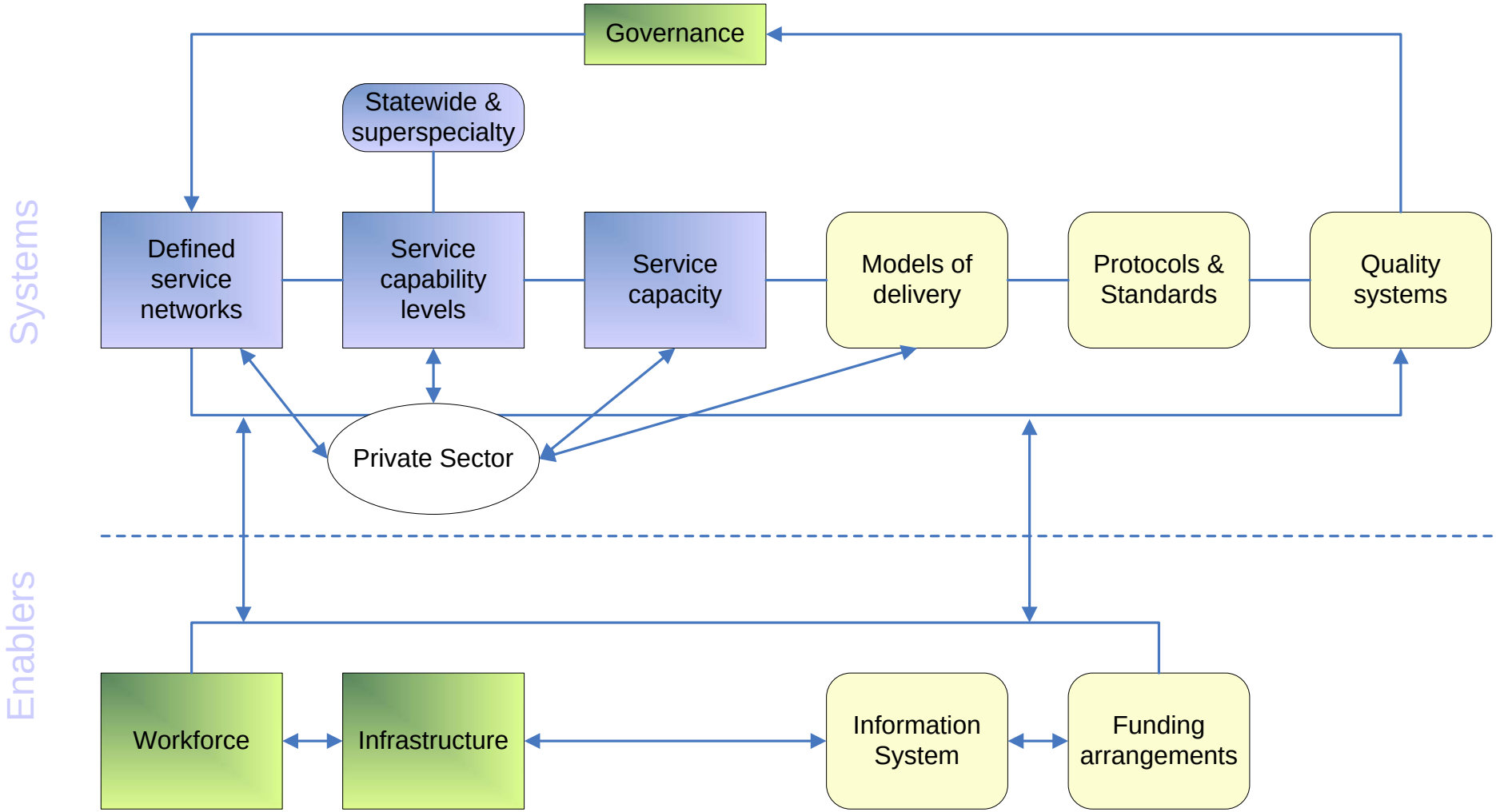
This section defines the elements of the Plan within a framework of proposed changes to the delivery of cancer treatment services. This conceptual framework for planning is shown in Figure 7 on the next page.

This framework is reflected in a set of key objectives (not ranked) for the development of cancer treatment services in Queensland.

1. Establish an appropriate governance structure to oversee and guide the development of cancer services in Queensland.
2. Develop clearly defined service networks that encompass both public and private sector services (including non-government organisations) and provide formal links between smaller cancer services and specialised referral centres.
3. Implement a statewide framework based on the Clinical Service Capability Framework—CSCF Cancer Module (currently in draft form) and build upon defined service networks to plan and coordinate delivery of services across the continuum of care by:
4. Establishing the capability of all sites within the service networks
5. Identifying and planning the delivery of statewide and superspecialty services.
6. Develop service capacity in line with population distribution and growth.
7. Enhance multidisciplinary care models including developing and implementing mechanisms to improve communication among health care professionals, cancer patients and their families.
8. Use consistent, evidence-based protocols, guidelines and standards to promote consistency of care across the state, including referral and treatment guidelines and protocols.
9. Strengthen quality and safety systems in relation to service accreditation, credentialling and support for clinical decision making, service monitoring and performance evaluation.
10. Build workforce capacity—medical, nursing, allied health and administrative support—in line with planned service development.
11. Commission the capital infrastructure required to support implementation of planned service development.
12. Build a statewide network of cancer information systems to support timely communication and the delivery of effectively networked cancer services.
13. Influence the development of appropriate funding arrangements to support efficient, patient centred service delivery.

These cancer treatment services objectives and associated strategies are summarised in the executive summary and detailed in the section on *Cancer treatment and service objectives and strategies* (following).

Figure 7 **Conceptual framework for cancer treatment service planning**



Cancer treatment service objectives and strategies

This section outlines the specific cancer treatment objectives and strategies for the future delivery of cancer treatment services in Queensland. Since the 2008 version of this Plan a number of these objectives have progressed and annotations to reflect this are included below.

Objective 1

Objective 1: Establish an appropriate governance structure to oversee and guide the development of cancer services in Queensland

Governance can be generally described as the responsibility and consequent authority for performing certain functions including creating policies and standards. Queensland's *Health Services Act 1991*[55] and related legislation define this responsibility and authority for the provision of health services in the state. Under this legislation, the vested authority can be delegated to support operational efficiency and Queensland Health is internally organised to provide health services through HSDs[56].

Clinical Networks were initially established in 2001 and were identified by Forster in 2005 as a mechanism to better engage clinicians in service-delivery planning and decision making. While Clinical Networks inform decision making and may carry responsibility for certain functions such as clinical governance, they are not formal authority structures.

Queensland Health has recently released the *Clinical Networks Policy*[57], which promotes Clinical Networks as a key component of planning and decision making for health services. Within the policy a Clinical Network is defined as "a formally recognised group, principally comprising clinicians, established to address problems in quality and/or efficiency of health care."[58]

The policy gives guidance regarding the functions, types, establishment, composition, support provided to, and evaluation of performance of, statewide and Area Clinical Networks. Within the specialty of cancer there currently exists an executive governance group (equivalent to a statewide network), the Cancer Clinical Leadership Group (CCLG), three Area Cancer Clinical Networks and the Queensland Paediatric Haematology and Oncology Network (QPHON). These Area Cancer Networks and QPHON act as links between HSDs, Queensland Health corporate and the Statewide governance group.

These Networks, in collaboration with the Queensland Health Executive Management Team and other formal governance structures are well placed to lead planning, policy development, and monitoring of clinical outcomes for cancer services.

The CCLG is a mature and well supported Clinical Network, and the Executive Management Team is currently considering how to build on and enhance its contribution to cancer service delivery.

[55] Queensland Government. *Health Services Act 1991*.
[56] Explanatory note: Most Districts are geographically defined; some are facilities e.g. Royal Children's Hospital, Royal Brisbane and Women's Hospital and Princess Alexandra Hospital. There are statewide and superspecialty services; however, these are usually hosted by a District.
[57] Qld Health Clinical Networks Policy Version 2 2007
[58] IBID, page 1

Objective 2

Objective 2: Develop clearly defined service networks that encompass both public and private sector services and provide formal links between smaller cancer services and specialised referral centres

Networks link services provided at Cancer Centres, Cancer Units and Linked Cancer Services, enabling a more seamless patient journey. Within the service networks, roles are defined as follows:

Cancer Centre

- Supports a defined network of Cancer Units and cancer services, and provides referral, outreach and consultative services to linked sites.
- Provides on-site services in medical oncology, haematological malignancy, surgical oncology and radiation oncology for all common, low-incidence and specialty malignancies with the full range of treatments.
- Has sufficient specialist medical staff in each discipline to sustain 24-hour, seven-day-a-week cover, and to provide outreach and consultancy support to lower level cancer services.
- Has on-site or direct access to palliative care services.
- Has a multidisciplinary team (including allied health professionals and dedicated nursing staff) and dedicated beds.
- Is active in clinical trials, research and education.
- Is self-sufficient in cancer treatment services, except for statewide/superspecialty services.

Cancer Unit

- Provides medical oncology and/or haematological malignancy services for the common malignancies providing relatively low to medium risk[59] treatments.
- Has access to dedicated multidisciplinary team and has at least two specialist medical staff across medical oncology and/or haematology.
- Has access to radiation oncology and highly specialised services through formal links with a Cancer Centre.
- Has on-site or direct access to palliative care services.
- May support smaller cancer services by means of outreach, consultative and support services.

Cancer Service

- Provides basic medical oncology and/or haematological malignancy services for the common malignancies, plus on-site or direct access to palliative care services.
- Has dedicated nurse staffing with the appropriate competencies in cancer or palliative medicine nursing.
- Is formally linked with another service on which it relies for specialist medical staffing, outreach and/or consultative services.

Service network roles are aligned with service capability levels, discussed further under *Objective 3*, page 72 (also refer to Appendix 3).

[59] Explanatory note: In this context, risk relates to the complexity of the disease and level of toxicities that may result from the treatment given and the clinical supports available to manage these.

Service network development

The proposed development of Queensland's cancer service networks in the short to medium and longer term is shown in the following tables. This development sees the upgrading of existing service networks with:

- additional Cancer Centres at Gold Coast by 2012 and Sunshine Coast post 2015, as part of the commissioning of those new hospitals
- additional Cancer Units in Brisbane Metro North at The Prince Charles Hospital (TPCH), Redcliffe Hospital and at Rockhampton Hospital by 2012 and at Ipswich Hospital by 2017.

Table 16 Service networks short to medium term by area

Centre	Linked Cancer Units	Linked cancer services	Private links
Northern QLD			
Townsville		Mount Isa	Mater Private Townsville
Cairns		Tablelands, Innisfail	Cairns Private
	Mackay	Proserpine	Mater Private Mackay
Central QLD			
RBWH		TPCH	HOCA^ Wesley, Brisbane Private, Holy Spirit Northside Premion CC (Chermside)
		Hervey Bay/Maryborough	St Stephens
		Bundaberg	Friendlies Society
		Longreach	
	Rockhampton	Gladstone	HOCA Wesley, Mater Private
	Redcliffe	Caboolture	
	Nambour	Gympie	Premion CC+; Noosa Hospital Maroochydore Radiation Oncology
Southern QLD			
PAH/Mater		Logan	HOCA, Mater private, Greenslopes
		Ipswich	St Andrews Ipswich
		Redlands	
	Toowoomba	Roma, Warwick	St Andrews Toowoomba
Gold Coast^			John Flynn, Allamanda, Pindara, Premion CC (Southport)

^ Haematology and oncology clinics Australia (HOCA)

\+ Premion Cancer Care (CC) provides radiation oncology services

Critical cancer treatment service developments over the short to medium term include:

- Gold Coast University Hospital, scheduled to open as a Cancer Centre in 2012
- development of Cairns Hospital, scheduled to open as a Cancer Centre by 2012
- initial investment and plans to further develop Rockhampton as a Cancer Unit by 2014
- accelerated development at Redcliffe to help manage demand until delivery of the new Sunshine Coast University Hospital post 2015.

Queensland Health's paediatric cancer services are not included here as they are by definition superspecialty, and service network planning will progress within the context of planning for the new Queensland Children's Hospital.

Table 17 Service networks years longer term by area

Centre	Linked Cancer Units	Linked cancer services	Private links
Northern QLD			
Townsville		Mount Isa	Mater Private Townsville
Cairns		Tablelands, Innisfail	Cairns Private
	Mackay	Proserpine	Mater Private Mackay
Central QLD			
RBWH		TPCH	HOCA, Wesley, Brisbane Private; Holy Spirit Northside, Premion CC (Chermside)
		Bundaberg	Friendlies Society
		Longreach	
	Rockhampton	Gladstone	
	Redcliffe	Caboolture	
Sunshine Coast Hospital*		Gympie	Premion CC, Noosa Hospital, Maroochydore Radiation Oncology
		Hervey Bay/Maryborough	St Stephen's
Southern QLD			
PAH/Mater		Redlands	HOCA, Mater Private, Greenslopes
		Logan**	
	Ipswich		St Andrews Ipswich
	Toowoomba	Roma, Warwick	St Andrews Toowoomba
Gold Coast			John Flynn, Allamanda, Pindara Premion CC (Southport)

* SSCH scheduled to open post 2015— development of extended network is expected to be longer term i.e. 8–10 years.

** Logan may also develop links with Gold Coast in relation to its southern sector.

Develop service networks for the delivery of specialty services requiring coordination at area level

Service networks require central hubs to support spokes, and to support lower level services within a formalised network model. The specialised nature of some service needs (workforce occupations, treatment options and services required by relatively small numbers of patients returning to regional services) will require formal support arrangements for specialty services on a regional basis.

Mentoring programs and formalised training and support programs for specialty services are being developed for health professionals working in the following areas of cancer care:

- oncology pharmacy
- lymphoedema services
- psychosocial care services
- adolescents and young adult (AYA) services (for ages 15–24 years)

- paediatrics (for ages 0–14 years).

The Area and paediatric cancer Clinical Networks will continue to lead this work (outlined in Table 18) and will also monitor outcomes. More detail in relation to proposed strategies can be found in Appendix 9.

Table 18 Proposed development of specialty services within Areas or statewide

Objective	Proposed strategies—short term	Proposed strategies—medium term
Area networks of specialty services	Implement area/statewide mentoring and coordinated training programs: • oncology pharmacy (statewide) • lymphoedema services • psychosocial care services • adolescent and young adult (AYA) services • paediatrics (statewide). As at 2009 these programs have been established.	Monitor progress of mentoring and training programs and their impact
Area models of care to support specialised networked service needs	Develop and implement a model for adolescent transitional cancer care which includes: • multidisciplinary care and care coordination • age-appropriate facilities • transition to adult management • supportive care (including peer support) • access to treatment and supportive care protocols (including clinical trials).	Establish an age-appropriate facility/service. During 2009 QH and Canteen have negotiated a four year service agreement to further develop this work based on a collaborative service across the RCH, PAH and RBWH.

Links with service providers in the private and non government sectors

Currently, a range of activities related to cancer treatment are being undertaken by private sector providers and non-government organisations. Although there are examples of collaborative service arrangements between these organisations and the public sector, the relationships and links could be more clearly articulated. In regional areas, given staff shortages in the professional workforce and the size of populations to be served, there are potential benefits from the public and private sector working within collaborative business models. The non-government organisations are well placed to provide support for people with cancer and survivors of cancer. To date, Queensland Health has successfully collaborated with non-government organisations on a range of programs. Further work should expand existing successful programs.

Table 19 Strategies to improve links with the private and non-government sectors

Objective	Proposed strategies—short term	Proposed strategies—medium term
Develop private sector partnerships	Explore options for collaborative service structures in rural and regional areas including: • innovative funding and business models • shared access schemes to medical aids and pharmaceuticals • joint appointments • shared continuing professional development/education • common accreditation and quality improvement mechanisms.	Review findings regarding potential collaborations in rural and remote areas and define pilot projects for implementation.

Objective	Proposed strategies—short term	Proposed strategies—medium term
Extend network arrangements to include links with non-government organisations	Work with non-government organisations to further develop support services for cancer patients, survivors and their families building on existing successful models. Patient accommodation at regional cancer centres offer such an opportunity.	

Objective 3

Objective 3: Implement a statewide framework based on the Clinical Service Capability Framework (CSCF) cancer module and build on defined service networks to plan and coordinate delivery of services across the continuum of care

Define the service capability of all sites within the service networks, currently and predicted over the next 10 years

Service capability levels define the range and level of cancer and related services that can be safely and sustainably provided for the populations served by individual facilities. Table 20 below outlines the minimum clinical service level capability required for the range of cancer services for cancer services, Cancer Units and Cancer Centres. For further (summary) information on 2008 Draft CSCF levels refer Appendix 3 including how the levels map to the new 2010 version. Under the CSCF, all paediatric cancer services are defined as superspecialist level (Level 6).

Table 20 Configuration of Clinical Services Capability Framework (CSCF) services

Service	Cancer Centre	Cancer Unit	Cancer service
Medical oncology	Superspecialist (Level 6)	Level 2 (Level 4)	Level 1 (Level 3) or Consultative
Haematological malignancy	Superspecialist (Level 6)	Level 2 (Level 4)	Level 1 (Level 3) or Consultative
Radiation oncology	Level 3 (Level 5)	Level 2 (Level4)	Level 2 (Level 4) or Consultative
Surgical oncology	Superspecialist (Level 6)/Level 3 (Level 5)	Level 2 (Level 4)	Level 1 (Level 3)
Palliative care	Level 3	Level 2	Primary

Current CSCF levels for Queensland Health cancer treatment services are summarised in the section describing *Organisation of services* (page 41).

Progressive upgrading of cancer service levels is planned over the next 10 years, linked with anticipated workforce availability and planned capital development. Changes will initially focus on consolidating services at the Cancer Centres and units to enable the progressive development of safe and sustainable outreach and consultative services to smaller units.

Proposed changes in service capability are summarised in Table 21 below, showing changes in service capability levels by site and timeframe. The focus in the shorter term is on securing existing service capability levels by addressing gaps identified in areas such as out-of-hours medical cover and clinical support services.

Table 21 Proposed changes in CSCF levels* of cancer services (based on 2008 module) over the short, medium and longer term (2010 CSCF Module levels shown in brackets)

Area	Short to Medium term		Longer term
Northern QLD	Cairns Radiation oncology L2 (L4) Palliative care L3		Cairns Medical oncology (L5) Haematology (L4)
Central QLD	Nambour Medical oncology L3 (L5) Haematology L3 (L5) Gympie Medical oncology L1 (L3) Rockhampton Medical oncology L2 (L4) Haematology L2 (L4)	Redcliffe Haematology L3 (L5) Radiation oncology L2 (L4)	Sunshine Coast Hospital Medical oncology SS (L6) Haematology SS (L6) Radiation oncology L2 (L5) Palliative care L3 Bundaberg Medical oncology L2 (L4) Haematology L2 (L4) Hervey Bay/Maryborough Medical oncology L2 (L4) Haematology L2 (L4) Rockhampton Medical oncology L3 (L5) Haematology L3 (L5) Radiation oncology L2 (L4)
Southern QLD	Toowoomba Medical oncology L3 (L5) Haematology L2 (L4)	Logan Medical oncology L2 (L4) Haematology L2 (L4) Bayside Medical oncology C Haematology C Radiation oncology C Ipswich Haematology L2 (L4) Gold Coast Hospital Medical oncology SS (L6) Haematology SS (L6) Radiation oncology L3 (L5)	

*Key: CSCF 2008 Levels: L1 = Level 1, L2 = Level 2, L3 = Level 3, SS = superspecialist, C = Consultative
CSCF 2010 Levels: L1 = Level 1, L2 = Level 2, L3 = Level 3, L4 = Level 4, L5 = Level 5, L6 = Level 6

Identify superspecialty services and plan for their delivery over the next 10 years

The range of superspecialty/statewide cancer services currently available within Queensland Health facilities is described in the relevant section under *Analysis of current service arrangements* (page 40). Table 22 identifies which cancer services are considered to be 'superspecialty' and/or statewide, and their location. Table 23 outlines proposed development of such additional services by location and timeframe.

Table 22 Cancer services considered 'superspecialty' and 'statewide superspecialty' by location

Service type	Clinical service	Location
Superspecialty/ Statewide	Complex head and neck cancer	Townsville PAH RBWH
	Neuro-oncology	Townsville RBWH PAH
	High grade lymphoma	PAH/Mater Townsville RBWH
	Autologous haematopoietic stem cell transplantation (SCT)	Townsville RBWH PAH/Mater Public
	Allogeneic haematopoietic stem cell transplantation	RBWH
	Gynae-oncology	RBWH with satellites at Mater Public and Townsville
	Paediatric cancer services (incl. paediatric neuro-oncology)	RCH/Mater → QCH (Queensland Children's Cancer Centre)
	Bone and soft tissue	PAH
	Ocular (eye) melanoma brachytherapy	Mater/PAH
	Stereotactic radiosurgery	RBWH
	Inpatient unsealed source (thyroid)	RBWH

Table 23 Proposed development of superspecialty and statewide cancer services by Location and timeframe

Service	Short to Medium Term		Longer Term
Stereotactic radiosurgery (with tomotherapy equipment)	RBWH		
Brachytherapy (high dose)		PAH/Mater, Gold Coast University Hospital 2012	
Brachytherapy (low dose)	RBWH, Townsville	PAH/Mater; Gold Coast University Hospital 2012	
Autologous haematopoietic stem cell transplantation (SCT)		Gold Coast University Hospital 2012	
Allogeneic SCT			Possible development at Townsville*
High grade lymphoma treatment		Gold Coast University Hospital 2012	Sunshine Coast Hospital post 2015

*May be considered in the medium to longer term depending on local needs and capability.

Note: Sunshine Coast hospital brachytherapy and autologous SCT capability is to be incorporated into master planning, but may not be implemented immediately on hospital commencement.

Haematopoietic stem cell transplant services must be co-located with radiation oncology. These services must be accredited under the appropriate standards[60] to participate in clinical trials and assure quality.

Objective 4

Objective 4: Develop service capacity in line with population distribution and growth

Proposed changes to service capacity reflect both the increased demand identified in the section *Projected demand for cancer treatment services* of this plan (page 58) and the proposed changes in service capability detailed in the preceding section, some of which entail the establishment of new services.

It is proposed that the capacity of cancer treatment services be expanded across the range of services including:

- medical oncology
- haematological malignancy
- radiation oncology
- palliative care
- clinical support services—notably diagnostic imaging, pharmacy, pathology.

Specific proposals for increases in treatment capacity are summarised below.

Hospital inpatient beds

The number of dedicated hospital admission beds for overnight and multi-day, cancer treatment related stays is currently inadequate to meet demand. Additional beds are required immediately to meet current capacity needs, and future expansion is needed to meet increasing demand. Although the ambulatory model is a strong focus of care, the increasing use of combined modality treatments is likely to increase the demand for inpatient beds. As detailed in the section *Projected demand for cancer treatment services* (page 58), by 2016, an estimated additional 209 beds above the current number of designated beds, is required. It is assumed that some cancer patients will continue to be admitted to inpatient beds outside designated units (this may be appropriate dependent of the service CSCF level).

The proposed development of dedicated cancer beds in Queensland public hospitals is summarised in Table 24. However, HSD planning should agree on the actual allocation of these additional beds.

Table 24: Proposed development of overnight cancer beds by area

Area	Total current designated inpatient beds	Proposed development * ^		
		Short to Medium Term		Longer Term
Northern QLD	25	35	52	67
Central QLD	67	67	118	151
Southern QLD	70	80	119	153
Total	**162**	**182**	**289**	**371**

* Note: based on achieving 85% occupancy rate projected from current activity

^ Note: based on average annual growth of 8%

[60] Foundation for the Accreditation of Cellular Therapy (FACT) and Joint Accreditation Committee ISCT-EBMT (JACIE) 2006, *International standards for cellular therapy product collection, processing and administration*. 3rd Edition. North America; Commonwealth of Australia. National Pathology Accreditation Advisory Council 2006, *Requirements for Procedures related to the Collection, Processing, Storage and Issue of Haemopoietic Progenitor Cells*, Draft 2.

To date (2009) proposed development delivered or underway includes beds at Cairns (20) and GCUH (30).

Day-only treatment places

Table 25 below summarises the future expansion of day-only treatment places (beds and bed alternatives), based on current activity, projected growth in cancer incidence, and a throughput of 420 patient episodes per place per year.

Proposed capacity is expressed in terms of five-day equivalent places—places that are operational and staffed five days per week. In practice, built capacity will exceed this in units where services are provided on a part-time basis. For example, a five-place unit that operates two days per week provides 10 sessions. Based on the current profile, there will be approximately 10% more actual places compared to five-day equivalent places. The number of places does not relate directly to actual number of patients treated, but relates to potential to treat.

Table 25 Proposed development of actual treatment places by area, 2007

Area	Current actual treatment places	Proposed development		
		Short to Medium Term		Longer Term
Northern QLD	46	49	39	60
Central QLD	92	109	134	182
Southern QLD	74	78	107	146
Total	**212**	**235**	**280**	**388**

A detailed table showing this effect at unit level is included in Appendix 5.

The proposed expansion of bed and day-only treatment capacity will rely on significant capital builds and investment. Lead times for capital works and workforce availability will be critical factors in the success of this expansion. (Also refer to *Capital works requirements*, page 63.) Additional treatment places now operating or planned for delivery at Cairns (5), GCUH (19) and Mackay (8).

Radiation oncology

The key elements of the radiation oncology service plan are detailed below.

- Linear accelerators are planned on the basis of 1.6 machines per 1000 new cancers per year, across both public and private sector services[61].
- Service development should incorporate the principle of spare bunker capacity (minimum of one spare at each site) to facilitate replacement of equipment without disruption to services.
- Stand-alone single machine unit (SMU) facilities are not supported as a general rule, but if considered necessary then the SMU must be located sufficiently close to an existing service for back up and support. This principle will not necessarily apply where a designated service development involves staged introduction of linear accelerators.
- Tomotherapy will be provided at RBWH and image guided radiotherapy at PAH as part of their machine replacement programs.

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

- Each area should have one centre with brachytherapy capacity within five years.
- There will be only one public collaborative stereotactic radiation therapy service, which will be co-located with neurosurgery at RBWH (refer stereotactic radiosurgery Table 22).
- Allogeneic SCT services will be linked with radiation therapy services for full body irradiation.
- Where paediatric services are delivered, the facility must provide infrastructure to support paediatric anaesthetics (general anaesthetic delivery and recovery). This will be located at RBWH in the short term and at the Mater campus when the Queensland Children's Hospital is operational.

Table 26 summarises the proposed development of linear accelerator capacity, planned on the ability to incorporate new development into current or future planned capital expansion and based on projected new cancer cases and a 25% re-treatment rate. This plan assumes an anticipated growth in the private sector to 14 linacs within five years. The section on *Organisation of services* (page 41) provides more detail on current numbers of linacs by area and site.

The numbers of machines specified allow for the development of superspecialty technology, including tomotherapy capacity at RBWH and image guided radiotherapy at the PAH/Mater Hospital service by 2010.

Table 26 Proposed development of radiotherapy services by area

Area	Current linacs (2009)	Proposed total linacs		
		Short to Medium Term		Longer Term
Northern QLD	3*	5–6 Townsville 4 Cairns 1–2	7* Townsville 5 Cairns 2	7 Townsville 5 Cairns 2
Central QLD	5*	5 RBWH 5	9 RBWH 7 Redcliffe 2	11 RBWH 7 Redcliffe 2 Sunshine Coast+ 2
Southern QLD	7*	8–9 PAH 4–5 Mater 4	11* PAH 5 Mater 4 GCH+ 2	11–12* PAH 5 Mater 4 GCH 23 Ipswich 1 (potentially)
Total Queensland Health	**15**	**18–20**	**27**	**29–31**
Private sector	13	15^	15	15

+ Gold Coast University Hospital, scheduled to open 2012 and SCH to open post 2015: radiotherapy role effective at that time. GCH radiation therapy service capacity to include five bunkers plus brachytherapy suite allowing for expansion to four linacs by 2021. Brachytherapy service to be operating in the 3–5 years (refer to Table 24).

^A 2 linac unit to be established at Maroochydore by 2010-11.

* Additional capacity is or will be acquired through private sector contracts where possible.

During the recent federal election campaign, the incoming Labor government committed to fast tracking the establishment of a radiation oncology unit in Cairns. *The Statewide Cancer Treatment Services Plan* proposes to expand radiation oncology services in North Queensland by increasing capacity at Townsville, including staffing, within 2–5 years, and also commissioning a new service—to include two linacs—in Cairns in the 2-5 year timeframe. Also 2 linear accelerators are planned for GCUH and a further 2 are under construction at PAH.

Inpatient Palliative Care

Statewide, an increase of up to 50 beds is proposed to 2016. Table 27 shows the proposed increases in existing capacity within Queensland public hospitals from the baseline of estimated numbers of all actual palliative care beds (not just those co-located with cancer services as per Table 24). Totals define the proposed total numbers of beds required at each time periods (based on 65% activity in the public sector).

Table 27 Proposed development of acute care public palliative care beds statewide

Area	Current beds (actual 2007)	Proposed totals	
		Short to Medium term	Longer term
Northern QLD	25	+5 = 30	+20 Location yet to be determined
Central QLD	62	+12 = 74	
Southern QLD	59	+12 = 89	
Statewide	18*		
Total	**164**	**193**	**213**

*Includes 18 contracted palliative care beds at Mt Olivet, accessible by all Queenslanders

During 2009 Northern Queensland has added 20 hospice beds, at Townsville Hospital, to its stock and 5 are planned as part of the Cairns Hospital development. South Queensland will also add 10 beds at QEII from 2010 and a further 8 at GCUH on opening. These developments will add 43 beds to the 2007 total of 164.

This proposed expansion of service capacity has planning implications for the workforce (medical, nursing and allied health), capital infrastructure and recurrent funding. These implications are discussed below (refer to section on *Resource implications* on page 95, and also *Capital works requirements*, page 63).

Clinical support services

Medical imaging

Imaging services are essential to cancer treatment services. They include:

- diagnostic imaging for diagnosis and monitoring treatment response
- CT imaging to support radiation therapy planning
- nuclear medicine and functional imaging for diagnosis and monitoring treatment response.

The benchmark applied for Positron Emission Tomography (PET) is one PET machine per one million population[62]. Currently, Queensland has two PET machines (one public and one private).

Addressing all statewide imaging needs for cancer services is beyond the scope of this plan. Broader planning for imaging services needs to be undertaken and should consider plans to expand cancer services in line with population growth and increasing incidence. Planning should be done in conjunction with Queensland Health's statewide radiology reform committee and statewide services review.

However, a few key proposed developments of imaging capacity are required to support specific expansions of treatment capacity within this plan. These are summarised in Table 28

[62] Report of the Intercollegiate Standing Committee on Nuclear Medicine 2003, *Positron Emission Tomography: A Strategy for Provision in the UK*. Wiltshire: Sarum ColourView Group.

below. The proposed development of imaging capacity is planned on the basis of projected new cancer cases and the requirement to support expansion of treatment capacity.

Table 28 Proposed development of imaging capacity by area

Area	Proposed		
	Short to Medium Term		Longer Term
Northern QLD	CT scanner, Cairns	PET service, Townsville	
Central QLD	CT scanner, Rockhampton		PET service, RBWH
Southern QLD	PET service, PAH	PET service, GC	

* Gold Coast University Hospital, scheduled to open 2012: Cancer Centre role effective at that time.

