



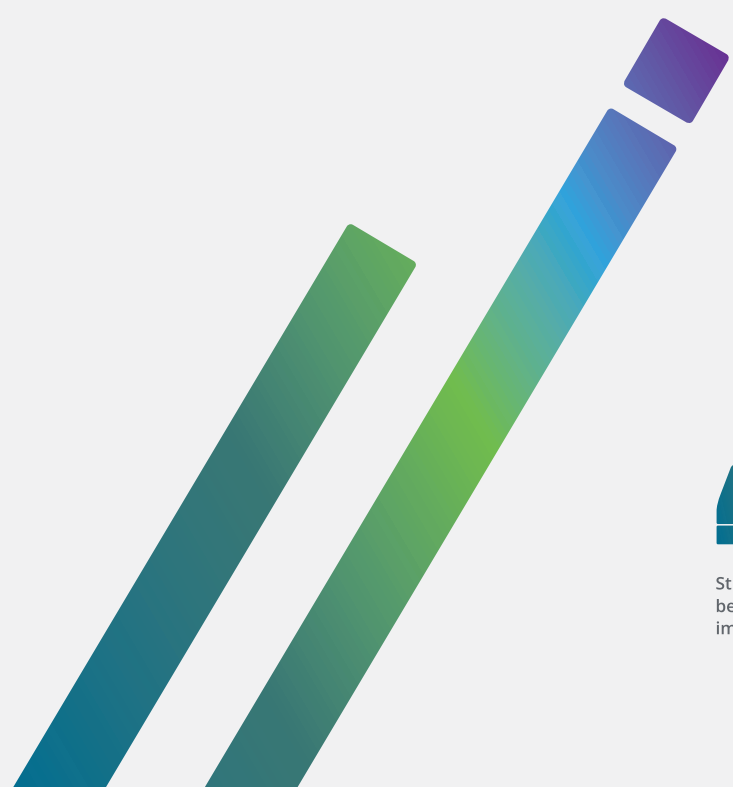
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**Australian Institute of
Health and Welfare**



Radiotherapy in Australia

2015-16



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better decisions,
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Health and Welfare**

Radiotherapy in Australia

2015–16

Australian Institute of Health and Welfare
Canberra

Cat. no. HSE 191

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Abbreviations

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
AIHW	Australian Institute of Health and Welfare
ICD-10-AM	International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification
METeOR	AIHW's Metadata Online Registry
NMDS	national minimum data set
NRWTD	National Radiotherapy Waiting Times Database
NSW	New South Wales
NT	Northern Territory
Qld	Queensland
RANZCR	Royal Australian and New Zealand College of Radiologists
SA	South Australia
SA2	ABS Statistical Area Level 2, 2011
SEIFA	Socio-Economic Indexes for Areas
Tas	Tasmania
Vic	Victoria
WA	Western Australia

Symbols

..	not applicable
<	less than
>	greater than
n.a.	not available
n.p.	not publishable because of small numbers, confidentiality or other concerns about the quality of the data

Summary

This report presents data from the first year of the Radiotherapy Waiting Times National Minimum Data Set, which covers radiotherapy courses that started in 2015–16 and the waiting times for those courses. This follows two years of a pilot data collection.

Coverage of radiotherapy courses in Australia for 2015–16 across both public and private sectors was effectively 100%. Data were submitted from 44 public-sector sites and 33 private-sector sites.

Radiotherapy activity

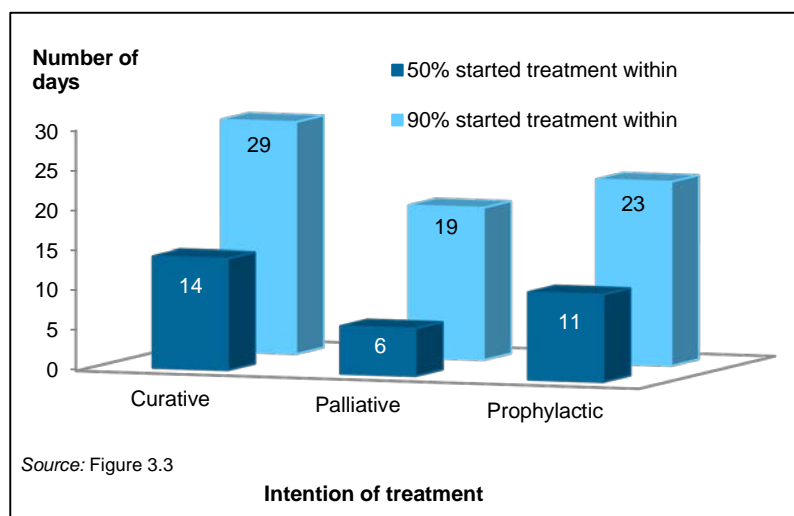
Participating providers reported data for about 60,600 courses of radiotherapy that began in 2015–16. These data showed that:

- public providers delivered two-thirds of radiotherapy courses, while private providers delivered one third
- 70% of patients starting a course of radiotherapy treatment were aged 60 and over
- breast, prostate, and lung cancers were the most common reasons for radiotherapy
- more than half (58%) of the radiotherapy courses were intended to cure disease, 38% were palliative and 1% were to prevent disease
- 2% of courses were clinically assessed as emergency treatment (that is, radiation treatment should begin within 24 hours), with most of these cases being palliative.

Waiting times

In 2015–16, 50% of patients received treatment within 9 days of being assessed as ready for care, and 90% received treatment within 27 days.

- Waiting times were shortest for patients receiving palliative radiotherapy, and were longest for patients receiving curative radiotherapy (see infographic below).
- Waiting times for non-emergency courses were the same as for all courses. For those patients who were clinically assessed as emergency patients (for whom a radiotherapy course is recommended to begin within 24 hours of being ready for care), 91% began treatment on the same day or the next day.
- Of male patients with a principal diagnosis of prostate cancer, 50% started treatment within 10 days, and 90% within 29 days.
- Of female patients with a principal diagnosis of breast cancer, 50% started treatment within 8 days, and 90% within 28 days.



1 Introduction

This report presents data about courses of radiotherapy that began in 2015–16. It is the first report based on Australia’s national minimum data set (NMDS) for radiotherapy waiting times. It follows two reports on pilot collections for 2013–14 (AIHW 2015) and 2014–15 (AIHW 2016).

This report covers key characteristics of patients who received treatment, information about how long patients waited for radiotherapy treatment once they were ready for care (see Box 1.2), and discusses aspects of the quality of the data.

Radiotherapy is an important type of cancer treatment, and delays in treatment can lead to poorer clinical outcomes (see Box 1.1).

Box 1.1: What is radiotherapy?

Radiotherapy uses radiation directed at a localised area to kill or damage cancer cells. It is a well-established, effective and safe way to treat cancer and a small number of other conditions. There are several types of radiotherapy. This report focuses on megavoltage external beam radiotherapy delivered by linear accelerator machines.

Radiotherapy is a highly specialised treatment that radiation therapists deliver, supervised by a radiation oncologist (in consultation with a multidisciplinary team including other medical and allied health practitioners), and requiring specialised equipment.

Radiotherapy may be used on its own or in conjunction with other treatments such as surgery or chemotherapy. About half of all patients with cancer would benefit from external beam radiotherapy (RANZCR 2015).

Radiotherapy is usually given as one outpatient treatment or a series of outpatient treatments over a defined period, though under some circumstances patients may be treated as admitted patients. Whether the treatment is delivered with a curative, prophylactic (preventive) or palliative intent influences the optimal timeframe for its implementation (see Box 2.2).

