

**Review of the
Radiation Oncology Health Program Grants
Scheme**

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Acronyms and abbreviations used in this document

For the purposes of this report, the acronyms and abbreviations detailed below have the following meanings:

ACDS	Australian Clinical Dosimetry Service within the Australian Radiation Protection and Nuclear Safety Agency
ACRF	Australian Cancer Research Foundation
the Act	<i>Health Insurance Act 1973</i>
AFMIAC	ACRF Facility for Molecular Imaging Agents in Cancer
the Agreement	National Health Reform Agreement between the Commonwealth and all States and Territories
AHA Report	<i>Australian Healthcare Associates Radiation Oncology HPG Funding Arrangements – Final Report (1999)</i>
AIHW	Australian Institute of Health and Welfare
ANAO	Australian National Audit Office
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
BGA	Block Grant Authority
CCORE	Collaboration for Cancer Outcomes Research and Evaluation
COAG	Council of Australian Governments
Department	Commonwealth Department of Health
Eligible equipment	Radiation oncology equipment eligible for funding under the Radiation Oncology Health Program Grant Scheme
HHF	Health and Hospitals Fund
HPG	Health Program Grants
IMRT	Intensity Modulated Radiation Therapy
linacs	linear accelerators
LSPN	Location Specific Practice Number for a radiation oncology facility
MBS	Medicare Benefits Schedule
the Minister	Minister for Health

MSAC	Medical Services Advisory Committee
NIS	Networked Information System
providers	Radiation oncology providers
RANZCR	Royal Australian and New Zealand College of Radiologists
ROHPG	Radiation Oncology Health Program Grant
the ROHPG Scheme	Radiation Oncology Health Program Grants Scheme
SBRT	stereotactic body radiation therapy

Executive Summary

In response to the increasing incidence of cancer in Australia, and the effectiveness of radiotherapy as a treatment option, the Radiation Oncology Health Program Grants Scheme (the ROHPG Scheme) was introduced in 1988 as a means for the Commonwealth government to contribute to the capital cost of high-value radiation oncology equipment purchased by public and private providers.

The ROHPG Scheme is administered by the Department of Health (the Department) and provides the funding by way of gradual reimbursement over the notional life of the equipment, which is calculated by reference to the number of years the equipment has been operating, or the number of services provided using the equipment.

In 2014-15, the Commonwealth paid \$68.5 million for capital reimbursement to 78 providers under the ROHPG Scheme.

Objectives of the ROHPG Scheme

Through the ROHPG Scheme, the Commonwealth government aims to provide all Australians with access to high quality radiotherapy services. Essentially, the ROHPG Scheme incentivises both public and private providers of radiation oncology services to establish new centres in areas of need (particularly regional areas) and purchase replacement equipment when the equipment reaches 10 years of age, or a certain notional number of services.

These incentives are intended to drive:

- utilisation of radiation as a treatment for cancer, noting that radiation is a highly effective form of treatment and that Australia currently has relatively low utilisation rates;
- access (by encouraging investment in regional areas and other areas of need); and
- high quality, safe radiation oncology services (by encouraging providers to replace dated equipment to reduce safety risks and sub-optimal patient outcomes).

Demonstrating how the ROHPG Scheme works

Funding provided under the ROHPG Scheme is separate from, and complementary to, Medicare benefits. Medicare pays benefits to patients for radiation oncology services provided to them.

The equipment funded through the ROHPG Scheme was used to provide approximately 1.9 million radiotherapy services, which were rebated at a cost to Medicare of \$286.8 million. During the same period the Commonwealth paid \$55.9 million through Medicare Safety Net Benefits for radiotherapy services.

The ROHPG Scheme is unusual in the context of Commonwealth health funding, in that it subsidises the cost of capital equipment purchases for both private and public facilities. The following example demonstrates how the ROHPG Scheme works in relation to private facilities.

A private Cancer Clinic provides radiotherapy services and intends to establish a new facility in an outer metropolitan area, where it hopes to meet projected patient demand for its services.

The Clinic can apply to the Department for ROHPG funding for the purchase of a dual modality linear accelerator (linac) and related equipment such as a planning system and simulator. If successful, the Clinic is approved for between \$6,577,832.85 and \$6,687,787.07, which includes:

- *\$4,634,626.23 (over a 10-year period) towards the cost of the linac, noting that this amount assumes that the Clinic borrows the money to purchase the linac and includes a cost of borrowing payment of \$1,670,144.99;*
- *\$1,351,796.48 over 10 years towards the cost of the simulator; and*
- *\$591,410.15 to \$701,364.36 over 5 years towards the planning system, depending on the number of planning workstations approved.*

In addition, the Clinic would receive an annual payment of between \$147,477.32 and \$241,867.70, as a contribution towards the cost of networking information systems (with the amount varying depending on how many linacs are operated at the Clinic).

Each time the Clinic provides an eligible MBS-rebated service using the equipment, this triggers entitlement to a payment under the ROHPG Scheme. Payments are made to the Clinic monthly, based on the eligible MBS-rebated services delivered in the previous month.

The calculations the Department uses for determining the reimbursement rate are based on a typical linac delivering around 82,800 services during its useful life, over 10 years. If the Clinic operates a busy service, with optimal utilisation realised for its equipment, the capital balance on the linac may be reached in as little as 8 years, at which point the Clinic would be in a position to apply to the ROHPG Scheme for funding for replacement linacs.

Public hospitals apply for funding in the same way that private providers do, with one key difference. Public hospitals are not automatically given the cost of borrowing rate, if approved. While public providers are able to apply for the cost of borrowing rate, if evidence of loan or leasing arrangements are provided, this has not been done to date. This means that the funds public providers receive for equipment is significantly less than that given to private providers.

Achievement of ROHPG objectives

Over recent years, the number of patients accessing radiotherapy services and facilities has increased, and the number of linacs used to deliver radiation oncology services in Australia has increased substantially, from 46 in 1988, to around 200 in 2015.¹

In short, there have been improvements not only in the number of facilities and machines used to treat cancer (with a reduction in the average age of the equipment), but also in the proportion of facilities located in regional areas. The extent to which these improvements can be directly attributed to the ROHPG Scheme is not clear, however, based on feedback from stakeholders, the Scheme has made a significant contribution to the achievement of these outcomes. Stakeholders all strongly support the Scheme and its retention.

¹ Australian National Audit Office, *Administration of the Radiation Oncology Health Program Grants Scheme*, The Auditor-General ANAO Report No.35 2015-16 Performance Audit, Commonwealth of Australia 2016, p.9

Summary of review findings

In summary:

- the provision of ongoing Commonwealth funding for capital equipment is unusual in the context of broader health policy and funding arrangements. In normal circumstances, State and Territory governments would fund capital equipment in hospitals (in accordance with the National Health Reform Agreement) and private providers would consider a business case for establishing a health service based on expected return via MBS rebates and patient contributions (rather than Commonwealth contribution to capital costs);
 - a special case can be made to continue the ROHPG Scheme because of:
 - increasing cancer rates;
 - the high cost of radiotherapy equipment used to treat cancer (the highest capital cost of any equipment used in health service delivery);
 - the impact that patient access to linacs has on utilisation of radiotherapy as a cancer treatment (and the benefits of increased utilisation);
 - the effectiveness of radiotherapy as a treatment and its capacity to improve health outcomes for patients, and reduce overall health care costs; and
 - risks to the viability of privately provided regional services, should funding be ceased;
- Radiation oncology requires custom-built facilities and specialised equipment. It is a speciality dealing with rapidly changing technological advances largely directed at improving the accuracy and effectiveness of radiotherapy outcomes, including better control and cure of tumours, as well as reduction of side effects.*

Tripartite National Strategic Plan for Radiation Oncology 2012-2022
- if the Commonwealth is to continue making a contribution towards the high capital cost of radiotherapy equipment, the ROHPG Scheme is the appropriate mechanism for doing so (compared to rolling the cost of capital into the relevant MBS rebates, or managing the program through more traditional funding agreements which are not well suited to demand driven programs); and
 - if the ROHPG Scheme is to continue, a number of improvements could be made to the Scheme to:
 - improve efficiency and increase transparency;
 - better align with broader health policy and funding;
 - achieve value for money for the Commonwealth;
 - reduce unnecessary burden on providers;
 - re-position the role of the Commonwealth such that there is less focus on the Commonwealth:
 - influencing the planning of radiotherapy services (when this responsibility properly rests with States and Territories);
 - driving the types of equipment purchased (when such decisions are best made by individual providers based on patient need); and
 - providing funding for all radiotherapy equipment (when the Commonwealth's focus should be on contributing to high value capital items only); and
 - minimise market distortions.

Some of the key changes recommended include:

- replacing the existing system (which lists eligible equipment and sets different funding amounts for each piece of equipment) with a single contribution by the Commonwealth for high capital costs associated with the provision of external beam radiotherapy. This approach:
 - removes the risk of equipment lists becoming dated and the Commonwealth contributing more in funding than the price paid for an individual piece of equipment;
 - focuses the Scheme on high capital items (linacs) rather than on those items (such as brachytherapy equipment) which are of much lower value, can more readily be accommodated within health service budgets and do not represent the same value for money in terms of health outcomes and utilisation;
 - encourages providers to purchase the equipment best suited to the facility and patient need, rather than being influenced by what equipment is, and is not, funded via the ROHPG Scheme; and
 - ensures that if a provider proposes to purchase a linac (or other high value external beam therapy equipment that has been approved by MSAC) they would be able to apply for a Commonwealth contribution to the cost of that capital equipment (and related items). The one funding application (and Commonwealth contribution) would replace the need for separate applications and arrangements for all of the ancillary items associated with the provision of external beam radiotherapy services (such as simulators, planning workstations and networking payments);
- delinking ROHPG payments from MBS rebates for service items. Instead, the Commonwealth contribution would be paid in 10 equal payments over a 10-year period. This would remove the need for private providers to submit monthly data to the Department of Human Services, would provide funding certainty, and would not result in less funding for services with lower throughput (including services in regional areas or services focusing on provision of complex cancer treatments with lower throughput);
- implementing two application streams – one for applications for funding for replacement equipment, and one for new or expanded facilities:
 - the application process for replacement equipment would be streamlined and funding decisions made within 30 days. The key considerations would be whether the equipment continues to be in an area of need; whether the State or Territory has endorsed the application as being consistent with any State/Territory health service planning; and previous compliance with any conditions of ROHPG funding.
 - calls for applications for new facilities (or expansion of existing facilities) would be made every two years following publication of information about the areas of need. This information would be based on national needs analysis and the advice of State and Territory governments. Applications would be competitively assessed and decisions made within 120 days.

- introducing greater transparency by publishing the information on which the Department determines areas of need, as well as a list of all applications that are approved including the equipment, location and proposed date of commissioning; and
- retaining conditions relating to quarantining of ROHPG funds (for public providers), ensuring affordability (for private providers) and adding new conditions relating to regular independent auditing of equipment to ensure it is appropriately calibrated and delivering the expected dose of radiation and de-commissioning of equipment after 13 years. Services would continue to be required to meet relevant health standards (in accordance with State and Territory legislation) and requirements relating to radiation safety (in accordance with State and Territory radiation safety legislation).

The recommendations described above are designed to ensure that public and private providers of radiotherapy services in Australia can meet the challenges associated with providing safe, high quality treatment to people living with cancer, into the future. By reviewing and analysing the operation of the ROHPG Scheme, in all its complexity, we have sought to provide options that continue to encourage and support high utilisation of radiotherapy as an affordable treatment option in Australia, in a way that is sustainable and consistent with broader Commonwealth policy and funding practice.

We sincerely thank all stakeholders for their insights, candour and invaluable advice in contributing to this review.

Chapter 1 – Context and purpose of the review

Part A – About the ROHPG Scheme

The ROHPG Scheme offers funding to approved providers for eligible high-cost equipment used in the delivery of radiotherapy services.

The ROHPG Scheme provides funding by way of a contribution towards the capital cost of eligible radiotherapy equipment. Payments are in addition to Medicare rebates that patients receive for radiotherapy services.

The ROHPG Scheme is established and administered by the Commonwealth Department of Health (the Department) under Part IV of the *Health Insurance Act 1973* (the Act) and is open to public and private providers. In order to receive funding for capital equipment (by way of reimbursement) providers must:

- be approved as an organisation under the Act;
- offer an approved health service;
- be successful in their application for funding for equipment; and
- meet certain conditions with respect to funding.

The ROHPG Scheme Guidelines set out:

- the equipment that is eligible for funding (including, for example, linear accelerators (linacs), planning workstations and brachytherapy equipment);
- the criteria that must be met in order for a funding application to be successful. The most significant of these criteria is that services must be located in an area of need; and
- the rate at which reimbursements will be made for each equipment type.

In 2014-15, the Commonwealth paid \$68.5 million in capital reimbursement under the ROHPG Scheme. The equipment funded was used to provide approximately 1.9 million radiotherapy services, which were also rebated at a cost to the Medicare Benefits Schedule (MBS) of \$286.8 million. During the same period, the Commonwealth paid \$55.9 million through Medicare Safety Net benefits for radiotherapy services.

As at August 2016, the ROHPG Scheme provides funding to 82 facilities, 42 of which are private (51%) and 40 of which are public (49%).

Part B – Objectives of the Review

In March 2016, mpconsulting was engaged by the Department to undertake a review of the ROHPG Scheme. The review considers:

1. The role of radiotherapy in the treatment of cancer in Australia. This includes consideration of changes over time and likely changes in the future.

2. The objectives of the ROHPG Scheme and whether these remain relevant and appropriate.
3. The role of the ROHPG Scheme in the context of broader Australian Government health policy and health funding.
4. The strengths and limitations of the existing ROHPG Scheme.
5. The relative merits of continuing Commonwealth funding for radiotherapy equipment (against the context of broader health policy and health funding).
6. If funding is to continue:
 - options for improving the effectiveness, efficiency, equity and sustainability of funding; and
 - potential mechanisms to better influence, through the provision of funding, improved health outcomes consistent with broader health policy.

In addressing item 6 above, the review considers:

- a) options for identifying equipment that should be funded;
- b) options for determining the level of funding for different types of equipment (including the way in which the cost of equipment is determined);
- c) options for the payment of capital;
- d) any conditions that should be attached to payments in order to drive broader health outcomes; and
- e) whether the ROHPG Scheme is the most appropriate vehicle through which to provide funding and whether there are more appropriate vehicles.