* SSCH scheduled to open 2015+—development of extended network is expected to be longer term i.e. 8–10 years

Pharmacy

The need for oncology pharmacy has grown with the introduction of PBS into the public sector and the increased:

- incidence of cancer
- use of chemotherapy as a treatment modality in both the adjuvant and metastatic settings
- number of therapeutic options available for secondary cancers
- complexity of protocols
- availability of supportive therapy
- co-morbidity in patients and requirements for pharmaceutical intervention
- consumer requirements for comprehensive drug information
- number of clinical trials and research projects that require the participation of pharmacists
- use of alternative/complementary medicines requiring expert drug information.

There is a need to focus on training enough pharmacists to work in cancer services and providing ongoing support and education to maintain currency of skills (refer also to *Objective 8*, page 85). Also, technical and clinical information systems to support the functions of oncology pharmacy need to be implemented (refer *Objective 10*, page 93). Table 29 summarises the proposed strategies for developing oncology pharmacy services.

Table 29 Proposed development of oncology pharmacy capacity

Objective	Proposed strategies—short to medium term	Proposed strategies—longer term
Develop oncology pharmacy capacity	Review pharmacy workforce, profile and business processes to match workload with facility CSCF level, chemotherapy activity and patient type. Define recruitment and training requirements. Develop advanced level competencies for cancer pharmacist in conjunction with the Safe Medications Practice Unit.	Implement findings of the review/s and monitor progress. As at 2009 work has commenced on phase three of this strategy – the development of competency based training and recognition.
Provide business clinical support for oncology pharmacy	Implement pharmacy oncology information systems (POIMS) and standardised protocols. Review business rules and practices for efficient service provision and support of clinical service improvement (see also Objective 10, page 93).	Review the progress of implementation and impact of system changes.

Objective	Proposed strategies—short to medium term	Proposed strategies—longer term
	During 2009-10 POIMS implemented at first four sites.	

Familial cancer genetics services

Queensland needs and has recently established a familial cancer genetics service to improve the quality of the state's cancer genetic services and make its service provision equivalent to other states. Additional resources would be required to achieve this.

Key elements of a statewide familial cancer genetics service include:

- counselling and genetic services
- a surveillance screening registry
- identifying at-risk family members, leading to appropriate screening and earlier diagnosis.

Clinical trials

Participation in clinical trials has been shown to be associated with improved individual patient outcomes and the provision of high-quality care. It enables evidence to be collected and analysed, and this informs clinical practice. As service capacity and capability expand in line with the objectives in this plan, the infrastructure for clinical trials and staffing will also need to expand.

At the statewide level, Queensland Health is partnering with The Cancer Council Queensland to promote clinical trials participation through infrastructure. This program is only intended as a supplement to service expansion and to provide initial support for implementation at specific locations.

Table 30 Proposed implementation of clinical trials support

Objective	Proposed strategies—short to medium term	Proposed strategies—longer term
Statewide data management program	Implement the statewide clinical trials data management support program in partnership with The Cancer Council Queensland (2007–10).	Monitor the progress and impact of the program in promoting clinical trials participation. As at November 2009 support for the Program has been reconfirmed and the partnership agreement renegotiated for a further five years.

Objective 5

Objective 5: Enhance multidisciplinary care models including developing and implementing mechanisms to improve communication among health care professionals, cancer patients and their families

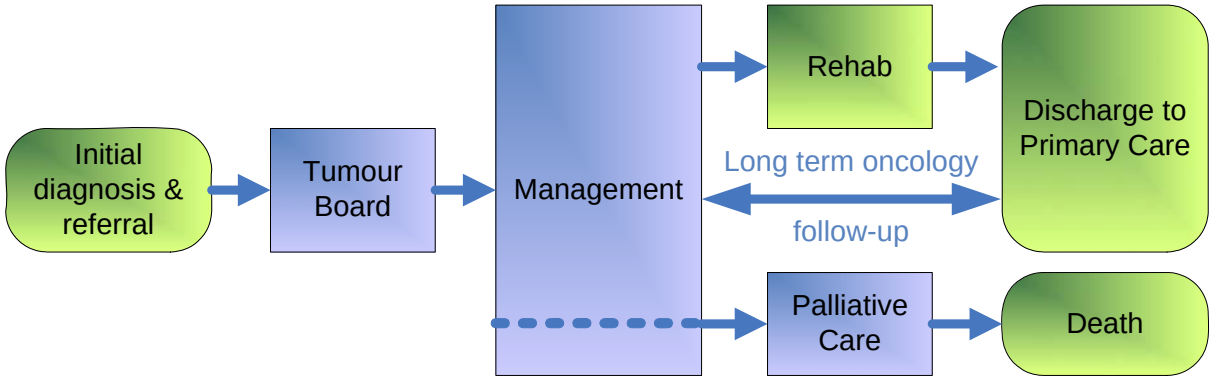
Development of a multidisciplinary model of care is a key feature of Queensland's cancer control strategy (see also section on *Service delivery initiatives*, page 48). The principles of multidisciplinary care (MDC) relate to:

- a *patient-centred approach* with active involvement of patients in decisions about their care
- a *team approach*, involving the core disciplines integral to provision of good cancer care

- *communication* among team members regarding treatment planning, goal setting, psychosocial issues and problem solving
- access to a *range of treatment options* for all patients wherever their care commences through strong service links between facilities and clear referral pathways
- provision of care in accordance with *agreed standards and processes.*

The multidisciplinary care model reflects the patient journey and seeks to optimise the individual's health care pathway through a seamless process from the point of initial diagnosis through to discharge (or death), as shown in the Figure 8 below.

Figure 8 The healthcare pathway in a multidisciplinary care model



Key components of the multidisciplinary care model are:

- **The diagnostic process**—the timely and accurate review of diagnostic (pathology) and staging (imaging) information, enabling early identification and referral of cancer patients. This is the starting point for effective multidisciplinary care.
- **The tumour board**—a multidisciplinary clinic that reviews each case, assesses the diagnosis, identifies treatment options and develops a comprehensive patient treatment plan. The meetings focus on specific tumour types. The range of tumour boards at a cancer care site will reflect its level of service capability, with regional tumour boards generally being limited to the more common cancers.

  A tumour board team forms part of the larger multidisciplinary team and includes a surgeon, medical oncologist/haematologist, radiation oncologist, diagnostic radiologists, pathologists and care coordinator. Other disciplines will be involved depending on the specific tumour type and the patient's individual situation. Boards may use videoconferencing to collaborate and involve staff in regional centres.
- **Multidisciplinary management** (of cancer)—the multidisciplinary team (MDT) will vary in size and composition depending on tumour stream, treatment modalities and patient needs. The MDT should include:
  - medical specialists
  - a case manager
  - psychosocial care professionals (social work, psychology, pastoral care, palliative care)
  - a nursing team
  - allied health professionals
  - oral health care professionals
  - palliative care professionals
  - carers and families
  - administrative support staff.
- **Care coordination**—an essential feature of the multidisciplinary care model at both the broad service level and individual patient level.

- **Continuing care processes**—processes whereby patients are discharged or referred for rehabilitation, palliative care or survivorship support, all of which involve a continuation of the multidisciplinary approach.

The MDC model has been expanded, particularly with the support of Multidisciplinary Team Meeting coordinators, Cancer Care Coordinators and recent projects initiated under CanNET. This work will be consolidated over the next five years.

Table 31 Proposed expansion of multidisciplinary care model

Objective	Proposed strategies—short to medium term	Proposed strategies—longer term
Expand patient/provider access to tumour boards	Review current referral pathways, communication strategies and tumour board provision with recommendations for future development.	Establish additional tumour boards so that: • Cancer Centre boards cover common and low-incidence cancers • Cancer Unit boards cover common tumours • Both link with cancer services.
	Ensure that tumour boards have adequate space and technology (including videoconferencing) to perform their role. Where relevant, incorporate these provisions in master plans and facility plans. Some sites have installed new video-conferencing facilities and a number of trials will be conducted under the tele-oncology initiative.	Monitor and evaluate progress.
	Provide administrative support for tumour boards.	
Implement the Cancer Care coordination model more broadly	Evaluate the existing care coordination model and its implementation, with recommendations for future development.	Expand care coordination to support additional tumour boards.
	Establish additional care coordination positions, to support existing and newly formed tumour boards.	Monitor and evaluate the statewide Cancer Care Coordination Program.
	Establish additional case management positions to support individual patient care.	
Increase general practitioner (GP) engagement in cancer care	With the university sector and General Practice Queensland, develop a plan to promote increased GP involvement in cancer care. CanNet projects have focused on improving communication with this sector.	

Objective 6

Objective 6: Develop and implement consistent, evidence-based referral and treatment protocols, guidelines and standards to promote consistency of care across the state

Queensland Health has developed a draft CSCF module for cancer services (2008 and the revised 2010 version). The CSCF links the range and level of cancer services with requirements for safe practice and evidence-based care.

To ensure quality of care, clinicians need to be supported to adopt best-evidence clinical guidelines in a timely manner that takes account of organisation and context[63]. Various jurisdictions have considered this issue and recent Australian literature advocates ways to promote uptake[64]. An important step in implementation is to identify a team to support and promote the process. Critical to the team is a clinical champion who is '… someone who can speak with authority on clinical matters, can motivate others to recognise that they need to make certain changes and has the ability to achieve consensus …'[65]

Use of consistent, evidence-based protocols, guidelines and standards to promote consistency of care across the state will involve three key strategies:

- endorsing the 2010 CSCF module for cancer treatment services and its application to guide service development, quality and safety and risk management
- disseminating and using evidence-based/best-practice protocols and guidelines to reduce statewide treatment variations. Implementation of individual protocols should only occur at sites with the facilities and staff to support it.
- monitoring the use of evidence-based/best-practice protocols to ensure appropriate and safe patient care, and minimal statewide variations in treatment.

Changes to support standardised systems and care are being implemented progressively in Queensland. *Health Action Plan* funding has supported work to date.

63 Shortell et al. 2007, Improving Patient Care by Linking Evidence-Based Medicine and Evidence-Based Management. JAMA. Vol 298 No 6.
64 National Institute of Clinical Studies 2006, Taking action locally: 8 steps to putting cancer guidelines into practice. Melbourne Australia.
65 Ibid page 6

Table 32 Proposed implementation of standardised systems and treatment pathways

Objective	Proposed strategies—short to medium term	Proposed strategies—longer term
Promote the CSCF module for cancer services	Review, finalise, endorse and communicate the updated cancer services module of the CSCF.	
	Review application and utility of the cancer services CSCF and amend as necessary.	
Disseminate and use evidence-based/best-practice protocols/guidelines	Develop guidelines tying individual cancer treatments/protocols to clinical service capability levels. This work was completed against the 2008 version of the cancer services modules (Medical Oncology and Clinical Haematology) and will be mapped to the 2010 version.	Collate existing evidence/guidelines and investigate aligning with clinical service levels for the safe and appropriate delivery of individual radiation therapy procedures within tumour streams according to CSCF.
	Develop an educational strategy to promote statewide use and compliance with these guidelines. [66]	
Monitor use of evidence-based/best-practice chemotherapy protocols	Establish an ongoing review process to ensure that protocols are up to date and reflect current evidence.	Conduct an audit to monitor uptake of the protocols and compliance with the recommended CSCF levels for tumour type and stage.
	Within each area, progressively establish tumour reference groups for main tumour types, linked to the Area Cancer Clinical Networks. Roles may include leading: • implementation of clinical guidelines • monitoring of compliance with clinical guidelines • support of MDC model.	Review and evaluate the tumour group model/s and operation to ensure value for money and delivery of improved quality of care.
	Establish statewide reference groups based at RCH/QCH for key paediatric cancers.	

Objective 7

Objective 7: Strengthen quality and safety systems in relation to service accreditation; credentialling and support for clinical decision making, service monitoring and performance evaluation

Queensland Health is committed to the development and implementation of specific accreditation and credentialing provisions for both institutions and individual practitioners responsible for the provision of cancer services. This complements the development of consistent, evidence-based protocols, guidelines and standards outlined above under *Objective 6* (page 82).

An Australian model for cancer services accreditation has been developed and is currently being trialed in NSW focusing on quality improvement. Rather than being a regulatory process penalising non-compliance, the model rewards compliance and provides support to

[66] National Institute of Clinical Studies 2006, Taking action locally: 8 steps to putting cancer guidelines into practice, Melbourne Australia.

encourage improvement. It is clinician led and follows a three-year cycle. More information regarding this Australian model is found in Appendix 9. The NSW accreditation model has not been progressed beyond the trial phase.

Changes to the system of credentialling and the granting of clinical privileges are being implemented progressively in Queensland. Where appropriate, they should reflect the Australian model.

Table 33 Proposed development of accreditation, credentialling and scope of practice

Objective	Proposed strategies—short to medium term	Proposed strategies—longer term
Establish accreditation systems for cancer services.	Monitor progress of the national accreditation model and implement when appropriate, ensuring consistency with the CSCF for cancer services.	Implement a three yearly accreditation process across all cancer services when a suitable process becomes available.
Strengthen systems for credentialling and clinical privileges.	Support development of Queensland Health Guidelines re credentialling and scope of practice for medical, nursing and allied health to support area credentialling and Clinical Privileging Committees. Implement the 'Safe Doctors—Fair Process' Policy (July 2007).	

Objective 8

Objective 8: Build workforce capacity in line with planned service development

Most of strategies identified in this plan depend on an adequate and appropriately trained, experienced and supported cancer care workforce employed in the right place at the right time. Poor knowledge of the existing workforce profile, lack of accepted workforce benchmarks, and lack of consistency in the service and workforce models in place across the state make it difficult to project workforce requirements accurately. This is further complicated by the range of cancer services provided with varying degrees of complexity by multidisciplinary teams in and across a variety of settings and sites.

National and international shortages of specialist staff are already affecting recruitment and retention of skilled and experienced staff particularly in locations outside major facilities in South East Queensland. It is essential that strategies address the need for:

- multifaceted and coordinated recruitment, including increasing the number of people choosing to enter this specialist area
- improved retention
- most effective use of available specialist skills.

Development of the proposed service networks and definition of the CSCF levels for each site and service will assist with identification of existing gaps and future workforce requirements.

Table 34 Proposed development of cancer care workforce capacity—general

Objective	Proposed strategies—short to medium term	Proposed strategies—longer term
Optimise the use of existing human resources available to provide safe, quality and sustainable services	As has been done in other specialties undertake a three-month project to: • identify and assess current work activities, roles, processes and flow of Queensland Health cancer services • identify work designs to make best use of available staff • identify tasks/duties that could be performed by other areas/disciplines.	Explore and trial models to accommodate various workforce designs (all disciplines), including part-time work, while supporting best-practice principles e.g. ensuring continuity of care.
	Explore and implement alternative models of care to enable better use of scarce clinical skills e.g. nurse-led clinics, nurse practitioners and therapy assistants.	
	Develop and implement employment models allowing key staff to work between/across HSDs and areas.	
Build cancer workforce to support service expansion and meet projected demands	In collaboration with the Workforce Planning and Coordination Branch, develop a coordinated overseas recruitment plan targeting areas of specific deficit e.g. medical specialists, experienced registered nurses, radiation oncology medical physicists and nuclear physicists.	Develop an education and training plan to enable the necessary redesign to support adopted models.
		Create additional positions incrementally in line with demand projections and service development, taking account of outreach responsibilities, training and professional development.
	Develop strategies to support and facilitate involvement in clinical and other professional research opportunities.	

Medical workforce

The application of international population-based benchmarks adjusted to Australian conditions indicates a total current cancer workforce requirement of 73 medical oncologists/haematologists and 43 radiation oncologists[67]. Current medical workforce details are provided in Table 6.

Analysis of workforce and activity data indicate that the ratio of medical oncologists to haematologists is 70:30 as the latter group have a laboratory role in addition to their clinical one. The workforce is evenly split across public and private sectors, except for radiation oncology where the split is about 70:30.

The same international benchmarks have been applied to determine the numbers of specialist staff required to support the projected growth in cancer services over the next decade and these are shown in Table 35 below.

[67] Commonwealth of Australia 2001, The Specialist Medical and Haematological Oncology Workforce in Australia: Supply, Requirements and Projections 2001–2011, AMWAC Report 2001

Table 35 Projected statewide and public sector specialist medical staffing requirements, 2006-16

	Medical oncology	Clinical haematology	Radiation oncology	Palliative medicine	Total
Statewide					
2006	51	22	43	40	156
2011	80	24	50	44	198
2016	86	26	56	48	216
Public sector					
2006	26	11	26	20 (minimum)	83
2011	40	12	32	22	106
2016	43	13	37	24	117

These projections represent the minimum number of specialist staff required to provide direct cancer services. However, this may be influenced by future changes in cancer incidence, prescribed treatment regimes, models of care and/or skill mix as well as any change to the proportion of work in the private sector, particularly in palliative medicine.

Related responsibilities such as provision of outreach services, clinical supervision, training and research also need to be factored into public-sector workforce planning.

Achieving these targets will require a combination of two main strategies:

1. recruiting and appointing additional specialists particularly to regional and networked centres
2. enlisting additional advanced trainees and medical fellows across all disciplines.

Each of these strategies hinges on the capacity of the existing specialist workforce to provide necessary support, training and supervision.

Table 36 Proposed development of specialist medical workforce

Objective	Proposed strategies—short to medium term	Proposed strategies—longer term
Increase medical specialist capacity to meet service demands and support training positions	Continue activities designed to recruit and retain Australian trained specialists.	Review success of recruitment and retention strategies and revise as necessary
	In collaboration with Workforce Planning and Coordination, recruit appropriately trained overseas specialists and facilitate achievement of specialist registration.	
	Explore opportunities for specialists, including overseas graduates under alternative models e.g. by Networks or across HSDs to enable more flexible use of expertise and to facilitate specialist coverage and clinical supervision.	
	As part of entire workforce strategy, create positions incrementally in accordance with demand projections and service development, taking account of outreach responsibilities, training and professional development.	
	Determine the composition of the palliative care medical workforce in Queensland based on a model that includes and supports specialists, advanced trainees, registrars and clinical diploma candidates.	Define and implement a coordinated recruitment and training strategy for the specialist palliative medicine workforce based on the model determined.
Create a training model to meet service demands and grow the medical workforce	Investigate a centralised funding model to allow the training workforce to move through sites and specialty areas to meet their training requirements while operational management is centralised (as in other specialties e.g. orthopaedics).	Investigate opportunities for public–private partnerships in relation to trainees, including trainees working across public and private settings or being trained in the private sector in partnership with colleges.
	Progressively create additional training positions in line with demand projections, service development and education imperatives.	Implement a coordinated training strategy to increase the numbers of palliative care specialists and uptake of the clinical diploma.

Nursing workforce

The scope of advanced cancer nursing practice is broad, encompassing clinical practice, research, education, consultation, and administration. Cancer care nurses work within multidisciplinary teams across all cancer treatment services in medical oncology, radiation oncology, haematology and palliative care.

Current understanding of the profile of the nursing workforce, skill sets and use across the state is poor. Shortages of nurses, especially experienced nurses with specialist skills, already exist and are likely to increase if no action is taken. There are no accepted nursing benchmarks to guide workforce planning or the development of contemporary workforce models. Also lacking is defined education and clinical competency achievement in provision of specialist care.

A coordinated and multifaceted plan is needed to develop a nursing workforce able to support planned service development and expansion. It will need to focus on:

- building the actual workforce through recruitment and retention strategies
- increasing the capacity to deliver quality, safe and sustainable services through education and training, and alternate workforce models.

Table 37 Proposed development of cancer care nursing workforce capacity

Objective	Proposed strategies—short to medium term	Proposed strategies—longer term
Build the capacity of the nursing workforce to provide specialist cancer services	In collaboration with the Office of the Chief Nurse and Workforce Planning and Coordination Branch, and in conjunction with the 'whole-of-service project', explore: • skills mix and undertake nursing workforce modeling to determine nursing workforce requirements • alternative workforce models that may be applied in cancer nursing.	Pilot and evaluate alternative nursing skills mix models at selected Cancer Centres and Cancer Units.
	Participate in the statewide review of clinical education and training needs for cancer care nurses being undertaken by the Office of the Chief Nurse.	Evaluate outcomes of the education and training needs review and EdCan, and implement as appropriate.
	Participate in the development of national competencies through involvement in EdCan[68]. Identify Queensland Health lead sponsor. Work with ClinEd-Q on implementation of EdCan in Queensland.	
	Explore partnership opportunities with TAFE colleges, and tertiary and professional bodies and develop education opportunities for registered and enrolled nurses e.g. competency certificates.	Following robust evaluation of the network education projects in Central and Southern areas, consider recommendations for implementation across areas/Statewide.
Build cancer nursing workforce to meet projected demands	Participate in statewide recruitment program and develop a coordinated recruitment plan for key cancer nursing positions.	

Allied health workforce

Allied health

Allied health professionals are a diverse group of clinicians who provide a range of assessment, treatments, interventions and ongoing care to patients/carers and families across the continuum of cancer care. The range of disciplines includes, but is not limited to, audiology, dietetics/nutrition, occupational therapy, pharmacy, psychology, physiotherapy, social work, speech pathology and medical radiation.

There has been comparatively little allied health workforce planning nationally, and this is reflected at the state level. Highly specialised roles in specific areas can be quantified and future workforce requirements projected based on knowledge of the current staffing levels, skill requirements, entry and exit patterns and service planning. However, due to the degree that services are integrated and operate across specialties, settings and sites it is difficult to clearly define the current cancer workforce profile; the skill mix, workforce models in place, and allied health staff interaction with the multidisciplinary team. This work will need to be done.

Currently there are no general allied health benchmarks to guide workforce planning or the development of contemporary workforce models. An exception is in radiation therapy services where benchmarks have been accepted nationally (refer to Appendix 9). Generally,

[68] Explanatory note: EdCan is a federally funded Cancer Australia project to develop and implement a national training framework and training resource package for nurses to specialise in cancer care (see www.canceraustralia.gov.au).

there is a lack of defined education and clinical competency achievement in the provision of specialist care.

Shortages of allied health staff reportedly affect the provision of specialist services for patients with head and neck cancer and lymphoedema, and other shortages have been clearly identified in pharmacy, radiation oncology and nuclear medicine services. These shortages have resulted in intense competition for staff, especially for those with highly specialised knowledge and skills.

It should also be noted that the *National Service Improvement Framework for Cancer* and the *Queensland Cancer Control—Strategic Directions 2005–2010* both highlight the importance of psychosocial support for all patients with cancer and the gap that exists in service provision. The primary interventions are centred on social work and psychology. Medical specialists report that the existing allied health workforce is inadequate given the demand and cannot manage expectations for enhanced service such as psychosocial support. Greater investment in allied health is therefore vital to implementing these objectives and addressing these service gaps.

Table 38 Proposed development of cancer care allied health workforce capacity

Objective	Proposed strategies—short term	Proposed strategies—medium term
Develop an allied health workforce model to support cancer services into the future	In collaboration with Workforce Planning and Coordination and in conjunction with the 'whole of service' study, determine: • current profile of the allied health component of the workforce • roles and responsibilities for allied health in accordance with the proposed cancer service networks and CSCF. In collaboration with Workforce Planning and Coordination Branch, undertake a project with other jurisdictions to define benchmarks/standards to describe appropriate allied health staffing in accordance with CSCF and service provision.	As part of 'whole-of-workforce' strategy and allied health project recommendations: • implement models and strategies enabling more efficient use of scarce specialist allied health knowledge and skills e.g. telehealth, therapy assistants and statewide support networks • implement systems to facilitate consistent training for pharmacists and other allied health as required in accordance with defined roles and CSCF
	Develop flexible models to accommodate professional development years (PDY) and ROMP intern requirements.	
	Develop a 'seeding' plan for a Queensland Cancer Physics Collaborative physicist recruitment and retention strategy once the business plan is completed.	Monitor and evaluate the success of recruitment and retention strategies, including overseas recruitment, and adapt accordingly.
Facilitate access to specialist allied health services and development of safe and sustainable services	Develop formalised networks, reflecting service networks and CSCF capability at each site, in combination with strategies, such as telehealth, to facilitate mentoring and education, and support the delivery of specialist services.	
	Support Queensland Health sterile production pharmacy training.	

Objective 9

Objective 9: Develop or procure the capital infrastructure required to support efficient implementation of planned service development

The achievement of the objectives outlined in this section will require the expansion of capital infrastructure, facilities and equipment. Master plans to scope and cost specific development projects will be necessary. Already, a number of capital works master planning projects are underway, most notably around the new hospitals at the Gold and Sunshine coasts as well as the Queensland Children's Hospital. These are in addition to a number of facility master planning activities across the state. This master planning, as outlined in Table 39, provides an opportunity for cancer treatment services requirements to be included. Failure or delays in securing the funding commitment necessary to build necessary infrastructure to accommodate capacity expansion will compromise implementation of this plan.

Table 39 Master planning for cancer services in the short term by Area

Master planning		
HSDs	**Current**	**1–2 years**
Northern QLD		
Cairns	Service planning/Master planning (Master planning completed) Health Precinct planning	
Townsville	Service planning/Master planning (Master planning in progress)	
Mount Isa	Master planning completed	
Mackay	Service planning (Master planning completed)	
Central QLD		
RBWH	Service planning/Master planning	
Redcliffe	Service planning/Master planning	
TPCH		Service planning/Master planning
Caboolture	Master planning	
Nambour	Master planning	
Caloundra	Master planning (completed)	
Southern QLD		
PAH	Master planning (Master planning completed)	
QCH/Mater	Service planning/Master planning	
Toowoomba	Service planning/Master planning	
Ipswich	Service planning for HSDs	Service planning/Master planning
Robina Hospital	Service planning/Master planning	
GCUH	Service planning/Master planning (Master planning completed)	

Capital investment considerations

Building cancer treatment services to meet cancer care needs is dependent on high-cost equipment. Traditionally this equipment has been purchased outright. Major capital equipment is regularly serviced, maintained and upgraded at five-, seven- and 10-year intervals to ensure safety and increase the life of the machinery. When purchasing there is a potential for reduced functionality and loss of efficiency as new technology and treatment options become available. This is described as 'accelerated obsolescence' and is a particular risk in environments of rapidly changing technology such as cancer treatment.

An alternative strategy is to enter into a contract with a distributor for equipment based on 'clinical functionality'. In this arrangement, initial expenditure is considerably less and while the purchaser is limited to purchasing associated consumables from the distributor, they have the option to upgrade the technology during the term of the contract. Such change to current procurement methods for cancer equipment needs further analysis by Health Services Purchasing and Logistics Branch and other stakeholders to quantify the benefits and costs (and compliance with the whole-of-government purchasing framework).

Other opportunities that Queensland Health may be able to take advantage of as a major equipment purchaser include:

- purchasing a number of items within a short period of time as proposed in this plan may provide an increased opportunity to negotiate more effectively
- improving organisational efficiency by having contracts for servicing and other maintenance arrangements centrally managed
- co-locating related services which use similar equipment and/or have similar staffing requirements (such as the breast service based at Cairns Hospital). In this model co-locating screening and diagnostic services enables staff with specialist skills to work across areas. It also allows them to share resources such as equipment and support staff, while costs associated with two separate services may be reduced. In addition, it could reduce the period of time between the identification of abnormality and diagnosis, and commencement of treatment.

Table 40 Proposed strategies for efficient investment in capital infrastructure

Objective	Proposed strategies—short to medium term
Improve capacity to provide quality care based on clinical need	Explore options to improve costs associated with high-cost capital equipment, such as contracts, based on clinical functionality
Increase organisational efficiency and effectiveness	Explore options to centrally manage equipment and service contracts
	Explore options to co-locate services and equipment in order to better use human and physical resources

Objective 10

Objective 10: Build a statewide network of cancer information systems to support timely communication and the delivery of effectively networked cancer services

Information technology that supports service integration should be used routinely in the delivery of cancer services. Integrating technology with clinical practice has a number of benefits. It can:

- improve communication with patients and their private care providers about the treatment of their cancer
- support clinicians to provide the best care
- enhance multidisciplinary care for patients regardless of where they live
- create opportunities for research into new therapies and models of care.

A considerable body of work in relation to cancer information systems, funded through the HAP, is currently underway. This work is being undertaken in collaboration with national initiatives and is consistent with national standards.

In 2006-07 a review of the Queensland Cancer Registry (QCR) was undertaken. This review was completed late 2007 and a report with recommendations subsequently considered by Queensland Health to be implemented as appropriate.

Table 41 Proposed strategies for implementation of a statewide network of cancer Information systems

Objective	Proposed strategies—short to medium term	Proposed strategies—longer term
Establish systems to measure performance	Monitor service quality through the Queensland Cancer Control Safety and Quality Partnership.	
Enhance communication and coordination to deliver efficient, safe patient care	Support clinical decision making using electronic decision support tools: • Queensland Oncology On Line (QOOL)—continue module development • OASys —a web-based analysis system • Radiation Oncology Information System (ROIS) • Pharmacy Oncology Information Management System (POIMS)	
Routinely report statewide information on cancer stage at diagnosis	Implement QCR review recommendations as appropriate Implement QOOL to multidisciplinary cancer meetings	Monitor and evaluate impact.
Use innovative information solutions for patients and their providers	• Extend clinical information and QOOL into private environment • Provide on-line clinical summary for care in the community	
Support service improvement and continuous learning	• Make routinely collected clinical and administrative data widely available for service improvement and research • Use technology infrastructure in networks to support clinical training and peer support for clinical streams across the cancer networks	
Sustain investment in information systems	• Recruit and/or train technical staff with expertise in oncology information management systems • Maintain a whole-of-cancer information systems approach to development, implementation and maintenance of IT infrastructure	

Objective 11

Objective 11: Influence the development of appropriate funding arrangements to support efficient delivery

Implementation of the Queensland Health funding model (outlined under *Funding arrangements*, page 46) provides activity based funding for acute, non acute and sub acute inpatient and outpatient services. The impact of the model on the full range of aspects of cancer treatment services especially with respect to ambulatory cancer services, high cost drugs, statewide services, outreach, research, education and patient travel for care is untested at this stage.

As the delivery of cancer treatment services is multi-faceted, special consideration should be given to a business model and associated funding that supports:

- best evidence models of care and treatment options, including quality and service development activity
- staff education, training and development
- research
- quality assurance activity
- system enablers
- clinical governance
- secure funding for statewide services such as paediatrics and allogeneic stem cell transplant services
- facilitates a composite understanding of activity across all settings of caner treatment services.

Table 42 Proposed strategies for managing cancer services funding

Objective	Proposed strategies—short to medium term	Proposed strategies—longer term
Ensure appropriate funding for cancer services	Monitor the impact of the new funding model and appropriateness to support the delivery of efficient, high-quality cancer services	Refine casemix funding model to reflect disease staging and associated use of resources

Resource implications

This section outlines the key resource implications of changes in the delivery of cancer treatment services in Queensland.

The *Health Action Plan*[69] allocated $463.7 million to cancer services over the five years, commencing in the 2005–06 financial year. This funding has enabled:

- expansion of some services to meet the increasing demand
- initiation of multidisciplinary models of care
- recruitment of staff to address current workload issues, to some extent.

In addition, this funding has improved the quality of the Queensland Health cancer care program by enabling work to commence on providing critical information technology and workforce recruitment and retention infrastructure support. However, this funding alone will not be sufficient to meet anticipated future demand in cancer services, and the programs it currently funds will require ongoing implementation and expansion.

Cancer care is complex, requiring multidisciplinary teams of highly trained health professionals. In the short and medium term there needs to be a focus on recruitment of clinicians to fill currently funded vacancies, and on ongoing training and retention strategies.

As highlighted in this plan, existing inpatient bed and day treatment (bed alternatives or treatment places) capacity is currently inadequate to absorb the excess demand for treatment. In addition, there are some critical shortages in radiation therapy infrastructure and diagnostic services. Increases in inpatient beds and day treatment bed alternative places will require a concomitant investment and significant capital builds above and beyond current master planning. Not all anticipated capital builds are currently funded but they will need to be initiated in the next four years and will require a significant government commitment.