1.1 The National Radiotherapy Waiting Times Database

The National Radiotherapy Waiting Times Database (NRWTD) holds data provided to the AIHW by state and territory health authorities and private radiotherapy providers that elect to do so. The data are based on the NMDS for radiotherapy waiting times which represents an agreement by relevant governments to collect uniform data and to supply it as part of a national collection. The metadata for data items included are documented in the AIHW’s Metadata Online Registry (METeOR <meteor.aihw.gov.au>). The data items in the Radiotherapy Waiting Times NMDS (and their METeOR identifiers) are listed in Table 1.1.

The NMDS superseded the previous data set specification, which defined requirements for two preceding pilot collections reported on in *Radiotherapy in Australia: report on a pilot data collection 2013–14* (AIHW 2015), and *Radiotherapy in Australia: report on the second year of a pilot collection 2014–15* (AIHW 2016). There were no major changes in the metadata (data definitions and requirements) between the data set specification and the NMDS, however, participation among providers has increased each year.

Contribution of data to the NMDS for 2015–16 (outlined in this publication) has been mandatory for public providers, following voluntary participation during the two years of the pilot collection.

For private providers, contribution of data remains voluntary for 2015–16 data, as it was during the pilot collections, although some states and territories may have local arrangements requiring private providers to participate. In 2015–16, all private-sector sites contributed to the collection, up from 75% of sites in 2014–15.

Table 1.1: Radiotherapy Waiting Times NMDS data elements

Data element name	Description	METeOR identifier
Establishment identifier	Identifies the individual service at which the treatment occurred	269973
Establishment location	Location of the radiotherapy site	457289
Ready-for-care date	The date, in the opinion of the treating clinician, on which a patient is ready to commence treatment	448141
Radiotherapy start date	The date on which a patient commences a course of radiotherapy treatment	448147
Person identifier	Person identifier unique within an establishment or agency	290046
Emergency status	An indicator of whether the treatment required for the patient is clinically assessed as an emergency	448126
Intention of treatment	The reason treatment is provided to a patient (prophylactic, curative or palliative)	583857
Principal diagnosis	The diagnosis established after study to be chiefly responsible for occasioning a patient's service event or episode	514304
Sex	The biological distinction between male and female	287316
Date of birth	The date of birth of the person	287007
Indigenous status	Whether a person identifies as being of Aboriginal or Torres Strait Islander origin	291036
Patient area of usual residence	The geographical region in which the patient usually resides	469909

The primary purpose of the collection is to obtain data on waiting times. Therefore, records reported to the database in each reporting period represent courses of radiotherapy that began in that reference period (that is, where the waiting period ended in the reporting period; in this report the reference period is 1 July 2015 to 30 June 2016).

Records for patients who were already receiving treatment at the start of the reporting period are not included in the data, and neither are records for patients who were still waiting to begin treatment at the end of the reporting period, died while waiting, or were removed from a waiting list for any other reason. No further information about the course of radiotherapy (for example, dosage, number of treatments, or end date of the treatment) is reported to the NRWTD.

Box 1.2: Calculation of waiting time from ready-for-care date

The **waiting time** is the number of days from when the patient is ready to be treated with radiotherapy in the opinion of the treating clinician ('ready for care') until the day the patient first receives radiotherapy treatment—that is, the number of days between the Ready-for-care date and the Radiotherapy start date. Reported waiting times include non-working days (such as weekends or public holidays) and other days on which a service was not able to provide services (such as when key staff are unavailable or where there has been equipment failure).

Other waiting periods—such as the time between a person's contact with their general practitioner and their first appointment with a medical oncologist, and the time between receipt of the patient's first referral to a radiation oncologist to the date of that patient's first consultation with a radiation oncologist—are not collected in this data set.

Appendix C provides a diagram of different points in a typical treatment pathway for radiotherapy patients to show how the waiting times reported here relate to these different components of the treatment pathway.

The **ready-for-care date** is set by the treating clinician and takes into account things such as the need for prior treatment or post-operative healing. If the patient is not ready for care on this date for personal reasons, the ready-for-care date will be set at a later time, when the patient states they are ready.

Service bottlenecks or peak periods of demand that may affect ease of access to radiotherapy services should not influence clinical decisions around the setting of ready-for-care dates. Treatment may be delayed due to waiting times in pre-treatment imaging or testing, treatment service availability, staff shortages, equipment breakdown, or even a lack of available accommodation for a patient travelling for treatment. Factors that are, and are not, expected to influence the ready-for-care date are described in the metadata for '*Ready-for-care date*' available in METeOR (METeOR identifier: 448141).

Courses of radiotherapy

The unit of collection is a course of radiotherapy that began in the reference period (see Box 1.3), which for this report is 1 July 2015 to 30 June 2016. Numbers of patients treated cannot be reported because individuals may have more than one course of radiotherapy in a year.

Box 1.3: What is a course of radiotherapy in this collection?

The Radiotherapy Waiting Times NMDS defines a course of radiotherapy (METeOR identifier: 448151) as follows:

- A course of radiotherapy is a series of one or more external beam radiotherapy treatments prescribed by a radiation oncologist.
- A course of radiotherapy should have an associated ready-for-care date and, when treatment starts, a radiotherapy start date.
- A patient can receive more than one course of radiotherapy at the same time (courses that are simultaneous or overlap). These courses may have the same or different ready-for-care dates and the same or different radiotherapy start dates.
- Only a radiation oncologist can prescribe a course of radiotherapy. A prescription is not equal to a course of radiotherapy. A prescription may be for one or more courses of radiotherapy. A prescription outlines the anatomical region/sites to be treated and is for a prescribed dose at a defined volume (fractionation) over a defined period.
- One course of radiotherapy may cover multiple phases and multiple treatment plans.

Collection scope and coverage

This data collection was open to all health-care establishments that provided megavoltage external beam radiotherapy treatment in 2015–16. Both public and private providers were eligible to participate.

Out of 78 radiotherapy treatment sites operating in Australia in 2015–16, 77 (99%) provided data (Table 1.2; see details at Appendix A). This compares with 89% in 2014–15 and 74% in 2013–14. The one (public) site that did not provide data began operating only a short time (11 days) before the end of the reference period. This makes coverage of the radiotherapy courses that began in the reference period effectively 100%.

Sector

In this report, ‘sector’ relates to whether the site where treatment is delivered (facility or individual service location) is publicly or privately owned.

Private providers under contract to deliver services exclusively to public patients manage some sites, and are considered to be public providers for this report. Some private sites have a contract or partnership arrangement in place to provide services to public patients, but also provide services to private patients. In this report these services are characterised as private, along with services that provide services to private patients only. Some jurisdictions have no private radiotherapy providers. This collection does not include information on the source of funding for the patient (that is, whether they are a public or private patient).

Table 1.2: Participation status of radiotherapy sites/providers operating in Australia during 2015–16, by state and territory and sector

	Number of participating sites/providers			Number of non-participating sites/providers
	Public sites ^(a)	Private sites	Private providers	
NSW	17	9	4	0
Vic	10	8	2	0
Qld	6	10	2	1 ^(b)
WA	4	2	1	0
SA	2	4	1	0
Tas	3	0	0	0
ACT	1	0	0	0
NT	1	0	0	0
Australia	44	33	5^(c)	1

(a) Comprises public sites that treat public and private patients and private sites that exclusively treat public patients.