Relationship to other reviews

ANAO review

This review follows a review of the ROHPG Scheme conducted by the Australian National Audit Office (ANAO). The ANAO review focused on the Department of Health and the Department of Human Services' administration of the program and examined matters such as:

- the design of the program, and related guidelines, and whether they supported the achievement of ROHPG Scheme objectives;
- the effectiveness and efficiency of the systems in place to administer the ROHPG Scheme;
- the consistency of administrative systems with relevant policy, guidelines and legislation; and
- risk management, performance monitoring and reporting arrangements that have informed the ongoing administration of the ROHPG Scheme.

The ANAO made two main recommendations. The first was that consideration be given to the underlying program design, including mechanisms to improve pricing transparency. Consistent with this recommendation, this review examines program design in detail.

Second, the ANAO recommended that the Department should:

- periodically review and document reimbursement rates and the underlying variables that inform the calculation of those rates, including interest rates and exchange rates;
- publish its areas of need analysis to inform stakeholder investment decisions; and
- clarify guidance relating to competing applications, the replacement and refurbishment of equipment, multiple funding sources, and the imposition of bulk billing conditions.

Each of these matters is also addressed in this review.

A copy of the ANAO review can be accessed at <https://www.anao.gov.au/work/performance-audit/administration-radiation-oncology-health-program-grants-scheme>.

MBS Review

In April 2015, the Minister for Health (the Minister) announced that an MBS Review Taskforce would be established to consider how more than 5,700 items on the MBS could be aligned with contemporary clinical evidence and practice, and improve health outcomes for patients. This review is currently underway and recommendations from some clinical committees are proposed to be provided to the Minister for Health in December 2016.

The MBS Review Taskforce will consider, among other things:

- the services in Group T2 (Radiation Oncology) of the MBS, including descriptors, fees, rules of interpretation, obsolete items and the interrelationship of these items with other services on the MBS;
- the role of imaging techniques or technologies in radiotherapy;
- the impact on other services provided by other specialists; and
- advantages and disadvantages of linking a quality program to MBS payments.

From the 5,700 items currently included on the MBS, there are approximately 108 that relate to medical or radiation oncology, and many others that are claimable in relation to related services to cancer patients, such as diagnostic imaging and pathology.

Under the auspices of the MBS Review Taskforce, an Oncology Clinical Committee has been established to examine MBS items relating to medical oncology, surgical oncology, radiation oncology, and cancer specific imaging.

Under the ROHPG Scheme, reimbursements for capital are triggered by the claiming of MBS items for treatment using ROHPG funded equipment. There is, therefore, a close connection between the ROHPG Scheme and the MBS, and also between the two reviews. This relationship is explored in subsequent chapters of this report.

Scope of the review and underlying assumptions

Based on advice from the Department, this review:

- does not include consideration of the role of the Medical Services Advisory Committee (MSAC). MSAC is an independent expert committee that provides advice to the Minister on the strength of the evidence relating to the comparative safety, clinical effectiveness and cost-effectiveness of any new or existing medical service or technology, and the circumstances under which public funding should be supported through listing on the MBS. This review assumes that, should funding for radiotherapy equipment continue to be made available by the Commonwealth, only technology approved by MSAC would be potentially eligible for funding through the ROHPG Scheme; and
- does not consider the workforce capacity or capability necessary to support the provision of radiotherapy services. The review does, however, include reference to the broader policy environment including existing programs and funding initiatives directed at addressing workforce limitations and building workforce capacity to meet increasing need.

Part C – Conduct of the review

Call for submissions

In order to inform the review of the ROHPG Scheme, and to ensure that Commonwealth funding remains contemporary, fair and equitable, the Department invited stakeholders to make written submissions. The Department requested feedback in relation to:

- the benefits and limitations of the ROHPG Scheme;
- the appropriateness of the purpose of the ROHPG Scheme;
- potential alternate funding models;
- the way eligible equipment is determined;
- workforce considerations;
- the potential for linking ROHPG funding to quality measures (rather than throughput);
- the complexity of billing practices in relation to the ROHPG Scheme; and
- existing supply of radiotherapy equipment and potential saturation of services.

Of the 20 written submissions received from public and private providers, manufacturers, State Health Departments and individuals, 16 have been made publicly available on the Department's website. Public submissions can be accessed at

<http://www.health.gov.au/internet/main/publishing.nsf/Content/radonc-rohpg-subs>

Consultations

This review of the ROHPG Scheme was conducted over a period of four months and involved consultation with a range of stakeholders. Our process for selecting stakeholders for consultation was based on analysis of the written submissions, and an assessment of where further information was needed, and/or where substantive points were made that required further investigation.

Further consultations were undertaken with:

- various areas within the Department with responsibility for management of the ROHPG Scheme, radiation oncology, the MBS review, workforce, capital grants administration, diagnostic imaging and legal services;
- the Australian Clinical Dosimetry Service (ACDS) within the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA);
- the Australian Commission on Safety and Quality in Health Care;
- a number of State Government Health Departments;
- three manufacturers of radiotherapy and related equipment (Elekta, Varian and Siemens);
- three private providers of radiation services (ICON Cancer Care, Genesis Cancer Care, Epworth Healthcare);
- radiation therapists in a selection of public and private cancer centres and hospitals; and
- representatives from The Royal Australian and New Zealand College of Radiologists and the Australasian College of Physical Scientists and Engineers in Medicine.

Consultations were predominantly conducted by face-to-face meetings. Where this was not possible, consultation was by teleconference.

Document review

The documents reviewed are detailed in the Bibliography to this Report and include:

- submissions received from State and Territory governments, service providers, manufacturers, peak bodies and other entities;
- summary documents, diagrams, data, meeting notes, reports and emails provided by the Department;
- media articles and reports, inquiries and position papers relating to various aspects of radiation oncology in Australia;
- Australian Government publications including: *Industry Innovation and Competitiveness Agenda: An action plan for a stronger Australia, 2014*; *Reform of the Federation White Paper: Issue Paper 1 – A Federation for Our Future and Issue Paper 3 – Roles and Responsibilities in Health, December 2014*;
- ANAO reports and better practice guides;

- ROHPG Scheme fact sheets and guidelines produced by the Department;
- various documents related to the MBS review;
<http://www.health.gov.au/internet/main/publishing.nsf/content/mbsreviewtaskforce>
- relevant standards including the Radiation Oncology Practice Standards produced by the Tripartite Standards Working Group of the Radiation Oncology Reform Implementation Committee; and
- information relating to audit services provided to the radiotherapy community by the Australian Clinical Dosimetry Service <http://www.arpana.gov.au/services/ACDS/ACDSaudits.cfm>.

Chapter 2 – Radiation treatment in Australia

Part A – Cancer and radiation treatment

Cancer is the leading cause of death in Australia and the Australian Institute of Health and Welfare (AIHW) projects that the number of cases of cancer diagnosed in Australia will rise over the next decade for both males and females. This rate is expected to reach about 150,000 per annum in 2020 – an increase of almost 40% from 2007.²

Radiation oncology is the study and discipline of treating malignant disease with radiation. The treatment is referred to as radiotherapy or radiation therapy.

Radiotherapy:

- uses high-energy radiation to shrink tumours and kill cancer cells. X-rays, gamma rays and charged particles are types of radiation used for cancer treatment;
- may be delivered by a machine outside the body (external-beam radiation therapy), or it may come from radioactive material placed in the body near cancer cells (internal radiation therapy) such as brachytherapy³ and selective internal radiation therapy (SIRT); and
- can be used to treat almost all cancers, anywhere in the body. The impact of radiotherapy in cancer survival has been estimated at 40%, compared to 49% of patients being cured by surgery and 11% of patients for systemic treatments.⁴ Not only does it positively impact on local cancer control, it is also a highly effective therapy for dealing with pain associated with cancer. It is often used in combination with other treatments, such as surgery or chemotherapy.

A strong radiation oncology sector is the bulwark of an effective cancer control strategy.

Tripartite National Strategic Plan for Radiation Oncology 2012-2022

Over the past 20 years, there have been significant changes in the delivery of radiotherapy from two dimensional to three dimensional Intensity Modulated Radiation Therapy (IMRT) treatments using the greatly improved accuracy of CT simulation, multileaf collimators, electronic portal imaging devices, and cone-beam CT.⁵

Part B – Patient access and utilisation

Over recent years, the number of patients accessing radiotherapy services and facilities has increased significantly. From 2004 to 2014, there was a 59% increase in the number of patients receiving MBS rebated radiotherapy services.⁶ Given the effectiveness of radiation as a cancer

² Australian Institute of Health and Welfare, *Cancer incidence projections: Australia, 2011 to 2020*, Cancer series No. 66, Cat.no. CAN 62, 2012, p.viii

³ <http://www.cancer.gov/about-cancer/treatment/types/radiation-therapy/radiation-fact-sheet>

⁴ Radiation Oncology Tripartite Committee, *Planning for the Best: Tripartite National Strategic Plan for Radiation Oncology 2012-2022*, p.29

⁵ Morgan, G. 'Editorial: Why has Radiotherapy Utilisation not improved since 1999?', *Journal of Medical Imaging and Radiation Oncology*, 55 (2011), p.349

⁶ MBS statistics

treatment, an ongoing policy objective of governments and providers has been to increase (optimise) patient utilisation of radiation therapy.

In 2013, the Department commissioned a report on optimisation rates. The *Review of the Optimal Radiotherapy Utilisation Rates* concluded that an optimal utilisation rate was 48.3%.

This report found that actual radiotherapy utilisation rates were lower than optimal in Australia, the United States, the United Kingdom and Canada, showing that barriers exist which limit evidence-based radiotherapy utilisation.

There are a number of factors that can affect actual radiotherapy utilisation rates such as:

- health system factors, including distance to treatment centres, waiting times, treatment centre characteristics;
- patient sociodemographic and socioeconomic factors, as well as age and comorbidity, cultural beliefs, and beliefs regarding efficacy and burden of treatment. Even where there is clear and significant evidence in favour of a treatment, a patient may choose to have an alternate, less effective treatment or to have no treatment at all (as perception of effectiveness, inconvenience and impacts of radiotherapy can strongly influence decision making); and
- provider factors such as referral, multidisciplinary care, understanding and awareness.

The Department does not hold accurate data on current utilisation rates. However, it is estimated that the current utilisation rate in Australia is between 35% and 40%, well short of the optimal rate of 48.3%.⁷

Part C – Availability of radiation equipment and facilities

Since the inception of the ROHPG Scheme there have been significant changes to the availability of equipment and facilities.⁸

- The number of linacs used to deliver radiation oncology services in Australia has increased substantially, from 46 in 1988, to around 200 in 2015.
- The number of treatment facilities has also increased. Prior to 1988, there were 18 public and private treatment facilities. By 2016 the number of facilities funded under the ROHPG Scheme was 82.
- The number and proportion of facilities located in regional areas has increased. In 2002, out of 44 radiation oncology facilities in Australia, only six (14%) were in rural and regional areas. In

⁷ This estimation is based on: information obtained during stakeholder consultations; Barton & Delaney article (see bibliography) in 2011 which charted radiotherapy utilisation rates in NSW at 38% from 1999 to 2008; and the Victorian Government submission to the review which included an average utilisation rate for Victoria, across all cancers at 36.5%. It should be noted that utilisation rates vary across different populations with different distributions of cancer.

⁸ Australian National Audit Office, op.cit., p.9

2015, of the 76 facilities receiving ROHPG funding, 19 (or 25%) were located in rural and regional areas.

- The age of the equipment has decreased. For example, between 2000 and 2010, the percentage of linacs:
 - aged more than 10 years reduced from 14% to 9%;
 - aged between five and 10 years reduced from 39% to 28%; and
 - aged five years or less increased from 40% to 60%.⁹
- The waiting times for treatment have decreased. In November 2015, the AIHW released *Radiotherapy in Australia: Report on a pilot data collection 2013-14*, which indicated that patients requiring urgent radiotherapy (2% of cases) were usually treated within a day and patients with non-urgent conditions usually wait less than two weeks for treatment.¹⁰

Part D – Sector characteristics

As at August 2016, of the approved radiotherapy facilities operating in Australia, approximately 51% are privately operated and 49% are publicly owned (with a small proportion being public-private partnerships, whereby public hospitals outsource their public outpatient radiotherapy services to private operators who bulk bill public patients to the MBS).

Genesis Care is Australia's largest provider of radiation oncology, operating around one third of Australia's radiotherapy facilities across five states in both public and private hospital settings.¹¹

ICON Cancer Care is also a major provider of cancer care, operating six ROHPG approved facilities across Queensland and New South Wales (as at July 2016).

The supply of linacs in Australia is dominated by two vendors – Varian Medical Systems and Elekta. Both are global organisations, with Elekta headquartered in Stockholm and Varian in the United States of America. Distributors and suppliers of the software and equipment associated with radiotherapy treatment include, but are not limited to, AlphaXRT, Brainlab and Siemens.

Part E – Funding of radiation equipment and services

In 2014-15, the Commonwealth contributed in excess of \$411 million to radiotherapy services, comprising:

- \$286.8 million in Medicare benefits via rebates for in excess of 1.9 million radiotherapy services;
- \$55.9 million in Medicare Safety Net benefits; and

⁹ Radiation Oncology Tripartite Committee *Planning for the Best: Tripartite National Strategic Plan for Radiation Oncology 2012–2022*, 2012, p.93

¹⁰ Department of Health, *Submission to the Senate Community Affairs Legislation Committee for the Inquiry into the Health Insurance Amendment (Safety Net) Bill 2015*, p.21

¹¹ Data provided by the Department of Health, May 2016

- \$68.5 million in capital reimbursement under the ROHPG Scheme.

The total MBS expenditure on radiotherapy has more than doubled, from \$107.8 million in 2005 (for around 786,000 services).