Actions within existing resources

As discussed in the section on *Objectives* (from page 67), a number of key strategies from the *Queensland Cancer Control Strategic Directions 2005-2010* are currently being implemented with HAP and other funding (refer also to Appendix 4) including:

- establishing and enhancing of service networks
- strengthening and consolidating existing cancer treatment services
- strengthening clinical and network governance
- strengthening multidisciplinary care and access
- developing care coordination and psychosocial models of care
- implementing programs for workforce recruitment, advanced training and retention
- implementing statewide mentoring, professional development, research and support initiatives
- developing standardised referral pathways and standardised care pathways
- implementing clinical information systems and other data collection and analysis tools
- providing access to clinical outcomes and system performance data for quality improvement.

As the implementation of these initiatives continues, it may be necessary to seek additional funding to support the expansion of the programs to match growth in services.

[69] Queensland Government 2005, Action Plan – Building a better health service for Queensland.

Expansion in system capacity

Projected demand for expanded treatment capacity is addressed in *Projected demand for cancer treatment services* (page 58) of this plan and strategies for required growth in capacity in the section on *Objectives*, page 67. Table 43 summarises this information and identifies the key implications for capital assets, workforce and funding over the short to medium term. It should be noted that the actual treatment places (2006) are not 5-day equivalent but the projected requirement cited are. For example the 46 treatment places in Northern Queensland are equal to 30 5-day equivalent places so the projected short term growth is from 30 to 39. However, the actual places represent current spare capacity which could be utilized more efficiently with resources to met local demand.

Table 43 Required expansion in treatment (and diagnostics) capacity for Queensland Health by Clinical Network Area, 2006–16

	Current/required capacity			Capital infrastructure requirements		
	2006	**2011**	**2016**	**Master planning**	**Capital builds**	**Capital assets and recurrent operational funding**
Inpatient beds (2006 beds are dedicated bed numbers)						
North QLD	25	52	67	Townsville, Cairns	Townsville, Cairns	Beds, clinics, office and support services
Central QLD	67	118	151	RBWH, Redcliffe, Rockhampton, SSC	RBWH, Redcliffe, Rockhampton, SSC	
South QLD	70	119	153	PAH, QCH/Mater, Ipswich, GC	PAH, QCH/Mater, GC	
	162	**289+**	**371+**			
Actual (2006) & 5-day equivalent day-only treatment places						
North QLD	46	39	60	Townsville, Cairns	Townsville, Cairns	Treatment places, clinics, office and support services
Central QLD	142	134	182	RBWH, Redcliffe, Rockhampton, SSC	RBWH, Redcliffe, Rockhampton, SSC	
South QLD	112	107	146	PAH, QCH/Mater, Ipswich, GC	PAH, QCH/Mater, GC	
	300	**280+**	**388+**			
Radiation therapy services (linacs)						
North QLD	3	4	6	Townsville, Cairns	Townsville, Cairns ^	Bunkers, linacs, planning, brachytherapy, clinics, office and support services.
Central QLD	5	9	12	RBWH, Redcliffe, SSC	RBWH, Redcliffe, SSC	
South QLD	6	10	12	PAH, QCH/Mater, GC	PAH, QCH/Mater, GC	
	14	**23**	**30+**			
Workforce—multidisciplinary team incorporating medical, nursing, allied health and support staff						

	Current/required capacity			Capital infrastructure requirements		
	2006	**2011**	**2016**	**Master planning**	**Capital builds**	**Capital assets and recurrent operational funding**
Palliative care beds (based on 65% activity in Public Sector)						
North QLD	25	30	33	tbd	tbd	Beds, clinics, office and support services
Central QLD	62	74	80	tbd	tbd	
South QLD	77	89	100	tbd	tbd	
	164	**193**	**213**			
Workforce needed—multidisciplinary team incorporating medical, nursing, allied health and support staff						
PET scanner						
North QLD		1		Townsville	Townsville	Bunkers, PET, clinics, office and support services
Central QLD	1		1	RBWH	RBWH	
South QLD		1	1	PAH, GC	PAH, GC	
	1	**3**	**5**			
Workforce needed—multidisciplinary team incorporating medical, nursing, scientific, allied health and support staff						
CT Scanners						
North QLD		1		Cairns	Cairns	Service, clinics, office and support services
Central QLD		1		Rockhampton	Rockhampton	
South QLD						
		2				
Workforce needed—multidisciplinary team incorporating medical, clinical, allied health and support staff.						

+ QCH, Gold and Sunshine Coast hospitals are currently master planning for delivery of new hospitals during the period (funded expansion through a separate process)

* Additional eight palliative care beds committed for Caloundra by 2010 (election commitment)

^ Australian Government funding may be available to fast track this build. See Objective 4.

Short to medium term priorities (review)

Recent review (2009) of priorities for the short to medium term acknowledged what commitments have been made and progress achieved within existing resources. This work will continue.

As workforce recruitment and training has improved the issue of new physical capacity to deliver expanded services is now the highest priority. Discussion of these across the area based Clinical Networks is outlined following.

In addition, in 2009 the Australian Government announced a Regional Cancer Centre (RCC) capital infrastructure investment initiative, as part of its broader Health and Hospital Fund program. $560 million is committed to RCC developments. This initiative presents an

opportunity for investment to address the cancer care needs of many regional Queenslanders and this opportunity has informed these key short to medium term priorities.

Table 44 Review of short to medium term priorities, 2009

Key Priorities 2010		
HSDs/Sites	**Short term achievements delivered or underway**	**Proposed priorities—short to medium term**
Northern QLD		
Cairns	Cairns Hospital development, extra 20 inpatient beds 5 palliative care beds 5 day treatment places 2 linear accelerators	Deliver services
Townsville	20 hospice/palliative care beds	Plan for extra day treatment places, linear accelerators & potentially a PET service
Mount Isa		Expanded outreach services to Mt Isa
Mackay	8 extra day treatment places	Expanded outreach services to Mackay
Central QLD		
RBWH		Plan for extra day treatment places, linear accelerators & enhanced capacity for provision of expanded outreach
Redcliffe		Plan for extra beds, day treatment places & linear accelerators
Rockhampton	Refurbishment and funding for expanded outreach service from RBWH	Plan for extra beds, day treatment places and expanded outreach services from RBWH
Hervey Bay		Plan for enhancement outreach cancer service with extra day therapy places
Bundaberg		Plan for enhancement outreach cancer service with 3 extra day therapy places
Southern QLD		
PAH	2 linear accelerators plus spare bunker 1 PET service	Plan extra day treatment places& enhanced capacity for provision of expanded outreach
QCH/Mater	QCH development, extra 5 inpatient beds 5 day treatment places	Immediate expansion of inpatient beds
Toowoomba	Private Provider contract for provision of radiation therapy public	Plan for extra beds (acute and palliative care) and day treatment places
GCUH	GCUH development, extra 30 inpatient beds 8 palliative care beds 19 day treatment places 2 linear accelerators	Deliver services

Implementation and Evaluation

This section discusses the key issues to progress and monitor implementation of the proposed changes in the delivery of cancer treatment services in Queensland.

The *Queensland Statewide Cancer Treatment Services Plan 2008–16* provides both the strategic and operational direction to service delivery and resource investment in cancer treatment services statewide. Regional and HSDs, and area cancer treatment services action plans will supplement this Plan. HSDs and Area Clinical Networks will take main responsibility for developing and implementing operational service plans for major aspects of this Plan. Governance structures for Queensland Health's Cancer Care Program will continue to provide strategic direction, expert advice, coordination and monitoring of progress.

Implementation arrangements

Planning, implementation and evaluation are iterative processes which, together, are integral to delivering health care services in Queensland.[70]

The planning objectives and strategies in *Queensland Statewide Cancer Treatment Services Plan 2009–16* establish the direction for future development of cancer treatment services within Queensland. The leadership and support of clinicians and Clinical Networks has guided this statewide planning process. That continued leadership is essential to the success of the implementation and evaluation of this Plan at a statewide, area and local level.

Where one exists, the Statewide Clinical Network should lead the review process of this statewide plan updating it every two years to ensure objectives and strategies remain current and reflect the changing health service needs of the community. The original version of this Plan was completed late 2007 and this update version was prepared late 2009.

Good governance is essential to ensuring the successful implementation of the *Queensland Statewide Health Services Plan 2007—12* and this associated *Queensland Statewide Cancer Treatment Services Plan 2009–16*. Effective governance includes competent management of resources in a way that is fair, open, accountable and responsive to people's needs. It requires that the recommendations in the Plan are properly debated, endorsed as considered appropriate and implemented in a timely and equitable manner. Effective governance also requires that individuals or groups of individuals take responsibility for such implementation, being held accountable for implementation achievement.

The Director-General

The Director-General of Queensland Health has two levels of responsibility and accountability:

- Whole-of-government level—contributing to the development and achievement of high-level strategic goals for the government.
- Department level—responsible for the effective and efficient running of the Department of Health and delivering the implementation of the extensive health reform agenda.

In the context of this Plan, the Director-General is responsible and accountable for endorsing the Plan, and ensuring, in line with whole-of-government policy, its implementation.

[70] Eager, K, Garrett, P & Lin, V (2001) *Health planning: Australian perspectives*, Allen and Unwin, Sydney.

The Executive Management Team

The Executive Management Team (EMT) is the principal advisory body to the Director-General and provides advice on strategic service, policy and high-level administrative issues. EMT is responsible for endorsing statewide health services plans such as the *Queensland Statewide Cancer Treatment Services Plan 2009–16*. EMT is also responsible and accountable for implementing the Plan, monitoring implementation of its progress, and the Plan's review process. It is recommended that such monitoring occurs on a yearly basis.

HSD CEOs

The HSD CEOs are responsible and accountable for the delivery of statewide and area-based strategies of this *Statewide Cancer Treatment Services Plan 2009–16,* as relevant to their particular HSD.

HSD Health Service plans should provide detail on how the reforms and endorsed objectives and strategies in this Plan will be implemented at an area and local level. Area plans should also incorporate implementation and evaluation processes. It is anticipated that the achievement of some objectives will require more facilitation than others (e.g. using radiation services). Any implications for cancer treatment services from HSD planning processes will also need to be considered.

HSDs will need to liaise with the area based Cancer Clinical Networks on these issues.

This Plan should be used as an internal working document and form a basis for reporting implementation progress of the objectives of the statewide plan.

Statewide Clinical Network

The Cancer Clinical Leadership Group is responsible and accountable to EMT for the delivery of statewide cancer services where they hold necessary funding. Where funds are transferred to HSDs for specific cancer treatment services initiatives the HSDs then become jointly responsible and accountable.

This Statewide Network should establish actions to advance implementation and regular evaluation of this Plan, periodically reporting progress to EMT via the Network sponsor. The Network should also provide leadership to, and facilitate achievement by, Area Clinical Networks for implementation and evaluation of area/HSD initiatives outlined in the Plan.

Evaluation

It is recommended that reporting regarding implementation at an area level be reviewed yearly. This reporting will flow into the bi-annual review and reporting on the statewide objectives and strategies in the Plan. As statewide plans are reviewed and evaluated, HSD Health Service plans should also be reviewed and updated to ensure stated initiatives and actions are current and reflect changing the health service needs of the community.

Biannual evaluation should, at a minimum, comprise a review of all strategies, including assessment of service utilisation data. As stated in this Plan, the reliability of some projections in the Plan is uncertain given limitations with our current data. As new data becomes available, the projections should be reviewed, original projections adjusted and the implications of any variance assessed, and the Plan amended as appropriate. This initial bi-annual review has found little significant change in the key data elements considered (other than a slight acceleration in cancer incidence projections). Some elements of the planned services have progressed and contribute to current capacity as noted in the revisions to this Plan.

Risk assessment

Possible risks to the successful implementation of the *Queensland Statewide Cancer Treatment Services Plan 2009–16* include:

- inability to recruit and retain an appropriately trained workforce, particularly in regional areas
- lack of clinician engagement in implementing the strategic and operational direction outlined in this plan
- insufficient levels of investment for the required capital builds
- insufficient levels of investment for the required increases in treatment services capacity
- delays in the delivery of capital builds or other mismatch in timing between expansion of capacity and demand
- inability to capture accurate, reliable and representative data to support monitoring and ongoing refinement of planning parameters and system performance.

The risk of any and all of these issues is real and high. Area plans will need to address each of these issues and develop mitigation strategies. It is also important to note that implementation of this Plan will involve a complex array of individual projects and project teams across a range of Clinical Network Areas, HSDs and functional areas (e.g. capital works). As specific project plans are developed and projects progressively implemented, identified risks will be further defined and addressed. The statewide and Area Clinical Networks will fulfill a key role in monitoring progress and achievement of these projects within the context of the strategic and operational direction outlined in this plan. They will also provide leadership and clinical expertise to assist in mitigating risk and driving reform.

Glossary

A

Accessible

The ability of people to obtain appropriate health care at the right place and right time irrespective of income, cultural background or geography.

Additional diagnosis

Conditions or complaints either coexisting with the principal diagnosis or arising during an episode of care.

Adjuvant therapy

A treatment given with or shortly after another treatment to enhance its effectiveness.

Admitted patient

A patient who undergoes a hospital's formal admission process to receive treatment and/or care. Care may occur in hospital or in the home.

Adverse event

An incident that results in harm to a person receiving health care.

Age-standardisation

A set of statistical techniques used to remove, as far as possible, the effects of differences in age when comparing two or more populations.

Allied health professional

One of the following groups of healthcare workers: dieticians, radiographers, music/recreation/diversion therapists, occupational therapists, prosthetists and orthotists, physiotherapists, psychologists, radiation therapists, social workers, speech pathologists medical physicists and others.

Allogeneic stem cell transplant

Transplant in which the patient receives stem cells from the bone marrow and/or stem cells from the peripheral blood of a specially matched donor.

Ambulatory care patient

Another term for non-admitted patient.

Australian refined diagnosis related groups (AR-DRGs)

An Australian system of diagnosis related groups that provide a clinically meaningful way of relating the number and type of patients treated in a hospital (i.e. its casemix) to the resources required by the hospital. Each AR-DRG represents a class of patients with similar clinical conditions requiring similar hospital services.

Average length of stay (ALOS)

The average number of patient days for admitted patient episodes. Patients admitted and separated on the same day are allocated a length of stay of one day.

B

Bed days

The total number of days of care provided in a hospital bed or equivalent during the period.

Bed occupancy rate

The overall percentage of available hospital beds which have been occupied over the period.

Benign

A term generally applied to a tumour or cancer that is not malignant. Benign tumours do not spread to other organs.

Biopsy

Removal of a sample of tissue or cells from the body to assist in diagnosis of a disease.

Bone marrow aspiration

Removal of a small sample of bone marrow (usually from the hip) through a needle for examination under a microscope to see whether cancer cells are present.

Bone marrow transplantation

Another term for haematopoietic stem cell transplantation.

Brachytherapy

Type of radiation therapy that involves placing radioactive sources (delivered by a temporary or permanent implant of radioactive material usually in the form of wires or seeds) inside the body, close to or inside the cancer

Burden of disease

The burden of disease and injury in a defined population is the sum of the impact to that community of premature mortality, non-fatal outcomes and disability.

C

Cancer

A disease of the body's cells, where gene damage causes cells to multiply without control. They may grow into a tumour and spread into surrounding tissue, and/or move to new sites and form other tumours (metastases).

Cancer continuum

The spectrum of cancer-related experience, including prevention, early detection, diagnosis, treatment, living with cancer, survivorship or end of life

Cancer control

The totality of measures taken to reduce the impact of cancer, including prevention, early detection and screening, treatment, rehabilitation, and palliative care

Cancer treatment

Specific treatment measures taken to kill cancer cells, or ameliorate the cancer's major effects. Cancer treatment includes surgery, radiation therapy, chemotherapy, hormone therapy, and pain relief measures either alone or in combination (multi-modality treatment).

CanNET

A cancer network organisation

Capital expenditure

Expenditure on large-scale fixed assets (for example, new buildings and equipment that have a useful life extending over a number of years)

Care pathway

A set of procedures and outcome targets for managing the overall care of a specific type of patient.

Casemix

The range and types of patients (the mix of cases) treated by a hospital or other health service.

Chemotherapy

The use of drugs or hormonal agents to kill cancer cells or to limit the cancer's progress. The drugs may also be used to make the cancer cells more sensitive to radiation.

Chemoradiation

A combination of chemotherapy and radiotherapy treatment.

Clinical governance

The system through which health services are accountable for continuously improving the quality of services and safeguarding high standards of care.

Clinical trial

A research activity used to evaluate the efficacy and safety of promising approaches to disease prevention and control. Interventional trials determine whether experimental treatments or new ways of using known therapies are safe and effective under controlled environments. Observational trials address health issues in large groups of people or populations in natural settings.

Co-morbidity

A medical condition existing simultaneously but independently with another condition in a patient, or a medical condition in a patient that causes, is caused by, or is otherwise related to another condition in the same patient.

Competence

The demonstrated ability to provide health care services at an expected level of safety and quality. Competency is the combination of skills, knowledge, attitudes, values and abilities that support effective and/or superior performance in the professional's practice role.

Credentials

The qualifications, professional training, clinical experience and training, and experience in leadership, research, education, communication and teamwork that contribute to a medical practitioner's competence, performance and professional suitability to provide safe, high-quality health care services.

CT scan

The technique for constructing pictures from cross-sections of the body by x-raying the part of the body to be examined from many angles.

Cytotoxic

Toxic to cells. This term is used to describe drugs that kill cancer cells or slow their growth.

D

Diagnosis

The identification of a disease or health condition, or the name of the disease or condition.

Diagnostic imaging

Visualising body structures to help identify a disease or condition by using x-ray, ultrasound, radioisotopes or magnetic resonance.

E

Ehealth

The use of information and communication technology to enhance health care, enabling the provision of health care that is not limited by time or distance.

Epidemiology

The study of the distribution and determinants of diseases in humans.

Episode of care

The period of admitted patient care between a formal hospital admission and a formal separation

F

Formal

A documented process agreed to by all parties involved that may include networking agreements, Memorandums of Understanding, outsourcing of services, and contractual arrangements for retrieval/transfer of patients between facilities.

G

Guidelines

A formal statement directing a defined task or function. Examples include clinical practice guidelines and guidelines for the ethical conduct of medical research.

Gynae-oncology

The specialist treatment of cancer of the female reproductive system.

H

Health outcome

A change in the health of an individual or a group of people or populations that can be attributed wholly or partially to a health intervention or a series of interventions.

Haematologist

A doctor who has specialist qualifications in haematology and specialises in the medical management of disorders of the blood and blood-forming tissues.

Haematology

The branch of medicine concerned with the study and treatment of disorders of the blood and blood-forming tissues.

Haemopoietic stem cell transplant

A procedure to replace bone marrow, which has been destroyed by high-dose therapy, with stem cells that may come from bone marrow, peripheral blood or umbilical cord blood. There are two types of transplant: allogeneic, where stem cells are taken from a donor who has a similar tissue type to the patient; and autologous, where the patient's own stem cells are used.

Hospital

A health care facility established under commonwealth, state or territory legislation as a hospital or a freestanding day procedure unit that is authorised to provide treatment and/or care to patients.

I

Immunosuppression

Medically-induced or disease-related suppression of the immune system.

Incidence

The frequency of occurrence of any event or condition in a defined population over a defined period of time.

Inpatient

Another term for an admitted patient.

Inpatient separations

The end of an episode of care for an admitted patient. Separation also means the process by which an admitted patient completes an episode of care either by being discharged, dying, transferring to another hospital or changing the type of care.

Irradiation

The use of high-energy radiation – from x-rays, gamma rays, neutrons and other sources – to kill cancer cells and/or shrink tumours.

L

Late effect

A side effect of treatment (e.g. radiotherapy or chemotherapy) that occurs some months or years after treatment

Length of stay

The length of stay of an overnight patient is calculated by subtracting the date the patient is admitted from the date of separation and deducting days the patient was on leave. A same-day patient is allocated a length of stay of one day.

Leukaemia

Cancer of the blood-forming cells that causes large numbers of white blood cells to be produced.

Linear accelerator (linac)

A high-energy x-ray machine used for external radiation therapy.

Lymph

A clear fluid containing plasma and white blood cells that flows through the lymphatic vessels.

Lymphoma

Cancer of the lymphatic system. There are two main types of lymphoma, Hodgkin's lymphoma and non-Hodgkin's lymphoma.

Lymphoedema

Swelling caused by a build-up of lymph; this happens when there is insufficient draining in lymphatic vessels or lymph nodes, and can occur following some cancer treatments.

M

Magnetic resonance imaging

A non-invasive method of imaging that allows the form and metabolism of tissues and organs

to be visualised (also known as nuclear magnetic resonance).

Medical oncology

A sub-specialty of internal medicine devoted to the investigation, diagnosis and medical management of people with cancer.

Medical oncologist

A doctor who has specialist qualifications in medical oncology and specialises in the medical management of people with cancer, which includes the use of chemotherapy and immunotherapy.

Metastases

Also known as 'secondaries'. Tumours or masses of cells that develop when cancer cells break away from the original (primary) cancer and are carried by the lymphatic and blood systems to other parts of the body.

Models of care

A multifaceted concept that broadly defines the way health services are delivered.

Morbidity

The state of being diseased or ill.

Mortality rate

The portion of a defined population that dies during a specific period. For cancer, this is expressed as the number of cancer deaths per 100,000 population per year.

Multi-modality treatment

Where more than one method of treatment is used to treat an illness e.g. chemotherapy used in conjunction with radiotherapy

N

Neuro-oncology

The specialist treatment of cancer of the nervous system (including the brain, spinal cord and peripheral nerves).

Non-admitted patient

Patients who receive care from a recognised non-admitted patient service/clinic of a hospital.

Non-admitted patient occasion of service

Occurs when a patient attends a functional unit of the hospital for the purpose of receiving some form of service, but is not admitted. A visit for administrative purposes is not an occasion of service.

Nuclear medicine

A branch of medicine and medical imaging that uses the nuclear properties of matter in diagnosis and therapy. Many procedures in nuclear medicine use pharmaceuticals that have been labeled with radionuclides (radiopharmaceuticals).

O

Ocular (eye) Melanoma Brachytherapy

Brachytherapy for the treatment of eye cancer (see brachytherapy).

Oncology

The branch of medicine dealing with cancer.

Outpatient

Another term for a non-admitted patient.

Outpatient service clinic

An examination, consultation, treatment or other service provided to non-admitted non-emergency patients in a specialty unit or under some other organisational arrangement administered by a hospital.

Overnight (multi-day) stay patients

A patient who, following a clinical decision, receives hospital treatment for a minimum of one night i.e. one who is admitted to and separated from the hospital on different dates.

P

Paediatrician

A doctor who specialises in the development and care of infants and children and in the treatment of their diseases.

Paediatric oncologist

A doctor with specialist qualifications in paediatrics who specialises in the medical management of children with cancer.

Palliation

Treatment given to remove or relieve symptoms rather than to cure the disease.

Palliative care

The active total care of patients whose disease is not responsive to curative treatment. Palliative care promotes the best possible quality of life for patients and their families, through pain and symptom management. Palliative care also caters for a patient's psychological, social and spiritual wellbeing.

Palliative medicine specialist

A doctor who has specialist qualifications in palliative medicine and specialises in the medical management of people who have a life-ending illness

Pathologist

A doctor who specialises in the diagnosis of disease through study of the microscopic structure of cells and tissues.

Performance indicator

A statistic or other unit of information that reflects, directly or indirectly, the extent to which an expected outcome is achieved or the quality of processes leading to that outcome.

Positron emission tomography (PET)

A highly specialised imaging technique using radioisotopes that is used to produce a computerised image of metabolic activity of body tissues.

Principal diagnosis

The diagnosis established after investigation to be chiefly responsible for an episode of admitted patient care.

Private hospital

A privately owned and operated institution, catering for patients who are treated by a doctor of their own choice. Patients are charged fees for accommodation and other services provided by the hospital, and relevant medical and allied health practitioners.

Privileges

Clinical privileges result from the permission granted to a practitioner to provide medical and other patient care services within defined limits in a health care facility. They represent the range and scope of clinical responsibility that a practitioner may exercise in the facility. Clinical privileges are specific to the individual practitioner, usually in a single health care facility, and relate to the resources, equipment and staff available.

Protocols

A formal, detailed treatment plan used for groups of people with similar medical problems. Doctors follow set treatment protocols so that the results of different types of treatment can be compared, and the natural course of a disease may be better understood.

Prognosis

A prediction of the likely outcome or course of a disease; the chance of recovery or recurrence.

Prognostic factor

Patient or disease characteristics (e.g. age or co-morbidity) that influence the course of the disease under study.

Prevalence

The number of cases of disease in a population, at a defined point in time, irrespective of the time of diagnosis. It is usually expressed as the number of cases of disease per 100,000 individuals in the population.

Prevention

Actions aimed at eliminating or minimising the impact of disease and disability.

Psychosocial care

Care and attention to the psychological, social and behavioural dimensions of disease to assist patients and families adjust to the disease.

Public hospital

A hospital funded by a state or territory health authority. Public hospitals offer free diagnostic services, treatment, care and accommodation to all eligible patients.

Q

Quality of life

A measure of the extent a patient is free from pain, psychological distress, or disability caused by disease, and the extent to which they can perform the normal functions of life unaided.

R

Radiologist

A doctor who specialises in creating and interpreting pictures of areas inside the body. An interventional radiologist specialises in the use of imaging techniques to assist treatment, for example, the insertion of intravenous catheters.

Radiation oncologist

A medical doctor who has specialist qualifications in radiation oncology and specialises in the management of people with cancer, which includes the use of high energy x-rays and other forms of radiation to treat cancers

Radiation therapy

The use of high-energy radiation, usually x-rays or gamma rays, to kill cancer cells or injure them so they cannot grow and multiply. Radiotherapy can also harm normal cells, but they are able to repair themselves. Sometimes called radiotherapy.

Rate

A measure of the frequency of occurrence of a phenomenon. A rate expresses the frequency with which an event occurs in a defined population in a given time period.

Rehabilitation

Programs that help restore people to an improved level of function or independence, and a fulfilling, productive life after illness or injury. Rehabilitation may involve physical restoration such as the use of prostheses, physiotherapy, occupational therapy programs and/or speech pathology, counselling and emotional support, and employment retraining.

Referral pathways

The mechanism by which patients move between services to access required care.

Registered nurse

A nurse registered with the Queensland Nursing Council to practice nursing without supervision. A registered nurse (RN) assumes accountability and responsibility for their own actions, and acts to rectify unsafe nursing practice and/or unprofessional conduct.

Registrar (advanced trainee)

A doctor admitted to a training program by an Australian specialist college and employed as such.

Risk factor

An exposure or genetic characteristic that is associated with a health-related condition.

S

Safety

A state in which risk has been reduced to an acceptable level

Screening

Examining and/or testing a large number of people who have no symptoms of a particular disease to identify anyone who may have that disease. This enables the disease to be treated at an early stage, when cure is more likely.

Separation

The end of an episode of care for an admitted patient. Separation also means the process by which an admitted patient completes an episode of care either by being discharged, dying, transferring to another hospital or changing type of care.

Service related grouping (SRG)

A classification based on Australian Refined Diagnostic Related Group (AR-DRG) aggregations for categorising admitted patient episodes into groups representing clinical divisions of hospital activity.

Specialist

A specialist is a doctor who is registered by the Medical Board of Queensland to practice in that specialty in Queensland, and whose training has been acknowledged by the relevant Australian specialist college via the award of a fellowship of that college or demonstrated equivalent.

Staging (cancer)

Cancer staging systems describe how far cancer has spread. Generally, staging systems group patients into four stages. Stage I cancers are small localised cancers that are usually curable. Stage II and III cancers are usually locally advanced and/or involve local lymph nodes. Stage IV cancers usually represent inoperable or metastatic cancer.

Stem cell transplantation

Another term for haemopoietic stem cell transplantation.

Stereotactic radiotherapy

A non-invasive brain surgery procedure that occurs without opening the skull, but by means of directed beams of ionising radiation.

Sub-acute

Treatment focused on improving and maintaining a person's functional capacity and maximising independence.

Surveillance

Systematic ongoing collection, collation and analysis of data, and the timely dissemination of information to those who need to know so that action can be taken.

T

Tomotherapy

TomoTherapy®, or Helical TomoTherapy, is a commercialised form of CT-guided Intensity Modulated Radiation Therapy (IMRT)—a new type of radiation therapy delivery system.

Treatment modalities

Methods of treatment

Abbreviations

Term	Definition
ABS	Australian Bureau of Statistics
AHP	Allied Health Professional
AHS	Area Health Service (Queensland Health) (previous organisational structure)
AIHW	Australian Institute of Health and Welfare
AR-DRG	Australian Refined Diagnostic Related Group
av.	Average
AYA	Adolescents and Young Adults
BOD	Burden of Disease
CAHS	Central Area Health Service (previous QH organisational structure)
CCLG	Cancer Control/Clinical Leadership Group
CCT	Cancer Control Team (Queensland Health)
CFM	Casemix Funding Model
CSCF	Clinical Service Capability Framework
CT	Computerised Tomography
DALY	Disability Adjusted Life Year
DRGs	Diagnosis Related Groupings
ED	Executive Director (Queensland Health)
EMT	Executive Management Team (Queensland Health)
ERP	Estimated Resident Population
FTE	Full Time Equivalent
GC	Gold Coast
GCH	Gold Coast Hospital
GCUH	Gold Coast University Hospital
GM	General Manager (Area Health Service) (previous QH organisational structure)
GP	General Practitioner
HAP	Health Action Plan
HOCA	Haematology and Oncology Clinics Australasia
HSD	Health Service District
IT	Information Technology
Linacs	Linear accelerators
MBS	Medicare Benefits Schedule
MDC	Multidisciplinary care
MDT	Multidisciplinary team
NAHS	Northern Area Health Service (previous QH organisational structure)
NCSG	National Cancer Strategies Group
NFM	New Funding Model
NGO	Non-Government Organisation

Term	Definition
no.	Number
NRR	Northside, Royal Children's and Royal Brisbane and Women's Hospitals Planning Cluster (previous QH organisational structure)
NSIF	National Service Improvement Framework
NSW	New South Wales
OASys	Oncology Analysis System
p.a	Per annum
PAH	Princess Alexandra Hospital
PBS	Pharmaceutical Benefits Scheme
PCA	Palliative Care Australia
PCB	Policy and Coordination Branch, PPR (Queensland Health)
PDY	Professional Development Year
PET	Positron Emission Tomography
POIMS	Pharmacy Oncology Information Management System
PSR	Policy Strategy and Resourcing Division (Queensland Health)
pts	Patients
QA	Quality assurance
QCCAT	Queensland Cancer Control Analysis Team (Queensland Health)
QCH	Queensland Children's Hospital
QCR	Queensland Cancer Registry
QE II	Queen Elizabeth II Hospital
QH	Queensland Health
QHAPDC	Queensland Health Admitted Patient Data Collection
QOOL	Queensland Oncology On Line
QPHON	Queensland Paediatric Haematology and Oncology (Clinical) Network
RAM	Resource Allocation Model
RBWH	Royal Brisbane and Women's Hospital
RCH	Royal Children's Hospital
RO	Radiation Oncology
ROIS	Radiation Oncology Information System
SAHS	Southern Area Health Service (previous QH organisational structure)
SSC	Sunshine Coast
SSCH	Sunshine Coast Hospital
SCT	Stem Cell Transplant
Seps	Separations
SLA	Statistical Local Area
SMO	Senior Medical Officer
SMU	Single Machine Unit
SRG	Service Related Grouping

Term	Definition
SS	Superspecialty
TPCH	The Prince Charles Hospital
YLD	Years Living with Disability
YLL	Years of Life Lost

Appendices

The Appendices in this 2009 updated version of the Plan are essentially unchanged from the original version of the Plan.

