



# Executive Summary

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# Introduction

*A strong radiation oncology sector is indispensable for an effective cancer control strategy. Radiotherapy contributes 40% of cancer cures and will remain a vital component of cancer care.*

Radiotherapy can be used to treat almost all cancers, anywhere in the body. Radiation oncology has a major positive impact on local cancer control and is a highly effective therapy for the control of cancer symptoms such as pain. A key advantage of radiation oncology is that it is an effective and non-invasive anti-cancer treatment without any major associated mortality risk.

To prepare Australia for the increasing cancer incidence, expansion of radiation oncology services should be enacted in a planned and sustainable way. Over half of all new cancer patients need radiotherapy. Currently, access to radiation oncology services remains a problem for many Australian patients.

*At least 18,000 cancer patients will not receive potentially beneficial radiotherapy treatment in 2012. This number will grow to 24,000 in 2022 if current issues are left unaddressed.*

Those patients who miss out on clinically appropriate radiotherapy treatments can be adversely affected. The consequences can include compromised health outcomes, premature death, inadequate symptom control, reduced quality of life and increased suffering.

Radiation oncology is distinguished by several important characteristics: integrated multiprofessional practice; reliance on custom-built facilities and specialised equipment; and out-patient treatment regimens.

Past experience indicates that fiscal constraints can hamper effective policy approaches. In this context, the well-established cost effectiveness of radiation oncology is a strong incentive for policy action. Active engagement and collaboration between the professions, consumers and government is necessary for implementation of all initiatives and policies.

*Australia must act now to maintain existing gains in the provision of quality radiation oncology services and to meet current and future demand among cancer patients.*

Equity of access to high quality care for all Australian cancer patients underpins 'Planning for the Best: the Tripartite National Strategic Plan for Radiation Oncology (Australia) 2012-2022'. The Plan includes a series of recommendations in the areas of quality, resources, access and research to deliver timely, affordable and world-class radiation oncology services to Australians.

Ongoing investment in radiation oncology must remain a national priority.

# Radiation Oncology Services in Australia - Key Issues

## Issues impacting on the quality of service provision

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- Fragmented planning of specialist oncological services, radiation oncology infrastructure and workforce;
- Variability in access to timely radiotherapy treatments across both geographic locations and cancer types;
- Lack of implemented and permanent national initiatives focused on quality and safety, including:
  - Radiation Oncology Practice Standards for facilities are not mandatory;
  - There is no nationally implemented minimum radiation oncology dataset to guide planning;
  - There is no incident monitoring system across Australia that is appropriate for radiotherapy;
  - Australian Clinical Dosimetry Service is funded only as a pilot.
- Problems persisting with the timely and safe introduction, evaluation, uptake and patient reimbursement for modern techniques and technologies in radiation oncology.

## Resources to support the delivery of services

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- The current numbers and trends in the availability of workforce and linear accelerators (linacs) are not sufficient to meet the target optimal utilisation rate of 52.3% of new cancer patients either in 2012 or in 2022;
- There is a lack of effective coordination between bodies responsible for workforce, resources and infrastructure planning;
- A critical barrier for patients to access radiotherapy is their proximity to radiation oncology facilities;
- Appropriate imaging and specialised radiotherapy techniques (such as IMRT) are not cohesively incorporated into service plans and infrastructure planning;
- Ongoing resourcing for the national program of equipment replacement within agreed lifespans is essential to ensure that radiotherapy equipment is kept current.

## Access to services for rural and regional patients

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There are multiple barriers for rural and regional cancer patients to access services:

- The availability of quality and timely cancer care;
  - Financial burden of cancer and its treatment has a disproportionate impact on patients based on their geographical location;
  - Travel to receive treatments and the associated social burden;
  - Opportunities in communications technology still waiting to be harnessed to improve care and patient convenience;
- Rural and regional radiotherapy centres face challenges with recruitment and retention of workforce;
- Lack of effective coordination in service planning and workforce development for rural service provision.

## Access to services for Aboriginal and Torres Strait Islander patients

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Indigenous Australians have unique needs with respect to radiation oncology for the following reasons:

- Different patterns of cancer incidence compared to non-Indigenous Australians;
- Later diagnosis and lower survival;
- Continued disadvantage in accessing treatments;
- Cultural considerations;
- Limited data and research on Indigenous cancer care, particularly in metropolitan settings.

## Research and academia as foundations of future practice

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Research in radiation oncology provides direct clinical benefit to patients (measurable outcomes, used in diagnosis and treatment).