The following table provides perspective on the growth of Commonwealth funding of radiation equipment and services in recent years.¹²

Total funding for radiation oncology services 2012 – 2016			
	2012-13	2013-14	2014-15
	\$m	\$m	\$m
MBS benefits paid on radiotherapy services	248.5	261	286.8
Medicare Safety Net benefits	33.9	39.1	55.9
ROHPG	61.2	62.1	68.5
TOTAL	343.5	362.2	411.12

The Commonwealth has also provided funding for a number of other radiation-related initiatives including:

- the ACDS, which provides audit services for radiotherapy equipment (with funding due to cease at the end of 2016 before commencing as a user-pays service on 1 January 2017). Total funding of \$6.2 million has been provided over a 6-year period from January 2010 – December 2016;
- workforce initiatives to increase training capacity, improve the efficiency of the existing workforce, and attract staff to areas of need. This includes, for example:
 - the Radiation and Diagnostic Therapy Workforce Program that aims to increase the supply of, and support for, health professionals in regional, rural and remote Australia and increase investment in medical training and education. The program contributes to the salary and on-costs of trainees in areas such as radiation oncology services, diagnostic imaging services and radiopharmaceutical services. Approximately \$3.5 million is spent each year under this program; and
 - the Australasian College of Physical Scientists and Engineers in Medicine has been funded to develop a nationally consistent program for training radiation oncology medical physicists (ROMPs). The program has since been extended to diagnostic imaging medical physicists and radiopharmaceutical scientists. Annual funding is dependent upon the number of trainees each year but is approximately \$4.3 million over 3.5 years;

¹² This table was drawn from data provided by the Department and included in the Department’s *Submission to the Senate Community Affairs Legislation Committee for the Inquiry into the Health Insurance Amendment (Safety Net) Bill 2015*

- the Health and Hospitals Fund (HHF) which provided finance capital investment in health infrastructure, such as the renewal and refurbishment of hospitals, medical technology equipment and major medical research facilities and projects. Through the HHF, funding was provided for the establishment of a national network of Regional Cancer Centres;
 - in the 2009-10 Federal Budget, \$3.2 billion was provided under the HHF for major health infrastructure projects. This funding included \$1.3 billion for national cancer infrastructure projects, including \$556 million committed to establish a national network of Regional Cancer Centres and associated accommodation facilities. The aim of the Regional Cancer Centres initiative was to improve access and support for cancer patients in rural, regional and remote Australia, and to help close the gap in cancer outcomes between the city and the country. A total of 25 regional cancer centres and associated accommodation projects were approved¹³; and
- various budget initiatives focused on increasing access to radiotherapy nationally. For example, between 2007 and 2010, \$90.3 million was provided for regional cancer centres including the establishment of the Alan Walker Cancer Care Centre in Darwin.

State and Territory governments also fund radiation-related initiatives including:

- funding for public hospitals including purchase of radiotherapy equipment in public hospitals;
- workforce initiatives; and
- funding for patient accommodation and travel schemes that reimburse patients a proportion of out-of-pocket expenses when they have to travel long distances to receive treatment.

It is not clear what the contribution of each State and Territory is to radiation-related equipment, however NSW Health advises that it has invested, over a 12-year period since 2003-2004, over \$100 million in new and replacement linacs. This equates to approximately \$8.3 million per annum.

Part F – Patient contribution to radiation treatment

The majority of MBS funded radiotherapy services are delivered from public hospitals (approximately 75%), accounting for the majority of all bulk billed services.

Bulk billing rates for radiotherapy and therapeutic nuclear medicine have increased from around 12% in 1988, to nearly 70% in 2014. Bulk billing rates within private facilities have also increased, from around 9% in 2011, to around 29% in 2014.¹⁴

Data provided by the Department indicates that around 80% of all services are charged at the MBS schedule fee or less. This means a large proportion of patients experience no or low out-of-pocket costs for their treatment.

¹³ http://www.ruralhealthaustralia.gov.au/internet/rha/publishing.nsf/Content/Health_and_Hospitals_Fund-Round_2_Regional_Cancer_Centres

¹⁴ MBS statistics

The costs that patients incur for private radiation oncology will depend on the fees charged by private providers. Approximately 40% of all radiation oncology services are provided by private providers and around 70% of those services are provided by Genesis Care.

To offset out-of-pocket costs, many patients receiving radiation therapy benefit from the Medicare Safety Net (and the EMSN until this year), either directly or indirectly.

The Medicare Safety Net increases the Medicare benefit payable once an annual threshold in eligible out-of-pocket costs for Medicare out-of-hospital services is reached. However, the EMSN only covers 80% of the out-of-pocket cost, and the remaining 20% is covered by the patient.

While the average out-of-pocket cost varies considerably across different locations, the Department estimates that¹⁵:

- a 'standard' course of treatment, defined by industry as 20 treatments of 3-field radiotherapy, will have a charge of \$11,433 (based on 2014 fees); and
- this treatment would be rebated at approximately \$8,784, leaving an out-of-pocket cost of approximately \$2,649.

Private health insurance does not cover medical services that are provided out-of-hospital and that are covered by Medicare. Almost all radiotherapy services are provided on an out-of-hospital basis.

Part G – The future of radiation therapy in Australia

One of the most significant factors that will impact on the radiation oncology sector in the coming years is the expected increase in incidence of cancer in the Australian population.

Data provided by the Department suggests that the incidence of cancer is likely to increase, on average, by 3.3% per annum.¹⁶ The cancer incidence projections, by jurisdiction, are detailed below:

State	2010	2014	2024	Average annual change (%)
NSW	38,279	41,918	52,428	2.5
VIC	28,502	31,563	41,247	3.2
QLD	23,453	27,325	37,348	4.2
WA	11,231	13,031	19,104	5.0
SA	9,219	9,772	11,722	1.9
TAS	3,172	3,368	4,182	2.3
ACT	1,524	1,969	2,541	4.4
NT	697	841	1,075	3.9
Australia	116,077	129,790	169,648	3.3

¹⁵ Department of Health, *Submission to the Senate Community Affairs Legislation Committee for the Inquiry into the Health Insurance Amendment (Safety Net) Bill 2015*, p.20

¹⁶ The Department based these projections on analysis of information from the Australian Institute of Health and Welfare Australian Cancer Database 2010.

With an increase in cancer diagnoses, there is expected to be increased demand for radiation oncology services across Australia.

Four years ago the Radiation Oncology Tripartite Committee documented a number of factors that it considered would also impact on the sector over the next decade. These included:

- a strengthening of collaborative approaches to cancer care;
- increased consumer expectations surrounding their cancer and its treatment;
- continued investment in the development of systemic and targeted therapies – including increasing use of tumour genetic testing, and treatment regimens designed to be effective for tumour subtypes;
- accelerated rate of evolution in radiotherapy techniques and improvements in the delivery technologies – particularly in areas of IMRT and stereotactic body radiation therapy (SBRT), 4D imaging, particle therapy and nanotechnology. Advances in imaging technology are further enhancing the targeting of radiotherapy treatments;
- increasingly personalised radiation oncology (for example, tumour marker testing and molecular and biological imaging techniques will allow greater personalisation);
- evolution of models of care including a shift from the delivery of isolated treatments towards a multidisciplinary, coordinated approach to cancer care;
- the use of technology to enable better communication and information transfer (including increased use of telemedicine);
- funding arrangements, with the potential for inflexible funding arrangements to act as a brake on the application of new services; and
- the expansion of consumer awareness of radiotherapy and new techniques.¹⁷

¹⁷ Radiation Oncology Tripartite Committee, *Planning for the Best: Tripartite National Strategic Plan for Radiation Oncology 2012-2022*, p.36

Chapter 3 – Detailed information about the ROHPG Scheme

Part A – History of the ROHPG Scheme

In the 1980s, radiotherapy treatment rates for newly diagnosed cancer patients in Australia remained significantly below estimates of the clinical optimal level. A deliberate strategy was introduced by the Australian Government to increase investment in radiotherapy over a period of time.

Prior to the introduction of the ROHPG, the Commonwealth made a contribution to the capital costs associated with radiotherapy services through the MBS schedule fee. In 1988, capital components were removed from the MBS schedule fee and a dedicated capital funding program (the ROHPG Scheme) was established to improve access to, and the supply of, radiation oncology services in the private and public sectors.

In the first year of the ROHPG Scheme, the total amount of funding was \$2.5 million. The ROHPG Scheme grew quickly, and by 1998-99 the annual amount paid was \$18.7 million.¹⁸ In terms of the distribution of the \$18.7 million:

- \$8.6 million was paid to public hospitals, across 162 pieces of equipment (including linacs, brachytherapy, CT interface and simulators); and
- \$10.1 million was paid to private facilities, across 56 pieces of equipment.¹⁹

A number of reports and reviews have investigated different aspects of radiation oncology in Australia since the 1980s. Of particular relevance to the operation of the ROHPG Scheme was the Australian Healthcare Associates *Radiation Oncology Health Program Grants Funding Arrangements – Final Report (1999)* (AHA Report) and *A vision for radiotherapy*, presented by a Radiation Oncology Inquiry Committee chaired by Professor Peter Baume AO in 2002 (the Baume report).

The AHA Report made recommendations in relation to the operation of the ROHPG Scheme (then called the Health Program Grants (HPG)), while the Baume Report made recommendations in relation to the usage, future funding and delivery of radiation therapy in Australia.

Broadly, Professor Baume's recommendations, which have influenced the sector over the past decade, centred around the following areas:

- the appropriate role of radiation oncology in cancer management;
- service provision, planning and coordination;
- the radiation oncology workforce;
- equipment and facilities;
- patient access; and
- national funding.

¹⁸ Australian Healthcare Associates for the Commonwealth Department of Health and Aged Care, *Radiation Oncology Health Program Grant Funding Arrangements – Final Report, 1999*, p.17

¹⁹ *ibid.*, p.25

Some specific changes to the administration of the ROHPG Scheme that resulted from recommendations contained in these reviews included changes to the way reimbursements are paid to public facilities. Prior to 2008, public hospital facilities did not apply for funds for specific pieces of equipment, and equipment had no capital balance – a public facility received the same payment for a service irrespective of whether it was delivered on a new machine or one that was 20 years old. From 2008, the same capital balance/throughput calculations were used in relation to funds to private and public facilities.

One notable change that was not made following these reports was in relation to the way ‘cost of borrowing’ was paid. This is discussed in more detail in Chapter 4.

Part B – Objectives of the ROHPG Scheme

The objectives of the ROHPG Scheme have not substantively changed since 1988. The ROHPG Scheme aims to:

- improve health outcomes for cancer patients;
- increase access to radiation oncology services;
- improve equity of access for cancer patients; and
- ensure the highest quality and safety of radiation oncology services.

Part C – The application process

Applications for funding can be made at any time, and are assessed on an individual basis against ROHPG Scheme Guidelines that outline criteria for assessment.

The ROHPG Scheme Guidelines describe five types of applications that may be made for:

- a new facility to be operated by a new organisation;
- a new facility to be operated by an organisation already providing radiation oncology services;
- expansion of capacity to install additional equipment of the type already approved;
- expansion of scope for a type of equipment not already approved; and
- replacement equipment.

The Department also considers applications for:

- planning system upgrades; and
- transfer of equipment between approved facilities.

All applicants can access the ROHPG Scheme Guidelines (and detailed information about eligibility) on the Department’s website²⁰. Application forms may be obtained by contacting the Department.

²⁰ <http://www.health.gov.au/internet/main/publishing.nsf/Content/health-roi-hpg-rohpg-guidelines>

The number of applications approved by the Department over the past four years is as follows.

Application type	2012-13	2013-14	2014-15	2015-16
New organisation	1	2	0	1
New facility	9	3	5	4
Expansion in capacity/scope	12	3	4	1
Planning system upgrades	4	1	1	8
Replacement equipment	31	30	17	12
Transfer of equipment	1	0	0	5
Transfer of facility ownership	0	2	0	1
Transfer of facility location	0	1	0	2
Total	58	42	27	34

New facility to be operated by a new organisation

Every provider, whether public or private, must apply:

- to be approved under section 40 of the Act;
- for approval (under section 41 of the Act) of the health service to be provided by the organisation.

The assessment criteria for *approval of organisations* under section 40 of the Act is described in the application form as follows:

Organisations seeking approval as an approved organisation will need to satisfy the ROHPG delegate that they would be a fit and proper person to provide radiation oncology services.

The applicant, or any person with whom the applicant has or proposes to have a financial, employee/employer or business relationship, must sign a declaration that they have not: been convicted of 'relevant offences'; had a determination made against them by a Medicare Participation Review Committee; or had a determination made against them by a Determining Authority under the Medicare Professional Services Review Scheme.

The approved organisation then seeks approval for the *health service* it will provide by submitting information about:

- facility address and opening date;
- project plan and timeframe for the new service;
- details about the proposed service;
- information that shows the service will be integrated with other cancer treatments and medical services;
- information that services will be provided in areas of need;
- information on how the service will be financially viable for the organisation;
- extent of out-of-pocket costs for patients;
- how the necessary staffing will be achieved;

- the impact the proposed service will have on other facilities in the area; and
- major project risks and strategies for dealing with those risks.

Private sector providers also need to provide a fully costed and independently audited business case that explains what will be achieved by the project over a 10-year period. This covers:

- an assessment of the catchment area (including size, region, number and age distribution of the catchment population, cancer incidence profile, existing cancer care services, unmet need and patient flows); and
- project budget which identifies sources and amount of income to be generated and expected costs over 10 years.

New facility (or relocation of an existing facility) for organisations operating an existing facility (facilities)

For an organisation that has already been approved to operate an existing facility, but seeks to establish a new facility or relocate an existing facility, the same criteria listed above applies.

The only difference is when an existing service is moving premises, information must be provided about the date that the existing service will cease operations at its current address and the reasons why the service is moving.

Expansion of capacity to install additional equipment of the type already approved

For applications for expansion of capacity (additional equipment of a type already approved), the following information is required:

- planned operational date for the new equipment;
- type of equipment and number of machines;
- evidence that the equipment will meet identified patient demand; and
- detailed explanation of how the required staffing will be achieved.

Expansion of scope for a type of equipment not already approved

Organisations seeking funding for equipment of a type not already approved must respond to the same criteria as those applying for expansion of capacity (listed above).

Replacement equipment

For applications for replacement equipment, the organisation must submit:

- date of planned decommissioning of equipment to be replaced;
- planned operational date of new equipment;
- type of replacement equipment including make, model, accessories and specifications; and
- a brief statement of the reasons for the planned replacement of equipment.

Planning system upgrades

Since 2011, the Department has also approved the payment of funds for upgrades to planning system software. The Department implemented this approach in response to comments received from providers that indicated they did not replace entire planning computers, rather they replaced components separately over time.

The ROHPG Scheme Guidelines do not expressly deal with reimbursement (i.e. payment of ROHPG Scheme funds) for upgrades to planning system software.

Transfer

Where there is a transfer of ownership or control of an existing health service, the provider must advise the Department of the expected date of completion of the planned transfer of ownership, details of the equipment to be transferred, and the ROHPG number of the equipment to be transferred.

If the organisation planning to take over the service is not an approved organisation, it must first apply to be approved.