Appendix 1: Eight national priority actions for change

There are eight priority actions that underpin the 19 critical intervention points of the *National Service Improvement Framework for Cancer (2006)*[71]. If these actions were undertaken by national, state and territory governments, many of the changes identified in the Framework would be in place.

1. Establish integrated and networked cancer services to improve continuity of care from reducing risk to care at the end of life.
2. Establish accreditation for cancer services and credentialling of practitioners using as a basis the recommendations about optimal services outlined in the Framework.
3. Develop funding structures which support multidisciplinary care in hospitals and the community through specialist and general practitioner payment schedules.
4. Develop national, state/territory and local approaches to monitoring all aspects of cancer control including performance indicators.
5. Provide evidence-based consumer information about the environmental, behavioural and genetic risks of cancer, prevention, early detection, diagnosis and treatment and supportive care.
6. Establish national approaches to assist primary health care providers, especially general practitioners, to offer high quality and appropriate assessment of risk, detection of cancer, referral to treatment, coordination of treatment and supportive care (from diagnosis to palliative care).
7. Implement and evaluate culturally appropriate programs to improve cancer control with special emphasis on the needs of disadvantaged groups, particularly Aboriginal and Torres Strait Islander people.
8. Review the evidence, gaps in research and opportunities for action within a specific timeframe, at least every three years.

[71] National Service Improvement framework for cancer (2006), National Health Priority Action Council, Department of Health and Ageing, Australian Government.

Appendix 2: Queensland's cancer control objectives

Summary of objectives from Queensland Cancer Control Strategic Directions 2005–2010

Objective 1:	Reduce smoking prevalence and exposure to passive smoking
Objective 2:	Promote healthy behaviours where there is evidence that these contribute to reducing the risk of cancer including reducing overweight and obesity, enhancing optimum nutrition and increasing physical activity
Objective 3:	Increase the awareness and adoption of sun-safe behaviours
Objective 4:	Increase awareness of the link between alcohol consumption and cancer risk, and reduce alcohol consumption
Objective 5:	Strengthen the role of primary health care providers in reducing the risk of cancer in the population through enhanced prevention
Objective 7:	Improve effectiveness of existing screening programs for breast and cervical cancer
Objective 8:	Develop and implement a population-based bowel cancer screening program as part of a national program
Objective 9:	Increase early detection strategies among at-risk populations for hepatitis C infection
Objective 10:	Evaluate new methods for screening and early detection for major cancers, including melanoma
Objective 11:	Strengthen the role of primary health care providers in the population through enhanced early detection and diagnosis of cancer, where evidence exists that early detection will reduce mortality
Objective 12:	Ensure provision of appropriate screening, early diagnosis, counseling and genetic services for individuals with an inherited predisposition to cancer
Objective 13:	Increase the availability of information about early signs of cancer and ensure that people with a sign or symptom of cancer have timely access to high-quality diagnostic services regardless of where they live
Objective 14:	Provide access to quality treatment services for all Queenslanders (remote, rural, regional and metropolitan)
Objective 15:	Enhance multidisciplinary care to improve outcomes

Objective 16: Provide quality and safety systems supporting evidence-based practice to achieve better outcomes for people with cancer, their families and carers

Objective 17: Expand the role of clinical trials in cancer treatment to improve the management and treatment of people with cancer

Objective 18: Establish a single service for paediatric haematology and oncology—*The Queensland Children's Haematology and Oncology Service*

Objective 19: Ensure the adequacy of support for survivors of cancer across the state

Objective 20: Ensure all patients have access to quality integrated palliative care services (includes those patients without cancer)

Objective 21: Ensure coordinated implementation of the CCIP and other cancer-related initiatives that support organisational change

Objective 22: Provide practical support and resources to the government and Queenslanders by establishing a Queensland Health genomics program which will work closely with the Queensland Clinical Genetic Service and other identified support/advocacy groups in Queensland

Objective 23: Ensure Queensland Health's information technology infrastructure provides effective management of information, knowledge and technology to achieve best practice cancer care to improve health outcomes for cancer patients

Objective 24: Establish an integrated cancer research program and framework that promotes clinical and systems research and innovation

Objective 25: Develop an 'continuum-of-responsibility' approach to workforce development, recruitment, retention and management

Objective 26: Queensland Health will provide quality care into the future through partnerships by building relationships between Queensland Health, the non-government and community support sectors

Appendix 3: Clinical Service Capability Framework—Summary of draft cancer module

The following is a summary of the 2007 version CSCF Draft Cancer Module for:

1. Medical oncology services
2. Haematological malignancy services
3. Radiation oncology services.

Palliative care is not included here as this section of the CSCF (Section C7) has been published within version 2 (2005).

As noted earlier in this Plan the CSCF has recently been reviewed and updated with the new version anticipated for release during 2010 assuming all relevant approvals are obtained.

A 'rule of thumb' mapping of the 2007 version against the 2010 version of Cancer Module of the CSCF is provided in the following figure.

2007 Version	2010 Version
Primary level	Level 2
Level 1	Level 3
Level 2	Level 4
Level 3	Level 5
Superspecialty	Level 6

Medical Oncology Services

Medical Oncology Service Level 1 administers conventional doses of relatively low-risk systemic therapy under protocols[72], which would not normally be expected to produce prolonged neutropenia. Initial courses of systemic therapy (first cycle) are initiated at and supervised by a Level 3 or super-specialist medical oncology service (or a consultative service offered by them), with subsequent maintenance courses provided at this level. The availability of support services—particularly the pathology turnaround time within 24 hours—is important to manage any complications of treatment, regardless of whether the patient is receiving palliative care or curative treatment.

Table 45 Medical Oncology Service Level 1—summary

Diagnostic Imaging	1	Accessible within one day's travel; access to computerised tomography (CT)
Emergency	Primary	
Endoscopy	1	Accessible within one day's travel
Medical	1	
Nuclear Medicine	Primary	Accessible within one day's travel
Operating Suite	1	Accessible within one day's travel
Pathology	1	
Pharmacy	1	
Surgical	2	Accessible within one day's travel
Radiation Oncology		Accessible within six hours' transport for urgent treatment e.g. spinal cord compression
Palliative Care	1	Accessible
Staffing		
Medical	• Credentialled specialist in medical oncology for advice—24-hour access • Credentialled specialist in microbiology for advice—24-hour access • All medical practitioners credentialled for involvement in the systemic therapy treatment will have appropriate training and skills in the safe administration and handling, including the preparation and disposal, of cytotoxic agents and all associated waste products • All medical practitioners credentialled for involvement in the systemic therapy treatment will have at least a broad understanding of both common and unusual toxicities associated with systemic therapy • Access to ambulatory care/consultative services by a specialist in medical oncology or clinical haematology with provision for telephone consultation for complications of treatment and admissions for complications within 24 hours	
Nursing	• Access to registered nurse with specialised knowledge and experience in medical oncology at a Level 3 or superspecialist medical oncology service • All nursing staff involved in the systemic therapy treatment will have appropriate training and skills in the safe administration and handling, including the preparation and disposal, of cytotoxic agents and all associated waste products • All nursing staff involved in the systemic therapy treatment will have at least a broad understanding of both common and unusual toxicities associated with systemic therapy • All nursing staff should have a general understanding of radiation oncology and the possible adverse events that may occur as a consequence of treatment • All nursing staff involved in clinically validating prescriptions and the supply of cytotoxic drugs consult with a pharmacist at a higher level with appropriate competency in oncology/haematology	

Allied Health	Access to the appropriate allied health specialties

Medical Oncology Service Level 2 also administers conventional doses of systemic therapy. Similar to Medical Oncology Service Level 1, initial courses of systemic therapy (first cycle) are generally initiated at and supervised by a Level 3 or superspecialist medical oncology service with subsequent maintenance courses provided at this level. Initial (first cycle) and subsequent maintenance courses can be administered at this level for a limited number of protocols where ordered and directly supervised by a medical oncologist. The key difference between Medical Oncology Service Level 1 and Medical Oncology Service Level 2 is the requirement for support services. The pathology turnaround time within one hour is particularly important in order to manage any complications of treatment, regardless of whether the patient is receiving palliative or curative care. Relatively moderate risk systemic therapy protocols[73] are managed at this level after first cycle supervised by a Level 3 or 4 medical oncology service. Level 2 also provides maintenance systemic therapy to patients diagnosed with breast, colorectal, lung, upper gastrointestinal malignancies, low-grade lymphoma and prostate cancers, or palliative management.

Table 46 Medical Oncology Service Level 2—summary

Critical Care	HDU	On-site or accessible within 15 minutes
Diagnostic Imaging	2	Accessible within one day's travel. Access to ultrasound, CT, magnetic resonance imaging (MRI), gallium scans. MRI for spinal cord compression within 24 hours; non-admitted CT for tumour assessment within seven days
Emergency	2	Accessible
Endoscopy	2	
Medical	2	
Nuclear Medicine	Primary	Accessible within one day's travel
Operating Suite	2	
Pathology	2	
Pharmacy	2	
Surgical	2	
Radiation Oncology		Accessible within six hours' transport for urgent treatment e.g. spinal cord compression
Palliative Care	2	On-site or accessible
Staffing—as for Medical Oncology Service Level 1 plus		
Medical	Credentialled specialist in internal medicine with experience in medical oncology on call 24 hours (public) or available 24 hours (private) with access to Level 3 or superspecialist medical oncology service 24 hours for emergency advice	
Nursing	As for Medical Oncology Service Level 1	
Allied Health	As for Medical Oncology Service Level 1	

Medical Oncology Service Level 3 provides for people receiving treatment for all common malignancies (excluding haematological malignancies) in conjunction with multidisciplinary care, including surgeons and radiation oncologists. This level of service is able to initiate initial (first-cycle) courses of systemic therapy and supervise subsequent maintenance courses provided at Medical Oncology Service Levels 1 and 2. Level 3 also manages relatively high-risk systemic therapy protocols[74] and may provide medical oncology consultative services at lower service levels. This level may also participate in clinical trials.

Table 47 Medical Oncology Service Level 3—summary

Critical Care	ICU2	
Diagnostic Imaging	2	Access to CT; MRI MRI for spinal cord compression within 24 hours; non-admitted CT for tumour assessment within seven days
Emergency	3	Access within 15 minutes
Endoscopy	3	
Interventional Radiology	2	
Medical	3	
Nuclear Medicine	2	Access to positron emission tomography (PET)
Operating Suite	3	
Pathology	3	
Pharmacy	3	
Surgical	3	Subspeciality surgeons available e.g. orthopaedics, surgical oncology management by stream e.g. breast, colorectal
Radiation Oncology		On-site or accessible within six hours' transport
Palliative Care	3	On-site or accessible
Medical	• Credentialled specialist in medical oncology on call 24 hours within 30 minutes (public) or available 24 hours within 30 minutes (private). This responsibility may be shared with the credentialled medical oncologist and clinical haematologist at the facility • Designated medical oncology registrar for inpatient service (public) • Credentialled specialist in medical oncology and registrar under supervision for outpatient services (public) • Part-time training registrars on rotation (e.g. six monthly) with a super-specialist medical oncology service (public) • Access to specialist in infectious diseases for advice and guidance	
Nursing	Registered nurse in charge on each shift is supported by adequate nursing staff with demonstrated evidence of ongoing clinical competency and experience appropriate to the oncology and the systemic therapy protocols being delivered on site—24 hours Registered nurse with specialised knowledge and experience in medical oncology in charge of unit	
Allied Health	As for Medical Oncology Service Level 2 Data management for evaluation of outcomes and clinical research	

Superspecialist Medical Oncology Service — provides for people receiving treatment for all common malignancies (excluding haematological malignancies) in conjunction with multidisciplinary care with disease-specific surgeons, radiation oncologists, pathologists and supportive care specialties. Concurrent chemo-radiation treatment provided for tumours including head and neck tumours, early-stage lung cancers, upper gastrointestinal tumours, and anal and rectal cancers. This service provides treatment of low-volume and highly specialised cancers such as germ cell tumours, gynaecologic malignancies and sarcomas. It also manages relatively high-risk complex protocols and has capability for stem cell transplantation. This level is a reference centre for all medical oncology service levels, and in the public sector it should be accredited to the standard able to sustain a full-time training registrar. It may also provide medical oncology consultative services at lower service levels (excluding Medical Oncology Service Level 3) and may participate in clinical trials.

Table 48 Superspecialist Medical Oncology Service—summary

Required clinical services	Level	Notes
Critical Care	ICU3	
Diagnostic Imaging	2	On-site CT; MRI. MRI for spinal cord compression within 24 hours; non-admitted CT for tumour assessment within seven days
Emergency	3	Access within 15 minutes
Endoscopy	3	
Interventional Radiology	2	
Medical	3	
Nuclear Medicine	3	Access to PET
Operating Suite	3	
Pathology	3	
Pharmacy	3	
Surgical	3	Subspeciality surgeons available e.g. orthopaedics, surgical oncology management by stream e.g., breast, colorectal, head and neck, upper gastrointestinal, lung, bladder
Radiation Oncology		Level 3 on-site or accessible within one hour's transport
Palliative Care	3	Level 3 on-site within one hour's transport
Staffing – as for Medical Oncology Service Level 3 plus		
Medical	On call 24 hours within 30 minutes (public) or available 24 hours within 30 minutes (private), must be provided by at least two credentialled medical oncologists Dedicated medical oncology training registrar	
Nursing	As for Medical Oncology Service Level 3	
Allied Health	As for Medical Oncology Service Level 3	

Haematological Malignancy Cancer Services

Haematological Malignancy Service Level 1 administers conventional doses of relatively low-risk systemic therapy under protocols,[75] which would not normally be expected to produce prolonged neutropenia. Initial courses of systemic therapy (first cycle) are initiated and supervised by a Level 3 or superspecialist haematological malignancy service with subsequent maintenance courses provided at this level. The availability of support services, particularly the pathology turnaround time within 24 hours, is important to manage any complications of treatment, regardless of whether the patient is receiving palliative or curative care.

Table 49 Haematological Malignancy Service Level 1—summary

Diagnostic Imaging	1	Accessible within one day's travel, plus access to computerised tomography
Emergency	Primary	
Endoscopy	1	Accessible within one day's travel
Medical	1	
Nuclear Medicine	Primary	Accessible within one day's travel
Operating Suite	1	Accessible within one day's travel
Pathology	1	
Pharmacy	1	
Surgical	2	Accessible within one day's travel
Radiation Oncology		Accessible within six hours' transport for urgent treatment e.g. spinal cord compression
Palliative Care	1	On-site or accessible
Staffing—as for Haematology Service Level 3 plus		
Medical	• Specialist credentialled in clinical haematology for advice—24 hour access for haematology malignancies • Specialist credentialled in microbiology for advice—24 hour access • All medical practitioners credentialled for involvement in the systemic therapy treatment will have appropriate training and skills in the safe administration and handling, including the preparation and disposal, of cytotoxic agents • All medical practitioners credentialled for involvement in the systemic therapy treatment will have at least a broad understanding of both common and unusual toxicities associated with systemic therapy	
Nursing	• Access to registered nurse with specialised knowledge and experience in clinical haematology at a Level 3 or superspecialist haematological malignancy service • All nursing staff involved in the systemic therapy treatment will have appropriate training and skills in the safe administration and handling, including the preparation and disposal, of cytotoxic agents and all associated waste products • All nursing staff involved in the systemic therapy treatment will have at least a broad understanding of both common and unusual toxicities associated with systemic therapy • All nursing staff should have a general understanding of radiation oncology, the possible adverse events that may occur as a consequence of treatment	
Allied Health	• Access to the appropriate allied health specialties	

Haematological Malignancy Service Level 2 also administers conventional doses of systemic therapy, which would not normally be expected to produce prolonged neutropenia. Similar to Haematological Malignancy Service Level 1, initial courses of systemic therapy (first cycle) are initiated at and supervised by a Level 3 or superspecialist haematological malignancy service with subsequent maintenance courses provided at this level. The key difference between a Haematological Malignancy Service Level 1 and Haematological Malignancy Service Level 2 is the requirement for support services. In particular, the pathology turnaround time within one hour is important to manage any complications of treatment, regardless of whether the patient is receiving palliative or curative care. Relatively moderate risk systemic therapy protocols[76] are managed at this level. It provides maintenance

systemic therapy to patients diagnosed with the same conditions described for Haematological Malignancy Service Level 1.

Table 50 Haematological Malignancy Service Level 2—summary

Critical Care	HDU	Access within 15 minutes
Diagnostic Imaging	2	Accessible within one day's travel. Ultrasound, CT, MRI, gallium scans MRI for spinal cord compression within 24 hours; non-admitted CT for tumour assessment within seven days
Emergency	2	Accessible
Endoscopy	2	
Medical	2	
Nuclear Medicine	Primary	Accessible within one day's travel
Operating Suite	2	
Pathology	2	
Pharmacy	2	
Surgical	2	
Radiation Oncology		Accessible within six hours' transport for urgent treatment e.g. spinal cord compression
Palliative Care	2	On-site or accessible
Staffing – as for Haematological Malignancy Service Level 1 plus		
Medical	• Credentialled specialist in internal medicine with experience in clinical haematology on call 24 hours (public) or available 24 hours (private) with access to Level 3 or superspecialist haematological malignancy services 24 hours for emergency advice • Regular and frequent outpatient services available by a credentialled clinical haematologist or medical oncologist with provision for telephone consultation for complications of treatment and admissions for complications 24 hours for emergency advice	
Nursing	• As for Haematological Malignancy Service Level 1	
Allied Health	• As for Haematological Malignancy Service Level 1	

Haematological Malignancy Service Level 3 provides treatment for intermediate-grade non-Hodgkin's lymphoma and Hodgkin's disease and excludes acute leukaemia and high-grade lymphoma. This level of service is able to initiate the first course of systemic therapy and supervise subsequent maintenance courses provided at haematological malignancy service Levels 1 and 2. All definitive diagnostics and the development of a treatment plan, which may take place at a lower level, are coordinated at this level or a higher level. A Level 3 service also manages relatively high-risk systemic therapy protocols[77]. It may also provide haematological malignancy consultative services at lower service levels and may participate in clinical trials.

Table 51 Haematological Malignancy Service Level 3—summary

Critical Care	ICU2	
Diagnostic Imaging	2	Access to CT, MRI - MRI for spinal cord compression within 24 hours; non-admitted CT for tumour assessment within seven days
Emergency	3	Access within 15 minutes
Endoscopy	3	
Interventional Radiology	3	
Medical	2	
Nuclear Medicine	2	Access PET
Operating Suite	3	
Pathology	3	
Pharmacy	3	
Surgical	3	Subspeciality surgeons available e.g. orthopaedics, surgical oncology management by stream e.g. breast, colo-rectal
Radiation Oncology		On-site or accessible within six hours' transport
Palliative Care	3	On-site or accessible
Staffing – As for Haematology malignancy services level 2 plus:		
Medical	• Service provided by a credentialled specialist in medical oncology • Credentialled specialist in medical oncology on call 24 hours within 30 minutes (public) or available 24 hours within 30 minutes (private). This responsibility may be shared with the clinical haematologist and medical oncologist at the facility • Designated clinical haematology registrar for inpatient service (public)	
Nursing	• Registered nurse in charge on each shift is supported by adequate nursing staff with demonstrated evidence of ongoing clinical competency and experience appropriate to the clinical haematology and the systemic therapy protocols being delivered on-site—24 hours • A registered nurse with specialised knowledge and experience in clinical haematology (haematological malignancies) in charge of unit	
Allied health	• As for Haematological Malignancy Service Level 2 • Data management for evaluation of outcomes and clinical research	

Superspecialist Haematological Malignancy Service provides diagnostics and treatment for leukaemias and myelomas, and has the capability to provide stem cell transplantation. All services at this level can provide autologous transplantation (pending caseload considerations), but not allogeneic transplantation. Allogeneic transplantation services are provided by a small subset of superspecialist haematological malignancy services due to the need for a critical mass of expertise and recognised volume of work to ensure quality care. The service manages relatively high-risk complex protocols. All definitive diagnostics and the development of a treatment plan, which may take place at a lower level, are coordinated at this level. This level is a reference centre for all haematological malignancy service levels and in the public sector it should be accredited to the standard able to sustain a training registrar. This level may also provide haematological malignancy consultative services at lower service levels (excluding Haematological Malignancy Service Level 3) and may participate in clinical trials.

Table 52 Superspecialty Haematological Malignancy Service—summary

Critical Care	ICU3	
Diagnostic Imaging	2	On-site CT, MRI - MRI for spinal cord compression within 24 hours; non-admitted CT for tumour assessment within seven days
Emergency	3	Access within 15 minutes
Endoscopy	3	
Interventional Radiology	3	
Medical	3	
Nuclear Medicine	3	Access to positron emission tomography (PET)
Operating Suite	3	
Pathology	3	
Pharmacy	3	
Surgical	3	Subspeciality surgeons available e.g. orthopaedics, surgical oncology management by stream e.g. breast, colorectal, head and neck, upper gastrointestinal, lung, bladder
Radiation Oncology		On-site or accessible within one hour's transport
Palliative Care	3	
Staffing – as for medical oncology service level 3 plus:		
Medical	• On call 24 hours within 30 minutes (public) or available 24 hours within 30 minutes (private); must be provided by at least two specialists credentialled in clinical haematology • On call 24 hours within 30 minutes (public) or available 24 hours within 30 minutes (private); access to two specialists credentialled in clinical haematology with experience in autografting • Medical practitioner on-site 24 hours • Dedicated clinical haematology training registrar • A medical staff member with credentials in haematology to act as a designated transplant coordinator to liaise with patients, relatives, nursing and medical staff and other professional groups (e.g. scientists) • In centres performing matched unrelated donor (MUD) transplants, on call specialist credentialled in clinical haematology must have at least five years' experience in allogeneic bone marrow transplants	
Nursing	• As for Haematological Malignancy Service Level 3 • Registered nurses trained in collection of Peripheral Blood Progenitor Cells (PBPC) • Adequate nursing staff with demonstrated evidence of knowledge and skills to be able to support patients following high dose systemic therapy, and during and following transplant • Haematology nurse practitioner to support coordination of transplant/haematology is highly desirable	
Allied Health	• As for medical oncology service level 3	

Radiation Oncology Services

Radiation Oncology Service Level 2 provides radiation oncology consultative services plus a range of radiation oncology treatment services in accordance with standardised evidence-based guidelines/protocols[78] as appropriate. Treatment services at this level include external beam therapy, but exclude specialist radiation oncology services such as brachytherapy. In addition to required clinical services (such as diagnostic imaging, pathology and pharmacy etc), the service supports a multidisciplinary approach and has a supporting infrastructure including administrative, information management, scientific, biomedical and technical services. The range of radiation oncology treatment services depends on caseload considerations, available expertise, equipment, and infrastructure. This level may provide services that are limited due to the need to have a critical mass of expertise to ensure quality care. This service may be collocated with a health facility or may be stand-alone, and may participate in clinical trials.

Table 53 Radiation Oncology Service Level 2—summary

Critical Care	ICU1	Accessible
Diagnostic Imaging	2	Access to CT, MRI - MRI for spinal cord compression within 24 hours; non-admitted CT for tumour assessment within seven days
Endoscopy	2	Accessible
Interventional Radiology	2	Accessible
Medical	2	
Nuclear Medicine	2	Access to PET—Specialised facilities are required for administration and radiation safety of sealed and unsealed radioactive sources.
Operating Suite	3	
Pathology	2	
Pharmacy	2	
Surgical	3	Subspeciality surgeons available e.g. orthopaedics, surgical oncology management by stream e.g. breast, colo-rectal
Medical Oncology	3	Accessible
Haematological Malignancy	3	Accessible
Palliative Care	2	On-site or accessible

Staffing	
Medical	• Treatment regimens developed and supervised by a specialist credentialled in radiation oncology • Specialist credentialled in radiation oncology on call within 30 minutes (public) or available within 30 minutes (private) during treatment • Medical practitioner credentialled in radiation oncology on call 24 hours (public) or available 24 hours (private) • Regular and frequent consultation services available by a specialist credentialled in radiation oncology with provision for telephone consultation for complications of treatment and admissions for complications within 24 hours • Participate in appropriate recognised continuous quality improvement and accreditation programs • All medical practitioners credentialled for involvement in radiation oncology will have at least a broad understanding of both common and unusual side effects associated with radiation oncology
Nursing	• Registered nurse in charge on each shift is supported by adequate nursing staff with knowledge, skills and experience appropriate to radiation oncology service being provided on site, including the management of central venous access devices and peripherally inserted central catheters • A registered nurse with specialised knowledge/experience in radiation oncology in charge of unit • All nursing staff involved in radiation oncology will have at least a broad understanding of both common and unusual side effects associated with radiation therapy • All nursing staff should have a general understanding of systemic therapies and possible adverse events that may occur as a consequence of treatment
Allied Health	• Access to appropriate allied health specialties

Radiation Oncology Service Level 3 as for Radiation Oncology Service Level 2 plus provides a comprehensive range of specialised radiation oncology treatment services, including external beam and brachytherapy, that are delivered by a highly skilled, multidisciplinary workforce in accordance with standardised evidence-based guidelines/protocols[79]. This level of service will provide regional or statewide highly specialised radiation oncology services that are limited due to the need to have a critical mass of expertise or recognised volume of work to ensure quality care.

Table 54 Radiation Oncology Service Level 3—summary

Required clinical services	Level	Notes
Critical Care	ICU3	
Diagnostic Imaging	2	On-site CT, MRI—MRI for spinal cord compression within 24 hours; non-admitted CT for tumour assessment within seven days
Endoscopy	3	
Interventional Radiology	3	
Medical	3	On-site or accessible
Nuclear Medicine	3	Access to PET - Specialised facilities are required for administration and radiation safety of sealed and unsealed radioactive sources
Operating Suite	3	
Pathology	3	
Pharmacy	3	
Surgical	3	Subspeciality surgeons available e.g. orthopaedics, surgical oncology management by stream e.g. breast, colo-rectal, head and neck, upper gastrointestinal, lung, bladder
Medical Oncology	Superspecialty	
Haematological Malignancy	Superspecialty	
Palliative Care	3	On-site or accessible
Staffing – as for radiation oncology service level 2 plus		
Medical	• Treatment regimens developed and supervised by a credentialled and privileged radiation oncology specialist • Specialist credentialled and privileged in radiation oncology on call 24 hours (public) or available 24 hours (private) • Medical practitioner credentialled and privileged in radiation oncology on-site 24 hours with inpatients • Ability to support a radiation oncology training registrar • Ability to participate in recognised continuous quality improvement and accreditation programs	
Nursing	• As for Radiation Oncology Service Level 2	
Allied health	• As for Radiation Oncology Service Level 2	

Appendix 4: Health action plan—Cancer funding highlights

The State Government endorsed the *Queensland Cancer Control Strategic Directions 2005–10*[80] in January 2006. This framework informed the *Health Action Plan*[81] in identifying priority cancer care initiatives for funding.

The *Health Action Plan* allocated $463.7 million to cancer services over the five years commencing in the 2005–06 financial year. Of that amount, $24.13 million was allocated in 2005–06 (including $12.28 million funding for immediate pressures and deficit funding). In 2006–07 an additional $60.1 million has been committed for new cancer services.

This funding has enhanced services by maximising the use of existing capital resources and improving staffing levels so that existing workloads can be better managed. In addition, it has allowed work to commence on critical information technology and workforce recruitment and retention infrastructure support, to improve the quality of the Queensland Health cancer program.

Funding highlights for achieving the *Queensland Cancer Control Strategic Directions 2005–10* are outlined below:

Service delivery and expansion

From the funding described above, $64.429 million has been allocated to develop cancer service capacity in line with population distribution and growth, and expand service delivery, including:

- Royal Brisbane and Women's hospital
  - 12 extra bone marrow transplants undertaken in 2006–07
  - Upgrades to videoconferencing facilities so that RBWH provide advice across the network of cancer services and improve opportunities to participate in regional multidisciplinary meetings.
- Royal Children's hospital
  - Refurbishment of the Turner Ward as part of the *Queensland Cancer Control Strategic Directions* Objective 18 (this establishes a single service for paediatric haematology and oncology).
- TPCH
  - An endoscopic ultrasound machine for biopsy of lung and mediastinal tumours.
- Wide Bay
  - Equipment for palliative care support in Wide Bay District.
- Princess Alexandra Hospital
  - An increase in the number of autologous stem cell transplants
  - Purchase of equipment to commission an additional linac and facilitate a machine replacement program (to be operational December 2007)
  - Refurbishment of the cancer services day care area to increase treatment chair capacity by 15%, including purchase of additional equipment

[80] Queensland Health 2006, *Queensland Cancer Control Strategic Directions 2005–2010*

[81] Queensland Government 2005, *Action Plan—Building a better health service* for Queensland

  - Four additional inpatient beds
  - Purchase of a replacement wide bore CT scanner for radiation oncology.
- Logan Hospital
  - Refurbishment of an area for non-chemotherapy day therapy and outpatient outreach services
  - Six new chemotherapy chairs and three consultation rooms opened.
- Queen Elizabeth II Hospital
  - Five extra palliative care beds opened through contract at Canossa.
- Toowoomba Hospital
  - Two additional cancer designated beds opened.
- Townsville Hospital
  - A third linac installed and operating
  - A walkway constructed at the hospital to provide sheltered access to the hospice.

Workforce

Funding has also been used to build workforce capacity in line with planned service development. Highlights of this include:

- Workforce training and development initiatives
  - Funding for Master of Science scholarships to train more radiation oncology medical physicists
  - Specialist allied health and nurse training
  - Pharmacy mentoring project
  - Lymphoedema staff education courses
  - Research scholarships
  - CT accreditation for nuclear medicine technicians
  - Nine radiation therapist professional development year (PDY) positions established
  - Additional registrar training positions.

To add to existing staffing levels, workforce funding has also seen the appointment of many new positions. These additional appointments are directly linked to meeting current demand and strengthening cancer services.

Information on these new positions and appointments are grouped by each Area Health Service and presented in the following tables. Staff appointments for paediatric cancer services follow and, as this is a statewide service, the information is presented based on programs/service sub-specialty areas. Please note that all positions listed below are full time equivalents (FTE) unless otherwise stated.