- Radiation oncology research in Australia lacks capacity and resources,
  - This limits capability for developing and implementing advances in patient care, and for workforce training and development;
  - There is disparity of research funding for radiation oncology compared to its clinical benefit to patients;
  - The impact of this may be greater in regional and rural facilities
- Research in radiation oncology is different to pharmacological based research in that:
  - Randomised clinical trials are more difficult;
  - Lack of clinical data collection to evaluate technologies;
  - Novel methodologies are required to evaluate new technologies;
- There is further potential for collaboration between the various research groups, institutions, professions and individuals involved in cancer research.

# 2012-2022 Strategic Directions and Objectives for the Radiation Oncology Sector

Strategic Direction	Objective	Defining Success
Providing a quality radiation oncology service	<i>The current and future standard is a world class radiation oncology service with robust quality systems and standards in place.</i>	<p>A nationally planned approach to the radiation oncology sector, which takes into account the needs of all cancer patients, their families and carers, which is characterised by:</p> <ul style="list-style-type: none"> <li>• A forward-looking strategy to deliver improved radiation oncology services;</li> <li>• The availability of radiotherapy to all patients for whom it is clinically appropriate which can be accessed in a timely manner;</li> <li>• A patient-centred, evidence-based and multidisciplinary approach to care;</li> <li>• Ongoing evaluation of quality assurance, patient quality of life and survivorship</li> <li>• Continuous quality improvement;</li> <li>• Engendering leadership and fostering a culture of quality.</li> </ul>
Resourcing the radiation oncology sector	<i>The radiation oncology workforce and infrastructure are appropriate to meet current and future cancer incidence.</i>	<p>A prospectively planned and nationally coordinated radiation oncology service across Australia, which includes:</p> <ul style="list-style-type: none"> <li>• Cancer incidence is the basis for planning;</li> <li>• Workforce and infrastructure are planned together in a coordinated way;</li> <li>• Workforce training is aligned with service demand projections and supported appropriately;</li> <li>• A National Cancer Action Plan which includes radiation oncology is adopted;</li> <li>• Jurisdictional radiation oncology action plans are developed, maintained and integrated with the National Cancer Action Plan;</li> <li>• Closer consultative collaboration between governments, policy-makers, service providers, patients and the professions to ensure most effective use of resources;</li> <li>• Innovative models of quality service provision are developed to improve efficiencies.</li> </ul>

Strategic Direction	Objective	Defining Success
Supporting rural and regional access to radiation oncology services	<i>Rural and regional patients have timely and affordable access to radiation oncology services.</i>	<p>A nationally coordinated and focused approach to improving rural and regional patients' access to radiation oncology services, including:</p> <ul style="list-style-type: none"> <li>• Comprehensive, quality cancer care is available to patients, which includes a national patient travel and accommodation scheme;</li> <li>• Models of care are locally tailored and appropriate to rural and regional areas;</li> <li>• Strategies in place that recognise and ameliorate the financial and social impact of cancer on patients and carers in rural and regional areas;</li> <li>• Innovative approaches to patient care are implemented, evaluated and supported.</li> </ul>
Supporting Aboriginal and Torres Strait Islander access to radiation oncology services	<i>Aboriginal and Torres Strait Islander patients have access to radiotherapy services offered in a culturally appropriate and respectful way.</i>	<p>A focus on improving Indigenous patients' outcomes in cancer control and radiotherapy specifically, including:</p> <ul style="list-style-type: none"> <li>• Better data collection on Indigenous access to oncological services;</li> <li>• Assessment of specific barriers to service access;</li> <li>• Evidence-based strategies to improve access to treatments;</li> <li>• Improved engagement between the hospital system, local communities and community-controlled Aboriginal and Torres Strait Islander health services.</li> </ul>
Research and academia as foundations of future practice	<i>World class research is part of the core business of radiation oncology services.</i>	<p>Australia is an international leader in radiation oncology research that improves patient outcomes:</p> <ul style="list-style-type: none"> <li>• Local research that results in evidence based and timely implementation of new treatment techniques and technologies;</li> <li>• Increased funding allocation to radiation oncology research that is commensurate with its contribution to cancer control;</li> <li>• Dedicated radiation oncology research equipment and staff time are included into national service planning;</li> <li>• Access to clinical radiation oncology equipment time for (translational and implementation) research is factored into facility service planning;</li> <li>• Integration of radiation oncology treatments into comprehensive electronic medical records (EMR);</li> <li>• Research is recognised as part of core business for all radiotherapy facilities;</li> <li>• Multidisciplinary research teams are established, incorporating discovery, translational and implementation research.</li> </ul>