Part D – Assessment and approval process

Once an application is received by the Department, the following assessment and approval process is undertaken:

- Applications for a new facility, expansion in capacity or expansion in scope, are assessed against the following criteria:
 - **Eligibility of equipment** – against the list included in the Guidelines;
 - **Patient access** – services must be located in areas of need, regionally and nationally, and they must be affordable;
 - **Viability** – the service must be able to demonstrate financial viability in the short and long term;
 - **Multidisciplinary and patient-centred care** – radiation oncology services must be integrated with other cancer treatments and other medical services generally;
 - **Adequate staffing**; and
 - **Implementation** – the project must be well developed, well-resourced and be implemented within a reasonable timeframe.
- During the assessment process, clarification or additional information may be sought from the applicant.
- If the applicant is a private organisation, the Departmental confidentially consults with the relevant State or Territory health department and State or Territory cancer council.
- An assessment document is prepared for the delegate, together with a legal instrument if the application is recommended for approval.

- A decision is made by the delegate and the applicant is notified of whether their application was approved.

Unless there are exceptional circumstances, Scheme funding should be approved by the delegate before the delivery of services to patients on the equipment has commenced.

Part E – ROHPG Scheme reimbursements

The current approach to reimbursing providers is based on a representative schedule of equipment prices, rather than actual purchase costs.

The amount of funding payable for the equipment is determined from time to time by the Department based on manufacturer quotes.

Rates are calculated based on specifications for each type of equipment (including the cost of shielding), average costs supplied by manufacturers, the exchange rate for the Australian dollar and, where applicable, an allowance for the cost of borrowing if funds have been borrowed to purchase the equipment. This allowance is based on the Commonwealth 10-year bond rate. The amount determined for a particular type of equipment is known as the capital balance.²¹

For each equipment type, a reimbursement per service rate is determined for every radiation oncology service attracting a Medicare benefit. This payment is calculated by dividing the capital balance by the notional number of services performed during the notional life of the machine.

Once an application has been approved, the eligible equipment is allocated a capital balance at the rate applicable at the time of approval. In the case of private providers, the capital balance also includes an allowance for the cost of borrowing.

This capital balance applies for the life of the equipment, irrespective of rate changes.

The capital balance allocated for the approved equipment is reduced by the reimbursement amount for each eligible service rendered using the equipment. Once the capital balance reaches zero, ROHPG Scheme payments are no longer made. The discontinuation of ROHPG Scheme payments does not affect the MBS rebate payable for the service.

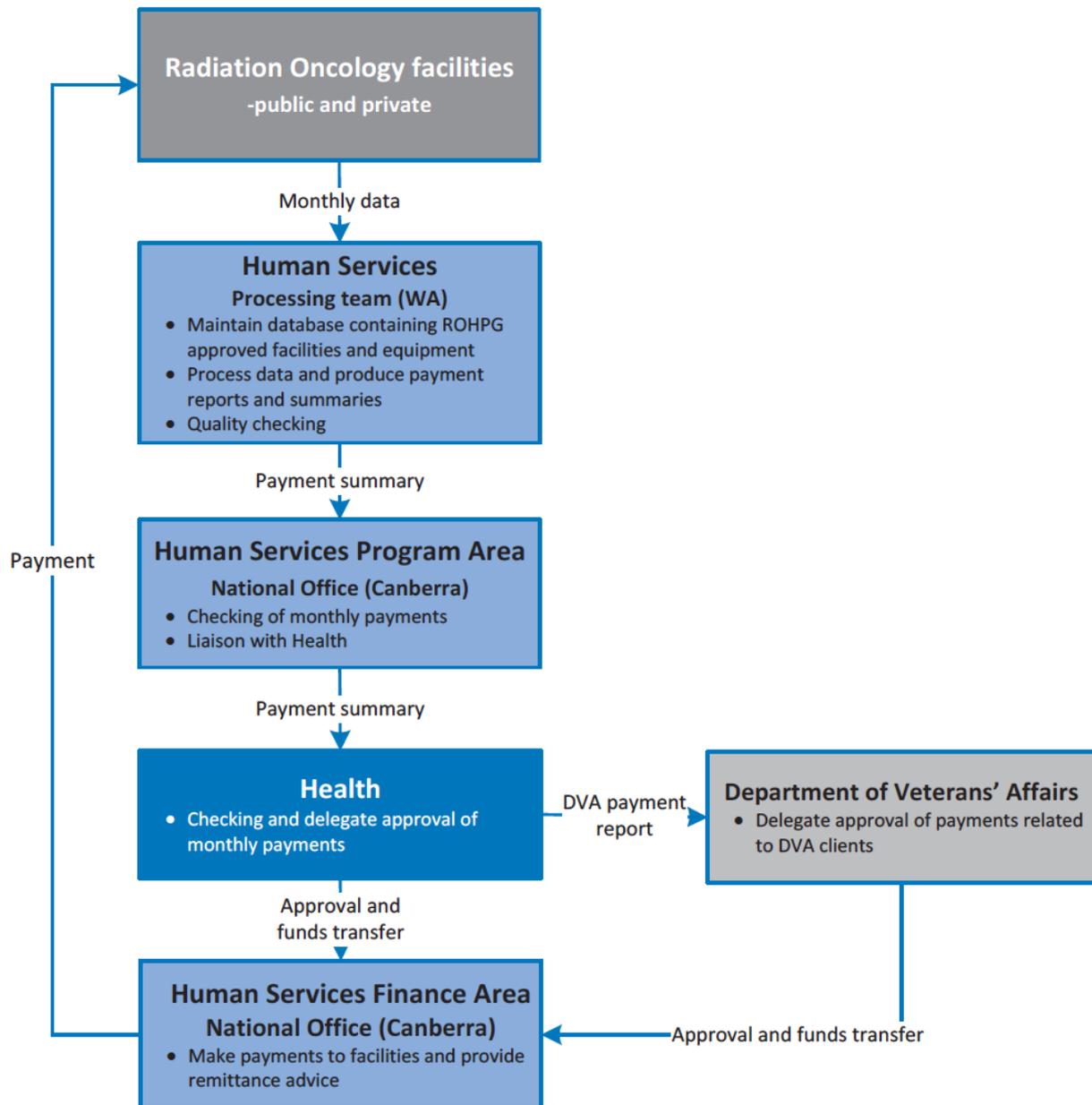
ROHPG Scheme payments are made to each service provider at the end of every month by the Department of Human Services (DHS). Private organisations are required to provide claims for ROHPG Scheme payments in an electronic form acceptable by DHS. In the case of public organisations, a claim for payment of Medicare benefits automatically generates a ROHPG Scheme claim for payment.

The following diagram from the recent ANAO report reflects the payment process. In summary, the diagram identifies that service providers provide monthly data to the DHS which validates the

²¹ ROHPG Scheme Guidelines

information before providing it to the Department of Health and/or the Department of Veterans' Affairs for approval. Following approval, the DHS makes payments to the service providers.

Figure 2.4: Scheme payment process



Source: Human Services process maps.

Networked Information System (NIS) Payments

NIS payments are made to providers for the cost of networking radiation oncology equipment and patient information management systems. Payments are based on the number of linacs at each facility. NIS payments are calculated annually and paid twice yearly.

The following table reflects the range of capital balances applicable for different types of equipment.

Current ROHPG rates – range (applicable since September 2010)		
Equipment	Minimum	Maximum (incl. borrowing costs for equipment other than NIS)
Linear accelerators (single and dual)	\$2,626,352.98	\$4,634,626.23
Planning workstations (3 or less and 4 or more)	\$461,428.99	\$701,364.36
Simulators	\$864,659.87	\$1,351,796.48
HDR Brachytherapy Treatment and Planning	\$756,987.25	\$1,183,462.70
LDR Brachytherapy	\$289,597.52	\$371,175.00
Networked Information Systems (NIS) (amount paid over 5 years, depending on number of linacs and no cost of borrowing paid)	\$737,386.62	\$1,209,338.49

Part F – Conditions of funding

As detailed in Appendix 3 and Appendix 4 of the ROHPG Scheme Guidelines, there are three standard conditions applicable to all recipients of funding (public and private):

- **misrepresentation of relationship with the Commonwealth** – providers must not misrepresent their relationship with the Commonwealth;
- **indemnity** – the provider must indemnify the Commonwealth in respect of certain matters; and
- **patient billing (optional condition on agreement with organisation)** – the provider must bulk bill Medicare for certain patients. The optional bulk billing condition is only imposed on providers that specify in their application that they will bill patients in this way.

The following conditions apply to public providers only:

- **separate bank accounts for payment** – public providers are required to have a bank account, under the sole control of the organisation and separate from its other bank accounts, into which all payments are to be paid. No other monies can be paid into this account, other than interest earned on ROHPG payments; input tax credits received in relation to approved radiation oncology equipment; or if equipment in respect of which a payment has been received is sold by the approved organisation, the proceeds of the sale;
- **use of payments** – ROHPG funding must be used solely for refurbishing or acquiring radiation oncology equipment at the location in respect of which the payment was made; and
- **accounting for use of payments** – public providers must keep proper accounts and records in relation to the use of ROHPG payments and, within three months after the end of each financial year, give the Department information about all payments received in that year, the amounts of payments carried over from previous years, the amount of the payments spent on acquisition,

commissioning, replacement or renovation of eligible equipment and amounts carried over to the next financial year.

The following conditions are specific to private providers:

- **suspension of payments** – payments may be suspended if the provider fails to comply with conditions, does not respond to a request by the Department that the provider take certain action to address non-compliance, the provider no longer wishes to receive funding or the provider becomes bankrupt or insolvent; and
- **protection of personal information** – the provider must give effect to the National Privacy Principles, comply with any relevant guidelines and cooperate with the Privacy Commissioner.

Chapter 4 – Achievement of ROHPG Scheme objectives

Part A – Has the ROHPG Scheme achieved its objectives?

As noted in the previous Chapter, the ROHPG Scheme aims to:

- improve health outcomes for cancer patients;
- increase access to radiation oncology services;
- improve equity of access for cancer patients; and
- ensure the highest quality and safety of radiation oncology services.

As stated in the ANAO review:

“There have been improvements in the number of facilities and machines used to treat cancer; and the number and proportion of facilities located in regional areas. This period has also seen an improvement in patient bulk-billing rates for radiotherapy and therapeutic nuclear medicine, as well as reduction in the average age of the equipment fleet. Together, these developments are likely to have contributed to realising the Scheme’s stated policy objectives.”

Improved health outcomes

With advances in screening, early detection and treatment, survival for all cancers combined has increased over recent years, from 47% in 1982-1987, to 66% in 2006-2010.²²

The improved capacity and availability of the radiation equipment is a relevant factor, but the extent to which providers would have invested in such equipment in the absence of ROHPG funding cannot be known. In submissions to the review, and through consultations, stakeholders expressed the strong view that the ROHPG Scheme has been a major factor in improving health outcomes by increasing the availability of equipment, (and therefore utilisation of radiation as a treatment) and enabling outdated equipment to be replaced.

Increased access (utilisation)

Stakeholders highlighted that the ROHPG Scheme has improved access to radiotherapy services. Stakeholders point to evidence of improved utilisation rates and also the presence of equipment in regional areas (see relevant data in Chapter 2).

As noted in Chapter 2, utilisation is impacted by a wide range of factors including patient perception of the benefits of radiotherapy; fear and cultural beliefs; perceived inconvenience of the treatment outweighing the benefit; and referral pathways (noting that there are multiple potential barriers at the referral level).

²² Cancer Australia Strategic Plan 2014-2019, Cancer Australia, 2014, p.10

What is not definitively known is the extent to which the location and availability of equipment influences utilisation. It is clearly a factor (and in the absence of equipment there can be no utilisation), but the tipping point at which increasing the number of linacs no longer significantly impacts overall utilisation is not known.

To date there has been no analysis of whether Commonwealth funding for the purchase of equipment is the most cost effective means for increasing utilisation, or whether the \$68.5 million per year could be better targeted to support increased utilisation (for example, through improved referral pathways).

Increasing the number of linacs in regional areas certainly encourages utilisation by removing barriers related to travel time and cost. In most cases, this improves outcomes for patients. However, there are circumstances in which optimal outcomes are not possible in smaller regional cancer centres. For example, complex treatments require a wide set of health professionals and wrap around services, and it is often not possible to provide all services to patients in regional locations, despite the presence of a linac. For optimal utilisation and patient outcomes, linacs need well trained operators and regular maintenance – this is not always possible in regional areas that experience workforce shortages (particularly in relation to retaining medical physicists).

Over a decade ago, Professor Baume identified some of the problems associated with operating linacs in regional areas that are isolated from larger centres and workforce support. He identified alternative models, such as that of the Canadian province of Ontario, which organises itself around nine centres with, on average, eight linacs in each.²³ The benefits of building services around larger centres include:

- bringing together a critical mass of each profession and enough patients to facilitate subspecialisation. This allows the development of a high level of expertise on the part of staff and can help to maintain a high standard of quality;
- larger centres are more likely to participate in clinical trials; and
- through economies of scale, training options are expanded and better quality control can be implemented.

Over the past three decades, Australia has seen an increase in both large centres and also regional centres. Some of the problems associated with capacity in regional centres have been mitigated through:

- networking arrangements with larger hospitals. For example, the Burnie cancer centre is closely linked to both Launceston and Hobart hospitals and information is shared to assist in developing treatment plans and undertaking quality assurance; and
- limiting services provided in regional areas to less complex treatments. For example, some regional cancer centres do not provide paediatric or complex head and neck cancer treatments.

²³ Baume, Prof P, *A Vision for Radiotherapy: Report of the Radiation Oncology Inquiry*, Commonwealth of Australia, 2002, p.35

Equity of access

Despite rural and remote health funding initiatives (including the ROHPG Scheme), many rural and remote communities are unlikely ever to have the same access to local medical and health services that are characteristic of large urban centres. Even with increased ROHPG funding or increased investment in health services, radiotherapy services are unlikely to be available such that all Australians have access to radiotherapy services within 100kms of their home.

However, there are a number of other initiatives that support patients living in rural and remote areas to access radiotherapy services. These include transport and accommodation services funded by State and Territory governments. Such services support patients to receive treatment at larger regional or urban centres with minimal out-of-pocket costs.

Another factor that influences equity of access is the cost to patients. As detailed above, it is not considered that cost is currently a significant barrier to access by most people because:

- around 70% of radiation oncology services are bulk billed;
- more than 80% of all services are charged at the MBS fee or less; and
- while some private providers charge in excess of the MBS fee;
 - most private radiation oncology centres are in major capital cities where patients have a choice of provider (and can opt to receive services through a bulk-billing or public provider); and
 - where there are out-of-pocket costs to patients receiving care from a private provider, these are relatively low because of the effect of the Medicare Safety Net (estimated to be on average, less than \$2,700 per ‘standard’ course of treatment which comprises 20 treatments of 3-field radiation).