Table 55 Northern QLD

Activity area	2006–07 and 2007–08 years
Numbers of specialist medical staff	Additional medical specialist staff positions 1 x FTE radiation oncologist commencing early 2008 1 x FTE additional SMO being recruited at Mackay 1 x FTE medical oncologist position created at each Townsville and Cairns 2 x FTE haematologist positions recruited and appointed at Townsville 2 x FTE radiation oncology positions at Townsville created
Numbers of medical staff	1 x FTE radiation oncology registrar appointed at Townsville 1x FTE medical registrar at Mackay appointed 1x FTE medical oncology registrar position appointed at Townsville and Cairns 1 x FTE clinical haematology registrar position appointed at Townsville 0.5 x FTE SMO medical oncology appointed at Mt Isa 1 x principle house officer for medical oncology and palliative care appointed at Mackay
Numbers of nursing staff	Nursing: 2 FTE nursing care coordinators Additional nursing positions have been created and are being progressively recruited for Mackay, Mt Isa and Cairns In total, 12 FTE permanently or temporarily appointed care coordinators/case managers by January 2008
Numbers of allied health staff	Additional allied health staff (Cairns, Mackay and Townsville) Additional 2 x FTE oncology pharmacy staff appointed at Cairns
Numbers of Aboriginal liaison positions	1 x FTE Aboriginal liaison officer position in Mt Isa being progressively recruited 3 x FTE Aboriginal liaison officer positions will be created and progressively recruited
Numbers of other staff	Business support positions have been created and are being progressively recruited for Mackay Health Service District, Mt Isa and Cairns

** Positions created but not yet filled*

Table 56 Central QLD

Activity area	2006–07 and 2007–08 years
Numbers of specialist medical staff	1 x FTE medical oncologist appointed at Royal Brisbane and Women's Hospital (RBWH) 1 x haematologist appointed between RBWH/Redcliffe 0.5 x FTE SMO palliative care appointed at RBWH 1 x FTE physician appointed at Rockhampton to take accountability for oncology/haematology patients in consultation with the visiting outreach service from RBWH 0.5 FTE radiologist and pathologist funded at RBWH for multidisciplinary meetings 2 x FTE SMOs appointed at Sunshine Coast (SSC) including 1 x FTE Palliative Care physician and 1 x FTE medical oncologist 1 x SMO palliative care created at Hervey Bay and Bundaberg 1 .4 x FTE radiation oncologist positions created at RBWH 2.7 x FTE medical oncologist positions created at RBWH and 1.4 x FTE created at SSC 1 x FTE clinical haematologist position created at Northside and 0.6 x FTE at SC
Numbers of medical staff	1 x FTE registrar appointed in each medical oncology, haematology and radiation oncology at RBWH 1 x FTE fellow created medical oncology at RBWH 1 x FTE fellow created haematology at RBWH 1 x FTE principle house officer at Rockhampton appointed to provide consistency in management and liaison with the RBWH 1 x FTE senior registrar fellow at The Prince Charles Hospital (TPCH)

Activity area	2006–07 and 2007–08 years
	0.2 x FTE medical oncology registrar 1 x FTE registrar at SC 1 x FTE registrar at Redcliffe *1 x FTE clinical haematology registrar position created at RBWH *1 x FTE medical oncology registrar position created SC
Numbers of nursing staff	1 x FTE oncology nurse and 1x FTE palliative care nurse at Bundaberg appointed Approximately 40.25 x FTE extra oncology nurses appointed across Central Qld 1 x FTE chronic pain nurse at SC 1 x FTE nursing officer (NO2) lung cancer evaluation triage nurse at TPCH 0.5 x FTE clinical nurse for clinical facilitation at TPCH 0.5 x FTE nurse for clinical trial/research at TPCH 1 x FTE area nurse educator appointed 0.2 x FTE palliative care nurse at Wide Bay
Numbers of Allied Health staff	2 x FTE occupational therapist, 1 x FTE physiotherapist, 1 x FTE social worker, and 1x dietician, 1 x oncology pharmacist at each Northside, Rockhampton and Fraser Coast 4 x FTE allied health and 1 x FTE bereavement and volunteer coordinator and an additional psychologist appointed at Redcliffe 6 x FTE allied health staff at RBWH to support ambulatory services and provide liaison and networked services to regional centres Creation of 9 x FTE care coordinator positions and 7.5 x FTE appointed permanently or temporarily Additional data and research managers appointed to support clinical trials at Redcliffe, RBWH and TPCH Qil 1.5 x FTE NO2 for lung and general cancer service BM 4 x FTE additional radiation therapists appointed at RBWH 1 x 1 x FTE social worker at Wide Bay 0.5 0.5 FTE x occupational therapist at Wide Bay cluster to provide a networked/linked service between Fraser Coast and Wide Bay health services
Other staff	Quality manager appointed for stem cell transplant program at RBWH to attain Therapeutic Goods Administration (TGA) accreditation (new requirement) Appointment of administration officers across all services to support senior medical offices and increased activity

** Positions created but not yet filled*

Table 57 Southern QLD

Activity area	2006–07 and 2007–08 years
Numbers of specialist medical staff	1 x FTE palliative care specialist QE11 1 x FTE palliative care specialist at GCH 2 x FTE medical oncologists at PAH 1 x FTE medical oncologist GCH commenced and 1 x FTE medical oncologist recruited to commence January 2008 1 x FTE haematologist PAH 2 x FTE radiation oncologists PAH 0.2 x FTE psychiatrist PAH 1 x FTE haematologist recruited to commenced GCH April 2008 All also supporting outreach as required to Toowoomba, GCH and Logan–Beaudesert 1 x FTE clinical haematologist GCH ($250,000) recurrently from 2005–06 for this position) 0.5 x FTE SMO for oncology at Toowoomba *0.4 x FTE medical oncologist position created at PAH *1 x FTE medical oncologist position created at Toowoomba *1.35 x FTE clinical haematologist position created at each PAH and Toowoomba *0.5 x FTE clinical haematology position created at GCH
Numbers of medical staff	Additional medical oncology and haematology Registrar positions filled and *1 x FTE medical oncology registrar position created at each of PAH and GCH Fellow positions created in medical oncology and haematology PAH *1 x FTE radiation oncology registrar position created at PAH Increases in junior medical staff by 6 FTE
Numbers of nursing staff	Appointment of nursing staff (3 FTE NO4, 5.9 FTE NO2, 2.5 FTE NO1, 1 FTE AIN across all services and 4 x consultant nurses) for additional activity in day care unit through extended hours of operation 1 x FTE clinical facilitator to support education Nursing staff to support increase in ambulatory care and beds at Toowoomba Nurse Unit Manager in radiation oncology appointed PAH
Numbers of Allied Health staff	1x FTE pharmacist, 1 FTE radiographer, 1 FTE social worker, 0.5 FTE SP, 1.0 FTE occupational therapist appointed, 1 x FTE psychologist appointed Recruitment of 1 x physiotherapist 0.5 FTE pharmacist across all services Additional allied health including pharmacist, pharmacy technician, bio-statistician and social worker appointed at Logan-Beaudesert to support increased activity Appointment of radiation therapy staff to support 2 additional shifts PAH/Mater (>10 plus radiation therapists/ medical physicists treating an additional 60 pts per day) 13 x FTE care coordinator positions created with 10 x FTE permanently appointed Radiation therapist preceptor positions, 1 FTE across two campuses recruited
Other staff	Appointment of administration officers across all services to support senior medical officers, increased hours of service delivery and increased activity Quality manager appointed for stem cell transplant program at PAH to attain TGA accreditation (new requirement) 0.5 x FTE statistician at PAH to support laboratory transplant database to audit outcomes

** Positions created but not yet filled*

Table 58 Statewide paediatric cancer services

Activity area	2006–07 and 2007–08 years
Care coordination	3x NO4 care coordinators appointed
Enhanced leukaemia and lymphoma services	Clinician SMO (1.0 FTE) appointed nursing NO4 (1.0 FTE) under recruitment
Establish an education collaborative	Administration officer AO3 under recruitment Statewide educator NO4 (1.0 FTE) under recruitment Tertiary educator NO4 (1.0 FTE) appointed
Haematopoietic Stem Cell Transplant Unit	Quality manager professional officer (PO)4 (1.0 FTE) appointed SMO (1.0 FTE) appointment offered
Integration of protocols and policies project	Administration officer AO3 under recruitment
Network support	Medical clinical leader (0.5 FTE) appointed Network manager AO8 (0.5 FTE) under recruitment Nursing clinical leader NO5 (0.5 FTE) appointed
Neuro-Oncology	Care coordinator case manager NO4 appointed Neuro-oncologist SMO appointed
Non-malignant haematology	Statewide coordinator NO4 (0.5 FTE) appointed
Cancer service support staff	Administration officer AO2 (1.0 FTE) appointed Administration officer AO4 (1.0 FTE) appointed
Statewide allied health, needs analysis project	Allied health service planning PO4 (0.5 FTE) appointed
System development and accessible protocols	IT project officer through 'Online Health' AO7.4 (On hold)
Late effects service	Nurse coordinator (NO4 1 FTE) under recruitment Admin support (AO2 1FTE) under recruitment SMO (0.5 FTE) (On hold) PO2 / PO3 (casual) under recruitment
Clinical and scientific research program	Research associate (PO4 1FTE) under recruitment
Palliative Care service	SMO (1.0 FTE) under recruitment registrar (0.5 FTE) under recruitment psychologist (PO3 1.0 FTE) (On hold)
Haematology	SMO (1.0 FTE) under recruitment

Service delivery models

Health Action Plan funding has also been allocated to develop and implement models of multidisciplinary care and associated mechanisms. These will enhance communication among health care professionals, cancer patients and their families.

Funding has also been applied for consistent, evidence-based protocols, guidelines and standards to promote consistency of care across the state.

For example, the CanNET pilot project (Queensland Health's Cancer Control Analysis Team with part-support funding from Cancer Australia) explores service models, how to support tumour stream multidisciplinary teams, and creates sustainable, ongoing clinical governance structures to support quality assurance work.

The statewide care coordination initiative (badged under the Australian Better Health Initiative) has complemented the improved integration and coordination of multidisciplinary care models. The additional 29.5 FTE care coordination positions

filled (some from local funding either permanently or temporarily) statewide mean enhanced integration and coordination of patient care

A funding pool was also established to increase access for public patients to high-cost cancer and leukaemia drugs not funded from other sources. This funding resulted in the establishment of the statewide Limited Indication Drugs program and recurrent funding for drugs at the Royal Brisbane and Women's hospital. Funding for the Limited Indication Drugs program has also been used to support work defining evidence-based protocols with regards to cancer treatment.

Information technology

Building a statewide network of cancer information systems is necessary to support timely communication and the delivery of effectively networked cancer services. Funding has supported the following initiatives:

- The pharmacy oncology information management system (POIMs) project that has been designed to provide equity of access to oncology services, medication treatment safety and better access to information for outcomes research
- The staged implementation of the radiation oncology information system (ROIS)
- ROIS implemented at PAH, Mater and Townsville and working towards implementation at RBWH in 2007–08
- The development and implementation of information and data management systems for the Queensland Positron Emission Technology (PET) Service to enable the efficient and effective scheduling of clients, and management of work and processes
- The implementation and integration of cancer data to enable statewide audit and performance monitoring through Queensland Cancer Control Analysis Team.
- The development of the data collection and analysis tools (Oncology On-line and the Oncology Analysis System products) to provide routine collection of cancer staging information, and link patient information across the continuum of care with outcomes. Queensland Cancer Control Analysis Team funding was used for this initiative.

Overview

A summary on funding for cancer care is provided in Table 7 in the section on *Funding arrangements* (page 46).

Appendix 5: Day-only treatment places

Table 59 Day-only treatment places—estimate of demand by site

				4% p.a. increase							
				5-day equivalent places 2011	5-day equivalent places 2016						
Cairns	8	5	8	10	11	10	13	11	14	12	16
Innisfail	5	1	1	1	1	1	2	1	2	1	2
Atherton	10	1	2	2	3	3	3	3	4	3	4
Mackay	6	5	6	7	8	8	10	8	11	9	12
Proserpine	4	1	1	1	1	1	2	1	2	1	2
Mt Isa	2	2	1	1	1	1	2	1	2	1	2
Townsville	11	5	11	13	15	14	18	15	20	17	22
Northern QLD	**46**		**30**	**35**	**40**	**38**	**50**	**40**	**55**	**44**	**60**
Bundaberg	5	5	5	6	7	7	8	7	9	7	10
Gladstone	3	4	2	2	3	3	3	3	4	3	4
Rockhampton	6	5	6	7	8	8	10	8	11	9	12
Hervey Bay	10	5	10	12	14	13	16	14	18	15	20
Maryborough	4	3	3	4	4	4	5	4	5	4	6
Nambour	10	5	10	12	14	13	16	14	18	15	20
Gympie	7	3	4	5	6	5	6	6	7	6	8
Redcliffe	10	5	10	12	14	13	16	14	18	15	20
TPCH	8	5	8	10	11	10	13	11	14	12	16
RBWH	29	6	35	42	49	46	56	49	63	53	70
Central QLD	**92**		**93**	**112**	**130**	**122**	**149**	**130**	**167**	**139**	**186**

Southport	10	5	10	12	14	13	16	14	18	15	20
Mater	22	5	22	26	31	29	35	31	40	33	44
PAH	22	6	26	31	36	34	42	36	47	39	52
Logan Beaudesert	6	5	6	7	8	8	10	8	11	9	12
Toowoomba	8	5	8	10	11	10	13	11	14	12	16
Ipswich	6	1.5	2	2	3	3	3	3	4	3	4
Southern QLD	**74**		**74**	**88**	**103**	**97**	**119**	**103**	**134**	**111**	**148**
Total	**212**	**-**	**197**	**235**	**273**	**257**	**318**	**273**	**356**	**294**	**394**

Appendix 6: Radiation therapy services—projected activity by area

Data presented in Table 59 below has been based on a calculation of current level of activity (number of courses and number of patient attendances) per linear accelerator (linac), multiplied by the number of proposed new Linacs for each area. This gives a total number of courses and patient attendances in each area for 2011 and 2016.

The 2006 data is known and presented in Table 11, in the section on *Outpatient services utilisation* (page 54). The calculated data for 2011 and 2016 is scaled by the ratio of access hours available for these years in relationship to the hours for 2006. The access hours have been calculated based on the planned number of treatment units to be operational in each area (for each given year). There is an assumption that each linac would be equated to 8 hours of access, and no allowance can be made for the potential of multiple shifts per linac—as it is impossible to predict what the work practices will be by these dates, and whether staff will be available for multiple shifts on these units.

For example, if Central area has 52.5 hours of access in 2006 and 96 hours (expected) in 2016 (12 Linacs in Central area x 8 hours) then we divide the projected 2016 data by the 2006 data (in this case 96/52.5 is approximately 1.8), then use this figure to multiply the other 2006 data to calculate the 2016 predictions (For example to calculate total number of courses: 1.8 x 2202 = 4027). Therefore, the projections rely on current services operating efficiently.

Table 60 Radiotherapy activity, 2006–16

Year/activity type	Area			
2006	Northern	Central	Southern	Statewide
Total number of courses	1,237	2,202	3,092	6,531
Total patient attendances	19,032	44,022	55,286	118,340
Total fields treated	*	145,029	160,621	305,650
Average available daily machine hours	18.0	52.5	64.5	135

2011	Northern	Central	Southern	Statewide
Total number of courses	2,749	3,020	4,219	9,988
Total patient attendances	42,293	60,373	75,429	178,095
Total fields treated	*	198,897	219,142	418,039
Average available daily machine hours	40.0	72.0	88.0	200

2016	Northern	Central	Southern	Statewide
Total number of courses	3,574	4,027	4,602	12,203
Total patient attendances	54,981	80,497	82,286	217,764
Total fields treated	*	265,196	239,064	504,260
Average available daily machine hours	52.0	96.0	96.0	244

These projections suggest (with the planned level of investment) an expected 46.5% increase in the number of courses statewide between 2006 and 2016, and a 55.9% increase in the number of patient attendances statewide between 2006 and 2016.

Appendix 7: Summary of methodology for determining projected bed requirements (refers to section on Inpatient services – utilisation)

When calculating inpatient care activity projections, several approaches were considered. For inpatient service planning activities within Queensland Health, a projections model—developed by Hardes and Associates—is commonly used. The Hardes methodology is based on an analysis of use patterns in previous years, with age–sex standardised rates for individual diagnosis-related groupings being applied to Australian Bureau of Statistics population projections. Using Hardes methodology for this planning process, the analysis would describe patients admitted to all Queensland public hospitals with cancer diagnoses, not just patients in designated cancer beds.[82]

However, as the 2006 Hardes projections for medical oncology estimated a level of demand that is slightly lower than the 2004–05 *actual* use, and the projections estimated almost no growth in inpatient activity between 2006 and 2016 (considered highly improbable given the increases in cancer incidence), the reliability of Hardes projections for this planning process was put in doubt, and alternative projection methodologies were considered.

When considering alternative methodologies it was assumed that:

- there would be a bed occupancy rate of 85%. This occupancy rate is generally considered to be clinically the safest. It provides adequate capacity and flexibility for the effective management of surges in demand and emergency care, and enables appropriate patient flows in accordance with clinical care. Therefore 85% is the recommended level of inpatient activity. Clinical opinion suggests that bed occupancy rates are currently at 100%
- bed usage would be evenly split between medical oncology and haematology
- there will be a continuing shift from overnight and multi-day inpatient admissions to treatment in day-only and outpatient settings. Details of the projections are included in Appendix 5
- the private sector will provide approximately half of all inpatient and day-only cancer care
- cancer patients are currently under-serviced due to constrained capacity in the health system. As discussed in the section on Inpatient services – utilisation (page 52), the overall growth in cancer services over the past five years averaged 4% per year; however, this involved an average 6% growth in the private sector and only a 2% growth in the public sector. This private sector growth is likely to be a market response in an environment with constrained public sector capacity. Based on this data, the (average) public sector inpatient bed capacity growth deficit is probably 2–4% per year—if matching private sector growth.

In estimating projections for this plan, one alternative way to examine the level of unmet demand was to consider the current shortfall in available specialist medical staff. The number of medical oncologists is known and could be a surrogate measure for activity. Compared to the Australian average (excluding Queensland), Queensland has 43% fewer medical oncologists per 1000 new cases of cancer. The lowest difference is between Queensland and NSW (23%), and the highest difference is between Queensland and Victoria (102%). However, this surrogate measure is subject to considerable uncertainty as it is unknown which sectors/jurisdictions are operating efficiently and/or subject to over or under servicing.

Another methodology considered was to take the baseline 2006 bed usage level of 206 beds (based on actual inpatient bed days, adjusted to reflect an 85% occupancy rate, rather than only

[82] Explanatory note: access to designated cancer beds is an important characteristic of a cancer service and will influence its CSCF level. CSCF Level 3 (and above) cancer services are defined as having designated cancer beds. Lower level services are not required to operate with designated beds.

designated beds[83]), and increase those 2006 use levels in line with projected changes in cancer incidence—an average 4% (3.45% compounding) per year or 40% from 2006 to 2016. The results of this analysis are shown in

Table 60 below (Projection A). However, this projected growth does not adequately allow for current levels of unmet demand or changing technology. Over the period of this plan, demand will be influenced by changes in the Queensland population (both population numbers and age profile) and new technology that expands treatment options and offers options where there previously were none.

To accommodate these uncertainties, different yearly growth factors were applied to the average 4% used in the prior analysis. Data presented in Table 60 uses average yearly growth factors of 8% and 10% (4% and 6% above the average cancer incidence growth rate).

Table 61 Projected Queensland Health overnight cancer beds by area, 2006–16

Area	Base year 2006			Projection A 4% av. p.a		Projection B 8% av. p.a		Projection C 10% av. p.a	
	Designated	Actual 85%	Actual 100%	2011	2016	2011	2016	2011	2016
Northern QLD	25	37	32	44	52	52	67	56	74
Central QLD	67	84	72	101	118	118	151	126	168
Southern QLD	70	85	72	102	119	119	153	128	170
Total	162	206	176	247	289	289	371	310	412

Accepting the need for ongoing review, and taking account of the various methodology options possible, those involved in creating this Plan agreed on the approach of increasing the 2006 use level (based on an 85% occupancy rate) by 4% per year growth factor, plus a further 4% to address the current deficit and allow for expansion associated with technology changes and the new statewide screening program for colorectal cancer over the Plan's 10-year horizon[84].

Projected day treatment places requirements (refer to page 60)

Similarly, calculating projected day treatment places was difficult. Actual places required are based on a benchmark of 420 patients per each five-day-equivalent place[85]. It is important to note that a five-day-equivalent place is an indication of *capacity* and not the actual number of patients treated.

The results of this analysis are shown in Appendix 5 which indicates a need to increase five-day-equivalent treatment places by about 76 (39%) over the next ten years, with a total projected requirement of 273 five-day-equivalent treatment places by 2016. This estimate is based on applying an average 4% per annum growth factor to match increasing cancer incidence, Appendix 5 includes a detailed table showing breakdown by HSD and site. However, again, this projected growth will not adequately allow for current levels of unmet demand and changing technology.

[83] Explanatory note: Data shown in Table 8 (page 50) Calculated as 85% of the daily total public sector bed days for 2006 [(64,011 bed days / 365 days) / 85% = 206 beds].

[84] Explanatory note: Recent research and evidence have led to improved survival with 2nd- and 3rd-line treatment options for patients who previously would have been referred for end of life care. Introduction of screening programs can lead to a 'harvesting effect' with a short-term increase in incidence (capturing prevalence) of cancers. In the decade prior to 2006, cancer incidence also increased some 3.45% per year with very little investment in treatment services until the HAP in 2006–07.

[85] Explanatory note: A five-day-equivalent place is one that is staffed and operates five days per week. Because some centres operate only part-time, the actual number of places is higher while for others that operate more than five days per week, the number is lower.

To account for unmet demand and changing technology, further percentage growth factor of 4 to 6% per year is required. Under this scenario, five-day equivalent places will need to grow 273–294 by 2011 and 356–394 by 2016, as shown in Table 61. Again, the target growth factor agreed upon for this planning process was an average annual increase of 8%, indicating a need for 356 five-day-equivalent day-only treatment places by 2016.

Table 62 Projected Queensland Health day-only treatment places by area, 2006–16

Area	Actual day-only treatment places	5-day equivalent places 2006–07	8% av. p.a increase		10% av. p.a increase	
			5-day-equivalent places 2011	5-day-equivalent places 2016	5-day-equivalent places 2011	5-day-equivalent places 2016
Northern QLD	46	30	40	55	44	60
Central QLD	92	93	130	167	139	186
Southern QLD	74	74	103	134	111	148
Total	212	197	273	356	294	394

Based on the ratio of actual five-day-equivalent places[86], this would imply a need for about 388 actual places. This represents a statewide increase of 176 actual treatment places over the existing 212 (83% growth) places over the period.

[86] Explanatory note: Based on current activity data, the number of actual places is about 10% higher than five-day-equivalent places.

Appendix 8: Palliative care projections

Table 63 Palliative care projections of demand—by HSD and area

		Palliative care beds			Public sector (60% of total)			Public sector (65% of total)					
Area	District	2006	2011	2016	2006	2011	2016	2006	2011	2016	2006	2011	2016
Northern	Cairns and Hinterland	219,378	235,395	253,207	15	16	17	9	9	10	9	10	11
	Cape York	12,282	12,801	13,244	1	1	1	0	1	1	1	1	1
	Mackay	138,783	158,581	177,276	9	11	12	6	6	7	6	7	8
	Mt Isa	31,232	31,672	31,828	2	2	2	1	1	1	1	1	1
	Torres Strait	10,223	10,461	10,747	1	1	1	0	0	0	1	1	1
	Townsville	225,507	244,254	259,344	15	16	17	9	10	10	10	10	11
Northern total		637,405	693,164	745,646	43	47	50	25	27	29	28	30	33
Central	Central Qld	191,311	207,011	226,043	13	14	15	8	8	9	8	9	10
	Central West	13,247	13,148	13,093	1	1	1	1	1	1	1	1	1
	Fraser Coast	88,700	97,463	105,980	6	7	7	4	4	4	4	5	5
	Northside	789,472	858,705	921,383	53	58	62	32	35	37	34	38	40
	Sunshine Coast & Cooloola	327,513	373,249	426,910	22	25	29	13	15	17	14	16	19
	Wide Bay	102,664	111,343	119,803	7	7	8	4	4	5	5	5	5
Central total		1,512,907	1,660,919	1,813,212	102	112	122	62	67	73	66	74	80
Southern	Gold Coast	441,701	499,423	560,325	30	33	38	18	20	23	20	21	25
	South West	26,950	27,032	27,084	2	2	2	1	1	1	1	1	1
	Southside	960,685	1,037,220	1,111,064	64	69	74	39	42	45	42	45	48
	Toowoomba & Darling Downs	242,698	257,555	270,209	16	17	18	10	10	11	10	11	12
	West Moreton & South Burnett	219,688	259,135	311,079	15	17	21	9	10	13	10	11	14

Southern total	1,891,722	2,080,365	2,279,761	127	138	153	77	83	93	83	89	100
Queensland total	4,042,034	4,434,448	4,838,619	272	297	325	164	177	195	177	193	213

Appendix 9: Situational analyses and recommendations

During the development of this plan, each planning objectives was examined in detail. This Appendix contains background information, discussion and analysis provided by numerous stakeholders in relation to several of these (identified in the right-hand column) where it was not possible to include this level of detail in the section on *Objectives* (page 67) where final recommendations are documented. This information may be of assistance in decision making, planning and implementation of strategies, however, its veracity in some instances has not been tested.

Table 64 Planning objectives and recommendations

1. Establish an appropriate governance structure to oversee and guide the development of cancer services in Queensland.	
2. Develop clearly defined service networks that encompass both public and private sector services and provide formal links between smaller cancer services and specialised referral centres. ▪ Network development ▪ Links with private	Queensland specialist palliative care services
3. Implement a statewide framework based on the *Clinical Service Capability Framework*—(CSCF)—*Cancer Module* and build upon defined service networks to plan and coordinate delivery of services across the continuum of care ▪ Service capability ▪ Statewide and superspeciality	Adolescent and young adult cancer services in Queensland
4. Develop service capacity in line with population distribution and growth ▪ Inpatient beds ▪ Day therapy places ▪ Radiation oncology ▪ Palliative care beds ▪ Clinical support (imaging, pharmacy, genetics) ▪ Clinical trials	
5. Enhance multidisciplinary care models including developing and implementing mechanisms to improve communication among health care professionals, cancer patients and their families	Multidisciplinary care in cancer services
6. Develop and implement consistent, evidence-based referral and treatment protocols, guidelines and standards to promote consistency of care across the state.	Evidence-based protocols, guidelines and standards (global)
7. Strengthen quality and safety systems in relation to service accreditation; credentialling and support for clinical decision making, service monitoring and performance evaluation	Cancer services accreditation Queensland Health credentialling and scope of practice
8. Build workforce capacity in line with planned service development. ▪ Medical ▪ Nursing ▪ Allied health	Queensland cancer treatment services workforce ▪ Whole of workforce ▪ Specialist medical workforce ▪ Nursing workforce ▪ Allied health (General, Rad Oncology, PET) ▪ Palliative Care Specialists
9. Develop of procure the capital infrastructure required to support efficient implementation of planned service development.	
10. Build a statewide network of cancer information systems to support timely communication and the delivery of effectively networked cancer services.	Information technology
11. Influence the development of appropriate funding arrangements to support efficient delivery.	

Queensland palliative care specialist services

Relationship to the *Queensland Cancer Control Strategic Directions 2005–2010*

- **Objective 14**—Provide access to quality treatment services for all Queenslanders (remote, rural, regional and metropolitan).
- **Objective 16**—Provide quality and safety systems supporting evidence-based practice to achieve better outcomes for people with cancer, their families and carers.
- **Objective 20**—Ensure all patients have access to quality integrated palliative care services (includes those patients without cancer).

There is clear evidence of the benefits—for patients, families and carers—of early referral to palliative care. Palliative care can control patients' pain and other symptoms, as well as provide personal support to both patients and their families. Palliative care is a fundamental part of caring for patients with cancer.

The sharply increasing number of Queenslanders over the age of 65 will result in dramatic growth in the number of people dying every year—increasing the demand for palliative care and end-of-life services. In 2004, 24,514 people died in Queensland (an increase of 4.3% over the previous year). Approximately 50% of all deaths are anticipated and some 50% of people diagnosed with cancer will die from their disease. Of the more than 12,000 anticipated deaths in Queensland in 2004, more than 7000 were due to cancer[87].

Palliative Care Australia (PCA) states that at least 70% of patients who die from cancer, and a significant proportion of the other 50% of people with anticipated deaths from non-malignant diagnoses should have been referred to palliative care services. There is no accurate data about what proportion of dying people are referred to specialist palliative care services, however the consensus is that a large number of people for whom death is imminent—and who would benefit from palliative care—are not referred.

The findings of a PCA census, conducted in 1998, on access to senior clinical expertise, suggested poorer service availability in rural and regional areas. The same census also identified population-based rates of admission to palliative care services as 30–35% lower in regional areas.

Standards and models of palliative care

Federal and state government support the development of population based standards for the provision of palliative care to communities; the goal is to ensure that people coming to the end of their lives are able to obtain appropriate palliative care wherever they may live in Australia. These standards cover the structure, the qualities and the quantum of services for all patients needing palliative care.

In Australia, including Queensland, palliative care is a specialist service that is responsible for organising and providing care, working with other care providers such as GPs, to coordinate care, improve knowledge and skills, of all palliative care providers and support the patient to manage complicated problems. The model provides for acute-inpatient beds, hospice type beds, community care, consultation services to support palliative care across health services, and a range of staff to meet both the physical and psychosocial needs of dying people.

The PCA standards and associated assessment criteria cover six domains of palliative care provision, ensuring safe and sustainable service delivery. PCA has also produced population-based quantitative standards for both infrastructure and staffing. Examples of these standards are 6.7 inpatient palliative care beds (supported by specialist clinicians) per 100,000 population, and 1.0–1.5 medical specialists in palliative medicine per 100,000 population.

[87] Palliative Care Australia, Service Provision in Australia: a planning guide 2003, p6

Current situation

Queensland Health is a member of the national Palliative Care Intergovernmental Forum, a group that has identified four high-level indicators of achievement across jurisdictions. One of these indicators is that all jurisdictions should have current palliative care plans. *Queensland has not met this goal.*

Each Queensland Health Service area has a consultative palliative care service model with varying levels of resources, with a director and links with either an Area-based cancer or palliative care network. The Centre for Palliative Care Research and Education (CPCRE) at Royal Brisbane Hospital has a Memorandum of Understanding with Queensland Health that includes participation in Area Health Service palliative care planning and improvement activities. CPCRE helps to establish and maintain links with education, research, service delivery, evidence-based models of care and best practice in palliative care

Using Queensland's 2006 population, the PCA standards indicate a need for 270 dedicated beds, rising to 351 in 2021. A recent survey identified approximately 164 dedicated beds currently in Queensland. It is difficult to separate public and private activity as patients often access both sectors at various times. Care in some private facilities such as Mt Olivett may be funded from the public purse, and some private care is provided within the public sector by private providers. This mixed model extends into the community—patients may receive domiciliary care as private patients but seek public inpatient care.

It is recognised, that there is a general lack of staff across all disciplines. The shortfall is best quantified in the numbers of Medical Specialists in Palliative Medicine (SPM), a new specialty recently recognised by the Commonwealth. Based on PCA's population-based formula, Queensland should have up to 60 FTE SPM. There are currently 17, the majority of whom are likely to retire within the next 10 years. Some large communities have no SPM and rely on telephone support. There is no statewide training program for SPM and few accredited training sites, given the shortage of supervisors.

Funding arrangements

Palliative care is funded primarily by the Australian Government through the Australian Health Care Agreements. For 2003–2008, there is $201.2 million available from the Australian Government for palliative care: $188 million on a per capita basis to states and territories for continued service provision, and $13.2 million to implement a national program of initiatives[88].

In Queensland, funding mechanisms of palliative care include: (1) specific funding for community-based programs from the federal and state governments (in 2005–06, $11.7 million[89]), (2) state government annual funding to Mt Olivet Hospital for palliative care services and (3) expenditure—generally in the public system—for activities related to palliative care. As stated previously, funding for palliative care services comes from a variety of sources and is often combined to meet patient needs. The definitions used to allow access to funds vary from one jurisdiction to another—meaning that the level of service that a patient receives can depend on where they live, not what they need.

Planning issues

Early referral to palliative care benefits patients, families and carers. Besides relieving patients' pain and controlling other symptoms, palliative care offers psychological, spiritual other personal support to patients and their families. Palliative care is essential for caring for patients with cancer; however, there is no uniform planning process for the development of services or training staff in palliative care. There is currently no coordinated palliative physician training program and many sites are not accredited for training due to the shortage of palliative medicine specialists.

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[88] Australian Health Care Agreement, 2003–08; Queensland Health Portfolio Budget Statement; SNAP funding

[89] Queensland Health, *Palliative Care Program Guidelines 2006–2009*

There is also no financial support for nurses wishing to undertake post graduate qualifications in palliative care.