(b) One public-sector site in Queensland opened 11 days before the end of the reporting period for this data collection, providing fewer than 20 courses of radiotherapy in that time. Data were not submitted to the collection for the 2015–16 period for this site.

(c) Total is not the sum of the rows because some private providers operate across jurisdictions and deliver services at more than one site.

Data quality

There may be some variation between data providers in the interpretation of the NMDS requirements, resulting in differences in data reported. This may particularly affect ready-for-care dates (see Chapter 3 for more information) and private providers (whose participation is voluntary). This should be taken into account when considering the results.

In 2013–14 and 2014–15, data for public and private service providers in Victoria were contributed on a different basis to other data suppliers—Victoria provided data for courses of radiotherapy that *ended* (not started) in those collection periods. This is as a result of Victoria sourcing data for the pilot data collection from its state-wide radiotherapy data set (which includes data for both public and private providers that operate in Victoria) and which collates data on the basis of course completion. Note that:

- in 2015–16, data for all Victorian radiotherapy providers were provided on the same basis as other data suppliers.
- in 2014–15, although Victoria reported all courses that ended (rather than started) in the period, the data are considered to be broadly equivalent to data contributed by other data suppliers for that period, and to Victorian data contributed in 2015–16.
- in 2013–14, courses for Victorian public providers were under-counted, as records for courses started before the reference period were not included. Data reported by private providers in 2013–14 were reported for all courses that ended in the period (including some that started before the period).

In 2013–14 and 2014–15, public provider activity in South Australia was under-counted due to technical issues with the data extraction process. Waiting times in South Australia for those years may also have been affected by data quality issues associated with the setting of ready-for-care dates, particularly for breast and prostate cancers. As a result, caution

should be used when comparing 2015–16 data with 2014–15 data for South Australia (2013–14 waiting times data for South Australia were not published).

Some service providers had difficulty providing some data, so there are missing data for some items, as shown in Chapter 2. Further details on data quality are available in Appendix B.

Data presentation

This report presents data in two chapters:

- Chapter 2 reports information about radiotherapy activity (numbers of courses of radiotherapy that began in the collection period, and characteristics of patients who received these treatments).
- Chapter 3 provides data on waiting times for radiotherapy.

Where data are presented by sector, data are split by state and territory for public providers, but data on private providers are presented as national totals only. This is to protect the confidentiality of individual service providers, due to their small number in each state.

Data suppression

In some cases, table cells have been suppressed to protect confidentiality where the presentation of the data could identify a patient or a service provider, and where the data supplier has made this request. The Northern Territory required suppression of all cells where the number of records was fewer than five. In some instances, this has resulted in the need for consequential suppression of other data (including for other jurisdictions).

Cells may also be suppressed in some cases where rates are likely to be highly volatile. For this reason, waiting times at the 50th percentile and at the 90th percentile were suppressed where the number of records was fewer than 20.

Standardisation

Standardisation is a statistical technique used to compare rates of events in different populations by eliminating the effect of specific differences between the populations, such as age and other influencing factors. But it is not always appropriate to standardise data; for example, when the variable itself is being measured, then standardisation is unsuitable.

Standardisation has not been applied to data in this report because the data are not presented as population rates. In most cases, the data are presented as the number of courses of radiotherapy and proportions of courses in each category. Data on remoteness and socioeconomic position of an area are presented to compare percentages of radiotherapy courses delivered to patients living in these areas and the percentage of the total Australian population living in each area.

1.2 Use of the data to support performance measurement

Waiting times data provide information on access to health services—an important aspect of the performance of services. The waiting times are usually viewed as part of the performance of the health system as a whole, rather than necessarily being wholly attributable to the capacity of the service provider. For example, access to accommodation

for the period of treatment may affect waiting times for patients living in rural and remote areas.

In 2012, it was proposed that a measure of radiotherapy waiting times should be considered for inclusion as a National Healthcare Agreement performance indicator (COAG 2012) against Outcome 3: *Australians receive appropriate high quality and affordable hospital and hospital related care*, once a suitable data source became available.

As a result, draft performance indicators for waiting times for radiotherapy have been developed, based on the data now available in the NRWTD:

- **Proportion of emergency radiotherapy treatment started within the emergency timeframe**

This indicator reports the percentage of radiotherapy patients whose treatment was clinically assessed as an emergency and who started treatment on the same or next day they were ready for care (METeOR identifier: 595028). An emergency is defined as treatment required within 24 hours of being determined to be ready for care in the opinion of the treating clinician. However, as only the date the patient was ready for care and the date they started the course of radiotherapy are collected (and information about the time of day is not available), this indicator is expected to be reported as the proportion of patients who were treated either on the same day or the day after they were ready for care.

- **Waiting times for non-emergency radiotherapy**

This indicator measures the length of time that patients, whose treatment is not clinically assessed as an emergency, waited for radiotherapy treatment once they are ready for care, reported at the 50th and 90th percentiles (METeOR identifier: 594454).

Although not yet agreed as national performance indicators, data based on these performance measures are presented in this report.

1.3 Governance and ethical considerations

The AIHW manages this data collection with the support of the Radiotherapy Waiting Times Working Group, which comprises representatives from:

- each state and territory
- the Australian Government
- a private provider
- the Royal Australian and New Zealand College of Radiologists (RANZCR)
- Cancer Australia.

The current membership of this group is listed in 'Acknowledgments'. The working group is a subgroup of the Australian Health Ministers' Advisory Council's National Health Information Standards and Statistics Committee.

The AIHW Ethics Committee approved this data collection, confirming that the project conforms with the Information Privacy Principles set out in the *Privacy Act 1988*, and with requirements outlined in the National Statement on Ethical Conduct in Human Research (2007), the Australian Code for the Responsible Conduct of Research (2007), and the strict data confidentiality requirements set out in the *Australian Institute of Health and Welfare Act 1987*.