Quality and safety of services

To the extent that the ROHPG Scheme has funded private and public providers to continuously upgrade their equipment, it has contributed to the delivery of safer services. However, the age of the equipment is only one factor among many that influences the safety of radiation services. Safety is also influenced by:

- maintenance of the equipment;
- regular auditing of the equipment to ensure that the equipment is delivering the appropriate dose of radiation;
- the training of staff using the equipment;
- the skills and experience of the clinicians; and
- the clinical governance systems in place.

The ROHPG Scheme has enabled an upgrade of our radiation oncology service IT infrastructure and dosimetry equipment. It has allowed us to improve our efficiency and confidence in our radiation dose accuracy.

NT Health

There are a range of ways that government seeks to influence the safety and quality of services provided. In the context of radiation services this includes:

- requirements for public providers, and certain private providers, to comply with the *National Safety and Quality Health Standards*, published by the Australian Commission on Safety and

Quality in Health Care. Of relevance to radiation oncology services are the standards addressing:

- governance for safety and quality in health service organisations;
 - partnering with consumers;
 - patient identification and procedure matching;
 - clinical handover; and
 - recognising and responding to clinical deterioration in acute health care; and
- requirements for operators of radiotherapy equipment to comply with relevant radiation safety standards and with licensing laws in each State and Territory.

Radiation oncology specific standards have also been developed by a Tripartite Committee, represented by the: Faculty of Radiation Oncology of the Royal Australian and New Zealand College of Radiologists; the Australian Institute of Radiography; and the Australasian College of Physical Scientists and Engineers in Medicine. The *Radiation Oncology Practice Standards* focus on the radiation pathway and on aspects of the management of the facility, which are considered to be of vital importance in the delivery of safe, quality care to radiation oncology patients. The standards apply to:

- facility management (staff, workforce profile, management of patient records, data management, infrastructure, process management, equipment);
- treatment planning and delivery (radiation treatment prescription, planning procedures, dosimetry, radiation treatment delivery); and
- safety and quality management (safety, quality and improvement processes, radiation safety, incident monitoring program, dosimetric intercomparison, clinical trials participation).

While these standards are not mandated nationally²⁴, most of the providers consulted (both public and private) indicated that they voluntarily comply with such standards.

Overall, there is little evidence that there are significant safety issues surrounding the use of radiation equipment in Australia.

Part B – Do the objectives remain relevant?

Each of the objectives remain relevant to the extent that health policy is intended to drive improvements in health, service access and equity, and service quality and safety.

The more pertinent questions in respect of the ROHPG Scheme are:

- whether Commonwealth funding for radiotherapy equipment is consistent with broader health policy and capital funding arrangements today;

²⁴ Some jurisdictions have mandated compliance with the standards. For example, in June 2013 the Queensland Department of Health adopted the standards for both public and private radiotherapy treatment facilities across the state.

- whether capital funding for radiotherapy equipment (via the ROHPG Scheme) continues to be needed; and
- if there is value in the Commonwealth continuing to fund capital equipment for radiotherapy treatment, what changes should be made to the ROHPG Scheme to:
 - ensure cost-effectiveness and efficiency (minimising regulatory burden to providers and administrative costs to Government);
 - optimise quality outcomes;
 - minimise any unintended market distortions; and
 - improve transparency.

Each of these issues is addressed below.

Consistency with broader health policy and funding

Since the establishment of the ROHPG Scheme in 1988 there have been significant changes to the way that capital items and health services are planned, delivered and funded, with changes in the roles, responsibilities and contributions of the Commonwealth, State and Territory governments and the private sector. Some significant developments include:

- In August 2011, the Council of Australian Governments (COAG) agreed to major structural reforms to the organisation, funding and delivery of health care, and new financial and governance arrangements for Australian public hospital services.
- Following the COAG agreement, the Commonwealth and all State and Territory governments entered into the National Health Reform Agreement that details responsibility for various aspects of funding for public health and hospital services. Specifically, the Agreement provides that States and Territories are responsible for the system management of public hospitals including *'planning, funding and delivery of capital'*.
- Since the Agreement, the Commonwealth has contributed to capital funding for some projects (including through initiatives such as the HHF) but these initiatives have generally been time limited and for specific policy purposes, including to finance capital investments in health infrastructure.
- The Commonwealth would not normally provide ongoing funding for capital equipment. Rather the State or Territory government would fund capital items (in accordance with the Agreement) and private providers would determine a business case, based on returns from MBS rebates and patient contributions, to decide whether or not to establish a private health service.

Based on research undertaken to inform this review, we have not found evidence of other programs that involve ongoing Commonwealth funding to both public and private providers for capital items that are used in the delivery of MBS rebated services, other than where this is for the purpose of addressing disadvantaged populations or particular health priorities.

Ongoing need for the ROHPG Scheme

All stakeholders emphasised the ongoing need for the Scheme. In particular, they noted that:

- private sector providers have been steadily expanding into metropolitan and rural areas on the assumption of ongoing Scheme funding. The removal of such funding would significantly impact their business model and potentially impact their capacity to provide services particularly in regional areas; and
- in tight budgetary environments, there is a risk that State and Territory governments will not prioritise expenditure on very high value capital items such as linacs. By requiring State and Territory governments to quarantine the ROHPG funds, this provides a ready pool of capital with which to fund the purchase of replacement equipment.

While Commonwealth withdrawal from the funding of high value radiation equipment is an option, it comes with some risk, particularly to the ongoing viability of regional centers, which are highly valued by patients.

On balance, it is considered that a case can be made for continuation of the ROHPG Scheme, but it needs to be recognised that it is a special case, and that the rationale for ongoing funding is largely based on:

- increasing cancer rates;
- the high cost of radiotherapy equipment used to treat cancer (the highest capital cost of any equipment used in health service delivery);
- the impact that patient access has on utilisation;
- the effectiveness of radiation as a treatment; and
- the risk to the viability of privately provided regional services, should funding be ceased.

Improvements to the ROHPG Scheme

Based on this review, there are a number of adjustments that could be made to the Scheme to improve its efficiency, reduce market distortions and ensure it represents value for money for the Commonwealth. These options are discussed in more detail in the following two chapters.

The ROHPG assists public and private providers in maintaining their equipment by subsidising the replacement of outdated equipment, and supports the establishment of new services in areas of demonstrated need. In particular, the scheme has supported the establishment and growth of services in regional areas, which has improved access to radiotherapy for these populations.

Cancer Council and Clinical Oncology Society of Australia (COSA)

Chapter 5 – Analysis of each element of the ROHPG Scheme

This Chapter examines each element of the ROHPG Scheme.

- the application process;
- the equipment eligible for funding;
- the amount of funding provided through the ROHPG Scheme;
- the mechanisms for delivering funding to providers; and
- the legal mechanism for administering the ROHPG Scheme.

Part A – The application process

As noted in Chapter 3, providers may make an application for ROHPG funding at any time in the year. Eligibility for ROHPG funding is based on the applicant's response to criteria relating to:

- area of need;
- affordability of services;
- viability (private providers must demonstrate that the service is financially viable in the short and long term and public providers must demonstrate sufficient demand to justify expenditure);
- integration with multidisciplinary and patient-centred care;
- staffing; and
- implementation (i.e. that the equipment can be commissioned within a reasonable timeframe).

Of these criteria, the most influential factor in determining whether or not an application is successful is whether the equipment will be located in an area of need. The Department's area of need analysis is based on:

- regional cancer incidence projections developed by the Australian Institute of Health and Welfare (AIHW);
- projected populations throughout Australia;
- optimal radiation oncology utilisation rates; and
- the existing fleet of linacs.

This information is used to calculate the shortfall (or oversupply) of linacs needed to treat a population in a given area.

The Department's assessment of geographical areas of need is also supplemented by consultation with the relevant State or Territory government to inform the Department's assessment of applications from private providers.

There are eight main issues or challenges with the current approach to applications and the assessment of applications.

1. Currently, applications are staggered throughout the year so it is difficult to compare like applications, or applications for equipment in the same area. The Department does not get a

sense of the range of applications in any given period and cannot align this with need or best investment (value for money). For example:

- Clustering of equipment in one location (rather than in multiple locations in close proximity) may reduce workforce pressures, support more cost effective maintenance arrangements and minimise disruption for patients when machines are subject to maintenance/downtime. Yet this is not able to be considered under the current arrangements.
 - The lack of a competitive process impedes the Department's ability to assess the impact of funding replacements or upgrades, compared to funding new equipment or new providers. For example, an applicant may submit an application to establish a new facility in Liverpool. If the Department approves this application, this may mean that by the time an existing service applies to replace an older linac, the area may already have the requisite number of linacs to meet need. Costs could have been saved by approving funding for a replacement linac rather than establishing a new service (with all of the associated infrastructure costs).
 - Two private providers may wish to establish a service in the one health region. As part of their application, the providers would need to demonstrate that the services offered are affordable and they may each propose a percentage of services that will be bulk-billed, and a limit to out-of-pockets costs. As the applications are staggered, it is difficult to compare the applications to determine which application offers greater affordability for patients. Rather, if the first applicant meets the criteria, the Department is likely to approve the application. This may not, however, be the best or most cost effective proposal for the area.
2. The areas of need data and analysis is not generally publicly available. This means that applicants may waste effort applying to establish a new facility in an area where the Commonwealth is unlikely to approve funding for the establishment or expansion of a facility.
3. The Department's area of need analysis provides a reasonable benchmark from which to assess need. However, local and regional factors (not known to the Department) often provide a more nuanced view about the need in a particular area. The Department relies on the State or Territory to provide this information. For example:
- While an analysis of need in the ACT may suggest that no additional linacs are required, a closer examination would demonstrate that the ACT draws over 35% of its patients from NSW. This significantly impacts overall need in the ACT but cannot be determined based only on an assessment of the ACT's population, cancer rates and availability of equipment.
 - There may appear to be need in an outer-city area (based on a rapid increase in population in that area) but there may be centres within a 40km radius that are under-utilised or have no waiting lists. To approve funding for the new service could further harm the viability of the other services and may not represent value for money in terms of the Commonwealth investment (and maximising use of equipment already funded).
 - The data may suggest that a regional area would only need two linacs. However, if the existence of the service is well publicised, specialists begin referring locally, surgery reduces, and patients who would not otherwise have travelled to access radiation begin to access the

local service, this can very quickly drive increased utilisation rates. This can mean that a third linac is needed, despite this not being evidenced by the national area of need data.

- Each of the above factors would be known to the State/Territory but not to the Department. This is one of the key reasons that the Department consults with the State/Territory government on applications from private providers. However, private providers have legitimately argued there is little transparency in this approach because they do not have visibility of the area of needs analysis undertaken by the Department, nor the advice and evidence offered by the relevant State/Territory.
4. The nature of the eligibility criteria (and the absence of a competitive process) means that it can be difficult for the Department to refuse applications. This has, in part, led to saturation and oversupply of services in some areas.
- As the number of facilities increases and areas of need decreases, there is a greater risk of oversupply. This can also mean that the Commonwealth does not achieve value for money in terms of optimal utilisation of each piece of equipment funded.
 - For example, in jurisdictions where there are low/no waiting times, underutilisation of existing machines, spare bunker capacity and high levels of access to services within metropolitan and regional areas, there are risks associated with funding providers to buy more linacs for new centres. Some of these risks are: unwarranted competition and service fragmentation; insufficient workforce to support a number of separately owned and operated facilities; higher costs to patients where services operate on smaller volumes; and potential impact on quality and safety among existing services as a result of volume/cost inefficiencies.
5. Applicants are not required to demonstrate how the establishment (or expansion) of the service aligns with the relevant State or Territory cancer plan. Most States and Territories have a cancer plan that documents the need for radiotherapy services in that State or Territory. While health planning is the role of States/Territories (and this is reflected in the National Health Reform Agreement) many stakeholders consulted as part of this review saw the ROHPG as a de facto service planning program, rather than purely a capital funding program.
6. Some of the eligibility criteria are significantly wider than the scope and focus of the ROHPG Scheme and are not readily able to be demonstrated by applicants or assessed by the Department.
- For example, currently private providers must submit a detailed business plan to demonstrate their viability in the short and long term. The Department is not well positioned to assess such information; the viability of an organisation can change rapidly (and this will not always be known to the Department); and where there have been business failures in the past this has generally not disrupted the provision of radiotherapy services because another provider has purchased the failing provider (and the capital balance for the ROHPG funded equipment has simply been transferred to the new provider). All of these factors suggest that it is not meaningful for the Department to require, and assess, detailed business plans in order to decide whether to approve ROHPG funding.

7. There are no legislative or administrative timeframes within which applications are decided. Applications are generally decided within 2-6 months but a small number of applications have taken over a year to decide.
8. There is no public notification of those applications that have been approved nor the location in which the linac will be located. This has led to situations where a second application has been submitted for the same location as one that has already been approved. This represents wasted effort by the second applicant and also poses challenges for the Department when they are unable to disclose to the second applicant that the first has been approved.

It is proposed that these issues could be addressed by:

- the Department publishing:
 - its area of needs analysis;
 - information about all approvals, specifically the location of the equipment funded and the proposed date of commissioning. This provides increased transparency and enables better planning.
- establishing two discrete processes – one for applications for funding for replacement equipment and one for applications for new facilities or expansion of existing facilities;
- for applications for **replacement equipment**, it is proposed that:
 - applications could be submitted at any time (as is currently the case);
 - instead of applying for funding for different pieces of equipment, the applicant would apply for a Commonwealth contribution to the cost of a linac and related equipment (this proposal is discussed in more detail in the following parts of this chapter);
 - the application criteria would be streamlined, provided the relevant State or Territory government has endorsed the replacement of the linac as being consistent with the relevant State/Territory cancer plan;
 - an application could be refused if: the application is not consistent with the State cancer plan (or where there is no State plan, the equipment is not necessary based on analysis of need); or there has been non-compliance with any previous conditions of funding;
- for applications for **new or expanded facilities**, it is proposed that:
 - a call for applications would be made every two years. Based on consultations with providers, most providers plan new facilities between two and five years in advance. By conducting one funding round every two years, the Department could compare applications;
 - three months prior to the call for applications, the Department would publish the areas of need in which new or expanded facilities are required. These areas of need would be identified in consultation with States and Territories;

- the application criteria would be streamlined and could be adjusted to focus on key issues of concern or relevance.

Part B – Equipment eligible for funding

The Scheme currently funds:

- equipment used to deliver external beam radiation therapy (such as single photon and dual modality linacs);
- equipment used to deliver brachytherapy (where radiation is delivered through needles, catheters or the implantation of radioactive seeds);
- equipment used in association with radiotherapy treatment such as:
 - planning workstations;
 - simulators; and
 - Networked Information Systems.