Appropriate models for palliative care across metropolitan, rural and remote communities cannot be implemented without sufficient resources. While various models may deliver care to patients across the state, it is important to recognise that the current resources cannot be 'reshaped' to provide the level of service required. Many patients with cancer will need palliative care. By definition, according to the Queensland Health *Clinical Service Capability Framework*, oncology services cannot be classified as Level 3 without on-site Level 3 palliative care services.

There is little data available concerning the exact volume of palliative care provided in acute facilities as there are few designated palliative care units and the Queensland Health Admitted Patient Data Collection only identifies an episode of palliative care in instances where a designated palliative care program or unit exists, and where the principle intent of care is palliation. The nature of the care of patients requiring palliative care is often classified as sub-acute or non-acute maintenance, and often palliative care beds are also occupied by patients not requiring palliation—for example, patients requiring rehabilitation or respite care. Care settings other than acute inpatient beds may be more appropriate.

Actions

1. Facilitate an integrated approach to palliative care service planning by defining the palliative care service networks in terms of role delineation (primary, secondary, tertiary), location and resources in each Area Health Service.
2. Undertake workforce planning that coincides with proposed service development, optimising available funding to assist in the coordination of palliative care service delivery.
3. Undertake bed and bed equivalent planning for palliative care that includes the need for acute, sub-acute, respite and long-term care, as well as the requirements of the special needs of Aboriginal and Torres Strait Islander people, culturally and linguistically diverse people, children, young adults, the mentally ill and those with chronic and complex care needs.
4. Develop a data collection system to quantify and drive appropriate investment in acute, sub-acute and non-acute maintenance care for palliative patients. This can then be used to inform where reinvestment and future investment can be made to improve access to palliative care services based on need, and to reduce pressure on acute services.
5. Develop integrated service plans for palliative care services in each Area Health Service.

Table 65 Palliative care specialist services—proposed strategies

Objective	Strategy No.	Proposed strategies	Timeframe (years)			Resource implications	Priority		
			1–2	2–5	5–10		H	M	L
1 Palliative care governance	1.1	Gain approval for and develop a statewide Palliative Care Clinical Network in partnership with CPIC				Within existing resources			
	1.2	Agree and enable an integrated approach to service delivery (in accordance with the CSCF) by defining the palliative care service networks in terms of role delineation (primary, secondary, tertiary, statewide, paediatric), location and resources in each Area Health Service.	X			Within existing resources	X		
	1.3	Undertake needs-based planning to develop a comprehensive and integrated statewide palliative care services plan	X			AO5 for 12 months	X		
	1.4	Implement the statewide model		X		To be determined	X		
2 Develop workforce to 2017	2.1	Undertake workforce planning for medical, nursing, allied health and primary care workforces that coincides with proposed service development	X			Within existing resources	X		
	2.2	Implement the workforce plan including the rapid creation of positions	X			To be determined	X		
3 Develop infrastructure for palliative care to 2017	3.1	Define infrastructure needs according to Australian standards (acute, sub-acute, respite, hospice and long-term care needs)	X			Within existing resources	X		
	3.2	Implement infrastructure needs—in particular, addressing immediately identified gaps		X		To be determined	X		
	3.3	Identify the barriers for those population groups for which the service is not adequate (Indigenous Australians, culturally and linguistically diverse people, children, young adults, the mentally ill and those with chronic and complex care needs)	X			Within existing resources	X		
4 Continued development of standardised statewide data collection	4.1	Continue to develop standardised statewide data collection to quantify and drive appropriate investment in acute, sub-acute and non-acute maintenance care for palliative patients to national standards (e.g. the Palliative Care Outcomes Collaborative)	X			Within existing resources	X		
	4.2	Develop and adopt performance indicators for palliative care services in Queensland	X			Within existing resources	X		

Adolescent and young adult (AYA) cancer services in Queensland

Relationship to the Queensland Cancer Control Strategic Directions 2005–2010

- **Objective 18**—Establish a single service for paediatric haematology and oncology—the Queensland Children's Haematology and Oncology Service
- **Strategy 2**—Development and implementation of a model for adolescent transitional cancer care for Queensland Health which includes late effects, transition to adult management, supportive care during and post-transition to adult management, supportive care during and post-transition, management of risky behaviours (including treatment and supportive care protocols).

Cancer services planning for children less than 15 years of age is currently being centralised into a single site—the Queensland Children's Cancer Centre (QCCC) and then moving to the Queensland Children's Hospital (QCH), once commissioned. Additional funds have been allocated to support the statewide Paediatric Haematology Oncology Network, and this has made the appointment of a range of medical and nursing staff possible—improving the quality of service.

Although the network is not equipped to support any developments for patients older than 15 years of age, there is concern about the shortfalls in current cancer services to meet the needs of younger patients—both those that may be managed within the setting of a child and adolescent cancer centre, for example, those aged 15–19 years, and young adults aged 30 years. Reports have demonstrated poorer outcomes for patients with paediatric cancers who are treated in adult centres; psychosocial support for these young people is limited compared to that available to children. Age-appropriate facilities are not available and there is currently limited access to clinical trials for AYA.

Current status

A Network working group was set up to review the situation in Queensland and identify changes that could be introduced both in the short term, and in the longer term, to improve care. The working group's membership comes from both children's and adult's cancer services and has multidisciplinary and consumer representation.

Key issues

1. A shortfall in bed numbers, nursing staff, surgical access and intensive care provision will restrict any significant increase in treatment of 15–19-year-old patients at RCH
2. Access to multidisciplinary teams with specific interest and expertise in AYA for both treatment planning and psychosocial support. Any significant expansion to include older children would require new funds to cover all aspects of multidisciplinary care including development of psychosocial support teams.
3. Access to age-appropriate facilities and interaction with peer groups suffering from comparable cancer types – includes transitional care of children with cancer moving from childhood to young adulthood.
4. Workforce – There are currently limited nursing staff. It is hoped that new services could attract both children's and adult's cancer nurses and other allied health professionals. Due to recently increased SMO levels at QCCC, there is no need to expand at present however, there will be a need to recruit specialists with a specific AYA interest in the future
5. Limited access to clinical trials.
6. Service provision outside Brisbane.

Table 66 Adolescent and young adult cancer services—proposed strategies

Objective	Strategy No.	Proposed strategies	Timeframe (years)			Resource implications	Priority		
			1–2	2–5	5–10		H	M	L
1 Improve access to multi-disciplinary care across the care and age continuums	1.1	Create an AYA support team, including specialised nurses, doctors and social workers who will act as care navigators for these young people—ensuring access to age-appropriate support in relation to education, psychological care, etc	X			Support Team labour costs	X		
	1.2	Develop late effects or long-term follow-up that link with adult cancer and medical services to ensure seamless transition from paediatric to adult care with appropriate sub-specialist and psychosocial evaluation	X			NO4 coordinator at RCH (funded from within existing resources—2007–08 budget)		X	
2 Enable access to age-appropriate facilities	2.1	Determine a working model for the configuration (and links) of age-appropriate facilities and services across Qld children's and adult cancer care sectors	X			Minor Capital works at RCH, PAH, RBWH in the short term to improve facilities		X	
		Develop flexibility in the admission policy to the QCCC (RCH) to allow for care of adolescents, where appropriate, and adaptation of facilities to support (RCH site)				Within existing resources	X		
		The new Queensland Children's Hospital will incorporate some facilities addressing the needs of 15–19-year-olds but this is unlikely to meet demand.				Consideration in capital works at QCH—within existing resources		X	
	2.2	Centralise adolescent care in order to allow for in-house teenage groups or adequate day-to-day interaction	X			Minimal— Physiotherapy activity coordinators at adult units		X	
	2.3	Create more-structured access to enable involvement by groups such as Canteen and the Leukaemia Foundation	X			Within existing resources	X		
3 Increase involvement in clinical trials	3.1	Develop mechanisms through which AYA can be formally enrolled in multi-centre collaborative clinical trials such as the Children's Oncology Group as appropriate	X			Clinical research associates/data managers at major centres to meet AYA clinical trial needs PO3 x 4 ($400 K)	X		
4 Improve distance access to AYA services	4.1	Develop new models to enable AYA patients to access both treatment planning MDT and obtain age-appropriate psychosocial support from outside Brisbane—including use of the QOOL (IT) service and organisations such as RedKite, and online support groups such as the Starlight Foundation	X			Within existing resources	X		

Multidisciplinary care in cancer services

Relationship to the *Queensland Cancer Control Strategic Directions 2005–2010:*

- **Objective 15**—Enhance multidisciplinary care to improve patient outcomes
- **Objective 26**—Provide quality care into the future through partnerships by building relationships between Queensland Health and non-government and community support services

A multidisciplinary care approach to cancer services has been shown to improve patient outcomes (QH *Service Capability Framework 2005* and *Principles of Multidisciplinary Care*, NBCC—National Breast Cancer Centre—2005). The principles emphasise the need for:

- a *team approach*, involving core disciplines integral to the provision of services
- *communication* among team members regarding treatment planning, goal setting, psychosocial issues and problem solving
- access to the *full therapeutic range* for all patients, regardless of geographical remoteness or size of institution, through development of strong working and formal links between facilities for visiting consultative services and the establishment of clear referral pathways
- provision of care in accordance with *agreed standards*
- *involvement of patients* in decisions about their care.

Evidence indicates that a team approach to cancer care can reduce patients' mortality and improve their quality of life. Furthermore, patient satisfaction with treatment and the mental wellbeing of clinicians has been shown to be improved by a multidisciplinary approach to care (NBCC, 2005). Multidisciplinary care (MDC) is about all relevant health professionals discussing options and making joint decisions about treatment and supportive care plans, taking into account the personal preferences of the patient (*Multidisciplinary Meetings for Cancer Care: A Guide for Health Service Providers*, NBCC 2005). This is also a critical intervention point in the *National Service Improvement Framework (NSIF) for Cancer 2005.*

Queensland Cancer Services aims to develop a whole-of-system approach to cancer care, which will involve the redesigning of the systems of patient-centred care. These changes will foster relationships between health services, health care providers and patients across the cancer health continuum.

Current status

Currently in Queensland, the provision of MDC and multidisciplinary models of care are inconsistently applied across cancer services and it is reported that patients experience difficultly navigating cancer services. There is a recognised need to ensure cancer services are patient-focused, and that they also accommodate for special-needs populations—such as people from culturally and linguistically diverse backgrounds, including Indigenous people—to achieve improved health outcomes.

The geographically dispersed population, distribution of health services and workforce shortages across Queensland create challenges in providing safe and sustainable cancer services. Implementation of effective MDC will ensure a patient-centred focus to care, enhance patient involvement in care decisions, improve access to specialist care and improve continuity of care across the continuum.

Key components of the multidisciplinary care model

Initial diagnosis and referral

Using a screening process, patients who would benefit from MDC are identified and referred to an appropriate tumour board.

Multidisciplinary Tumour Board meetings

The principle aim of the Board is to determine the stage and appropriate management of a patient's cancer, taking into account the pathology, imaging and clinical findings along with other significant influencing co-morbidities. The board is comprised of relevant medical specialists (including pathologists, radiologists and nuclear medicine physicians), nurses and allied health staff. The patient, or the patient's case, is reviewed, and using a patient-centred approach a tumour treatment care plan is developed. Attendance at the Board meetings may be in person or through the use of telehealth facilities—including videoconferencing and teleconferencing.

Multidisciplinary care—implementation team

The Board recommendations feed into the multidisciplinary team process, including relevant medical, allied health, nursing and psychosocial care. Multidisciplinary team membership varies according to the needs of each patient but should reflect both clinical and psychosocial aspects of care, inclusive of a care coordinator, supportive care provider and general practitioner (NBCC 2005). Multidisciplinary teams hold regular meetings depending on their structure and function. Care coordination is an integral component of this model to ensure that there is continuity throughout the care process.

A significant issue in undertaking multidisciplinary tumour board meetings is staff time (clinical expertise) and administration support (recordkeeping). Inadequate administration support and staffing levels will limit the capacity to provide a multidisciplinary care approach in diagnosis/staging, treatment planning and ongoing care throughout the treatment process. It is vital to the success of the model of care to foster nursing and allied health cancer expertise in key personnel in major centres. At smaller cancer units, both nursing and allied health personnel will need to be trained to develop networked support for practitioners.

To enable multidisciplinary tumour board meetings to run in smaller regional and rural sites, access to specialists must be enabled by linking these facilities with cancer units or centres and using strategies such as telehealth and video conferencing. Trained staff are needed to manage telehealth services. Provision of additional administrative assistance will be required and time to enable cancer centre staff to engage in these meetings must also be considered. Due to current workforce issues, flexible meeting modes need to be considered.

Physical infrastructure

Multidisciplinary tumour board meetings need to have a designated consultation room with telehealth/videoconferencing facilities, appropriate diagnostic equipment available and adequate access to radiology and pathology services.

Data support

Regular audits are an essential part of any therapy pathway. Appropriate database systems need to be in place, with IT support. It is unlikely that one database will fit all requirements of different multidisciplinary tumour board meetings, and that IT solutions need to be time efficient and not depend upon multiple persons for data entry.

Requirements for the provision of multidisciplinary cancer care

Multidisciplinary cancer care requires:

- dedicated resources, including financial resources and appropriate FTE staffing (all disciplines), administrative support, accommodation (meeting rooms) and IT infrastructure (videoconferencing facilities and diagnostic/radiology equipment)
- meetings to be held regularly and considered core business
- enlistment of champions to drive the multidisciplinary team strategies
- committed team members and flexibility in processes to accommodate for changes in personnel and organisational structure.

Table 67 Multidisciplinary care in cancer services—proposed strategies

			1–2	2–5	5–10		H	M	L
1. Improve access to MDC through tumour boards	1.1	Align care coordinators to support tumour boards	X			Within existing resources	X		
	1.2	Review current referral pathways, communications strategies and tumour board provision with recommendations for future development	X			Within existing resources	X		
	1.3	Develop formal links between cancer centres and cancer units to facilitate access to clinical expertise	X			Within current resources	X		
	1.4	Establish additional tumour board so cancer centre boards cover all common cancers (and low incidence/rare cancers) and cancer units cover common cancers		X		Within existing resources	X		
	1.5	Facilitate attendance at tumour board meetings of VMO surgeons, radiologists, pathologists and other medical specialists relevant to individual patient care	X			Recurrent funding for 1 FTE radiographer and 1 FTE pathologist in each area Provision of recurrent funding for VMOs on sessional basis	X		
	1.6	Provide existing and new tumour boards with administrative assistance	X			Establishment and recurrent funding for 0.2 FTE administration officers for each tumour board.	X		
	1.7	Ensure tumour boards and MDTs have adequate space and infrastructure to provide effective care	X			In accordance with master planning	X		
	1.8	Align care coordinators with tumour boards				Within existing resources	X		
2. Enhance capacity for effective care coordination	2.1	Evaluate existing care coordination model and its implementation and make recommendations for future development	X			Within existing resources	X		
	2.2	Establish additional care coordination positions to support tumour boards in line with recommendations		X			X		
	2.3	Establish additional case management to support individual patients in line with recommendations		X			X		
3. Facilitate information/ care across the continuum	3.1	Engage with the University of Queensland to develop a plan to improve GP access to tumour board meetings		X		Project officer in conjunction with CanNET		X	

Evidence-based protocols, guidelines and standards (global)

Relationship to the Queensland Cancer Control Strategic Directions 2005–2010:

- **Objective 14**—Provide access to quality treatment services for all Queenslanders
  - **Strategy 6**—Implement evidence-based protocols, guidelines and standards to provide consistency of care across the state in line with the CSCF.
  - **Objective 16**—Provide quality and safe systems supporting evidence-based practice to achieve better outcomes for people with cancer.
  - **Strategy 1**—Consistent with national programs, develop and implement infrastructure in line with Queensland Health's broad quality and safety infrastructure that supports the delivery of evidenced-based care in a consistent manner across all service delivery sites in Queensland.
  - **Strategy 3**—Provide support for managing complex decision making in clinical practice for health care providers.

Background

Clinical guidelines are recommendations on the appropriate treatment and care of people with specific diseases and conditions. They are based on the best available evidence. It is clinically acceptable to vary these guidelines where the variation is based on patient preferences and characteristics (tolerance, co-morbidities etc.). However, not all observed variation in clinical practice is considered clinically acceptable as per this definition. Where possible and appropriate, variation in practice should be minimised to ensure patients have the best and most appropriate care regardless of where they are treated.

Work has been undertaken to develop a *Clinical Service Capability Framework* (CSCF) for cancer services. The CSCF is a tool used to align the range of cancer clinical practice to support safe practice. It represents evidence-based care. To ensure quality of care, clinicians need to be supported to adopt best-evidence clinical guidelines in a timely manner, taking into account organisation and context[90]. Various jurisdictions have considered this issue and there is recent Australian advice on ways to promote the uptake[2]. Step one involves identification of a team to support and promote the process. Critical to the team is a clinical champion who is '…usually someone who can speak with authority on clinical matters, can motivate others to recognise that they need to make certain changes and has the ability to achieve consensus …' (p. 6).

Current status

To date, the Cancer Care program has:

- developed a working draft of the relevant cancer services section of the CSCF—this is being applied informally across the state. This CSCF module needs finalisation
- rationalised and standardised Medical Oncology and Haematology chemotherapy treatment protocols across the three Area Health Services in Queensland
- reference documentation for each of the recommended chemotherapy protocols
- aligned the project's chemo protocols to the clinical service levels of the CSCF for cancer care

[90] Shortell et al. 'Improving Patient Care by Linking Evidence-Based Medicine and Evidence-Based Management', JAMA. Vol 298 No 6, Aug 2007.

- developed a pilot project to explore models and how to support tumour stream clinical teams—pilots will be implemented under the CanNET project (QCCAT with Cancer Australia part-support funding).

Recommendations

- Finalise and release the CSCF to guide service development, quality, safety and risk management.
- Disseminate and use evidence-based/best-practice protocols and guidelines to reduce variations in treatment of cancer across the state—individual protocols are used only at sites that have the facilities and staff to support this safely.
- Monitor the use of evidence-based/best-practice chemotherapy protocols to ensure appropriate, safe patient care and minimal variations in treatment across the state.

Table 68 Evidence-based protocols, guidelines and standards—proposed strategies

1. Improve safety and sustainability of cancer services	1.1	Review and finalise the Cancer Services section of the QH CSCF—endorse and implement	X			Within existing resources	X	
	1.2	Develop systems to monitor usage and applicability of the Cancer Services section of the CSCF		X		Within existing Cancer Network resources		X
2. Develop consistency in the provision of quality, evidence-based care across the state	2.1	Develop guidelines for the safe and appropriate delivery of individual cancer treatment protocols (e.g. surgery, chemotherapy and radiotherapy) based on designated clinical service levels	X			$300,000 for clinical leads, project staff, consultation forums, travel etc.	X	
	2.2	Endorse chemotherapy protocols and align clinical practice guidelines with the CSCF	X			Within existing resources	X	
	2.3	Collate existing evidence/guidelines and investigate alignment with clinical service levels—for safe and appropriate individual radiation therapy procedures within tumour streams, according to the CSCF		X		Approximately $160,000 (0.5 FTE fellow and PT project officer, consultation forums, travel)	X	
	2.4	Develop and implement processes to monitor and evaluate uptake guidelines, protocols, and compliance with recommended CSCF levels for tumour type and stage		X		Pharmacy protocol audit may require resources of approximately $160,000 (project staff, travel)	X	
	2.5	Develop and establish an educational strategy to implement guidelines	X			Approximately $360,000 (clinical leads, project staff, forums, travel)	X	
	2.6	Develop and establish an ongoing review process to ensure protocols reflect current best-practice and evidence-based treatments	X			Minimal resources	X	
3. Develop mechanisms to share best practice strategies	3.1	Establish ten (based on the Australian priority cancers) tumour groups in each region linked to the Area Cancer Clinical Networks.	X			Resources detailed in Multidisciplinary Team Planning Guide		X
	3.2	Establish four tumour groups for children's cancer at the statewide level (stem cell transplant, malignant haematology, neuro-oncology and solid tumours)	X			Within QCH resources		X
	3.3	Review and evaluate the effectiveness and efficiency of the tumour group model/s and operation, using an external team		X		$60,000		X

Cancer services accreditation

Relationship to the Queensland Cancer Control Strategic Directions 2005–2010:

- **Objective 16**—Provide quality and safety systems supporting evidence-based practice to achieve better outcomes for people with cancer, their families and carers.
  - **Strategy 6**—Develop audit and review processes of cancer services guided by national accreditation organisations and programs to ensure highest quality of care is delivered
  - **Strategy 7—**Ensure Queensland's position is articulated in the development of any national accreditation program for cancer services.

There has been considerable national and interstate work done on the subject of cancer services accreditation. The following is a brief summary of that work.

Background

National accreditation framework—This Australian Government-funded study reviewed national and international literature regarding standards development and accreditation processes[91]. Consultations with key national and international stakeholders were undertaken. The study incorporated both healthcare accreditation models and more specific cancer services accreditation. International models included those used in the USA, Canada, UK (including England, Wales and Scotland) and New Zealand.

The objectives of the study were to identify models potentially applicable to the Australian health care system considering any key principles, criteria and common themes, and highlight relevant issues to be considered when implementing an accreditation system for cancer services.

Development of standards—A Framework for Cancer Services Standards[92] was developed following consultations and an examination of the range of inter-jurisdictional cancer standards. The Framework includes the following domains:

- safety, quality and outcomes
- patient focus (including consumer representation in the development stage)
- accessibility
- facility requirements (including those of both public and private sectors)
- elements in patient pathway (including a range of clinical services, plus coordination and communication between elements in the patient pathway)
- multidisciplinary care
- professional staff development
- data management and cancer database operations
- research.

[91] Accreditation of Cancer Service – a discussion paper, prepared by the National Breast Cancer Centre on behalf of the Australian Cancer Network, February 2005

[92] Ibid page 3

Recommendations

The study recommended that an Australian model for cancer services accreditation should:

- focus on quality improvement, with compliance rewarded and support provided to encourage improvement
- be voluntary, with efforts made to increase participation through gaining the support of key stakeholders
- be clinician-led, incorporating both self-assessment and peer review, with a written report by assessors provided to the accrediting body to inform an accreditation decision
- involve consumer participation
- seek agreement on the number of levels of accreditation awarded as well as compliance, provisional compliance and non-compliance.

It also recommended that the accreditation process should:

- be voluntary but encouraged, with compliance rewarded and support provided to encourage improvement, rather than being a regulatory process penalising non-compliance
- be clinician-led, incorporating both self-assessment and peer review, with a written report by assessors provided to the accrediting body to inform an accreditation decision
- follow a three-year cycle with annual monitoring. If existing accreditation agencies are used for accreditation, there is a need to consider the demands of existing accreditation cycles on the availability of assessors
- minimise administrative and resource burden
- be transparent
- be educational in intent. Outcomes of the accreditation process should be made publicly available, and support and education should be provided to services following accreditation to rectify problem areas and improve service on an ongoing basis
- support continuous quality improvement
- allow for appeals and mediation
- be reviewed periodically.

The study also made the point that successful accreditation depends on adequate data collection.

NSW Cancer Institute—pilot study

Recent developments in accreditation for cancer services include a NSW project where accreditation feasibility is being piloted. The abstract from the NSW Cancer Institute states:

The Cancer Services Accreditation Program involves the development of both an accreditation model and the standards to underpin this model.

Development and testing process

Twelve draft standards have been developed specific to cancer services. All services are expected to reach level 1 and 2 (inclusive) to be accredited for that standard. To be accredited for a full three-year period, a cancer service must reach level 3 for 10 of the 12 standards. The facility will also need to have a current general accreditation (ACHSE) before they can be considered for accreditation of their cancer services.

The draft Radiation Oncology College accreditation standards and process are meant to sit alongside the NSW Cancer Institute accreditation standards and process, and complement rather than duplicate each other. There are three components to the NSW accreditation process:

1. Service completes an on-line self-assessment survey
2. On-site peer review of services
3. Generation of a report—looking at measure of compliance with the standards, drawn from available datasets where possible and looking at clinical indicators.

The plan is for the accreditation process to be carried out by an already established accreditation organisation e.g. ACHSE (to be determined by tender process) and that the NSW Cancer Institute will act as a certification body only. It should be noted that under its legislation, the NSW Institute has an obligation and responsibility to ensure cancer services are accredited.

No specific funding is being made available for services to prepare for accreditation although some minor support will be given to the pilot sites.

Pilot process

A pilot process will be undertaken to test and ensure the standards are robust and that an effective and efficient accreditation model is developed. This pilot process is scheduled for six sites of varying size and location e.g. metropolitan, rural, public and private. The accreditation process involves sites undertaking a preliminary online self assessment and then undergoing peer review. Results of the pilot process are expected during the first quarter of 2008.

It is expected that within a year of the final report a definitive model will have emerged. Following this, there will be a staged implementation in NSW over the next three to four years. Further information regarding this project is available on the NSW Cancer Institute website <ww.health.nsw.gov.au/cancer_inst/profes/accreditation.html>.

Recommendations

Once the model has been defined, its applicability to the Queensland context will need to be evaluated. If suitable, it is envisaged the accreditation process could be rolled out in stages in Queensland in three to four years.

Queensland Health credentialling and scope of practice

Relationship to the *Queensland Cancer Control Strategic Directions 2005–2010:*

- **Objective 14:** Provide access to quality treatment services for all Queenslanders (remote, rural, regional and metropolitan).
  - **Strategy 5:** Strengthen Queensland Health's approach to credentialling, defining the scope of clinical practice and granting clinical privileges.

Background

Both the *Queensland Health Systems Review*[93] and the *Queensland Public Hospitals Commission of Inquiry*[94] discussed shortcomings of, and made recommendations in relation to, Queensland Health's processes for:

- credentialling and privileging medical staff for scope of practice consistent with the clinical service supports available
- responding to criticism and/or concerns raised in relation to a clinician's practice.

Credentials

Credentialling of medical staff is not only a key element of quality management, but also is one of the most effective risk management initiatives that doctors and hospitals can undertake to minimise the risk of malpractice litigation.[95] Evidence of credentials are documents such as university degrees, fellowships of professional colleges or associations, registration by medical boards, certificates of service, certificates of completion of specific courses, periods of verifiable formal instruction or supervised training, information contained in confidential professional referee reports and medical indemnity history and status.

Based on the stage of its implementation, credentialling may be categorised in the following three ways:

- in association with an initial or new appointment
- annually (routine), including the circumstances of a reappointment
- non routinely, which can involve:
  - locums (including 'emergencies')
  - upgrading (when new training has been completed during the yearly cycle)
  - downgrading (e.g. as a result of an investigation into a complaint or problem of patient care).

Clinical privileges

The granting of clinical privileges must ensure that only appropriately qualified and experienced medical practitioners undertake clinical care within the constraints imposed by the available resources.

The principal reason for this is to ensure that all medical practitioners practise high-quality care when working within a health care facility i.e. that only appropriately qualified, trained and experienced practitioners undertake clinical care within the constraints imposed by the available resources, including staff and equipment, and the physical facilities available within the health care facility concerned i.e. the service capability (Queensland Health, *Guidelines for rural medical practitioners*).

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[93] 'Forster review', see recommendations 5.11, 9.4, 9.5, 9.13, 9.14 and 9.25, Sept 2005 www.health.qld.gov.au/health_sys_review/final/qhsr_final_report.pdf

[94] 'Davies Inquiry', paragraphs 3.146–3.156, chapters 6 and 8, Nov 2005 www.qphci.qld.gov.au/final_report/Final_Report.pdf

[95] Standards Australia, *Dynamic approaches to risk management*

Clinical privileges granted at one facility are not automatically transferable to another. The extent of clinical privileges may vary from facility to facility depending on the support services required. However, consideration should be given for clinical privileges to be granted on a HSD basis where services of the same level are provided.

Clinical privileges may be general (or global) in nature such as those in general practice involving family practice. They can also be quite specific in defining complex areas of procedural medicine where only a few highly qualified and skilled practitioners may be competent to practice.

Clinical privileges may relate to admission and treatment of in-patients (public or private); treatment of outpatients; areas of clinical practice; use of facilities such as operating suites and procedure rooms; use of specialised equipment and technologies, including diagnostic facilities; performance of specific operations or interventional procedures.

Summary of actions

In response to concerns about credentialling and privileges, Queensland Health has taken a series of actions. The following table summarises these and the known progress to date. These actions have application within the specialty of cancer care.

Table 69 Credentialling and privileges—summary

Action	Lead	Comments	Status
Develop new legislation to enable the Medical Board of Queensland to develop a performance evaluation program that is non-punitive and provides a framework for ongoing demonstration of professional competence.	Chief Health Officer (CHO)	New legislative requirements under the *Health Quality and Complaints Commission Act 2006.* These will require clinicians to establish, maintain and implement reasonable processes to improve the quality of health services provided, including processes to monitor quality and protect users of health services.	Enacted
Develop QH Guidance re: Credentialling and Scope of Practice to support area Credentialling and Clinical Privileging Committees.	CHO	CHO has developed QH credentialling and Scope of Practice guideline paper, distributed for consultation.	Drafting ongoing
Develop a statewide approach to assessing the performance and development of individual clinicians, and to manage concerns about their performance	Exec Dir Reform and Dev. Division	"Safe Doctors—Fair Process" Policy released 4 July 2007. To be administered by the Queensland Clinical Assessment Unit (QCAS). Involves assessment and remediation pathways where concerns re: practice of individual clinicians has been raised. Following the assessment process, a report will be prepared and provided to the clinician assessed, as well as the management of the HSD who referred the matter to QCAS for assessment.	Policy released and applicable
Give Area Health Services responsibility for making sure doctors have the right qualifications, training, and experience for the job through their clinical governance units (CGUs). CGUs will also inform doctors of what services they can provide, based on their qualifications, training and experience, and the capabilities of the hospitals they will be operating in. Support for these activities will be provided by Area Credentialling and Clinical Privileging Committees.	Area Health Service	All HSDs report, on a monthly basis, to the Patient Safety and Quality Board, on the credentialling and scope of practice status of clinicians providing patient services within their facilities. Reports are based on a clinical governance self-assessment tool, implemented through the Area CGUs.	Ongoing monitoring

Queensland cancer treatment services workforce

Overview

In line with Queensland's population growth, there will be significant increases in cancer incidence and, therefore, the need for cancer treatment services. A number of strategies to meet this need have been proposed within the *Statewide Cancer Treatment Services Plan*. Successfully implementing each strategy depends upon an adequate and appropriately trained, skilled, supported and stable workforce, employed in the right place at the right time.

Where there is reasonable knowledge of the existing workforce, training, service delivery and workforce models, and there are accepted workforce and service benchmarks, it is possible to project workforce requirements with reasonable accuracy. However, where these are unknown or likely to change and/or where there are no accepted benchmarks, estimating future workforce needs, with any degree of accuracy, is problematic. While there are some validated service and/or population benchmarks for a number of disciplines within cancer treatment services, these are limited to medical specialists and some specialist allied health staff that together comprise only a small proportion of the workforce. Benchmarks urgently need to be developed for nurses, allied health personnel and the broader cancer services workforce.

It is complex and difficult to quantify the workforce needed to provide cancer treatment services, as cancer treatment includes a wide range of services that are delivered in a variety of settings, with varying degrees of scope and complexity by customised multidisciplinary teams. Thus, while it is possible to plan for the workforce required to support some of the discrete services provided in specific locations (for example, Positive Emission Tomography), it is difficult to plan for the general workforce. Developing a clear understanding of the current workforce is necessary as a first step—to determine the most appropriate actions to support future services.