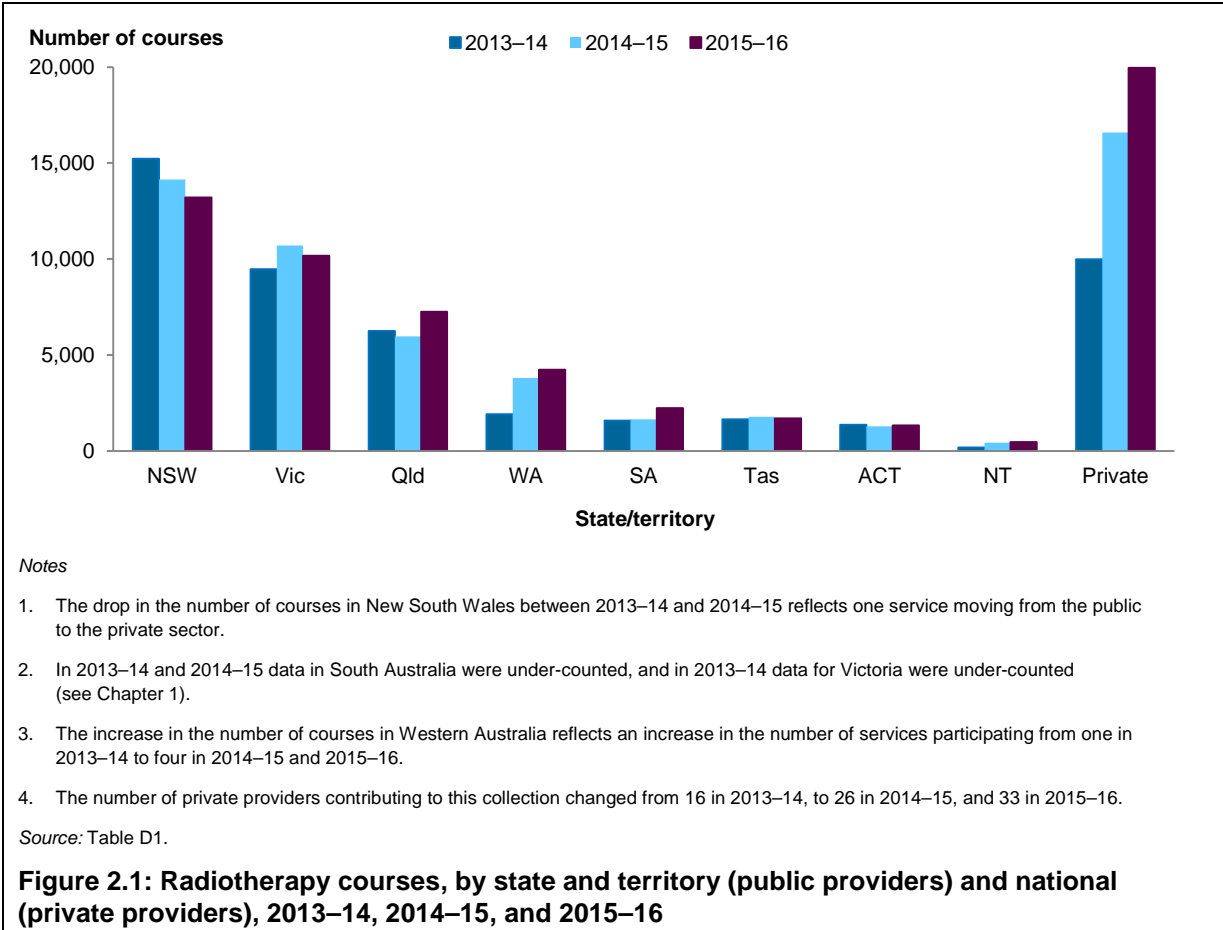
2 Radiotherapy activity and patients

This chapter presents information about all courses of radiotherapy that began in 2015–16 that were reported to the database.

2.1 Overview of radiotherapy activity

In 2015–16, participating service providers reported almost 60,600 courses of radiotherapy. This compares to a total of about 56,400 in 2014–15, and about 47,700 in 2013–14 (Table D1); but the variation between the three years is, in large part, due to a growing number of participating sites over the years, particularly in the private sector (Table 1.2).

Figure 2.1 shows the number of courses across states and territories for public providers, and in the private sector for 2015–16, compared with 2013–14 and 2014–15. In 2015–16, public providers delivered around 40,600 courses (two-thirds of all courses reported to the collection), with the majority of those courses provided in New South Wales and Victoria. Private providers delivered the remaining 20,000 courses reported (courses delivered in the private sector are not presented by state and territory to protect the privacy of individual providers).



Radiotherapy sites

In 2015–16, treatment volumes by service site ranged from 43 to 2,231 courses of radiotherapy. Some sites with low numbers of courses only operated for part of the year. About half of the sites (35) provided between 500 and 1,000 courses (Figure 2.2).

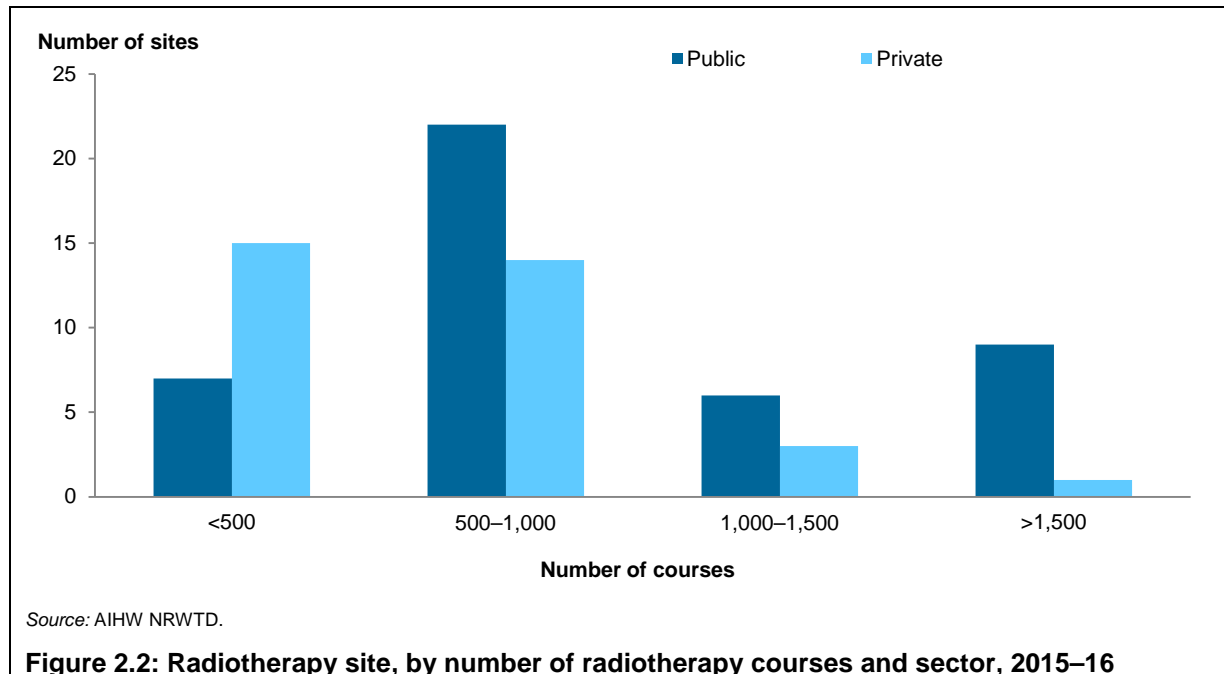


Figure 2.2: Radiotherapy site, by number of radiotherapy courses and sector, 2015–16

Radiotherapy sites are almost exclusively located in *Major cities* and *Inner regional* areas; no sites are located in *Remote* or *Very remote* areas. All 19 sites that provided more than 1,000 courses of radiotherapy in 2015–16 were in *Major cities*; smaller sites were more likely to be located in *Inner regional* areas (see Box 2.1 for information on the classification of remoteness areas).

Box 2.1: Remoteness areas

Australia can be divided into several types of regions based on their distance from urban centres, where the population size of the urban centre is considered to determine the range and types of services available.

In the Australian Bureau of Statistics' (ABS) Australian Statistical Geography Standard, these regions are classified in each Census year as being in one of the following five categories: *Major cities*, *Inner regional*, *Outer regional*, *Remote* or *Very remote* (ABS 2013a). Examples of urban centres in each remoteness area are:

- *Major cities* Sydney, Geelong, Gold Coast
- *Inner regional* Hobart, Ballarat, Coffs Harbour
- *Outer regional* Darwin, Cairns, Coonabarabran
- *Remote* Alice Springs, Broome, Strahan
- *Very remote* Coober Pedy, Longreach, Exmouth

2.2 Clinical characteristics

This section presents the number and proportion of courses of radiotherapy by:

- intention of treatment
- emergency status and
- principal diagnosis.

Intention of treatment

Radiotherapy can be provided to patients with the aim of preventing or curing disease, or as palliative care (see Box 2.2).