# Policy Approaches to Radiation Oncology

Policy approaches to ensure that national demand for radiation oncology services is met should be:

- Prospectively planned, coordinated nationally to effectively use resources and provide access for all patients;
- Differentiated to distinguish the different radiotherapy techniques and tumour streams, providing targeted approaches;
- Integrated across service providers, jurisdictions and medical disciplines and aligned with the National cancer reform directions to address silos in the system;
- Innovative to take advantage of technological and organisational developments internationally and between disciplines;
- Focused on quality across all domains including patient access, health outcomes, data, service provision and survivorship and
- Patient centred with consumer involvement at all levels of decision-making.



# List of Recommendations

## Providing a quality radiation oncology service

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### **A forward-looking strategy to deliver improved radiation oncology services**

#### *Importance of planning*

1. Planning of radiation oncology services must be based upon achieving the agreed optimal target utilisation of radiotherapy for new cases of cancer (currently set at 52.3%).
2. The commitment needs to be made now so that the target optimal utilisation rate for radiotherapy can be met by 2022.
3. Radiation oncology service planning needs to occur:
  - 3.1. Regularly on a long-term basis and coordinated at a national level.
  - 3.2. With reference to other cancer therapies.
  - 3.3. Ensuring that patients have clinically appropriate and affordable therapies.

#### *Keeping pace with radiotherapy techniques and technologies*

4. Health technology assessment processes at all levels must be improved so innovations that provide value for both the cancer patient and the health system are effectively implemented.
5. There needs to be a sustainable financial model for the introduction of new radiotherapy techniques and technologies based on comparative effectiveness.
6. A radiation oncology registry of treatments and outcomes needs to be established to provide data capture and post-market surveillance.

#### *Harmonisation of legislation*

7. Regulatory legislation and processes should be harmonized across jurisdictions.

#### *Minimum radiation oncology data set*

8. A minimum radiation oncology dataset must be established, implemented and incorporated into a future national cancer data set.
9. All radiation oncology services must comply with the requirements of a radiation oncology national dataset and provide data.

### **The availability of radiotherapy to all patients for whom it is clinically appropriate which can be accessed in a timely manner**

#### *Timely access*

10. Planners, decision-makers and service-providers must ensure that radiation oncology services have the capacity for patients to receive radiotherapy within clinically appropriate timeframes.
11. National targets for timely access to radiotherapy (as recommended by National Health and Hospital Reform Commission) should be set and services should be reporting against these targets.

### *Financial impact on patients, families and carers*

12. The financial impact of accessing cancer treatment should be minimized to ensure that optimal treatment is available to all patients.
13. Legislative issues must be resolved to allow out-patient radiation oncology to qualify for private health insurance

## **A patient-centred, evidence-based and multidisciplinary approach to practice**

### *Empowered consumers*

14. Patients, carers and families need to be empowered such that:
  - 14.1. They are provided with current, relevant and evidence-based information regarding radiotherapy.
  - 14.2. Information is available in languages other than English, where appropriate.
  - 14.3. Any costs associated with treatments are clearly described prior to treatment.
  - 14.4. Current radiotherapy waiting times information is made publicly available.
15. There needs to be a central information resource on radiation oncology that is:
  - 15.1. Reliable and appropriate
  - 15.2. Readily accessible in all geographic locations

### *Radiation oncology practice standards*

16. The Radiation Oncology Practice Standards must be mandatory.
  - 16.1. A mechanism for oversight of compliance with the Standards needs to be established and funded.
  - 16.2. The professions to regularly review and keep the Standards contemporary.

### *Evidence based multi-disciplinary oncology practice*

17. Multidisciplinary Team management is the gold-standard of cancer care and must be supported by services, professionals and planners.

### *Clinical peer-review audit*

18. Peer-review practices should be supported and increased to minimise process variation and ensure that treatments comply with best practice.

## **Ongoing evaluation of quality assurance, patient quality of life and survivorship**

### *Quality assurance for safety and quality care*

19. A national framework for quality assurance should be developed to make radiotherapy more consistent and to ensure patient safety.