The *Clinical Services Capability Framework* (CSCF) governs the range and complexity of services offered in individual sites and is one determinant that defines workforce requirements. Within the *Cancer Services Treatment Plan*, the current and proposed CSCF for each site providing cancer care has been identified. This work has identified a number of gaps in the current workforce as well as areas of workforce risk and future requirements. Each of these needs to be addressed.

The worldwide shortage in medical, nursing and allied health personnel is an important factor affecting the ability to recruit and retain adequate numbers of staff—especially those with specialist or advanced skills in cancer care. In Queensland, difficulties in filling key positions are already being experienced and are threatening the ability to deliver existing services in a safe and sustainable way (and in accordance with the proposed service networks and CSCF). This is particularly so in locations outside South East Queensland.

In order to maintain current services and meet future demand, it is essential that a workforce plan be developed to include strategies that maximise access to scarce specialist knowledge and skills. This includes developing a sound understanding of how the cancer workforce is currently deployed and organised, exploring and piloting alternate workforce-and-skill-mix models—which may incorporate greater use of ancillary and support staff—and reallocation of tasks.

Of great importance is the development of strategies to attract adequate numbers of new people to consider cancer as their specialty of choice. Greater collaboration with education providers will be needed to advance this. It is necessary that there are adequate training positions, and that infrastructure and support are provided so that staff in training can optimise opportunities for development.

The diagnosis and treatment of cancer attracts enormous investment in research, leading to development of new methods of treatment and frequently changing technology. In the clinical setting, this translates to involvement in clinical trials to test and validate findings. While this research is essential to identify more effective and efficient treatment strategies, the ability to be actively involved in such research has been identified as an important recruitment and retention strategy for many specialist staff.

Recommendations

1. Address the lack of knowledge about the current demography and organisation of the existing workforce.
2. Explore and implement alternate staffing-and-skill-mix models (including staff benchmarks) to maximise existing knowledge and skills.
3. Grow the capacity, capability and flexibility of the existing workforce.
4. Design activities that enable and encourage staff to consider cancer care and that support them during training. This includes participation in research activities

Table 70: Queensland cancer treatment services workforce—proposed strategies

			1–2	2–5	5–10		H	M	L
1Optimise the use of existing human resources to provide safe, quality and sustainable services	1.1	Undertake a 3-month project, aiming to: identify and assess the current work activities, roles, processes and flow of Queensland Health cancer services identify work designs to make best use of available staff including identifying work that could be reasonably performed by another discipline (with appropriate training and working under supervision appropriate for the competency)	X			$150,000	X		
	1.2	Explore and implement alternate staffing and models of care to enable better use of scarce clinical skills. This could be by including nurse led clinics, nurse practitioners and therapy assistants.	X			Within existing resources	X		
	1.3	Develop and implement employment models allowing key staff (e.g. nursing, medical specialists, allied health, PET staff, ROMPs) to work between/across HSDs and areas to support improved service delivery and workforce models	X			Within existing resources	X		
	1.4	Explore models to accommodate various workforce designs (all disciplines) including part-time work, while supporting best-practice principles (e.g. ensuring continuum of care)		X		Within existing resources		X	
2 Build cancer workforce to support service expansion and meet projected demands	2.1	In collaboration with the Workforce Planning and Coordination Branch, develop a coordinated overseas recruitment plan targeting areas of specific deficit (e.g. medical specialists, experienced registered nurses, radiation oncology medical physicists and nuclear physicists)	X			Within existing resources	X		
	2.2	Develop an education and training plan to support and enable implementation of a necessary workforce redesign that supports adopted models		X		Within existing resources	X		
	2.3	Create positions incrementally in according to demand projections and service development—taking account of outreach responsibilities, training and professional development. Includes permanent, temporary and training positions		X		Recurrent staff positions requested according to growth in services	X		
	2.4	Develop strategies to support and facilitate involvement in clinical and other professional research activities	X			Within current resources		X	

Specialist medical workforce

Current—statewide (public and private combined)

Within current cancer treatment services, specialist medical staff are comprised of medical oncologists, haematologists and radiation oncologists—representing the three non-surgical treatment specialties. There is a paediatric subspecialisation of each of these, which manage the 0–15-years age group. Analysing the whole of the Queensland population and applying Australian benchmarks—and international benchmarks adjusted to Australian conditions—it has been identified that the current total specialist workforce required for adult services is 73 medical oncologists/haematologists and 43 radiation oncologists.

Public sector

In the public sector, specialists work primarily within cancer centres and cancer units that provide specialist services. Cancer centres provide outreach and/or consultative services to other sites linked through geographic networks and with the exception of some statewide or superspecialty services, they are self sufficient in terms of services, dedicated beds and multidisciplinary workforce.

Using the ratio of public and private linear accelerators (linacs), it is estimated that 65% of radiation oncology work is provided in the public sector and 35% in the private, indicating a current need for 28 radiation oncologists for public adult services. Workforce and activity data analysis suggests that medical oncology and haematology cancer treatment services are provided equally across the private and public sectors, and that the ratio of medical oncologists to haematologists is 70:30. It has also been identified that haematologists spend their time equally between clinical and laboratory settings. Therefore, it estimated that currently within the public sector 51.1 FTE medical oncologists and 21.9 clinical haematologists are required to provide adult cancer treatment services across the state. Unfortunately, there are no benchmark figures available for paediatric oncology. It is accepted by the paediatric oncology community that present funded positions fulfill the requirements for children with cancer in Queensland. There is no private paediatric oncology service. Future staffing should increase in line with change in population and incidence.

At present, there is a total of 65.85 FTE funded medical specialist positions for adult services in Queensland Health. Despite active recruitment, 17.1 FTE or almost 26% of those funded positions are unfilled. These vacancies are in medical oncology (9.5 FTE) and haematology (3.7 FTE). The majority are in the Southern Area Health Service. There are also 3.9 FTE vacancies in radiation oncology. There are an additional 9.5 FTE funded positions for paediatric service—2.2 FTE of these are also unfilled.

Table 71 demonstrates that there is reasonable parity between the positions required in the public sector in Queensland and actual funded positions, and that the shortage clearly relates to the inability to fill the vacant positions. These vacancies are due to a number of factors including:

- inadequate numbers of doctors choosing oncology as a specialty
- greater remuneration and other benefits within the private sector supporting lifestyle choices
- preference to work in populated areas where workloads can be better managed though rostering, and other activities such as research can be facilitated
- historical emphasis on service provision with minimal emphasis on teaching and research
- increasing numbers of specialists choosing to work part time.

Table 71 Current total and public sector FTE cancer treatment specialist positions

	Medical oncology	Clinical haematology	Radiation oncology	Paediatric
2006 statewide requirement				
	51.1	21.9	43	N/A
Public sector requirement				
Requirement	25.5	11	28	N/A
Funded positions	27.25	13.2[1]	25.4	9.5
Filled positions	17.75	9.5	21.5	7.3
Unfilled positions	9.5	3.7	3.9	2.2

[1]*Represents the 50% clinical component of total haematology workforce consisting of 26.43 FTE joint clinical and laboratory—2.1 other FTE haematology positions are purely laboratory and are not included.*

Projected requirements

Using the same benchmarks and analysis, the projected numbers of specialist staff required in the future was calculated and is outlined in Table 72.

Table 72 Projected minimum number required—total statewide and public sector FTE Cancer treatment specialist positions

Specialist medical workforce—projected				
	Medical oncology	Clinical haematology	Radiation oncology	Total
Statewide				
2011	80	24	50	154
2016	86	26	56–58	168–170
2021	94	28	61–64	183–186
Public sector				
2011	40	12	32	84
2016	43	13	36–38	92–94
2021	47	14	40–42	101–103

Related responsibilities and other activities such as the provision of outreach services, clinical supervision and training, research, and professional development will change the need for additional staff. Future changes in cancer incidence, prescribed treatment regimes, models of care, new workforce models and/or skill mix, and changes to the proportion of work being undertaken in the private sector will also impact on the projections. Given that these are variable, it is challenging to accurately scenario plan for this workforce.

Medical specialists are supported and assisted by advanced trainees and sometimes fellows studying to gain specialist qualifications in cancer treatment and/or professional recognition. Training programs are conducted in partnership with medical colleges and rely on the provision of training, mentoring and clinical supervision by qualified specialists. There are currently 60 FTE funded advanced trainee/fellow positions in adult cancer care. Table 73 shows that

currently in the public sector in Queensland, (2007) 13 FTE or just over 20% of these positions are unfilled, the majority of which (seven positions) are in the Southern Area. There is only one vacancy across the state in radiation oncology with the remainder in medical oncology (six positions) and haematology (six positions). In 2008, the vacancy rate for training positions is reduced to just two positions in medical oncology—situated in Townsville and on the Sunshine Coast. In addition, there are a total of 3.2 FTE senior medical officer positions in paediatrics. All palliative care training positions are filled.

Table 73 Training and Fellow positions in cancer services in the Queensland public sector 2007

	Funded	Unfilled	Funded	Unfilled	Funded	Unfilled
Advanced trainees	11.5	4	17	4	16	1
Fellows	9	2	5.8	2	2	1
Total	20.5	6	22.8	6	18	2

After completing post-basic training, it takes approximately five years for a trainee to become fully qualified as a cancer specialist. The College of Physicians require two staff specialists to be available to support each trainee. Australian qualified specialists practise with minimal additional training and/or supervision; however, due to shortages they are in great demand and difficult to recruit. Most overseas trained graduates require additional training and specialist supervision in order to gain necessary recognition and/or competence to practise independently in Australia. Providing this supervision requires existing specialists, to increase their workload and further adversely affects their capacity to support trainees while meeting clinical demands.

In line with existing capital and infrastructure investment decisions, population growth, service capability and capacity, the majority of new specialists will continue to be employed in cancer centres where specialised and complex care is provided. However, as the population grows, services will need to expand—more complex treatment will need to be provided outside metropolitan centres. Due to this, there will be an increased need that specialists be located in cancer units and ambulatory care settings in regional areas.

Recommendations

- The medical workforce must be grown at the maximum rate possible. Strategies need to focus upon:
  1. increasing numbers of specialists to provide current care
  2. providing appropriate support for those in training
  3. increasing training positions incrementally.
  4. Strategies are needed to enable the deployment and increase the attraction of sites in non-metropolitan areas.

Table 74 Specialist medical workforce—proposed strategies

Objective	Strategy No.	Proposed strategies	Timeframe (years)			Resource implications	Priority		
			1–2	2–5	5–10		H	M	L
1 Increase medical specialist capacity to meet service demands and support training positions	1.1	Continue activities to recruit Australia-trained specialists	X			Within existing resources	X		
	1.2	In collaboration with Workforce Planning and Coordination Branch, recruit appropriately trained overseas specialists and enable specialist registration—increasing workforce capacity to supervise training positions.	X			Within existing resources	X		
	1.3	Explore opportunities for specialists to be employed by the network or Area Health Service, rather than HSDs, to enable greater coverage of expertise though flexible allocation	X			Within existing resources	X		
	1.4	Explore options for cross-HSD appointments for overseas graduates to improve medical coverage while ensuring appropriate supervision (e.g. employment by HSD, area or the Cancer Network)	X			Within existing resources	X		
	1.5	As part of entire workforce strategy, create positions incrementally according to demand projections and service development, taking account of outreach responsibilities, training and professional development		X		Recurrent funding required according to growth in services	X		
2 Create a training model able to meet service demands and grow the medical workforce	2.1	Investigate a centralised funding model to allow the training workforce to move through sites and specialty areas according to their training requirements while operational management (e.g. HR) is centralised—following the models developed in other specialties (e.g. orthopaedics)	X			Within existing resources	X		
	2.2	Investigate opportunities for public–private partnerships in relation to trainees—options include advanced trainees working across public and private settings, or undertaking private sector training in partnership with colleges and in line with current arrangements in other specialties		X		Within existing resources	X		
	2.3	As part of an entire workforce strategy, create training positions incrementally according to demand projections, service development and education imperatives		X		Recurrent funding required according to growth in services	X		

Medical cancer workforce summary tables—August 2007

Table 75 Central QLD —current positions

		Med onc		Haem clinical/Lab		Rad onc		Pal care	
Current positions		*Funded*	*Unfilled*	*Funded*	*Unfilled*	*Funded*	*Unfilled*	*Funded*	*Unfilled*
RBWH	Sen med officer/consultant	7.5	2.7	6.8 *		8	1.9	1.3	
	Visiting med officer			1.1					
Northside	Sen med officer/consultant			1.8	1				
	Visiting med officer								
SCC	Sen med officer/consultant	3	1.4					2	
	Visiting med officer			1	0.6				
Fraser Coast	Sen med officer/consultant								
	Visiting med officer								
Wide Bay	Sen med officer/consultant								
	Visiting med officer								
Central Qld	Sen med officer/consultant							1	
	Visiting med officer								

**Includes 0.9 FTE Queensland Health Pathology Service*

		Med onc		Haem clinical/Lab		Rad onc		Pal care	
Current positions		*Funded*	*Unfilled*	*Funded*	*Unfilled*	*Funded*	*Unfilled*	*Funded*	*Unfilled*
RBWH	Advanced trainee	3		6 *	1	6		1	
	Fellow	1		1		1			
Northside	Advanced trainee	1							
	Fellow								
SCC	Advanced trainee								
	Fellow	2	1	Shared with onc. + 0.8	Temp fill				
Fraser Coast	Advanced trainee								
	Fellow								
Wide Bay	Advanced trainee								
	Fellow								
Central Qld	Advanced trainee								
	Fellow								

Includes 3 FTE Queensland Health Pathology Service

Table 76 Southern QLD—current positions

		Med onc		Haem clinical/Lab		Rad onc		Pal care	
Current positions		*Funded*	*Unfilled*	*Funded*	*Unfilled*	*Funded*	*Unfilled*	*Funded*	*Unfilled*
PAH	Sen med officer/consultant	6.3		7.4	1	11			
	Visiting med officer	0.6	0.4	0.53	0.35				
Gold Coast	Sen med officer/consultant	2		1.2 Clin 0.3 Lab	0.5			1	
	Visiting med officer			0.6 Clin 0.3 Lab		0.2		0.8	
Toowoomba	Sen med officer/consultant	1	1	1	1			0.25	
	Visiting med officer								
West Moreton/ South Burnett	Sen med officer/consultant							1	
	Visiting med officer	0.2							
Southside Coast	Sen med officer/consultant							2.5	
	Visiting med officer								
Mater	Sen med officer/consultant	3.4	2	2.8	1			1.6	
	Visiting med officer								

		Med onc		Haem clinical/Lab		Rad onc		Pal care	
Current positions		*Funded*	*Unfilled*	*Funded*	*Unfilled*	*Funded*	*Unfilled*	*Funded*	*Unfilled*
PAH	Advanced trainee	4	1	6	1	7	1	1	
	Fellow			1	1 (filled 2008)				
Gold Coast	Advanced trainee	2	1	2	1				
	Fellow								
Toowoomba	Advanced trainee								
	Fellow	1							
West Moreton/ South Burnett	Advanced trainee								
	Fellow	1							
Southside Coast	Advanced trainee								
	Fellow							3.1	
Mater	Advanced trainee								
	Fellow	4	1	3				1	

Haematology medical staff are equally shared between clinical and laboratory

Table 77 Northern QLD—current positions

		Med onc		Haem clinical/Lab		Rad onc		Pal care	
Current positions		Funded	Unfilled	Funded	Unfilled	Funded	Unfilled	Funded	Unfilled
Townsville	Sen med officer/consultant	2	1	3	2	6	2	2.4	
	Visiting med officer								
Cairns	Sen med officer/consultant	1	1	0.5					1
	Visiting med officer								
Mackay	Sen med officer/consultant								
	Visiting med officer	0.25		0.2		0.2		0.25	
Mt Isa	Sen med officer/consultant							1	
	Visiting med officer								

		Med onc		Haem clinical		Rad onc		Pal care	
Current positions		Funded	Unfilled	Funded	Unfilled	Funded	Unfilled	Funded	Unfilled
Townsville	Advanced trainee	1	1	2	1	3		1	
	Fellow								
Cairns	Advanced trainee	0.5	1	0.5					
	Fellow								
Mackay	Advanced trainee			0.5					
	Fellow								
	Fellow								

**Haematology medical staff are equally shared between clinical and laboratory*

Nursing workforce

The scope of advanced cancer nursing practice is broad, encompassing clinical practice, research, education, consultation and administration. Cancer nurses work within multidisciplinary teams across all cancer treatment services in medical oncology, radiation oncology, haematology and palliative care. Multidisciplinary care involves relevant health professionals discussing options and making joint decisions about treatment and supportive care plans, taking into account a patient's personal preferences. Nurses are integral to this model as they provide the majority of the direct patient care, facilitate communication throughout the team, refer as required and manage issues as they arise.

The provision of safe and sustainable cancer services will depend upon having enough nurses with the training and appropriate skills and knowledge to care for patients with cancer. A workforce mapping exercise was recently undertaken across Queensland Health sites where inpatient cancer treatment services are provided. Further detail of current staffing is outlined in summary Tables 4–6.

Table 78 Key cancer nursing and leadership FTE positions within Queensland Health facilities

Nursing workforce by area Health Services		Cancer		Palliative care	
Current Positions		**Funded**	**Unfilled**	**Funded**	**Unfilled**
Central QLD	NUM/Clinical nurse consultant	15	2	6	1
	Care coordinators (N04)	9.5	1	0	0
	Case managers (N02)	0	0	0	0
	Nurse practitioner	0	0	0	0
	Nurse educators (N04)	2	0	0	0
Southern QLD	NUM/Clinical nurse consultant	9	2	1.5	0
	Care coordinators (N04)	16	5	5	0
	Case managers (N02)	1.5	1.2	1	0
	Nurse practitioner	1	0	2	1
	Nurse educators (N04)	3	0	0	0
Northern QLD	NUM/Clinical nurse consultant	7	0	2	0
	Care coordinators (N04)	2	0	0	0
	Case managers (N02)	0	0	0	0
	Nurse practitioner	0	0	0	0
	Nurse educators (N04)	1	1	1	0

Local, national and international shortages of registered nurses have resulted in smaller pools of skilled applicants across all cancer specialty areas. Increasing difficulties in recruiting to nurse manager positions in cancer care, due to the complexity of the role and associated responsibilities, was particularly reported. While recruiting to the newly established care coordinator positions has been largely successful, many appointments have been made from the existing workforce, leaving gaps in other key skilled nursing positions.

As shown in Table 76, in Queensland, the majority of the cancer nursing workforce is employed in the major metropolitan and regional cancer centres, with the largest numbers working in Brisbane. Reflecting the patient population receiving complex care, additional support roles such as nurse educators, clinical nurse consultants and nurse practitioners are primarily located in cancer centres.

Table 79 Locations of public sector cancer nurses

Location	Number of nursing staff
Capital city	589
Other metropolitan centre	153
Large rural centre	221
Other remote area	4
Other rural area	72
Remote centre	4
Small rural centre	67
Other	65
Total	1175

Overall, of the 1175 nurses identified as working in cancer care, only 22% reported they were under the age of 40—over half reported they were over 50 years of age. Overcoming existing shortages and recruitment difficulties, in order to build a sustainable and skilled nursing workforce will be very challenging and will require considerable resources.

To gain an understanding of the current direct and indirect nursing hours in the Queensland public sector, data was collected from regional, rural and metropolitan ambulatory and inpatient cancer settings. While Table 77 shows a reasonable level of consistency, a more robust methodology is needed to ensure inter-rater reliability and consistency in level and type of care before being used as a benchmarking tool.

Table 80 Approximate current direct and indirect nursing hours

Service capability	Day therapy	Inpatient	Radiation oncology
Cancer Centre	1.4–2 hrs per episode of care	6.5–7.3 HHPD *	Approx 1 FTE/200 courses p.a.
Cancer Unit	1.6–2 hrs per episode of care	5.5–6.5 HPPD	

Note: HPPD—hours per patient day

The facilities reported varying procedures and infusions undertaken in the day-therapy units in addition to chemotherapy administration. Most Cancer Units did not have dedicated beds

Most Cancer Centres had dedicated beds for haematology/medical oncology including autologous transplants. Below 8–10 patients per day, 2 FTE were needed to maintain a safe environment and check therapy.

The *Queensland Health Business Planning Framework*[96], which informs staffing levels, is currently being redeveloped to include workload management tools. These will apply to all care settings, and improve the opportunities for measuring and benchmarking clinical workloads and activities. Consideration of clinical benchmarking along with the early determination of the level of care aligned to the CSCF is necessary to ensure safe and sustainable services and workloads. Robust discussion and benchmarking will be needed to ensure appropriate application of the framework.

[96]Business Planning Framework (2002); QUT Dept of Teaching and Learning Support; Queensland Health

In 2005, the Queensland Health Nursing Interest Based Bargaining Implementation Group was established to address issues relating to recruitment and retention of nurses. This group is responsible for overseeing the five priority areas for the nursing workforce which provide a sound framework upon which to build the cancer nursing workforce. These priorities are:

1. The development and implementation of a nursing recruitment strategy.
2. The effective management of nursing workloads and workforce planning.
3. A consistent approach to models of contemporary nursing practice.
4. A nursing education and development framework.
5. A work–life balance strategy for nurses.

Specialist nursing skills are required to optimise patient outcomes across the continuum and will vary depending upon the setting, the complexity, and the range of services provided. Advances in technology, more complex surgery and more aggressive medical interventions are already resulting in higher cancer patient acuity. As service networks become more coordinated, and capacity at Cancer Units and Linked Services is improved, it is anticipated that patients with more acute conditions will return to local sites. Over the next 10 years, nursing capacity, including nursing knowledge and skills, in regional areas will need to be developed in order to meet increased demand and the need for more complex care outside metropolitan areas.

Although there are overarching guidelines for cancer nursing within Australia, there is no nationally or professionally recognised skill set, which defines or describes the skills or expertise of a cancer nurse specialist. In Queensland, in accordance with the nursing career structure, it is expected that nurses working at Nursing Officer 2 level or above have advanced skills in cancer nursing. However, the lack of an endorsed set of competencies or assessment mechanisms means that position descriptions are unable to clearly articulate minimum professional expectations, and appointments are based largely on interview.

The Oncology Nursing Society (USA) has a standardised set of oncology nursing core competencies, and advanced practice nursing scope and standards documents. Cancer Australia and the Peter McCallum Institute are working toward developing Australian scope and standards documents as part of EdCan[97]. It is recommended that Queensland Health participates in the development of this standardised skill set and competency standards development, and that these are uniformly applied across state. The competencies should clearly articulate specific skills and knowledge required by nurses according to the level of cancer treatment and care being provided at sites, and in line with the CSCF.

When implemented across Queensland, these competencies would:

- contribute to patient and staff safety by articulating evidence-based practices and processes
- facilitate appropriate recruitment, effective succession planning and professional development
- enable the development of standardised clinical standards, protocols, care practices and tools
- enable systematic implementation of changes in practice in accordance with identified improvements
- increase transportability of nursing skills
- enable benchmarking and evaluation of care outcomes
- enable nursing research.

[97] http://www.edcan.org/

Queensland Health offers the Transition to Practice Nursing Education Program (TPNEP) as a formal tool for cancer education. This program has been in existence for several years and partnerships with the tertiary sector have ensured recognition of modules and its incorporation into tertiary studies. It is designed to provide nursing graduates and registered nurses with baseline knowledge and skills in specialist nursing areas. This should facilitate skill development and improve the retention of nurses in cancer services.

TPNEP is used inconsistently and to varying degrees throughout the state. In one Area Health Service it is mandatory for new graduates, while in another it is used as a basic orientation tool for new staff. Successful implementation depends upon the availability of nurse educators and other suitable support staff, and program participants having non-clinical time to undertake the program—both of which are reported to be inadequate. Very few nurses use it to bridge to post-graduate studies. It is difficult to customise in order to meet the education and skill needs of nurses working in a variety of sites and settings, and providing different levels of care, as it uses a modular approach and there is no current alignment with the CSCF. It does not include a competency set.

Queensland Health is currently reviewing clinical education and training needs, and nursing models. This will provide the agenda for nursing reform in Queensland, advancing the education requirements for undergraduates through to advanced practicing nurses. Apart from the TPNEP, which targets graduate and beginner-level registered nurses, there are no other formal education programs for cancer nurses across the state. Creating a suite of educational programs and experiences, which will address the knowledge and skills needed by enrolled and registered nurses in a variety of practice areas offering different levels of treatment and care, will be challenging. They will need to be flexible and visionary to adequately prepare oncology nurses. A coordinated and consistent hospital-based education program is needed. There is also a need to extend partnerships with universities and technical colleges in order to explore how the current workforce can develop greater skills and ensure the future workforce is adequately prepared.

As clinical services become more closely integrated through formalised service networks, there are opportunities to facilitate greater collaboration between nurses employed at different sites. These opportunities include providing nursing leadership and expert nursing advice. Processes and structures could be developed across the network to enable peer support, mentoring, improved succession planning, professional development and access to specialist education and training. The structures could reflect service networks, with nurse educators and nursing leaders at cancer centres providing professional support and professional development to colleagues working at other sites. Southern Area Health Service is in the process of developing this model for education. It is proposed that it be considered a pilot and following robust evaluation, it be implemented in other Areas according to recommendations.

Registered nurses have traditionally provided nursing care within cancer treatment services. Across the state, there are significant variances in using complimentary and supporting roles such as enrolled nurses, medication-endorsed enrolled nurses, advanced practice enrolled nurses and assistants in nursing. Anticipated shortages of registered nurses make it imperative to explore alternate skill-mix models. Work needs to be done to analyse and define the skill-sets required in each area of practice and level of service in accordance with the CSCF. These skill-sets then need to be aligned with the scope of practice and guidelines developed to inform workforce modelling and future recruitment activities. It is recommended that this is undertaken urgently, and before the commissioning of the Gold Coast University, Sunshine Coast and Queensland Children’s Hospitals as they will each contain cancer services.

Alternate positions such as advanced practice nurses, nurse practitioners and care coordinators are evolving in response to the increasing complexity of cancer treatment and shortages of specialised knowledge and skills within the nursing and wider cancer workforce.

Care coordination is becoming an essential component in caring for patients with cancer as they move between services and sites to access the care and treatment required at various stages of their illness. The Nurse Practitioner model of care has been identified as a statewide priority area but has not yet been fully implemented in cancer services in Queensland. Currently, there are two FTE funded positions in the Southern Area Health Service, one of which is in palliative care. Both of these are currently filled. The successful implementation of this model depends upon a supportive medical workforce model. These positions, incorporating the multidisciplinary model of care, should be supported within the context of cancer care nursing and service delivery.

Recommendations

1. Maximise specialist nursing skills and knowledge by piloting and implementing alternate workforce and service delivery models in accordance with whole-of-workforce modelling.
2. Build consistent levels of competence through standardised education and training strategies, and partnership with education bodies.
3. Develop a coordinated recruitment and retention plan to encourage nurses to enter and stay in the field of cancer nursing.

Table 81 Nursing workforce—proposed strategies

Objective	Strategy no.	Proposed strategies	Timeframe (years)			Resource implications	Priority		
			1–2	2–5	5–10	Required capital or recurrent funding	H	M	L
1 Optimise existing nursing resources to support safe and sustainable services	1.1	In collaboration with Office of the Chief Nurse and Workforce Planning and Coordination Branch, and in conjunction with the whole-of-service project, explore skills-mix and nursing workforce modelling to determine achievable nursing workforce requirements for cancer services	X			AO7 project position for 12 months	X		
	1.2	Pilot alternate nursing skills mix models at selected cancer centres and cancer units		X		Establish NO4 project positions in each Area Health Service to manage the pilot projects through Cancer Clinical Network	X		
	1.3	In collaboration with Office of the Chief Nurse, Workforce Planning and Coordination Branch and Area Health Service Workforce Units, explore alternate workforce models that may be applied in cancer nursing	X			Within existing resources	X		
2 Build the capacity of the nursing workforce to provide specialist cancer services	2.1	Participate in the statewide review of clinical education and training needs for cancer nurses	X			Within existing resources	X		
	2.2	Participate in the development of national competencies through involvement in EdCan, and establish a relevant sponsor to ensure engagement of Qld Cancer Services	X			Within existing resources	X		
	2.3	Explore partnership opportunities with TAFE colleges, tertiary and professional bodies to develop education opportunities for registered and enrolled nurses (e.g. competency certificates)	X			Within existing resources	X		
	2.4	Following robust evaluation of the Southern Qld education network project, consider recommendations and implement in other Areas		X		Within existing resources	X		
3 Build cancer nursing workforce to meet projected demands	3.1	Collaborate with the Office of the Chief Nurse and relevant workforce units to develop a coordinated recruitment and retention plan for key cancer nursing positions	X			Within existing resources	X		

Nursing cancer workforce summary tables—August 2007

Table 82 Central QLD

Key FTE nursing positions					
		Cancer		Palliative care	
Current positions		Funded	Unfilled	Funded	Unfilled
RBWH	NUM/Clinical nurse consultant	9	2	1	0
	Care coordinators (NO4)	3	0	0	0
	Case managers (NO4)	0	0	0	0
	Nurse practitioner	0	0	0	0
	Nurse educators (N04)	2	0	0	0
Northside	NUM/Clinical nurse consultant	2	0	3	0
	Care coordinators (NO4)	2	0	0	0
	Case managers (NO4)	0	0	0	0
	Nurse practitioner	0	0	0	0
	Nurse educators (N04)	0	0	0	0
SCC	NUM/Clinical nurse consultant	2	0	2	1
	Care coordinators (NO4)	1	0	0	0
	Case managers (NO4)	0	0	0	0
	Nurse practitioner	0	0	0	0
	Nurse educators (N04)	0	0	0	0
Fraser Coast	NUM/Clinical nurse consultant	0	0	0	0
	Care coordinators (NO4)	1	1	0	0
	Case managers (NO4)	0	0	0	0
	Nurse practitioner	0	0	0	0
	Nurse educators (N04)	0	0	0	0
Wide Bay	NUM/Clinical nurse consultant	0	0	0	0
	Care coordinators (NO4)	1	1	0	0
	Case managers (NO4)	0	0	0	0

	Nurse practitioner	0	0	0	0
	Nurse educators (N04)	0	0	0	0
Central Qld	NUM/Clinical nurse consultant	1	0	0	0
	Care coordinators (NO4)	1.5	1	0	0
	Case managers (NO4)	0	0	0	0
	Nurse practitioner	0	0	0	0
	Nurse educators (N04)	0	0	0	0

Table 83 Southern QLD

Key FTE nursing positions					
		Cancer		Palliative care	
Current positions		**Funded**	**Unfilled**	**Funded**	**Unfilled**
PAH	NUM/Clinical nurse consultant	4	1		
	Care coordinators (NO4)	8	4		
	Case managers (NO4)	1.5	0		
	Nurse practitioner	1	0		
	Nurse educators (N04)	1	0		
Gold Coast	NUM/Clinical nurse consultant	2	0	1	0
	Care coordinators (NO4)	4	1	0	0
	Case managers (NO4)	0	0	0	0
	Nurse practitioner	0	0	1	1
	Nurse educators (N04)	1	0	0	0
Toowoomba	NUM/Clinical nurse consultant	1		0	0
	Care coordinators (NO4)	2	2	0	0
	Case managers (NO4)	0	0	1	0
	Nurse practitioner	0	0	0	0
	Nurse educators (N04)	0	0	0	0
West Moreton/ South Burnett	NUM/Clinical nurse consultant	1 (combined pal care position)		1(combined)	
	Care coordinators (NO4)	1	1 (about to second)		
	Case managers (NO4)				
	Nurse practitioner				
	Nurse educators (N04)				
Southside Coast	NUM/Clinical nurse consultant				
	Care coordinators (NO4)	Logan–1 Supportive Care Unit		QEII–2 Logan–1	
	Case managers (NO4)				
	Nurse practitioner			QEII–1	

	Nurse educators (N04)				
South West	NUM/Clinical nurse consultant	Roma–0.1			
	Care coordinators (NO4)				
	Case managers (NO4)				
	Nurse practitioner				
	Nurse educators (N04)				
Mater	NUM/Clinical nurse consultant	2	0	0	0
	Care coordinators (NO4)	1		1	0
	Case managers (NO4)	0	0	0	0
	Nurse practitioner	0	0	0	0
	Nurse educators (N04)	1	0	0	0

Table 84 Northern QLD

Key FTE nursing positions					
		Cancer		Palliative care	
Current positions		**Funded**	**Unfilled**	**Funded**	**Unfilled**
Cairns	NUM/Clinical nurse consultant	1	0	1	0
	Care coordinators (NO4)	0	1	0	0
	Case managers (NO4)	0	0	0	0
	Nurse practitioner	0	0	0	0
	Nurse educators (N04)	0	0	0	0
Mackay	NUM/Clinical nurse consultant	1 FTE	0	0	0
	Care coordinators (NO4)	0	0	0	0
	Case managers (NO4)	0	0	0	0
	Nurse practitioner	0	0	0	0
	Nurse educators (N04)	0	0	0	0
Mt Isa	NUM/Clinical nurse consultant	0	0	0	0
	Care coordinators (NO4)	1	0	0	0
	Case managers (NO4)	0	0	0	0
	Nurse practitioner	0	0	0	0
	Nurse educators (N04)	0	0	1	0
Townsville	NUM/Clinical nurse consultant	4	0	1	0
	Care coordinators (NO4)	2	0	0	0
	Case managers (NO4)	0	0	0	0
	Nurse practitioner	0	0	0	0
	Nurse educators (N04)	1	0	0	0

Allied health workforce

Overview

Allied health professionals are a diverse group of clinicians providing a range of assessments, treatments, interventions and ongoing care to patients, carers and families across the continuum of cancer care. The range of disciplines includes, but is not limited to, audiology, dietetics and nutrition, occupational therapy, pharmacy, psychology, physiotherapy, social work, speech pathology and medical radiation. Allied health staff are important members of multidisciplinary teams in all cancer sub-specialties.