Box 2.2: Intention of treatment

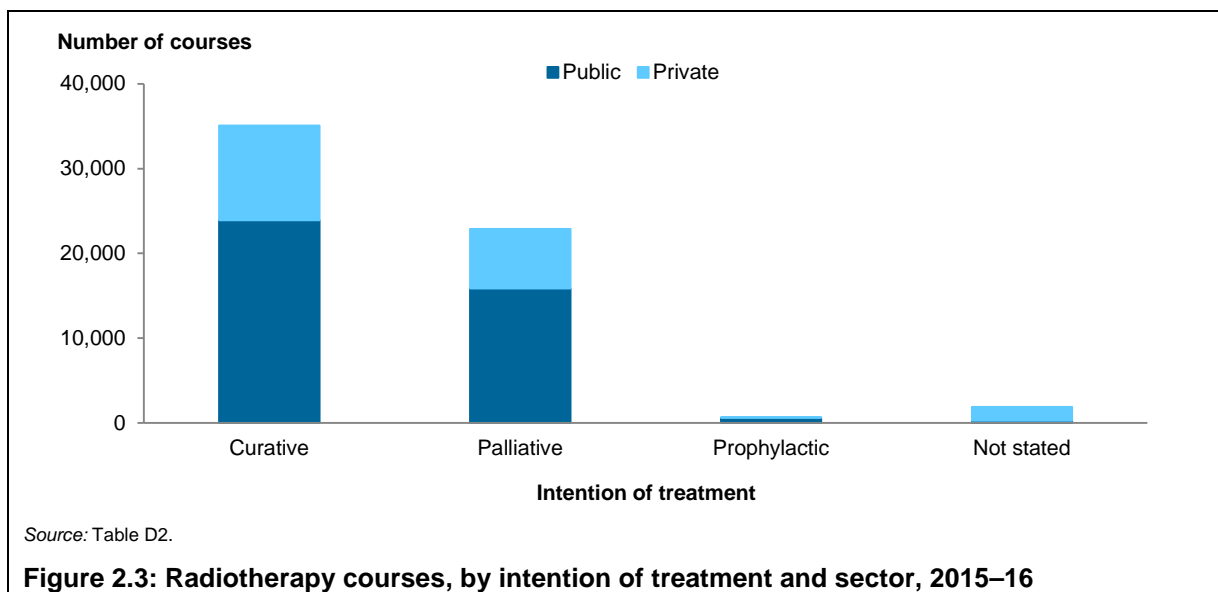
The intention of treatment is the reason treatment is provided to a patient, and is categorised as:

- *curative*—when treatment is given with the intention of curing disease
- *palliative*—primarily for the purpose of pain or other symptom control. Consequent benefits of the treatment are considered secondary contributions to quality of life
- *prophylactic*—to prevent the occurrence of disease at a site that exhibits no sign of active disease but is considered to be at risk.

(METeOR identifier: 583857)

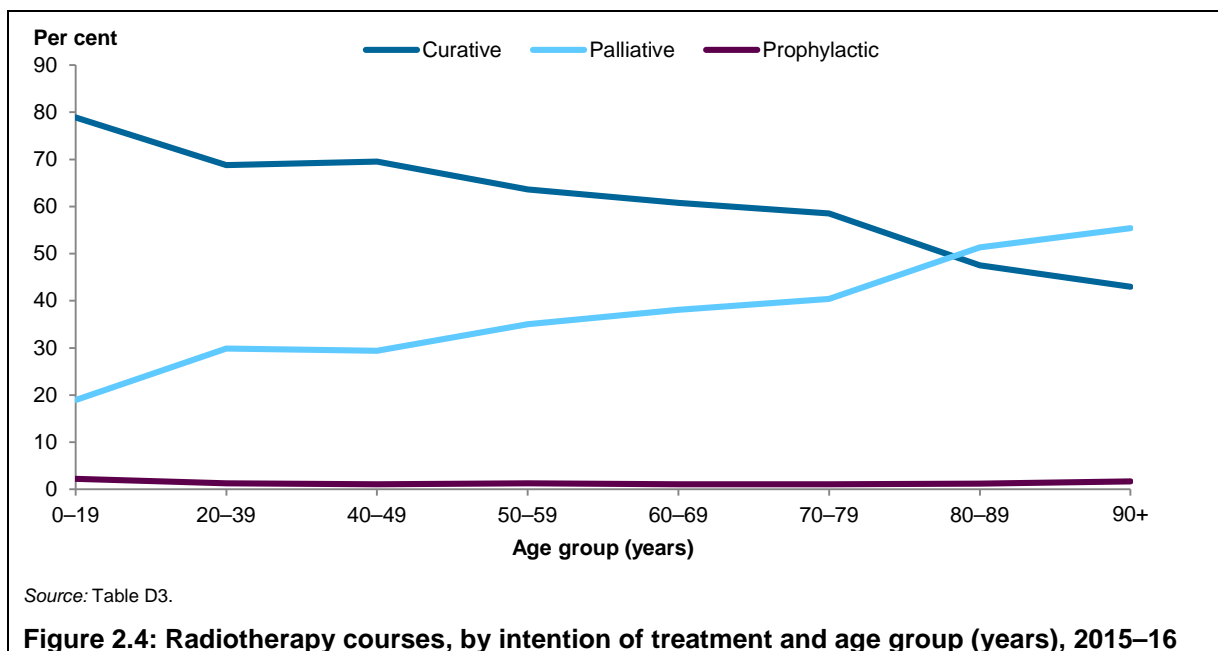
Of the radiotherapy courses that began in 2015–16, more than half (58%) were reported as being curative, 38% were palliative, and 1.1% were prophylactic. The intention of the treatment was not reported for 3.1% of courses (Figure 2.3).

The proportion of different types of treatment intent varied by state and territory—courses of curative radiotherapy varied from 51% to 70%, palliative treatment ranged from 27% to 47%, and prophylactic treatment varied between 0% and 18% (in South Australia, discussed below) (Table D2). Note that the way that intention-of-treatment categories are assigned varies, especially in the prophylactic category. Intention-of-treatment data for South Australia (where 18% of treatment was reported as prophylactic compared with an average of 1.1% across all providers) should be treated with caution—as prophylactic courses are likely to have been over-counted, and one or more of the other intention-of-treatment categories are likely to have been under-counted.



If the small proportion of courses where the intention of treatment was not reported are excluded from the analysis, public and private radiotherapy providers carried out similar proportions of curative treatment (59% of courses in public settings, 61% in private settings). Likewise, 39% of treatments were palliative in both public and private settings.

There is a clear relationship between the age of a patient and whether the intention of treatment is curative or palliative. The younger a patient was, the more likely they were to be treated with curative intent (79% of patients aged 0-19, compared with 43% of patients aged 90 and over) (Figure 2.4). The older a patient was, the more likely they were to be treated with palliative intent (55% of people aged 90 and over, compared with 19% of patients aged 0-19). The proportion of treatment that was prophylactic was relatively consistent across all age groups.