### *Dosimetry*

20. The Australian Clinical Dosimetry Service must be made permanent to ensure safe delivery of radiotherapy.

### *Quality of life and survivorship*

21. Patient survivorship must be a focus of cancer management.

## **Continuous quality improvement**

### *A quality management system for radiation oncology*

22. There must be a national reporting framework to identify issues associated with quality.

23. A formal benchmarking exercise across jurisdictions and radiation oncology facilities must be undertaken, including activity targets, waiting times and clinical patterns of care variation:
  - 23.1. Service and planning benchmarks must be agreed nationally
  - 23.2. Variability between services must be measured and reported
  - 23.3. Individual plans must be developed for services to meet the benchmarks

#### *Incident monitoring*

24. A national incident monitoring system specific to radiation oncology must be implemented.

### **Engendering leadership and fostering a culture of quality**

25. Quality management and leadership must be included in all professional training programs.

## Resourcing the radiation oncology sector

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### **Cancer incidence is the basis for planning**

26. The nationally coordinated radiation oncology planning must consider:
  - 26.1. Projected cancer incidence;
  - 26.2. Target optimal utilisation rate;
  - 26.3. Regional and rural service access;
  - 26.4. Projected changes in demographics.

### **Workforce and infrastructure are planned together in a coordinated way**

27. Establish a system for facilities to regularly report on their activities to inform coordinated planning.
28. Implementation of new technology must consider workforce implications.
29. Overcapitalized radiotherapy services, such as brachytherapy and radiosurgery, should be rationalised.
30. New facilities should be planned with the capacity to allow expansion and service continuity.
31. All facilities must have adequate information and communication technology infrastructure and expertise.
32. Workforce planning should consider the need for multidisciplinary care and adequate supply of allied health and support services.
33. Australia needs 267 linacs by 2022 to achieve the optimal utilisation rate of 52.3% (approximately an extra 100, in addition to the replacement of current fleet).
34. Governments must have a plan for the number of new linacs that will come into use over the next ten years.
  - 34.1. Coordinated across the public and private sectors;
  - 34.2. Aligned with workforce training and development;
  - 34.3. Developed in close consultation with the professions and consumers;
  - 34.4. Taking into account the lead time of 2-5 years for starting an operational service.
35. Services should be planned to operate with 10% additional capacity such that surges in demand can be met without increasing the waiting times for treatment.
36. Development of sustainable fellowship programs for Radiation Oncologists must be a key priority to ensure the development of important clinical and research skills.
37. Develop workforce strategies offering enhanced career pathways for Radiation Therapists (RT):
  - 37.1. Support advanced practice and role evolution for RTs;
  - 37.2. Explore assistant roles in radiotherapy.

38. The Radiation Oncology Medical Physicists (ROMP) workforce crisis requires an urgent and multi-faceted response:
  - 38.1. Australia must have a nationally self-sufficient ROMP workforce by 2022;
  - 38.2. support promotion of a physics career to school students and undergraduates;
  - 38.3. increase and streamline funding for TEAP positions, and embed into the radiation oncology workforce profile;
  - 38.4. strengthen recruitment strategies to attract and retain the ROMP workforce;
  - 38.5. urgently develop innovative models of service provision that do not compromise quality;
  - 38.6. a national workforce summit must be held by June 2013 to get consensus on the implementation of workforce solutions.
39. Develop plans to support professionals returning to full-time and part-time work.

### **Workforce training is aligned with service demand projections and supported appropriately**

40. Governments to match the funding contracts for training positions in both public and private accredited facilities to the length of the training programs.
41. Accreditation and training processes that allow for:
  - 41.1. Increased trainee numbers in the three key professional areas i.e. Radiation Oncology, Radiation Therapy and Radiation Oncology Medical Physicists;
  - 41.2. Embedded funding for clinical supervisors, preceptors and training network coordinators to adequately support the training programs; and
  - 41.3. Continued professional education and development for those in the workforce;
  - 41.4. Support of training in rural and regional areas.
42. To establish innovative models of training such as:
  - 42.1. Virtual and simulated learning programs;
  - 42.2. Nationally coordinated training networks to enable optimal utilisation of resources.

### **A National Cancer Action Plan which includes radiation oncology is adopted**

43. There needs to be a National Cancer Action Plan developed, implemented and maintained for Australia:
  - 43.1. In consultation with the professions and consumers;
  - 43.2. Encompassing radiation oncology as a core element of quality cancer care.