Where they undertake discrete and highly specialised roles in specific areas (e.g. radiation oncology and PET services), it is possible to quantify the existing workforce and project future requirements based on knowledge of the current staffing levels, skill requirements, entry and exit patterns and service planning. However, it is difficult to gain a clear understanding of the current cancer workforce profile in terms of the skill mix, workforce models in place, and the nature of how allied health staff interact with the multidisciplinary team—due to the diverse way the services are integrated and operate across specialties, settings and sites.

Nationally, the Australian Health Workforce Advisory Committee *2006 Report on the Australian Allied Health Workforce*[98], states that there has been comparatively little allied health workforce planning, and the majority of existing data sets available for allied health professionals focus on workforce supply. A recent mapping of allied health cancer undertaken in the Central and Southern Area Health Services demonstrated that this workforce is limited—however, the lack of service-related benchmarks create difficulties in quantifying shortages. Greater understanding of this workforce and development of professional benchmarks are needed in order to identify current gaps, project future requirements and proactively plan strategies to develop an appropriate and sustainable workforce. Strategies need to reflect the whole-of-service approach and include the implementation of models that best use skills and the limited staff available.

Specific allied health staff shortages limiting the provision of specialised care were reported for people with head and neck cancer and lymphoedema, and in the areas of pharmacy, radiation oncology and nuclear medicine services. These shortages extend to speech pathologists, audiologists, physiotherapists, occupational therapists, radiation oncology medical physicists and radiochemists.

Head and neck cancer treatment

Australia has a high incidence of head and neck cancer (*Australian Institute of Health and Welfare Report 2001*)[99]. The two metropolitan cancer centres at the RBWH and the PAH in Brisbane operate head and neck clinics and accept statewide referrals. In Queensland, the growth of treatment for head and neck cancers with radiation, chemotherapy and salvage surgery is resulting in an increasing demand for acute and post acute care. Adequate provision of ongoing management of swallowing and communication difficulties experienced by patients, particularly those residing outside Brisbane, is of concern due to shortages in:

- allied health staff with specific knowledge and skills relating to invasive voice prosthesis insertion and stoma management

[98] Australian Health Workforce Advisory Committee (2004), *The Australian Allied Health Workforce—An Overview of Workforce Planning Issues*, AHWAC Report 2006.1, Sydney

[99] AIHW, AACR & NCSG: Ian McDermid 2005. Cancer incidence projections, Australia 2002 to *2011*. Canberra: Australian Institute of Health and Welfare (AIHW), Australasian Association of Cancer Registries (AACR) and the National Cancer Strategies Group (NCSG).

- advice and assistance regarding communications aids, their financing and ongoing management.

Lymphoedema treatment

The Australasian Lymphology Association completed a National Service Equity Survey in 2002. Lack of access to specialist care and advice for the treatment and management of lymphoedema was identified in Queensland. While the PAH provides some limited services, presently the only provider of multidisciplinary lymphoedema services in Queensland is the RBWH, where the service is operated on a part-time basis. This service is reported to be unable to meet its current patient load and has difficulty servicing patients from outside RBWH geographical catchment.

In 2007, the Queensland Health Cancer Clinical Network through the Allied health Training and Development Reference group supported 50 places for occupational therapists and physiotherapists to undertake Level 1 and Level 2 training in lymphoedema management as a strategy to increase the capacity of the workforce to provide this specialist knowledge. Despite 39 staff undertaking Level 1 and 11 completing Level 2 training, access to specialist services and advice is still patchy due to a lack of mechanisms to facilitate communication and coordination of care across the state. Supported through the use of telehealth, formalised treatment networks could facilitate the provision of appropriate care in complex cases for patients in cancer units and linked services. This would also facilitate professional development, clinical supervision and peer support for staff, and reduce the need for patients to travel to a cancer centre.

Recommendations

1. Develop benchmarks for the cancer allied health workforce in order to identify current gaps and determine future requirements.
2. Enhance the capacity for allied health staff to formally collaborate and network—with each other and other professionals—creating improved access to specialist care and advice, and professional development opportunities.

Pharmacy

The Society of Hospital Pharmacists of Australia standards of practice for clinical oncology services define an oncology pharmacist as being responsible for the overall service to cancer treatment encompassing inpatients, ambulatory and outpatients[100]. While considered a specialist area, there is no formal training program available to support pharmacists in becoming oncology pharmacists. Many HSDs either alternate pharmacists to provide services, or recruit staff without specialist training—expecting that they will ‘learn on the job’. This training reflects the local service needs and depends upon the knowledge and availability of colleagues. Relying upon on-the-job training makes it difficult to ensure the provision of contemporary, evidence-based education and the development of skills that are transportable across sites.

Currently, there is lack of consistency in cancer services across the state, which has led to site-specific expectations, roles and responsibilities. Consequently, pharmacist’s duties vary considerably—reflecting workload, local practice, service, expectations, and patient needs. Recruiting and retaining trained cancer pharmacists is difficult in Queensland. Clinical cancer services pharmacists are responsible for providing the clinical aspect of the service while production pharmacists are responsible for the manufacturing aspect. Hospitals that outsource the supply of chemotherapy pharmacy (due to the lack of onsite manufacturing facilities or the privatisation of outpatient clinics) still require clinical pharmacy input into patient care; however, this is not always available.

[100] www.shpa.org.au/docs/practicestandards.html

Recommendations

1. Determine consistent roles and responsibilities for pharmacists according to the CSCF and proposed service development.
2. Develop an approved framework with standardised education content and defined skills to apply consistently across the state.

Radiation oncology allied health workforce

Radiation therapists

Radiation therapy (RT) graduates must complete a 12-month Professional Development Year (PDY) of supervised practice after graduation to be eligible for unconditional registration in Queensland. Because of insufficient supervision numbers, Queensland Health is currently at full capacity for the supervision of PDY employees with 20 FTE positions, despite funding being available for 23 FTE positions.

The anticipated total (public and private combined) RT workforce was calculated by examining the 2005 workforce, adding expected graduate numbers and subtracting the number anticipated to retire within the next six years. A ratio incidence rate of 8.48 [101] FTE per linear accelerator (linac) was then applied to determine projected requirements. Table 83 identifies the current and projected RT workforce for the whole of Queensland and the public sector. Based on this information, Queensland may have a surplus workforce in 2011 but the public sector workforce needs and locations outside South East Queensland may not be met.

Table 85 Radiation therapist total workforce projected needs

Occupation	**QLD whole of workforce (public/private combined)**			
herapists	Actual 2005	Anticipated 2011	Projected workforce requirements	
			2011	2016
	300	508	297–339	365–390
	Actual 2005	Anticipated 2011	Projected workforce requirements	
			2011	2016
	182.3	203	203–212	256–263

Radiation oncology medical physicists (ROMPs)

It is more difficult to identify the anticipated number of ROMPs in the workforce in 2011, as no specific degree course leads into the discipline. Consequently, supply numbers are more difficult to estimate. The benchmark of 1.7 ROMPs per linac is recommended by the *National Strategic Plan for Radiation Oncology 2001*[102]. Although desirable, aiming for this number was considered to be unachievable by the Queensland Cancer Physics Collaborative (2007) due to the extent of existing shortages and need to expand services. Instead the collaborative suggested aiming for a ration of 1.2 ROMPs per linac while steadily increasing the ratio over the ensuing years.

In line with this recommendation, the projected workforce requirement for ROMPs is based on knowledge of the existing workforce, then applying the benchmark of 1.2 FTE ROMPs

[101] Model from the National Strategic Plan for Radiation Oncology 2001

[102] Royal Australian and New Zealand College of Radiologists, Australasian College of Physical Scientists and Engineers in Medicine, and Australian Institute of Radiography. National radiation oncology strategic plan. Sydney: RANZCR, 2001.

per linac. There are approximately 35 ROMPS currently throughout Queensland. The ratio within the public sector is 1.3 FTE per linac. Queensland Health has 26 FTE funded positions. However, despite active recruitment there are currently six FTE vacancies. In addition, it is anticipated that due to age, four of these will either retire or reduce their working hours by 2011. The current and future workforce needs are outlined in Table 84.

Of the 20 FTE ROMPS currently employed, only 8.5 FTE are considered fully qualified by the Australasian College of Physical Scientists and Engineers in Medicine (ACPSEM). This impacts upon Queensland Health's productivity and limits the capacity to meet requirements for supervision and support of trainees. Queensland Health is implementing the training education accreditation program (TEAP). The TEAP was developed to standardise the training of ROMPs in Australia and New Zealand, and create a pathway to full accreditation and independent practice for trainees.

Recently, recurrent funding has been provided to support 4 FTE trainees to undertake this program each year. In addition, there is additional funding for scholarships to support employees while they obtain a Master of Medical Physics, an essential component of the TEAP. However, no-one has yet been recruited to these scholarships. Training takes three to five years to complete. Increasing the percentage of ROMPs who are fully qualified will increase the capacity to support training positions.

Table 86 Radiation oncology medical physicist workforce projected needs (public/private combined)

Occupation	**Whole of workforce (public/private combined)**		
Radiation oncology	Actual 2007	Projected workforce	
		2011	2016
(ROMPs)	35 approx.	60–68	73–78
	Actual 2005	Projected workforce public sector	
		2011	2016
	20	41–43	49–53

Queensland Health is undertaking an international recruitment program to attract qualified ROMPs on either a short- or long-term basis. However, achieving the projected requirements while addressing the current deficit in ROMPs will be extremely challenging. The current vacancy rates are considered to be due to poor work recognition and relatively poor remuneration combined with a local, national and international shortage of these specialists. With the incidence of cancer growing at a rate of 4% each year in Queensland, additional ROMPs must be recruited urgently. Additional targeted activities also need to be urgently undertaken in order to increase the current ROMP workforce. The Queensland Cancer Physics Collaborative has prepared a proposal designed to address the recruitment and retention crisis within Queensland. The primary key performance indicator will be the recruitment of 13 additional experienced ROMPS by 2011.

Recommendations—radiation oncology

1. Develop a clear understanding of the current radiation oncology allied health workforce.
2. Undertake regular workforce reviews to ensure university placements and PDYs are in accordance with service needs.
3. Develop coordinated recruitment and retention plans that target areas of specific shortages.

Allied health workforce

Table 87 Allied health workforce—proposed strategies

Objective	Strategy No.	Proposed strategies	Timeframe (years) 1–2	2–5	5–10	Resource implications	Priority H	M	L
	General allied health								
1 Develop a allied health workforce model to support cancer services into the future	1.1	In collaboration with Workforce Planning and Coordination, and in conjunction with the whole-of-service study, determine the profile and role of the current allied health component of the workforce in accordance with the proposed cancer service network and the CSCF of each site	X			$140,000			
	1.2	Determine required knowledge and skill levels and appropriate training models and mechanisms, in accordance with Strategy 1.1					X		
	1.3	In collaboration with Workforce Planning and Coordination, undertake a project with other jurisdictions to define benchmarks and standards to describe appropriate allied health staffing in accordance with the CSCF of site and service provision	X						
	1.4	As part of entire workforce strategy, create positions incrementally in accordance with demand projections, service development and education imperatives		X		Recurrent funding required according to growth in services	X		
	1.5	Develop and implement an allied health recruitment plan in collaboration with an allied health workforce advisor and in accordance with a whole-of-specialty approach		X		Some funds may be available through the Ministerial Taskforce on Training and Development	X		
	1.6	Monitor and evaluate the success of recruitment and retention strategies (including overseas recruitment) and adapt accordingly		X		Within existing resources			
2 Optimise human resources to support safe, and sustainable services	2.1	Implement models and strategies enabling more efficient use of scarce specialist allied-health knowledge and skills (e.g. telehealth, therapy assistants and statewide support networks) as part of the whole-of-workforce strategy and allied health project recommendations	X			Within existing resources	X		
3 Improve access to allied health specialists									
	3.1	Develop formalised networks, reflecting service networks and CSCF capability at each site, in combination with strategies such as telehealth.		X		Within existing resources		X	
4 Develop									

sustainable specialist pharmacy services	4.1	Train and develop workforce to support a sustainable sterile production pharmacy in Queensland Health	X			Within existing resources		X	
	4.2	Define pharmacy workforce model in line with the CSCF and implement systems to for consistent training, as part of the whole-of-allied-health workforce project	X			Within existing resources	X		
5 Develop a sustainable radiation oncology allied health workforce									
	5.1	Develop a flexible model to accommodate PDY requirements	X			Within existing resources	X		
	5.2	Develop and undertake an overseas recruitment program, collaborating with the Workforce Planning and Coordination Unit	X			Within existing resources	X		
	5.3	Develop an implementation plan for the Queensland Cancer Physics Collaborative physicist recruitment and retention strategy once the business plan is completed and recommendations have been made	X			Within existing resources	X		

Positive emission tomography services specialist and allied health workforce

Overview

Nuclear medicine is the branch of medicine concerned with the use of radioisotopes in the diagnosis, management and treatment of disease. Nuclear medicine uses small amounts of radioactive materials or radiopharmaceuticals. These substances are attracted to specific organs, bones, or tissues. The radiopharmaceuticals used in nuclear medicine emit gamma rays that can be detected externally by special types of cameras: gamma or positron emission tomography (PET) cameras. These cameras work in conjunction with computers used to form images that provide information about the area of body being imaged. Currently within Queensland Health, there is a single statewide service based at the RBWH.

The provision of PET services depends upon specially trained staff, including nuclear medicine medical specialists, physicists, technologists and radiochemists, who transform the radioactive isotope into a radiopharmaceutical for administration to the patient. As the use of PET is becoming more routine in diagnosing and treating cancer, over the next 10 years, additional PET machines will need to be installed in areas of population growth such as South East Queensland, the Sunshine Coast and Townsville. Master planning is incorporating this in the new Gold Coast University and Sunshine Coast Hospitals, commissioning in 2012 and 2014 respectively. The need for additional specialist and support staff must be considered for each new service.

Nuclear medicine medical specialist

Specialist medical qualifications in nuclear medicine may be gained through the physician or radiologist training schemes. The specialist must hold a FRACP or FRACR and be registered with the Medical Board of Queensland. They must also hold a current licence from the appropriate radiation licensing body to prescribe and administer radioactive substances to humans, and a current licence for unsealed source therapy if undertaking therapy with unsealed sources. The nuclear medicine specialist is responsible for the quality and safety of all procedures performed by nuclear medicine personnel at the facility. This responsibility includes ensuring that the staff are properly trained and competent to perform each procedure in which they participate. The specialist must be on site throughout the procedure. Table 86 identifies the current number of nuclear medicine medical specialists and projected requirements based on planned service expansion.

Table 88 Current staff and projected nuclear medicine medical specialist requirements

Occupation	**Public sector workforce only**		
Nuclear medicine medical specialist	Actual 2007	Projected workforce required	
		2011	2016
	1	3	4–5
Training positions	nil	nil	nil

Nuclear medicine physicists

Training requirements for nuclear medicine physicists are similar to ROMPs, with the requirement for a Master of Medical Physics (two years) and completion of the ACPSEM TEAP—taking a further three years. Nuclear medicine physicists provide support for conventional nuclear medicine services, as well as PET services. In the absence of other benchmarks, a workforce benchmark of one physicist per 3–4 gamma cameras has been recommended by the Queensland PET Service. There are currently three nuclear medicine physicists in Queensland, all of whom are employed at the RBWH nuclear medicine facility where they support the cyclotron and six gamma cameras as well as the PET service.

Where services are located within relatively close proximity, such as the south-east corner of Queensland, it is estimated that one additional nuclear medicine physicist will be needed for each new PET machine, and one for each new cyclotron. In more remote locations (such as Townsville), to ensure adequate coverage during leave, and to enable activities such as professional development and research, additional staff will be needed. Workforce modelling is needed to determine the most appropriate and efficient workforce model for the future. As training takes between three and five years, it is considered essential that a training program is established immediately in order to meet future needs. However, as this training is resource intensive, and given the size of the existing workforce, in the short term, only one training position can presently be accommodated. Table 87 identifies the current number of nuclear medicine medical specialists and projected requirements based on planned service expansion.

Table 89 Current staff and projected nuclear medicine physicists required

Occupation	Public sector workforce only		
Nuclear medicine physicist	Actual 2007	Projected workforce required	
		2011	2016
	3	8	10
Training positions	nil	1	2

Radiochemists

Radiopharmaceuticals are an essential component of PET services. The radiopharmaceutical is the ‘tracer’, which is responsible for making diseases visible to the PET scanner. It is the role of the radiochemist to manufacture a range of radiopharmaceuticals in a facility accredited by the Therapeutic Goods Administration and to perform quality control tests to strict specifications in order to ensure patient safety. Radiochemists manage and operate cyclotron and the radiopharmaceutical laboratory (incorporating a clean room with hot cells and synthesis equipment for manufacturing, complex quality control equipment and a dispensing facility).

There is a current shortage of skilled clinicians in the field of radiochemistry. The number and variety of training courses, specific to radiochemistry, offered by tertiary institutions nationally is limited and at present, there are no formal undergraduate or postgraduate degrees offered by universities. As PET is increasingly in demand in Australia, the need for the associated highly skilled personnel will increase competition for this workforce. Table 88 identifies the current number of radiochemists and projected requirements based on planned service expansion.

Table 90 Current staff and projected radiochemists required

Occupation	Public sector workforce only		
Radiochemist	Actual 2007	Projected workforce required	
		2011	2016
	3	7	8
Training positions	nil	1	2

Nuclear medicine technologists

The nuclear medicine technologist is required to administer radiopharmaceuticals to patients and perform imaging and quantification techniques using PET/CT scanners, gamma cameras, SPECT/CT cameras and bone mineral densitometry modalities. Nuclear

medicine technologists are registered with the Medical Radiation Therapists Board and licensed by Radiation Health, the government's radiation safety agency. There is no undergraduate training for nuclear medicine technologists in Queensland; however, there are three universities within Australia, which currently supply sufficient graduates for the country. Nuclear medicine technology is a designated degree followed by a professional development year (PDY) in an accredited facility. An accredited facility must meet the guidelines set by the Australian and New Zealand Society of Nuclear Medicine, which includes access to various support staff and facility capabilities. For any facility to offer training, there must be two qualified Nuclear Medicine Technologists (accredited by the Medical Radiation Therapists Board) per PDY student on site at all times. The Queensland PET Service has successfully gained approval for training to meet the licence requirements for PET/CT.

Currently there are over 16 nuclear medicine technologists based at RBWH for both the Queensland PET Service and Department of Nuclear Medicine. The number of nuclear medicine technologists needed per scanner depends on the equipment used. In the absence of other benchmarks, a workforce benchmark of 2–3 nuclear medicine technologists per PET/CT camera has been recommended by the Queensland PET Service. Table 89 identifies the current number of nuclear medicine technologists and projected requirements based on planned service expansion.

Table 91 Current staff and projected nuclear medicine technologists required

Occupation	**Public sector workforce only**		
Nuclear medicine technologists	Actual 2007	Projected workforce required	
		2011	2016
	2	9	12
PDY positions	1 (not recurrent)	3	4

Details of the current workforce and future projected requirements for all designations are outlined in Summary Table 89.

Recommendations—PET services

1. Develop service and workforce models to coordinate service delivery and best use scarce and costly skills across the state.
2. Develop the capacity and capability of the workforce according to the planned expansion of PET services through:
    a. targeted recruitment and retention activities
    b. enhanced training and development opportunities
    c. additional training positions.

Table 92 Positive emission tomography services specialist and allied health workforce

Objective	Strategy No.	Proposed strategies	Timeframe (years)			Resource implications	Priority		
			1–2	2–5	5–10		H	M	L
Develop a sustainable workforce for PET services for modelling, recruitment and retention		In conjunction with whole-of-service project develop a workforce model to best use nuclear medicine physicians and physicists across the state while meeting needs for professional development and leave arrangements	X			Within existing resources	X		
	1.1	Create a workforce-based training position within nuclear medicine and PET—a fixed 3-year term to complete the ACPSEM TEAP and achieve ACPSEM accreditation in nuclear medicine (including PET)	X			Allied Health Workforce Advice and Coordination Unit to fund first 6 months—recurrent funding needed	X		
	1.2	Develop a recruitment strategy to ensure adequate nuclear staff for PET services as machines come on line	X			Within existing resources	X		
	2.1	Recruit a radiochemist (PO4) for the Queensland PET Service to support supply/dissemination of radiopharmaceuticals to PAH	X			$100,839.70 (including on-costs)—initial and recurrent funding required	X		
	2.2	Create a statewide training position (PO5) in the Queensland PET Service (Herston) and workplace-based training program		X		$113,272 (including on-costs)— initial and recurrent funding required	X		
	2.3	Develop a training pathway which includes international exchange, post-doctoral scholarships, international and joint university appointments		X		Within existing resources	X		
	2.4	Explore opportunities, including a partnership with a university to provide post-graduate training in radiochemistry		X		Within existing resources	X		
	3—Nuclear medicine staff specialists								
	3.1	Recruit 2 senior nuclear medicine technologists for the Queensland PET Service (Herston campus) within 12 months to support existing services	X			$200,980 (including on-costs)—and recurrent funding required	X		
	3.2	Develop and implement a multi-pronged marketing recruitment strategy to recruit nationally/internationally, targeting qualified and experienced staff to increase capacity for graduate training	X			Within existing resources	X		
	4.1	Recruit a nuclear medicine staff specialist for the Queensland PET Service (Herston campus) to support existing services	X			$330,888 (including on-costs)—and recurrent funding required	X		

Palliative care specialists

The essential role of palliative care physicians in treating and managing acute symptoms and other problems experienced by patients with terminal stages of cancer, and their families, is well recognised. Due to its critical interface with cancer treatment services, an overview of issues facing the palliative care physicians' workforce is also provided. There are currently 15 FTE funded positions within the public sector with only one FTE unfilled. There are also 4.1 FTE advanced trainee/fellow positions, all of which are filled.

It is difficult to determine an exact specialist staffing ratio to guide workforce planning in palliative care for cancer services due to the variety of models of care and lack of clarity in relation to the proportion of palliative care that will be undertaken by GPs, or other specialists, as awareness of palliative care as a core skill is developed in generic and specialist training. Recognising these variables, the Royal Australasian College of Physicians (RACP) and the Australasian Chapter of Palliative Medicine estimate the need for palliative care specialists, ranges between 1 and 1.5 FTE specialists per 100,000 population. Based on these benchmarks, Table 91 identifies Queensland's current and projected workforce requirements for specialist palliative care medical staff.

There is limited inpatient data available on the provision of inpatient palliative care. However, anecdotal evidence suggests that a significant proportion of end-of-life cancer care is currently provided in the private sector. It is also difficult to determine future workforce needs with any certainly, as the growth rate of the service across the state depends upon a number of factors—including the extent to which other medical practitioners participate in the palliative care of their patients, and dissemination of palliative care medicine across the health care community. It is not possible to easily separate the public and private sectors in specialist palliative medicine as patients often bridge the two sectors at various times of their palliative care.

Table 93 Current and projected specialist palliative care medical staff workforce requirements

Specialist palliative care medical staff		
Projected statewide workforce requirements (public and private)		
	Based on 1FTE/1000,000 population	Based on 1.5 FTE/100,000 population
2006	40	61
2011	44	66.4
2016	48	72
2021	52	78

In addition to specialist training, the Royal Australian College of Physicians and the Australian Chapter of Palliative medicine, along with a number of other Colleges, have created a Clinical Diploma in Palliative Medicine designed to provide GPs, or other specialists, with non-specialist skills in Palliative Medicine to allow them to provide high-quality, but non-specialist level, palliative care in the community and hospitals. This opportunity requires cooperation with appropriate registrar training posts in existing and emerging palliative care services.

Recommendations

1. Develop a detailed understanding of how current services are organised and provided in Queensland—this should include an understanding of the current patient population.
2. Build the current medical palliative care workforce to achieve nationally recommended benchmarks through increasing positions, actively recruiting additional staff and facilitating training and development.

Table 94 Palliative care medical specialists

Objective	Strategy No.	Proposed strategies	Timeframe (years)			Resource implications	Priority		
			1–2	2–5	5–10		H	M	L
1 Build the capacity of the medical workforce to provide specialist palliative care services	1.1	Determine the composition of the palliative care medical workforce in Queensland based upon a model that includes and supports specialists, advanced trainees, registrars and clinical diploma candidates	X			To be determined	X		
	1.2	Define and implement a coordinated recruitment-and-training strategy designed for the specialist palliative medicine workforce and based on the model determined		X		Within current resources	X		
	1.3	Implement a coordinated training strategy to increase the numbers of palliative care medical specialists and the uptake of the clinical diploma		X		To be determined	X		

Information technology

Relationship to the Queensland Cancer Control Strategic Directions 2005–2010

- **Objective 16**—Provide quality and safety systems supporting evidence-based practice to achieve better outcomes for people with cancer, their families and carers
- **Objective 23**—Ensure Queensland Health's information technology infrastructure provides effective management of information, knowledge and technology to achieve best practice cancer care to improve health outcomes for cancer patients

Goal of the Cancer Control Clinical Leadership Group and Queensland Cancer Control Analysis Team (QCCAT)

To build a statewide network of cancer information systems that support timely communication and the delivery of network-based cancer services. Information technology that supports service integration should be used routinely in the delivery of cancer services.

By integrating technology with clinical practice Queensland Health can:

- make it easier for consumers to engage with the cancer care system and increasingly participate in the treatment of their illness
- support clinicians to provide best care
- make multidisciplinary care more accessible to patients regardless of where they live
- create opportunities for research into new therapies and models of care by making diagnostic, clinical and treatment data on the population of Queensland cancer patients readily available to clinicians and cancer services providers.

Current status

A significant body of work has been achieved via the implementation of clinical information systems in radiation oncology and oncology pharmacy with potential as clinical information systems. The Queensland Oncology On-Line (QOOL) and the Oncology Analysis Systems (OASys):

- support multidisciplinary cancer care through the provision of tools for the consistent management of, and collection and analysis of, data from cancer patient's multidisciplinary team discussion
- provide routine collection of data on the stage of a patient's cancer
- link patient information with outcomes across the continuum of care.

Benefits can be measured by developing clinical indicators and analysis using OASys, including patient journey information, treatment utilisation, processes, outcomes and survival. This has been achieved through the formation and ongoing support for QCCAT.

Interaction with the private sector could also be improved. Attempts to follow patient clinical flow across the public and the private sectors, and attempts to support multidisciplinary care in the private sector have been hampered by lack of effective systems and synergies within Queensland Health Information Division. Work within Information Division needs to be advanced to address this.

Queensland Oncology Online

Queensland Oncology Online (QOOL) is an innovative web-based application that integrates our existing ‘data silos’ and makes available ‘just in time’ clinical information for multidisciplinary case conferencing, service improvement, monitoring safety and quality, and research.

QOOL has been developed specifically for facilitating multidisciplinary care and capturing clinical information fundamental to managing a cancer care service. This statewide clinical registry allows the linking of patient information and the sharing of information between clinicians and facilities. This produces a single patient summary view across the state.

Features in QOOL that support case conferencing include:

- online scheduling
- clinical summary—a record for the patient’s medical record
- automatic letter generation for GPs and specialists
- online data entry of clinical information

As a result of collecting this patient information, clinicians are able to participate more effectively in audit and peer review activities as part of routine clinical practice.

Oncology analysis system (OASys)

OASys is an online database of information on cancer incidence, treatment, and outcome in Queensland. More specifically, it is a tool for summarising data about the population of Queensland residents diagnosed with invasive cancer.

OASys is designed to assist clinical staff, health administrators and researchers in making informed decisions about the management of diagnostic and treatment services for cancer in Queensland.

OASys is provided to authorised users for the purpose of data activities and services on behalf of the Cancer Control Safety and Quality partnership, a gazetted quality assurance committee. This committee was established to facilitate the participation of clinicians and administrators in the peer review of cancer services in Queensland and advocate for service improvement initiatives.

Table 95 Information technology—proposed strategies

Objective	Strategy No.	Proposed strategies	Timeframe (years)			Resource implications	Priority		
			1–2	2–5	5–10		H	M	L
1. Develop strategies to support service improvement and continuous learning	1.1	Develop service quality indicators	X			Within current resources (QCCAT)	x		
	1.2	Monitor service quality through the Queensland Cancer Control Safety and Quality Partnership		X			X		
	1.3	Upgrade the Queensland Cancer Registry (QCR)	X			Currently undertaking QCR business process review	X		
	1.4	Make routinely collected clinical and administrative data available to clinicians and cancer services providers for service improvement and research activities	X			Within existing resources (QCCAT)		X	
	1.5	Use technology infrastructure in service networks to support clinical training and peer support for clinical streams across the cancer networks	X			Within existing resources		X	
2. Enhance delivery of efficient, safe patient care by improved communication and coordination, and reduced duplication	2.1	Support clinical decision making using electronic decision support tools. QOOL—continue to advance module development OASys—a web-based analysis system Radiation Oncology Information System Pharmacy Oncology Information System	X			Concept work within existing resources Development funds of $1 million/year for two years will be needed to support development and implementation of QOOL and OASys	X		
	2.3	Extend clinical information and QOOL into the private sector		X			X		
	2.2	Implement QOOL in multidisciplinary cancer meetings.	X			Within existing resources			
	2.4	Provide on-line clinical summary for care in the community	X			Within existing resources			
3. Develop capacity and capability of information systems	3.1	Recruit and/or train technical staff with expertise in oncology information management systems	X			Within existing resources			
	3.2	Maintain a whole-of-cancer information systems approach to the development, implementation and maintenance of IT infrastructure	X			Within existing resources			