The success of the current ROHPG program can be seen by contrasting the current average age of linear accelerators in Australia to the average linac age 10 years ago. Today's linacs are significantly younger and their average age is comparable between public and private radiation therapy providers.

The Royal Australian and New Zealand College of Radiologists, 2016

The list of eligible equipment:

- has become dated. For example, manufacturers advised that they have not sold single photon linacs since 2010;
- has expanded to include lower value equipment, including ancillary equipment; and
- includes planning workstations. Two different levels of payment are made based on whether there are three or less or four or more workstations. This no longer reflects the reality that many large facilities have significantly greater than 4 planning workstations (with some in excess of 20).

A number of stakeholders also suggested that the range of equipment funded by the ROHPG was too limited, and that funds should be made available for a broader range of equipment and software, including to reflect changes in technology. For example, it was suggested that the ROHPG Scheme should fund:

- stereotactic equipment including equipment for stereotactic radiosurgery, and stereotactic ablative radiation therapy;
- other imaging modalities such as MRI and PET equipment;
- Volumetric Modulated Arc Therapy and volumetric imaging such as kV, CBCT, MR and/or ultrasound;
- ancillary costs associated with the provision of radiation therapy;
- expensive physics equipment for calibration and dose measurement; and
- superficial or orthovoltage treatment machines (noting that this equipment generally has lower throughput and minimal MBS revenue, meaning that many private providers no longer offer this service, placing increasing pressure on the public system).

While most stakeholders suggested that a broader range of equipment should be funded, a number also noted that not all radiation oncology equipment in the marketplace should be eligible for funding. Stakeholders were invited to comment on the criteria that should be used to determine which equipment is funded via the ROHPG Scheme.

Overall, stakeholders were unable to identify clear and objective criteria that could readily be applied by the Department to determine what equipment should be eligible. One of the reasons that it is not easy to identify nationally applicable criteria is that each facility has different priorities in terms of equipment needs – there is no single set of equipment specifications that meets the needs of all providers of radiotherapy services, in a cost-effective way.

For example, a large public hospital that has a number of linacs may choose to purchase stereotactic equipment because it enables them to provide more effective treatment for paediatric cancers, and for head and neck cancers. However, a smaller regional centre may not have the expertise (and related wrap-around services) to provide such treatment, and would prefer to refer patients with complex needs to a larger hospital.

Based on consideration of the ROHPG objectives, the role of the Commonwealth in funding radiotherapy equipment, relevant literature and stakeholder views, we suggest that:

- there is limited value in attempting to define each separate piece of equipment to be funded via the ROHPG Scheme. Any detailed list is likely to become dated, and may inappropriately drive purchasing decisions;
- recognising that there is a finite Commonwealth budget for ROHPG, funding should focus on the high capital cost items that deliver the greatest benefit for patients and would be most likely to drive utilisation. For example, this would mean that the Scheme should focus on funding external beam radiotherapy rather than funding brachytherapy equipment since the latter: has low utilisation (approximately 3.3%²⁵); requires lower capital investment (approximately \$450,000 for HDR brachytherapy equipment and under \$100,000 for LDR brachytherapy equipment); and is generally only offered through larger hospitals.

Part C – Amount of funding provided through the ROHPG Scheme

The Scheme determines the price payable for eligible equipment by taking into account specifications for different models of equipment, expert advice, exchange rates, bond rates and borrowing costs.

Reimbursement rates are not based on actual prices paid for capital equipment, and no evidence of the purchase price (or lease payments) for equipment is provided to the Department as part of the application process, or subsequently.

²⁵ Barton, Prof. M, *Review of Optimal Radiotherapy Utilisation Rates*, prepared for the Department of Health and Ageing by the Ingham Institute for Applied Medical Research, March 2013, p.6

As part of this review, pricing information for linacs was obtained from the two relevant manufacturers, as well as various facilities who have recently tendered for equipment.

Based on this information, the price range for dual energy linacs appears to range from \$1.8 - \$5.5 million (with one stakeholder suggesting up to \$8 million but this was not confirmed in writing). Both manufacturers indicated that single and dual linacs were now a similar purchase price.

Some of the reasons for the significant range in price include:

- the purchasing power of the provider. Purchasers utilising period contracts or purchasing across a number of facilities are likely to be able to negotiate a better price per linac than those purchasing one linac at a time;
- the geographic location of the facility;
- the type or model of equipment being purchased (which is also influenced by the type of patients accessing services at the facility, the complexity of their cancer, and the ability to refer to other facilities with greater capacity); and
- the necessary and/or optional add-ons included in the purchase price such as:
 - warranties and maintenance;
 - installation;
 - software licenses;
 - increased equipment capacity to manage local risks (for example, increased surge protection for linacs used in areas subject to excessive lightning strikes, such as Darwin);
 - stereotactic capacity;
 - control systems;
 - integrated imaging systems; and
 - hardware updates.

Similarly, there are significant price variations in relation to planning workstations and networked information systems. The costs are influenced by: whether the systems are stand alone or integrated into the wider hospital network; the number of hospitals that are networked; the existing infrastructure at the hospital; the demands of the equipment that is networked; and how integrated the software systems are (for example, one hospital may have equipment from different manufacturers operating on different software systems and under different licences).

Dramatic price variations appear to be less of an issue for simulators, where most stakeholders quoted approximately \$1 million (with one supplier quoting up to \$2 million list price) and for brachytherapy equipment, which most stakeholders suggested was significantly lower value.

Stakeholders made a range of submissions regarding the amount funded via the ROHPG. For example, it was variously suggested that:

- funding levels should be regularly reviewed and increased, to reflect the true cost of equipment;

- the rates for planning workstations should be increased to better aligned to the real costs (and demands of a modern service);
- a regional loading should be included in the funding model;
- there needed to be more regular review of exchange rates, noting how significantly these impact the purchase price of a linac; and
- the public sector delivers more complex treatments such as total body irradiation, complex head and neck treatments, and treatment of paediatric patients and ROHPG rates should increase for such complex treatments (because the equipment required is more sophisticated and costly).

In relation to cost of borrowing, there are a further three issues:

- the 10-year government bond rate used to calculate borrowing costs for private facilities was set in November 2010 when it was 5.63%, but since then the rate has more than halved, to around 1.91% (as at August 2016). This results in a much higher level of reimbursement being made to private facilities than public facilities, and also means that the borrowing cost component of the ROHPG funding is significantly greater than the true cost of borrowing.
- private facilities can claim the cost of borrowing without needing to evidence that funds were actually borrowed to purchase the equipment; and
- The Commonwealth's formula for calculating a cost of borrowing assumes interest is payable on the total equipment cost for 10 years, which ignores the reality that the equipment capital balance reduces monthly as ROHPG payments are received. A more appropriate approach would be to base the interest calculation on the monthly, written down, capital equipment value.²⁶

The impact of the Commonwealth paying the cost of borrowing is demonstrated in the overall funding for the private sector compared to the public sector. In 2014-15 ROHPG Scheme funding paid to the public sector to purchase 120 linacs was \$33 million while \$34 million was paid to the private sector to purchase only 81 linacs.

Based on our review, and consideration of stakeholder submissions, we consider that:

- there is little value in continuing to attempt to cost each of the discrete items funded under the Scheme. The costs are too variable and influenced by too many factors and the list price quoted by manufacturers differs to significantly from the actual price paid by individual providers. Even if the prices were to be reviewed annually, they would be unlikely to adequately reflect frequent changes in interest rates and exchange rates, both of which can influence the purchase price;

²⁶ Australian Healthcare Associates for the Commonwealth Department of Health and Aged Care, *Review of Radiation Oncology Health Program Grant Funding Arrangements*, 1999, p.3

- there is legal and administrative risk to the Commonwealth if the equipment actually purchased is of lesser value than the price paid by the Commonwealth through the ROHPG Scheme. Based on discussions with stakeholders these situations do arise;
 - For example, based on 2010 manufacturer rates, the Commonwealth currently funds over \$1 million for HDR brachytherapy equipment (including borrowing costs), yet the current price quoted by manufacturers is less than \$500,000. Similarly, the Commonwealth funds \$371,175 for LDR brachytherapy (including borrowing costs) when the quotes provided by manufacturers suggest the purchase price is less than \$100,000. Some stakeholders suggested that, for a range of reasons, there has been an overinvestment in brachytherapy nationally;
- while the Commonwealth could request evidence of the price paid (and ROHPG funding reflect the actual price paid) this is likely to drive up costs and encourage providers to purchase more expensive equipment than may be necessary, based on the needs of the individual service. This may also result in cost-shifting to the Commonwealth if purchase contracts were to include, for example, maintenance costs which are generally paid by providers rather than through ROHPG funding; and
- the Scheme has, over time, expanded to include funding for software upgrades to equipment - but there is no program guidance regarding the maximum amount that may be reimbursed. Facilities apply for a certain amount and, to date, the Department has added the amount sought by the facility to the capital balance to be reimbursed. While such funding may have enabled important upgrades to occur, the lack of reference to funding levels or criteria in the guidelines means that there is a lack of transparency and an absence of a level playing field (because all providers do not know the levels of funding that they may apply for, with respect to software upgrades).

As noted in the following Chapter, one of the ways that these issues could be resolved is for the Commonwealth to pay a fixed amount that represents a contribution to equipment relating to external beam radiotherapy. Rather than separately pricing and funding each item, the Commonwealth contribution would be triggered on the purchase of a linac, regardless of the specifications or price paid for the linac (or ancillary items purchased). Provided that the Commonwealth contribution was less than the total costs for a linac (including all ancillary equipment such as workstations, simulators etc), there would be little risk that the Commonwealth was paying in excess of the true cost. Further, facilities would have the flexibility to purchase the equipment that best meets their needs.

Every 4 years, the level of Commonwealth contribution could be reviewed, (with new funding rates applied to equipment purchased after the review date only) as could the funding mechanism.

Under this model, the Scheme would cease separately funding workstations, simulators and information systems as these are all used in connection with the linac (to which the Commonwealth would be making a contribution). Funding for brachytherapy equipment would cease because:

- there is less need for the ROHPG Scheme to fund brachytherapy equipment because there are fewer barriers to the purchase of such equipment - equipment is relatively low cost); and
- it has a low utilisation rate (3.3%).

Some stakeholders also suggested that there has been overinvestment in brachytherapy, driven in part by funding available through the ROHPG Scheme.

Part D – Payment mechanisms and schedule

The Scheme pays funds over the notional life of the equipment. For linacs, a notional life is 10 years, or 82,800 services.

ROHPG payments are made in connection with the number and type of MBS services provided.

The main issues associated with the current payment arrangements are:

- the ROHPG payment is linked to MBS claims and can provide incentives for protracted fractionation. While this incentive exists by virtue of the way that MBS items are paid, the incentive is increased when ROHPG payments are also linked to the number of times that the MBS item is claimed (i.e. the number of discrete treatments); and
- the process for claiming ROHPG is cumbersome:
 - Each month, the Department of Human Services (DHS) processes payments for both public and private facilities based on the number of MBS eligible services that have been delivered on each piece of funded equipment.
 - ROHPG payments to public facilities are based on an automated ‘sweep’ of Medicare claims from the previous month. Private facilities generate a separate data file which is submitted by individual facilities via secure email during the first week of each month. These files are manually checked by DHS staff, and uploaded to the Medicare mainframe.
 - DHS then produces three reports: a private facility payment report; a public facility payment report; and a private facility error report. Private facilities use the error report to correct their claims and re-lodge them the following month.
 - The payment reports are used to populate a payment summary spreadsheet, which is checked by DHS before being forwarded to Health. Health extracts the payment information that is relevant to the Department of Veterans’ Affairs (DVA), and provides it to DVA for delegate approval.
 - The Health and DVA delegates each approve their respective payments in writing, authorise the transfer of funds to DHS, and notify them that the funds are available for disbursement

The ROHPG provides a strong incentive for radiation oncology departments to conserve the quality of cancer care by funding the replacement of equipment once it has reached its agreed lifespan. Treatment access is improved and the drain on an already fragile workforce is lessened by the ability of departments to keep equipment current.

Radiation Oncology Specialty Group of the ACPSEM

to the providers. Payments are then made to providers, and payment reports and confirmation letters are also sent to each provider in respect of each facility²⁷.

- tying funding to notional life and notional services disadvantages facilities with lower patient activity and service usage. These typically include some regional and remote facilities, and facilities providing services to patients with more complex cancers where there is lower throughput and greater demands on the equipment. Patients with more complex cancers (e.g. head and neck) predominantly access services through larger public hospitals who also provide the necessary support services. The key beneficiaries of the existing funding model are those who have high throughput for treatment of less complex cancers (areas increasingly being targeted by the private sector).

There are a range of factors that impact on the throughput of linacs including:

- the specialisation of the facility. Facilities that are delivering highly specialised treatments or full body radiation, may have significantly lower throughput. Further, increasing usage of dynamic and intensity modulated treatments together with hypofractionated treatment regimens mean that there can be very significant differences between:
 - types of machines;
 - the nature of the treatment they deliver (in terms of number of machine movements required);
 - the number of monitor units required to deliver equivalent doses with different delivery techniques; and
 - the number of patients treated on a daily basis;
- the number of linacs at the facility. Some facilities with a higher number of linacs may have a lower overall average number of services because 1 or more linacs are being used for clinical trials, training or as back-up equipment;
- hours of operation. Facilities with longer operating hours, generally located in metropolitan areas, have the capacity to service a higher volume of patients; and
- location of the facility. While some regional linacs have very high throughput, some locations do not have an adequate population to support maximum throughput. For example, while the Alan Walker Cancer Centre in Darwin had the capacity to treat 700–800 patients annually, the low population of the Northern Territory means that only approximately 350 patients are treated annually. As a result, the total amount of ROHPG Scheme funding accrued when a linac reaches the end of its notional life in Darwin is substantially less than that accrued by a linac located in a metropolitan area with a higher population and throughput.

To demonstrate this point, data on the number of services for linacs funded under the ROHPG Scheme for the period 2014–2015 indicates that while the average number of services per linac per year is 5,953 there is a dramatic range in practice:

²⁷ Information on ROHPG claiming processes is derived from the ANAO Report.