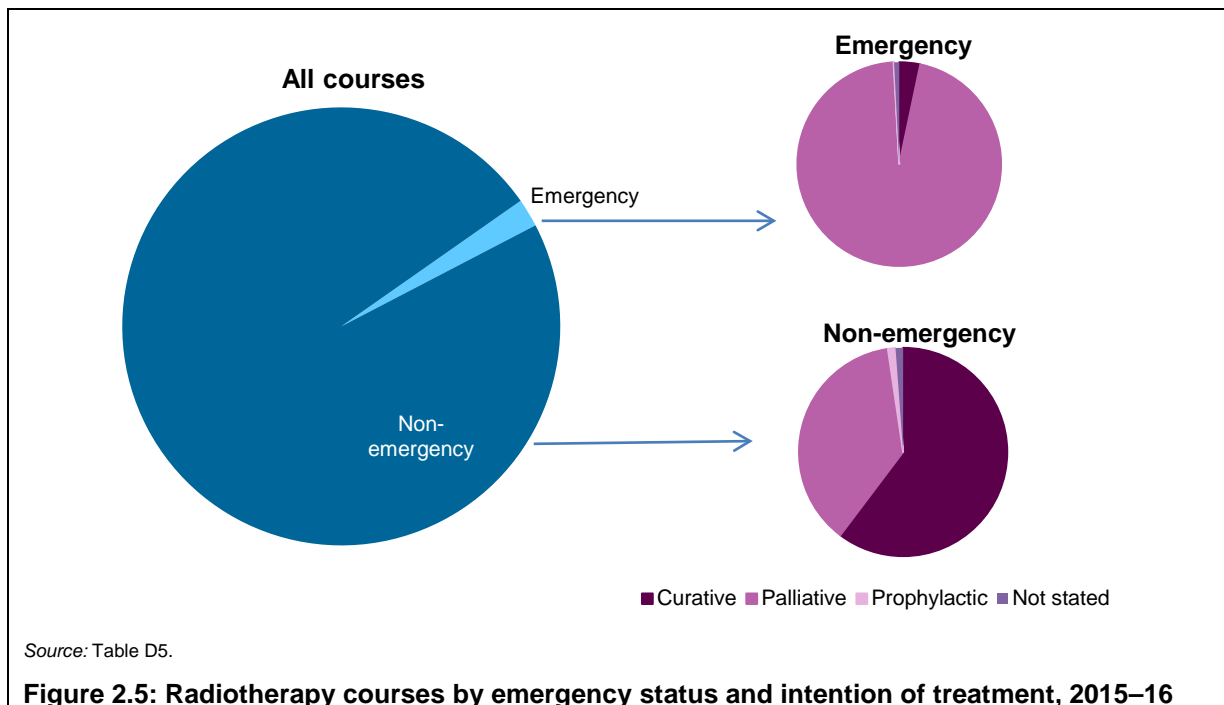
Emergency status

Overall, 2.0% of courses of radiotherapy that began in 2015–16 were clinically assessed to be emergency cases—that is, the radiation oncologist had assessed that the waiting time for treatment should not exceed 24 hours and that radiation treatment should, therefore, begin on the same day or the day after the patient was ready for care (Figure 2.5).

The proportion of radiotherapy courses that were clinically assessed to be emergency cases was 2.7% in the public sector and 0.7% in the private sector. Across states and territories, the proportion of emergency cases provided by public providers varied from 1.2% to 6.1% (Table D4).

Relationship between intention of treatment and emergency status

There is a clear relationship between the intention of treatment and the emergency status of courses—60% of non-emergency courses of radiotherapy were administered with the intention of curing disease, but 96% of emergency courses were palliative (Figure 2.5).



Principal diagnosis

The principal diagnosis is the diagnosis established after study to be chiefly responsible for a patient's need for the current course of treatment. In the case of radiotherapy treatment, this is most typically a cancer diagnosis, although radiotherapy is also used for a small number of non-cancer conditions.

Interpreting principal diagnosis data in this report requires care. Where a person is being treated, for example, for breast cancer (meaning the primary site of cancer is in the breast), this may appear in the data under a principal diagnosis of breast cancer (where the treatment is for the primary site or a combination of primary and secondary sites) or under a principal diagnosis of secondary cancer (where the treatment is targeting the secondary site(s) of cancer, such as bone secondary). This means that the secondary-cancer category is likely to include some patients who have one of the top five types of primary cancer (for example, prostate, breast or lung cancer).

The way these categories are applied varies among data providers. For example, Victoria reports the primary site of the cancer rather than the principal diagnosis. Victoria also collects treatment site, which provides detail on the body site treated, and the primary cancer to which the treatment relates. For this reason, comparisons should be made with caution. In particular, the large variation across jurisdictions in the proportion of courses for the top five types of cancer and secondary cancers, do not necessarily represent differences in cancer rates across the jurisdictions (see AIHW 2017 for data on cancer incidence).

Tables 2.1 and 2.2 show the proportion of courses of radiotherapy associated with the five cancers most commonly reported to the NRWTD in 2015–16 for males and females, as well as the number of courses for secondary cancer, other cancer or not stated. Also shown are the number of non-cancer cases treated by radiotherapy (272 courses or 0.4%) for conditions such as Dupuyten disease.

Prostate cancer was recorded as the principal diagnosis for more than one-quarter of all males who began radiotherapy in 2015–16 (27%), although this varied greatly across states and territories and sectors, from 15% to 33%. The next most common diagnosis for males was lung cancer (15%).

Table 2.1: Radiotherapy courses for top five cancers by state and territory (public providers) and sector, males, 2015–16^(a)

	Public sector providers								Sector		
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	Australia ^(b)
Number											
Prostate cancer	1,877	1,083	967	586	166	190	131	39	5,039	3,296	8,335
Lung cancer	1,144	972	646	212	125	71	38	41	3,249	1,269	4,518
Head and neck cancers	521	498	473	163	92	46	27	55	1,875	520	2,395
Colorectal cancer	400	357	200	84	46	48	41	13	1,189	606	1,795
Lymphoma	229	238	104	72	43	25	23	6	740	251	991
Secondary cancers	83	13	99	371	304	281	202	0	1,353	665	2,018
Other cancer	2,462	1,834	1,439	701	349	244	152	93	7,274	3,346	10,620
Non cancer	50	0	5	12	2	4	5	0	78	52	130
Not stated	0	0	0	56	0	5	2	0	63	61	124
Total	6,766	4,995	3,933	2,257	1,127	914	621	247	20,860	10,066	30,926
Per cent											
Prostate cancer	27.7	21.7	24.6	26.0	14.7	20.8	21.1	15.8	24.2	32.7	27.0
Lung cancer	16.9	19.5	16.4	9.4	11.1	7.8	6.1	16.6	15.6	12.6	14.6
Head and neck cancers	7.7	10.0	12.0	7.2	8.2	5.0	4.3	22.3	9.0	5.2	7.7
Colorectal cancer	5.9	7.1	5.1	3.7	4.1	5.3	6.6	5.3	5.7	6.0	5.8
Lymphoma	3.4	4.8	2.6	3.2	3.8	2.7	3.7	2.4	3.5	2.5	3.2
Secondary cancers	1.2	0.3	2.5	16.4	27.0	30.7	32.5	0.0	6.5	6.6	6.5
Other cancer	36.4	36.7	36.6	31.1	31.0	26.7	24.5	37.7	34.9	33.2	34.3
Non cancer	0.7	0.0	0.1	0.5	0.2	0.4	0.8	0.0	0.4	0.5	0.4
Not stated	0.0	0.0	0.0	2.5	0.0	0.5	0.3	0.0	0.3	0.6	0.4
Total^(b)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Based on data reported about the principal diagnosis associated with the course of radiotherapy. Principal diagnosis data should be treated with caution, as the way data providers interpret the definition of principal diagnosis varies. Diagnoses are reported as an ICD-10-AM (9th edition) code and grouped here as follows: prostate cancer (C61), lung cancer (C33–C34), head and neck cancer (C00–C14, C30–C32), colorectal cancer (C18–C20), lymphoma (C81–C85), secondary cancers (C77–C79), other cancer (other codes between C00 and D48 that are not one of the top five cancers reported separately), non cancer (all other codes not between C00–D48 and Z00–Z99). Codes in the range Z00–Z99 are reported here as 'not stated' as they represent the reason for the encounter rather than the diagnosis.