### **Jurisdictional radiation oncology action plans are developed, maintained and integrated with the National Cancer Action Plan**

44. Jurisdictions must develop, regularly review, evaluate and update 5-year action plans for radiation oncology and these must be coordinated nationally.
45. Financing options for establishing and resourcing services should be explored and must ensure access to radiation oncology services is safeguarded;
46. To ensure that infrastructure is used efficiently:
  - 46.1. Business process review must be undertaken regularly;
  - 46.2. Business process improvement must be part of standard practice;

### **Closer consultative collaboration between governments, policy-makers, service providers, patients and the professions to ensure most effective use of resources**

47. Establish and strengthen radiation oncology networks where smaller centres are linked to major centres.

48. The existing national ROHPG capital replacement program must be maintained and regularly updated to reflect changes in radiation oncology practice.

### **Innovative models of quality service provision are developed to improve efficiencies**

49. There should be ongoing horizon scanning for new radiotherapy techniques and technologies, to inform facilities planning;
50. Essential role of imaging in radiation oncology must be acknowledged:
  - 50.1. Regulatory constraints such as licensing must be remedied;
  - 50.2. Training and expertise of professionals must be enhanced;
  - 50.3. Funding for planning and treatment of patients must support evidence-based practice;
  - 50.4. The role of the Diagnostic Imaging Medical Physicists needs to be recognised and supported.
51. The use of essential radiotherapy techniques must align with best practice:
  - 51.1. At least 30% of radiotherapy patients should receive IMRT treatments;
  - 51.2. Benchmarks for other essential radiotherapy techniques should be developed and services should publicly report against these.

## Supporting rural and regional access to radiation oncology services

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### **Comprehensive, quality cancer care is available to patients, which includes a national patient travel and accommodation scheme**

52. Adequately funded and equitable national patient transport and accommodation assistance schemes must be in place.
  - 52.1. Financial support should demonstrate a relationship between the subsidy and reasonable transport and accommodation expenses.
  - 52.2. The transport and accommodation support schemes should be simplified and disparities between jurisdictions should be addressed.
53. A comparative study of costs of providing treatment and out of pocket expenses across various private and public facilities should be developed
  - 53.1. to benchmark the costs related to radiotherapy and reimbursements or rebates;
  - 53.2. to provide governments with the necessary data to ensure equity.

### **Models of care are locally tailored and appropriate to rural and regional areas**

54. Design models of care appropriate to the regional area and its population needs, including linkage to major radiation oncology centres;
55. Adopt a national planning approach (facilities, workforce and services) with input from regional and rural stakeholders;
56. Regional facility development should focus on patient care outcomes and experiences;
57. Establish access to specialist services through the Cancer Care Network and links between regional and comprehensive metropolitan cancer care services
58. Accommodate needs for future expansion and uptake of technology in regional facility planning and development

## **Planned workforce strategies are developed to support the expansion of radiation oncology services to regional and rural areas.**

59. Strategies are developed to recruit trainees and radiotherapy professionals of regional and rural origin
60. Increased training opportunities in rural and regional centres; increased funding support for prioritisation of rural training placements
61. Incentives and bonuses to attract and retain rural and regional staff
62. Staffing models that support professional development, professional collaboration and research activities
63. Increased flexibility of decision-making and funding responsibilities in regional centres for specific strategies for staff retention
64. Individual regional facilities should develop areas of expertise, including research, and specific competencies in techniques and technologies to increase competitive attractiveness of rural work.

## **Strategies in place that recognise and ameliorate the financial and social impact of cancer on patients and carers in rural and regional areas**

65. Actions to be taken such that financial consideration by rural and regional patients and carers do not influence decisions regarding treatments:
  - 65.1. Where it does not exist already, there should be expansion of arrangements for publicly funded patient access to private regional radiotherapy treatment and review of the eligibility criteria for the same.
  - 65.2. Modified billing mechanisms in private facilities where payments and reimbursements are streamlined so that patients are only required to pay the gap payments, while the facility can maintain its operating cash flow.
  - 65.3. Costs of developing regional public facilities as opposed to providing publicly-funded access to an existing local private facility need to be considered.
  - 65.4. Reimbursement of out of pocket expenses incurred should be an option for those who are forced to pay more because of their place of residence.

## **Innovative approaches to patient care are implemented, evaluated and supported**

66. A planned adoption of telehealth into radiation oncology services for consultation, care planning and follow up of patients
  - 66.1. Such adoption should focus on cancer care outcomes and patient experiences.
  - 66.2. Clinicians should be consulted to identify clinical needs and the best supporting technology.

## **Supporting Aboriginal and Torres Strait Islander access to radiation oncology services**

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Lack of and reduced access to radiation oncology is an important factor affecting the cancer outcomes for Indigenous patients. While acknowledging the fact that there is a need for a comprehensive approach, the recommendations below relate specifically to radiotherapy access. The recommendations below are based on the relevant research and responses received during the stakeholder consultation process.