Centre	Location	Number of linacs	Number of services per linac
Alan Walker Cancer Centre	Darwin	2	2,864
Townsville General Hospital	Townsville	3	7,000
Epworth Radiation Oncology	Melbourne	2	8,093
Oceania Oncology Sunshine Coast – Maroochydore	Maroochydore	2	9,334
Flinders Private Hospital	Southern Adelaide	2	9,857
St Vincent’s Clinic (distinct from St Vincent’s Hospital)	South Eastern Sydney	1	10,602

Some stakeholders suggested that throughput would be significantly higher in private facilities because, according to them, private providers are more efficient, often have longer opening hours and provide less complex treatments than public providers. While data shows that throughput is, on average, higher in private facilities, the difference is small. In 2014-15 the average number of services per linac in public facilities was 5,755, while the average number of services per linac in private facilities was 6,175. This represents only 6.7% difference between the average throughput of private and public facilities.

In discussions with stakeholders, it was generally agreed that both the number of services and number of radiation fields are inadequate measures of linac usage, and that notional years probably continues to be the most meaningful measure.

Based on our review of the Scheme, we consider that one key change could be made to the payment system in order to improve the efficiency of the Scheme. ROHPG payments could be delinked from MBS payments such that ROHPG payments are not dependent on throughput.

For example, if a facility was successful in achieving \$3 million in Commonwealth contribution for a linac, an annual payment of \$300,000 could be made for 10 years.²⁸

This would:

- remove the need for private providers to submit monthly data to DHS;
- minimise the workload for DHS;
- reduce the risk of incentivising protracted fractionation (because ROHPG payments would not be made more frequent based on throughput); and

²⁸ Please note that the figure of \$3 million has been used, by way of example only, throughout this report. If the Commonwealth were to make changes to the ROHPG Scheme such that the Commonwealth made a set contribution (as recommended), further work would need to be done to identify the appropriate dollar value for the Commonwealth’s contribution. This would also depend on Commonwealth priorities and the level of ongoing funding available for the ROHPG Scheme.

- mean that facilities in areas with smaller populations would not be disadvantaged relative to those in more populated areas. The ROHPG Scheme would recognise that, regardless of throughput, each facility has expended significant funds to purchase the linac and all providers would receive the same contribution from the Commonwealth, paid in equal instalments over a 10-year period.

A 10-year payment period is recommended, based on the advice of stakeholders and relevant reviews:

- during consultations to inform this review, we asked each stakeholder what was a reasonable notional life for a linac, for the purposes of ROHPG Scheme funding. All stakeholders confirmed that 10 years was reasonable for the purposes of ROHPG funding (noting that some equipment may have a shorter life based on usage and/or intervening events such as unexpected water damage from flooding);
- the RANZCR submission to the Department (as part of this review) noted that a linac typically reaches its expected throughput after 10 years, and that treatment availability is improved through less downtime and improved reliability of newer linacs²⁹;
- the Baume report noted the difficulty of determining where the usefulness of a linac ends, but stated that “although a linac does not automatically become outdated in 10 years, equipment over 12 years old might reasonably be expected to have more limited clinical use and require more maintenance”³⁰; and
- the ACIL Allen Consulting Report *Funding Radiotherapy Equipment: an International Review*, confirmed that after ten years, linacs are no longer able to provide best practice treatment.³¹

Part E – Conditions of funding

As noted in Chapter 3 there are two substantive conditions of funding – one relevant to private providers, and the other to public providers.

Private providers are asked to specify in their application how they will ensure that the services are affordable. Private providers generally commit to bulk-billing a percentage of patients, and to demonstrating that any out-of-pocket fees will not adversely impact patient access. If applicants volunteer that they will bulk-bill a percentage of patients (or cap out-of-pocket costs), this is reflected as a condition of funding. The main problems with this approach are:

- affordability conditions are not consistently applied to all private providers and in many cases are based on what was suggested by the provider. There are approximately 17 facilities to which affordability conditions apply. Of these, some facilities are subject to a condition that

²⁹ The Royal Australian and New Zealand College of Radiologists (Faculty of Radiation Oncology), *Submission: Radiation Oncology Health Program Grant Funding*, February 2016, p.5

³⁰ Baume, Prof P, op.cit., p.99

³¹ Acil Allen Consulting, *Funding Radiotherapy Equipment: an International Review*, Report to the Department of Health, September 2013, p.vii

they charge no more than the MBS schedule fee; some must charge no more than 130% or 150% of the MBS schedule fee; some have conditions relating to the percentage of patients who must be bulk billed; and some have conditions relating to the type of patients that must be bulk billed (for example certain concession card holders);

- there are no benchmarks relating to an appropriate percentage of patients to be bulk-billed, nor any benchmarks regarding out-of-pocket costs; and
- provider compliance with any conditions relating to bulk-billing or out-of-pockets costs is not monitored by the Department.

Public providers are required to have a bank account, under the sole control of the organisation and separate from its other bank accounts, into which all payments are to be paid. The purpose of this condition is to minimise the risk of ROHPG funding being used for general hospital expenses rather than for the purchase of high-value capital equipment to support the delivery of radiotherapy services. During consultations, some State and Territory governments strongly supported the quarantining of funds and others noted that, in the absence of enforcement by the Commonwealth, funds had not always been quarantined.

The major benefit of the ROHPG scheme is that the funds are quarantined for replacement equipment which makes the replacement process easier and timelier. Linear accelerators cost approximately \$3M each and WA Health has 5 of them, plus a CT scanner, a HDR brachytherapy system, various Treatment Planning Systems and IT infrastructure, all of which, without ROHPG, would struggle to find the funds to replace this equipment once it had reached its end of 10-year lifespan.

WA Health

Most public sector stakeholders noted that a major benefit of the ROHPG Scheme is that, for public providers, the quarantining of funds has made the replacement process easier and more timely. The linking of capital balances to specific pieces of equipment also supports the case for replacement.

Overall, stakeholders supported the continuance of conditions relating to bulk-billing and out-of-pocket costs for private providers, and quarantining of funds by public providers.

A number of stakeholders also suggested that the ROHPG Scheme should be used as a lever to better promote safe and quality practice including by:

- linking ROHPG scheme funding to compliance with the Radiation Oncology Practice Standards; and
- requiring regular independent dosimetry audits;
 - In 2008 a major Australian hospital experienced a situation whereby the delivery of radiation therapy occurred at lower levels than was prescribed. The release of a report into the situation, gave rise to a 6 year trial of a national independent radiation dosimetry auditing service – the Australian Clinical Dosimetry Service (ACDS), managed by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).

- In 2013, KPMG undertook an independent evaluation of the ACDS. The resultant Report noted the difficulties associated with quantitatively measuring the extent to which the ACDS had contributed to its key goals of assuring dose accuracy, or improving radiotherapy dosimetric practice. However, stakeholders audited by the ACDS consistently stated that the ACDS had made a positive contribution to improving practice in their facility, particularly by focusing attention on dosimetry quality assurance. Information provided by the Department indicates that as a result of its audits, the ACDS made over 100 recommendations to more than 70 facilities, resulting in clinical protocols being modified, equipment being removed from use, software being update and/or measurement equipment replaced.
- Building on the success of the ACDS, a number of stakeholders suggested that a condition of ROHPG funding should be evidence of regular independent dosimetry audits. The audits could be done by the ACDS, or by another independent organisation. For example, some States and Territories utilise teams from other jurisdictions to audit their equipment, and end-to-end dosimetry processes. There may also be private providers entering the Australian market, based on overseas experience.

In the future, it is suggested that:

- any conditions of funding should be consistent with the scope and objectives of the ROHPG Scheme;
- the ROHPG Scheme should avoid duplicating requirements mandated through other mechanisms;
- the ROHPG Scheme should only apply conditions of funding in order to address an identified risk or clear problem; and
- if conditions are to be mandated through the ROHPG Scheme, compliance with the conditions should be monitored and any non-compliance considered in the context of future applications for funding by the provider.

Applying these criteria, it is recommended that:

- all public providers continue to be subject to a condition relating to the quarantining of ROHPG funds. This manages the risk of cross-subsidisation of other hospital expenses by public providers, and creates a pool of funds for State governments to draw on for future purchases;
- all private providers continue to be subject to conditions to support affordability. However, in the future, such conditions should be uniformly applied. It is proposed that:
 - patients holding the following cards should be bulk billed: Pensioner Concession Card; Commonwealth Seniors Health Card; Health Care Card; Low Income Health Care Card; and DVA White or Gold card holders; and
 - all other should patients be charged no more than a set percentage of the MBS schedule fee (for example, 130% of the MBS schedule fee). It is recommended that this percentage be confirmed in consultation with stakeholders, and taking into account any changes that are made as the result of the MBS review.

These conditions manage the risk of overcharging by private providers which can adversely impact affordability and access;

- all facilities be subject to a condition requiring independent dosimetry audit. The audit program would be based on a four-year cycle with different audit levels across the cycle (consistent with the approach adopted by the ACDS). For example, one Level I audit every two years, one Level II audit every four years, and one Level III audit every four years. This would enable analysis of the end-to-end dosimetry processes and minimise the risk of inappropriate dosing;
- all providers would be subject to a condition that linacs older than 13 years are not used to deliver MBS rebated services. While the ROHPG funds for the equipment will have been paid out in 10 years (and as such non-compliance could not lead to a reduction in funding for that piece of equipment) the non-compliance could be considered when the provider next applies for ROHPG funding for a new piece of equipment; and
- the Department monitors compliance with conditions of funding. This could be done through an annual audit program (whereby a certain percentage of facilities were audited annually) or by requiring, as part of an application for future funding, demonstration of compliance with the relevant conditions in respect of all other facilities managed by the provider seeking new funding.

It is not recommended that the Department mandate compliance with the Radiation Oncology Practice Standards. This is because:

- there is significant overlap between the Radiation Oncology Practice Standards and the National Safety and Quality Health Service Standards. Based on the advice of stakeholders, we understand that all public and private providers are currently required to meet the National Safety and Quality Health Service Standards; and
- if the standards were to be mandated, a system of accreditation would need to be developed. This would require: development of accreditation tools to measure performance against the standards; identification of organisations to undertake the accreditation (such as the Australian Council on Healthcare Standards); a process for remedying non-compliance; and identification of the consequences of non-compliance (for example reduction or removal of ROHPG funding). While all of this is possible, it would come at a cost for providers and also to the Commonwealth. Such cost would be justifiable if there was a clear problem that mandating the standards was intended to address.

However, based on discussions with stakeholders (and review of recent reports about radiotherapy services in Australia) there is no clear case for increasing regulation, because there is no evidence that risks are not being managed. The one area that stakeholders consistently noted was critical for ensuring safety and patient confidence, related to dosimetry. By mandating regular independent dosimetry audits, this would address the most significant risk (inappropriate dosing) without needing to mandate the entire set of Radiation Oncology Practice Standards or generate duplicative regulatory requirements.

Individual providers may still choose to comply with the Radiation Oncology Practice Standards and individual jurisdictions may also choose to mandate compliance as part of their broader quality systems. However, it is not considered appropriate that this be mandated via the ROHPG Scheme.

Part F – Funding mechanism

The legislative basis for the Scheme is found in Part IV of the *Health Insurance Act 1973* (the Act). The Act does not refer specifically to radiotherapy, but sets out conditions for the Minister (or delegate) to approve a broad range of Health Program Grants. The Act also requires facilities to be approved by the Minister for Health or delegate prior to receiving funding under the Scheme.

The ROHPG Scheme is the only grants program scheme still in existence under Part IV of the Act.

While the mechanism for funding via Part IV lacks clarity and can be confusing (noting the need for organisations to be approved as an organisation under the Act; offer an approved health service; be successful in their application for funding for equipment; and meet certain conditions with respect to funding), it provides an effective mechanism for administering the Scheme. Alternative mechanisms are likely to be more cumbersome, or inappropriate in the context of broader health funding policy. Three alternative mechanisms are described below.

Transition to a more traditional grants program

The Scheme could be administered through a more traditional grants program whereby the Department calls for proposals, assesses proposals, notifies applicants of the outcome of their application for funding and enters into funding agreements (contracts) with the successful applicants. The funding agreements generally include milestones that must be met before payments are made under the agreement.

The disadvantages of this approach are:

- each time the Department wishes to approach the market:
 - approval would be required to expend funds, and a cap would be set on the total funding available through the grant round. Program expenditure would no longer be demand-driven as it currently is;
- any grant process must be consistent with whole-of-government grants guidance;
- there would be less certainty for stakeholders in terms of ongoing funding (but also greater flexibility for government in reducing or consolidating funding in the future); and
- while it may be possible to transfer existing providers and facilities to more traditional funding agreements, the Department would likely need to manage existing funding through the ROHPG Scheme (i.e. the Part IV mechanism) and new funding through funding agreements. This would increase administrative burden, to both the Department and providers, in the short to medium term (i.e. 10 years).

The advantages of managing the program through a more traditional grants approach include:

- it maintains Commonwealth investment in capital equipment for radiotherapy services, but grants would be managed in a consistent manner with other capital grant programs across the Department (it 'mainstreams' the ROHPG Scheme);
- there are well established whole-of-government processes for capital grants. While there would be initial disruption, over the longer term the program could be managed like many other grant programs (thus increasing efficiency). That is, the program could be managed consistent with the 1,000+ capital grant activities currently managed by the Department. These include a wide range of programs such as funding for the purchase of beach safety equipment and establishment of residential rehabilitation services in Indigenous communities;
- management of funding agreements could occur through the Department's Grants Office (potentially reducing administrative costs); and
- Part IV of the Act could be repealed.

Roll the capital funding into the MBS rebate

Prior to the introduction of the ROHPG Scheme, the Commonwealth's contribution to the cost of capital equipment was paid to providers as part of the MBS schedule fee. When the ROHPG Scheme was established in 1988, capital payments were separated from the MBS schedule fee.

One option would be to abolish the ROHPG Scheme and return to the situation whereby the MBS schedule fee (for relevant items) would include both a capital contribution and service delivery elements. Some of the advantages, disadvantages and issues associated with this approach are:

- it removes the need for a discrete program for capital funding;
- funds would no longer be quarantined for the purchase of capital equipment. When the Commonwealth's contribution was made through the MBS schedule fee (prior to 1988), State and Territory governments were not able to quarantine their accumulated funds for use specifically on replacing old equipment. Based on stakeholder feedback, a return to this situation this would greatly increase the risk of funds being unavailable when the time comes for replacement of high-value capital equipment, and would risk a return to the situation where equipment was used for well in excess of 15 years (as was the case prior to the introduction of the ROHPG Scheme);
- there would be administrative efficiencies for the Department (as it would no longer operate the ROHPG Scheme);
- careful consideration would need to be given to the changes needed to the MBS items and to the appropriate schedule fee. Poor execution could lead to increased costs to the Commonwealth; and
- it would require significant lead time for implementation.