(b) Totals may not equal the sum of individual cells due to rounding.

For females, 47% of all courses of radiotherapy that began in 2015–16 were for breast cancer, although this varied across states and territories and sectors, ranging from 30% to 51%. The second most common cancer treated for females was lung cancer (11%).

Table 2.2: Radiotherapy courses for top five cancers by state and territory (public providers) and sector, females, 2015–16^(a)

	Public service providers								Sector		
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	Australia ^(b)
Number											
Breast cancer	3,099	2,471	1,445	889	411	241	337	94	8,987	4,982	13,969
Lung cancer	734	695	418	171	102	50	40	34	2,244	953	3,197
Colorectal cancer	266	222	112	54	27	25	19	15	740	337	1,077
Uterine cancer	148	172	137	55	26	9	11	9	567	216	783
Lymphoma	183	173	62	36	29	14	16	5	518	184	702
Secondary cancers	88	6	n.p.	228	241	253	147	n.p.	1,029	534	1,563
Other cancer	1,876	1,440	1,079	477	264	198	148	58	5,540	2,543	8,083
Non cancer	47	0	n.p.	15	4	6	0	n.p.	82	60	142
Not stated	1	0	0	55	0	0	1	0	57	46	103
Total	6,442	5,179	3,327	1,980	1,104	796	719	217	19,764	9,855	29,619
Per cent											
Breast cancer	48.1	47.7	43.4	44.9	37.2	30.3	46.9	43.3	45.5	50.6	47.2
Lung cancer	11.4	13.4	12.6	8.6	9.2	6.3	5.6	15.7	11.4	9.7	10.8
Colorectal cancer	4.1	4.3	3.4	2.7	2.4	3.1	2.6	6.9	3.7	3.4	3.6
Uterine cancer	2.3	3.3	4.1	2.8	2.4	1.1	1.5	4.1	2.9	2.2	2.6
Lymphoma	2.8	3.3	1.9	1.8	2.6	1.8	2.2	2.3	2.6	1.9	2.4
Secondary cancers	1.4	0.1	n.p.	11.5	21.8	31.8	20.4	n.p.	5.2	5.4	5.3
Other cancer	29.1	27.8	32.4	24.1	23.9	24.9	20.6	26.7	28.0	25.8	27.3
Non cancer	0.7	0.0	n.p.	0.8	0.4	0.8	0.0	n.p.	0.4	0.6	0.5
Not stated	0.0	0.0	0.0	2.8	0.0	0.0	0.1	0.0	0.3	0.5	0.3
Total^(b)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Based on data reported about the principal diagnosis associated with the course of radiotherapy. Principal diagnosis data should be treated with caution, as the way data providers interpret the definition of principal diagnosis varies. Diagnoses are reported as an ICD-10-AM (9th edition) code and grouped here as follows: breast cancer (C50), lung cancer (C33–C34), colorectal cancer (C18–C20), uterine cancer (C54–C55), lymphoma (C81–C85), secondary cancers (C77–C79), other cancer (other codes between C00 and D48 that are not one of the top five cancers reported separately), non cancer (all other codes not between C00–D48 and Z00–Z99). Codes in the range Z00–Z99 are reported here as 'not stated' as they represent the reason for the encounter rather than the diagnosis.

(b) Totals may not equal the sum of individual cells due to rounding.

Relationship between intention of treatment and principal diagnosis

For males, the most common principal diagnosis for males was prostate cancer, of which 62% of radiotherapy treatments were curative and 34% palliative (Table D6).

For females, the most common principal diagnosis was breast cancer, of which 79% of radiotherapy treatment was curative and 17% palliative (Table D7).

For both sexes, lung cancer was the second most common principal diagnosis, with 69% of treatments for males and 68% for females being palliative, and 28% of treatments for both sexes being curative.

For secondary cancers, which are commonly associated with more advanced disease, 74% of treatments for males and 73% for females were palliative, and 15% of treatment for males, and 14% for females were curative.

2.3 Patient demographics

Sex and age

Just over half (51%) of all courses of radiotherapy that began in 2015–16 were provided to males, and 49% to females (Table D8). Of all radiotherapy courses, 70% were delivered to patients aged 60 and over (Table D9), and 0.7% were delivered to patients aged under 20. Sex and age was reported for almost all courses.

Figure 2.6 shows the distribution of courses delivered to males and females by the age of the patient. For people aged less than 60, more radiotherapy courses were delivered to females, but for those aged 60 and over, more were delivered to males.

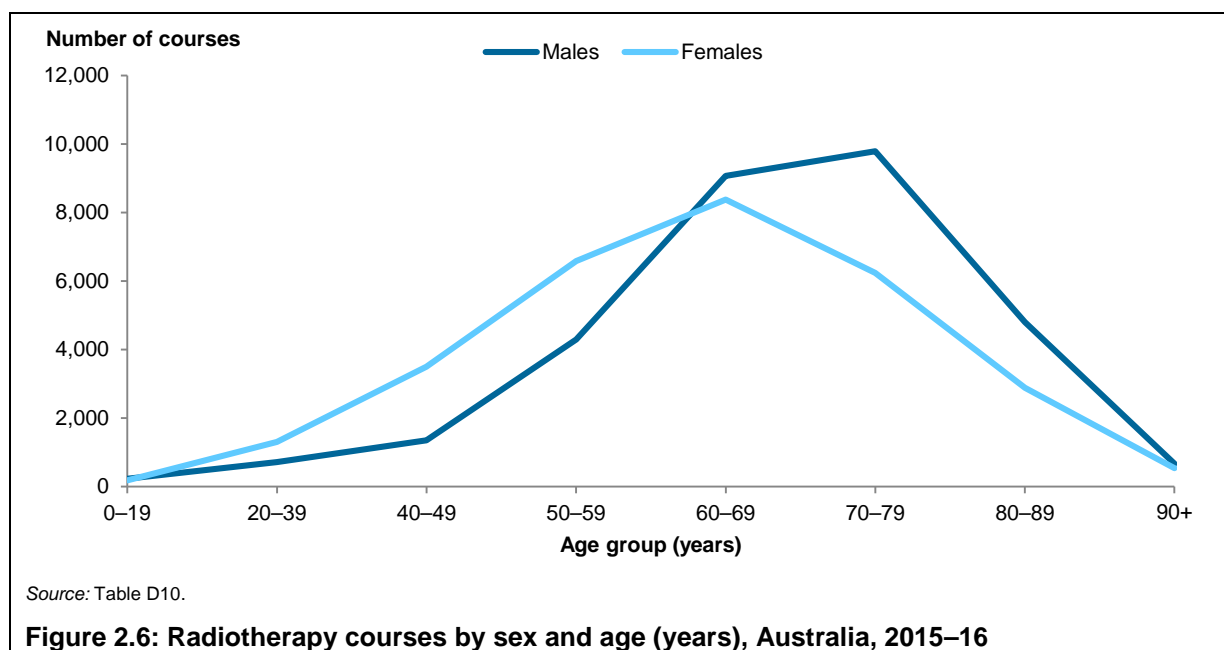


Figure 2.6: Radiotherapy courses by sex and age (years), Australia, 2015–16

Indigenous status

Nationally, 0.8% of radiotherapy courses were delivered to patients who identified as being of Aboriginal or Torres Strait Islander origin (Table 2.3). But some caution needs to be taken when comparing figures across jurisdictions and across sectors as there was a relatively high proportion of radiotherapy courses for which the Indigenous status of the patient was not reported (39%), and considerable variability across states and territories (ranging from 0.4% to 49%, and with a particularly high ‘not stated’ rate (73%) in the private sector).