### **Better data collection on Indigenous access to oncological services**

67. Development and implementation of a national radiation oncology dataset should include data collection on Indigenous patients.

## **Assessment of specific barriers to service access**

68. Further research to identify the reasons for the lower survival rates of Indigenous peoples diagnosed with cancer.
69. Additional research to identify issues and barriers for Indigenous patients living in metropolitan areas.

## **Evidence-based strategies to improve access to treatments**

70. Indigenous patients must have access to radiotherapy as close to their community as possible.
71. Accommodation facilities for Indigenous patients and their families must be appropriate and available.
72. Education and information strategies about cancer including causes, prevention and treatment options must be developed for Indigenous patients.

## **Improved engagement between the hospital system and community-controlled Aboriginal and Torres Strait Islander health services**

73. Planning for radiation oncology services must take into account specific access issues for Aboriginal and Torres Strait Islander patients.
74. Planning must be undertaken with reference to and in close consultation with the local Aboriginal community-controlled health services.
75. Specific strategies, including Aboriginal Liaison Officers at cancer centres, must be developed.
76. Initiatives to support Indigenous people to join the radiation oncology professions must be considered and encouraged.

# Research and academia as foundations of future practice

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## **Local research that results in evidence based and timely implementation of new treatment techniques and technologies**

77. Specific support for radiation oncology research is required:
  - 77.1. Clinical and health systems research in radiation oncology that produces timely evidence of safety, efficacy and cost effectiveness of new techniques and technologies must be specifically funded through a dedicated funding stream.
  - 77.2. Expansion of research support in radiation oncology that advance our understanding of biological mechanisms translating into clinical practice through specific measures such as translational training fellowships, to maximise benefits for patients.
78. Patient awareness of clinical research needs to be increased:
  - 78.1. Health care consumers must be educated in the availability and importance of clinical research, leading to increased participation in clinical research.

## **Increased funding allocation to radiation oncology research that is commensurate with its contribution to cancer control**

79. It is recommended that radiation oncology research funding is increased so that:
  - 79.1. Research processes are developed from current levels and are sustainable with adequate dedicated funding
  - 79.2. Additional translational research capacity enables faster identification and adoption of new techniques and technologies that improve efficiency
80. Workforce and equipment planning and implementation at site, jurisdiction and national levels must include the requirements to support research as an integral component of care delivery.

81. A small grants program must be introduced to develop projects to a level of national competitiveness.

### **Dedicated radiation oncology research equipment and staff time are included into national service planning**

82. Infrastructure planning at jurisdiction, state and national level needs to accommodate research requirements.

### **Access to clinical radiation oncology equipment time for (translational and implementation) research is factored into facility service planning**

83. Facility planning needs to accommodate research requirements including discovery, translational and implementation research.

### **Integration of radiation oncology treatments into comprehensive electronic medical records (EMR)**

84. All treatment facilities must have the capability to collect comprehensive data sets including treatment details that can be shared through national collaborative research programs.

85. Strategies for data support and sharing between facilities must be in place.

### **Research is recognised as part of core business for all radiotherapy facilities**

86. The importance of research positions needs to be recognised:

86.1. research career path must be developed

86.2. radiation oncology services should support research activities within their facilities

86.3. Programs should be developed (if not yet in place) that combine professional with academic (doctoral or masters) qualifications.

86.4. Mentorship programs must be introduced to link experienced researchers with early career professionals.

87. The ethics and governance approval process needs to be streamlined to enable efficient collaboration.

88. Professions must build ethics and governance literacy amongst their members.

89. It is essential that healthcare consumers are involved in the development of trials and represented on decision-making bodies.

### **Multidisciplinary research teams established, incorporating discovery, translational and implementation research**

90. Active cooperation and collaboration between various departments, jurisdictions, disciplines and manufacturers must be actively encouraged.

91. Clinical professionals must have protected time to conduct research.

92. International collaboration in research and participation in international research projects must be encouraged and supported.

93. Collaborative links between treatment facilities and universities need to be developed or increased (where already in place):

93.1. Co-operation between universities and treatment facilities has to extend beyond teaching hospitals.

93.2. Reciprocal support arrangements need to be established between universities and treatment facilities, whereby facilities provide clinical placements and universities provide research support to facilities.

93.3. Support for the establishment of conjoint academic and clinical positions in all three professional groups.

93.4. Research training and the creation of roles for practitioner-scientists must be fostered across the radiation oncology professions.