This approach was strongly opposed by stakeholders, and is not recommended for the reasons detailed above.

Provide capital funding for States and Territories via the National Health Reform Agreement or National Partnership Payments

As an alternative to the ROHPG Scheme, capital funding could be provided to States and Territories via existing Commonwealth/State funding mechanisms. For example, funding for the purchase of capital items for radiotherapy services could be provided to State and Territory governments via the National Health Reform Agreement. Alternatively, under the Intergovernmental Agreement on Federal Financial Relations, the Commonwealth may make National Partnership Payments to States and Territories including to support specific projects.

The key advantages and disadvantages of this approach are:

- it removes the need for a discrete ROHPG Scheme for capital funding and there would be administrative efficiencies for the Department (as it would no longer operate the ROHPG Scheme);
- it is not consistent with the terms of the existing National Health Reform Agreement, whereby States and Territories are responsible for funding capital items in hospitals, and the Commonwealth provides activity-based funding; and
- it would not provide a mechanism to fund private providers (unless such funding was via States and Territories which would provide uncertainty to private providers).

This option would not be recommended unless a decision was first taken by Government that there was no longer any need to fund private providers for the cost of high-value capital equipment for radiotherapy services. This review has not examined the viability of the private sector or the impact of removing capital funding entirely (noting that 51% of facilities are operated by private providers).

Provide capital funding via an interest free loan

Another option available to the Commonwealth would be to provide funding by way of low-interest or interest-free loans. This is an approach that the Commonwealth has adopted in other arenas.

For example, the Zero Real Interest Loans (ZRIL) program provided low-cost loans to residential aged care providers to assist with the construction or extension of residential aged care facilities in areas of high need. Through this program \$608 million in loans were offered to providers around Australia. The program has now ceased, but the Commonwealth continues to provide capital grants to eligible providers seeking to establish residential care services in areas where access is impeded because of geographic location, inadequate supply of residential care including for people with special needs, or lack of access to sufficient non-grant funding to undertake essential capital works.

In the United Kingdom some radiotherapy equipment is funded through a lump-sum loan rather than a grant and the tariff earns the revenue necessary for the service to repay the loan in the

future.³² While this would be an option in Australia, it is unlikely that this would be attractive to State and Territory governments (noting that State and Territory governments do not generally borrow to purchase radiotherapy equipment and nor do they claim borrowing costs through the ROHPG Scheme).

Replace the ROHPG with a scheme based on disincentives

By contrast to the ROHPG Scheme (that encourages providers to replace aged equipment through a Commonwealth capital contribution), in the case of diagnostic imaging, MBS rebates are reduced if the equipment is beyond a certain age.

For example, the *Diagnostic Imaging Capital Sensitivity Measure* encourages improved quality of diagnostic imaging services by providing a higher rate of MBS rebate for services performed on new or upgraded equipment. 50% reduced rates apply to equipment that is beyond its effective life age. Exemptions apply for equipment in outer regional, remote and very remote areas and the Department may also grant exemptions in special circumstances.

The key differences between the two sectors include:

- the significantly greater capital cost associated with radiotherapy equipment compared to diagnostic imaging equipment; and
- the fact that radiotherapy is a treatment service rather than a diagnostic service. Whereas diagnostic imaging already has high utilisation (and in some cases the Commonwealth's focus is on reducing unnecessary utilisation of diagnostic imaging services) the Commonwealth's focus differs for radiotherapy where utilisation rates are lower than optimal and where increased utilisation is desirable.

On balance, it is not considered that a disincentives-based scheme would be as effective as the current ROHPG Scheme, in driving the establishment of cancer centres in regional areas or encouraging replacement of aged equipment in both public and private facilities. However, the risk of providers utilising equipment beyond 13 years could be minimised by including, as a condition of ROHPG funding, that equipment must not be used beyond 13 years. While ROHPG funding will have been paid out within 10 years, evidence of non-compliance could be used as a ground on which new applications for funding (by the same provider) could be refused.

³² Acil Allen Consulting, *Funding Radiotherapy Equipment: An International Review*, Report to the Department of Health, September 2013, p.viii

Chapter 6 – Recommendations

The preferred option will depend on the Commonwealth's appetite for change and whether the Commonwealth seeks to reduce, maintain or increase overall funding for capital equipment for delivery of radiotherapy services. As noted in this report, a special case can be made for continuation of the ROHPG Scheme (despite the Commonwealth not generally providing ongoing capital payments to public hospitals or private providers) because of:

- increasing cancer rates;
- the high cost of radiotherapy equipment used to treat cancer (the highest capital cost of any equipment used in health service delivery);
- the impact that patient access to linacs has on utilisation of radiation as a cancer treatment;
- the effectiveness of radiation as a treatment; and
- the risk to the viability of privately provided regional services, should funding be ceased.

Should the Commonwealth wish to continue funding capital equipment for radiotherapy services, it is proposed that the ROHPG Scheme be maintained (rather than adopting an alternative funding mechanism). However, as identified in this report, a number of changes could be made to the ROHPG Scheme to:

- improve efficiency;
- increase transparency;
- better align with broader health policy and funding;
- achieve value for money for the Commonwealth;
- reduce unnecessary burden on providers; and
- re-position the role of the Commonwealth such that there is less focus on the Commonwealth:
 - influencing the planning of radiotherapy services when this responsibility properly rests with States and Territories;
 - driving the types of equipment purchased when such decisions are best made by individual providers based on patient need; and
 - providing funding for all radiotherapy equipment. Instead the Commonwealth's focus would be on making a contribution to high value capital items only.

Following is a summary of the recommended approach. Please note that the recommended approach would also address the recommendations from the ANAO audit, as detailed on page 11 of this report.

Issue	Existing	Proposed
<p><i>Application process and eligibility for funding</i></p>	<p>Process:</p> <ul style="list-style-type: none"> • Applications may be submitted at anytime • No timeframe for assessment – ranges from 3 months to 2 years • No transparency re applications approved <p>Criteria:</p> <ul style="list-style-type: none"> • Area of need • Affordability of services • Viability • Private – that service is financially viable in short and long term • Public – Sufficient demand to justify expenditure • Multidisciplinary and patient-centred care • Staffing • Implemented within a reasonable timeframe 	<p>Replacement equipment</p> <ul style="list-style-type: none"> • Application submitted at any time • Streamlined criteria: <ul style="list-style-type: none"> – Confirmation from State re ongoing need and utilisation – Consider record of compliance with funding conditions • Decision within 30 days • Location of approved equipment published • If replacement is in less than 10 years, unpaid funds would be deducted from amount to be funded for replacement. <p>New facilities or expanded facilities</p> <ul style="list-style-type: none"> • Applications submitted during a set period, once every 2 years • Criteria: <ul style="list-style-type: none"> – must be in area of need as identified by Department based cancer incidence, population, health areas, and consultation with State/Territories. Areas of need published in advance of applications being submitted – State Government must have endorsed the application and confirmed that facility is needed, consistent with State planning – reflect Commonwealth priorities. • Applications compared to each other based on relative ability to meet criteria – value for money, quality, affordability and access • Decision within 120 days • Location of approved equipment published
<p><i>Equipment/items eligible for funding</i></p>	<p>Scheme funds 11 discrete items</p> <ul style="list-style-type: none"> • High value, commonly used equipment (linacs) (2 types) • Equipment associated with delivery of treatment such as simulators, planning workstations and networking costs (7 levels/types) • Lower value, brachytherapy equipment (2 types) <p>Scheme not keeping up with technology</p> <p>Funding ‘pooled’, no evidence of purchase of items or price</p>	<p>Scheme does not fund discrete items.</p> <p>Scheme contributes to the high purchase cost of an external beam therapy (linacs).</p> <p>Scheme does not require regular review of funded items because it is agnostic as to the specifications of the linac (this should be the decision of the service).</p>

<p>Price/Amount funded</p>	<p>Scheme determines price for each item</p> <ul style="list-style-type: none"> • Takes into account exchange rates, bond rates, borrowing costs, expert advice, specifications for different models of equipment • \$ value of funding is set for each item (with/without borrowing) • \$ value ranges from \$289,000 to \$4.6m • \$ value may be in excess of actual cost of equipment <p>Lack of clarity re ‘add ons’ that funding may be used for (e.g. ancillary items, software or hardware upgrades etc)</p>	<p>Scheme contributes a set amount regardless of the type of linac or the add ons that are purchased – e.g. \$3m.</p> <p>The dollar value to be contributed by the Commonwealth would depend on whether the Commonwealth sought to maintain, reduce or increase overall funding through the ROHPG.</p> <p>Every 4 years, review the level of Commonwealth contribution (with new funding rates applied to equipment purchased after review date only), and the funding mechanism.</p>
<p>Payment schedule</p>	<p>Scheme pays funds over the notional life of the equipment. For linacs, notional life is 10 years or 82,800 services</p> <p>Scheme makes payments monthly based on number of MBS services for which ROHPG is payable</p>	<p>Capital payments delinked from MBS services. Capital payments agnostic re the type or complexity of service that is delivered on the equipment (pricing of the service is properly the domain of MBS and is not directly related to the cost of the equipment). Scheme makes 10 equal instalments (contribution to capital) over 10 years. E.g: \$300,000 per year for 10 years (total \$3m).</p>
<p>Key conditions of funding</p>	<p>Private:</p> <ul style="list-style-type: none"> • Optional condition re bulk billing and out-of-pocket costs <p>Public:</p> <ul style="list-style-type: none"> • separate bank accounts for payment • grant monies must be used solely for refurbishing or acquiring radiation oncology equipment at the location in respect of which the grant payment was made <p>Linacs can continue to be used for longer than 10 years. While providers no longer receive ROHPG funding, MBS rebates continue to be paid in respect of services provided on equipment past its notional life.</p>	<p>Private</p> <ul style="list-style-type: none"> • Consistent conditions relating to bulk billing and maximum out of pocket costs <p>Public</p> <ul style="list-style-type: none"> • Quarantined funds (public providers only) <p>All</p> <ul style="list-style-type: none"> • New facilities must be operational within 2 years • Independent dosimetry audits • Linac must not be used to provide MBS rebated services after 13 years
<p>Funding mechanism</p>	<p>Continue to use <i>Health Insurance Act 1973</i></p>	<p>Continue to use <i>Health Insurance Act 1973</i></p>

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Attachment A – Glossary

The following glossary of terms has been drawn from the *Position Paper Techniques and Technologies in Radiation Oncology 2015 Horizon Scan, Australia and New Zealand*, produced by the Faculty of Radiation Oncology, RANZCR

Brachytherapy	A type of radiation therapy where radioactive substances are positioned also called internal radiation therapy. Brachytherapy is commonly used as an effective treatment for cervical, prostate, breast, and skin cancer and can also be used to treat tumours in many other body sites
External Beam Radiation Therapy	The most common form of radiation therapy, which directs the radiation at the tumour from outside the body. With external beam radiation therapy, the dose is usually delivered by a linear accelerator, which can produce radiation beams from different angles by rotating the accelerator “arm” (the gantry).
Helical Intensity Modulated Radiation Therapy (IMRT)	An external radiation therapy technique to deliver therapeutic doses of radiation to a tumour or cancer inside the body. The term ‘helical’ is used to indicate the fact that both the gantry and the couch move during helical tomotherapy, while standard external beam radiation therapy from a linear accelerator involves only the movement of the gantry, not the couch during treatment.
Intensity Modulated Radiation Therapy (IMRT)	Intensity modulated radiation therapy is a radiation therapy technique spare nearby critical normal tissue.
HybridArc Intensity Modulated Radiation Therapy (IMRT)	A radiation therapy technique that allows radiation to be more closely shaped to fit the tumour and spare nearby critical normal tissue.
kV Imaging	Kilovoltage X-rays used to take films closer to diagnostic quality and fluoroscopy.
Linear Accelerator (Linac)	The device most commonly used for external beam radiation treatments for patients with cancer. The Linac is used to treat all parts/organs of the body. It delivers high-energy -rays to the region of the patient’s tumor. These x- ray treatments are designed in such a way that they deliver radiation to cancer cells while sparing the surrounding normal tissue. The Linac is used to treat all body sites, using conventional techniques, Intensity-Modulated Radiation Therapy (IMRT), Image Guided Radiation Therapy (IGRT), Stereotactic Radiosurgery (SRS) and Stereotactic Body Radiation therapy (SBRT).
MV Images	Megavoltage images (images taken on the Linac)
Radiation Oncologist (RO)	postgraduate training in radiation cell biology and management of patients with cancer, in particular involving the use of radiation therapy (also called radiotherapy) as one aspect of their cancer treatment. They also have expertise in the treatment of non-malignant conditions with radiation therapy. Radiation oncologists work closely with other medical specialists, especially surgeons, medical oncologists, pathologists, radiologists (diagnostics) and palliative care physicians, as part of a multidisciplinary team caring for patients with cancer.
Radiation Oncology Medical Physicist (ROMP)	A medical Physicist has substantial tertiary qualifications in physics and applies their knowledge of the principles of physics to the care of patients. Radiation oncology medical physics is the application and development of the principles and techniques of physics for the therapeutic use of ionising radiation.
Radiation Therapist (RT)	The Radiation Therapist is an allied health professional who works in the field of radiation oncology. Radiation therapists plan and administer radiation treatments to cancer patients.
Radiation Therapy	A treatment for cancer and a number of non-malignant conditions, which uses highly precise doses of radiation to kill abnormal cells while minimising doses to the surrounding healthy tissue. It has a major positive impact on local cancer

	control and is a highly effective therapy for control of cancer symptoms such as pain.
Stereotactic Radiation Therapy (SRT)	<p>SRT is a form of external radiation treatment used to eradicate cancerous growths. With SRT, a series of precise radiation beams are aimed at a tumour from many different directions.</p> <p>Stereotactic Radiation Therapy (SRT) utilises the principles of Stereotactic Radiosurgery for localisation, and fractionation regimes that are based on conventional external beam radiation therapy.</p> <p>SRT often is used to treat cancers in the radiation-sensitive areas of the brain, head and neck — but it can often be used in other locations where radiation is effective.</p>
Treatment Planning	The process in which a team consisting of radiation oncologists, radiation therapist and medical physicists plan the appropriate external beam radiation therapy or internal brachytherapy treatment technique for a patient with cancer.
Volumetric Modulated Arc Therapy (VMAT)	VMAT is a new type of intensity-modulated radiation therapy (IMRT) treatment technique that uses the same hardware (i.e. a digital linear accelerator) as used for IMRT or conformal treatment, but delivers the radiation therapy treatment using rotational or arc geometry rather than several static beams.