Excluding cases where Indigenous status was not stated, the proportion of courses provided to Indigenous patients overall was 1.3%; Indigenous people comprised 3.1% of the Australian population in 2015 (ABS 2015). Indigenous status is not routinely collected in all services; although the proportion of courses for which Indigenous status was reported decreased since the last year of collection (62% in 2015–16, down from 66% in 2014–15) this was mainly due to new sites participating in the collection not having all data available.

Table 2.3: Radiotherapy courses by Indigenous status, state and territory (public providers) and sector, 2015–16

	Public sector providers								Sector		
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	Australia ^(a)
Number											
Indigenous	156	75	91	22	11	15	11	77	458	34	492
Non-Indigenous	11,093	8,816	4,627	2,158	1,581	1,584	1,139	385	31,383	5,390	36,773
Not stated	1,959	1,283	2,543	2,057	639	111	192	2	8,786	14,529	23,315
Total	13,208	10,174	7,261	4,237	2,231	1,710	1,342	464	40,627	19,953	60,580
Per cent											
Indigenous	1.2	0.7	1.3	0.5	0.5	0.9	0.8	16.6	1.1	0.2	0.8
Non-Indigenous	84.0	86.7	63.7	50.9	70.9	92.6	84.9	83.0	77.2	27.0	60.7
Not stated	14.8	12.6	35.0	48.5	28.6	6.5	14.3	0.4	21.6	72.8	38.5
Total^(a)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Totals may not equal the sum of individual cells due to rounding.

Area of usual residence

Area-of-residence data available in this collection enable reporting on the remoteness and socioeconomic position of the area where a patient usually lives. Some providers were unable to code patients' area of usual residence using full address details—in these cases most providers mapped from patients' suburb and postcode data to the required statistical area level 2 (SA2) code, a geographical mapping code to which the socioeconomic and remoteness characteristics of the area can be assigned (see Glossary). This method is considered to be sufficient to identify an area of usual residence (ABS 2012).

For 2015–16, 12% of all courses area-of-usual-residence data was not reported or could not be assigned (for example, people living overseas). Most of these records were from sites in Victoria, South Australia, or the private sector. This figure is a substantial increase on the previous reporting period in 2014–15, where area of usual residence was unassigned for 2.7% of courses. Victoria did provide additional information so that a state or territory of usual residence could be assigned for Table 2.4, but data on the specific region in which the patient lived were unavailable.

Area-of-residence data also enable analysis of the number of patients who receive treatment in a state or territory other than the one in which they usually live, which can be important for planning purposes. Table 2.4 presents data on cross-border flows for public sector providers (private sector providers have been excluded from this analysis to protect confidentiality). This table shows that cross-border flows had the most effect on the Australian Capital Territory—40% of treatment (comprising 531 courses) provided in the Australian Capital Territory was delivered to people from New South Wales.

Table 2.4: Public sector radiotherapy courses, by state or territory of usual residence of the patient and treatment location, 2015–16

	State where treatment was provided (public sector providers)								Total ^(b)
	NSW	Vic ^(a)	Qld	WA	SA	Tas	ACT	NT ^(b)	
Patient's usual residence									
NSW	13,130	131	125	0	39	0	531	n.p.	13,956
Vic	10	9,945	7	3	15	0	4	0	9,984
Qld	17	14	7,119	1	0	0	3	0	7,154
WA	1	1	4	4,230	3	0	0	n.p.	4,239
SA	9	19	1	0	2,024	0	0	0	2,053
Tas	1	37	2	0	2	1,710	0	n.p.	1,752
ACT	18	2	0	1	0	0	804	n.p.	825
NT	2	4	3	1	33	0	0	457	500
Overseas	20	2	0	1	0	0	0	0	23
Not stated	0	19	0	0	115	0	0	0	134
Australia	13,208	10,174	7,261	4,237	2,231	1,710	1,342	464	40,627

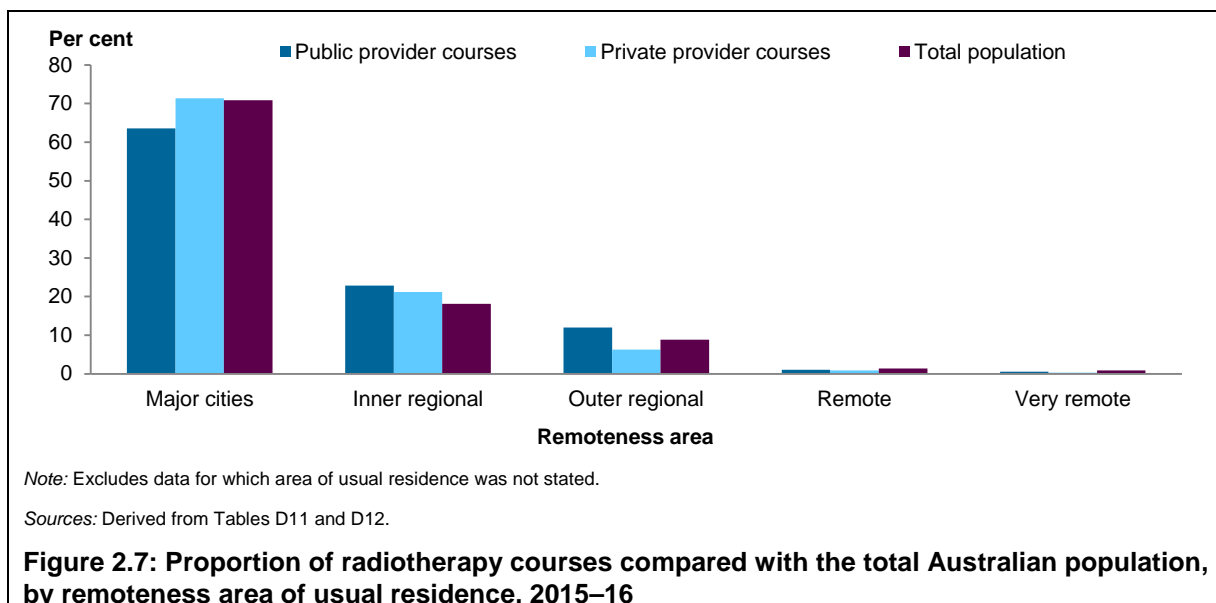
(a) Supplementary data supplied by Victoria.

(b) Some data for Northern Territory have been suppressed to meet Northern Territory data suppression requirements. Where cells have been suppressed, they have also been excluded from the row totals.

Remoteness

In 2015–16, 58% of courses of radiotherapy were delivered to patients who lived in *Major cities*, 20% lived in *Inner regional areas*, 9.0% in *Outer regional areas*, 0.9% in *Remote areas*, and 0.4% in *Very remote areas*. For 12% of courses, an area of usual residence was not assigned (Table D11).

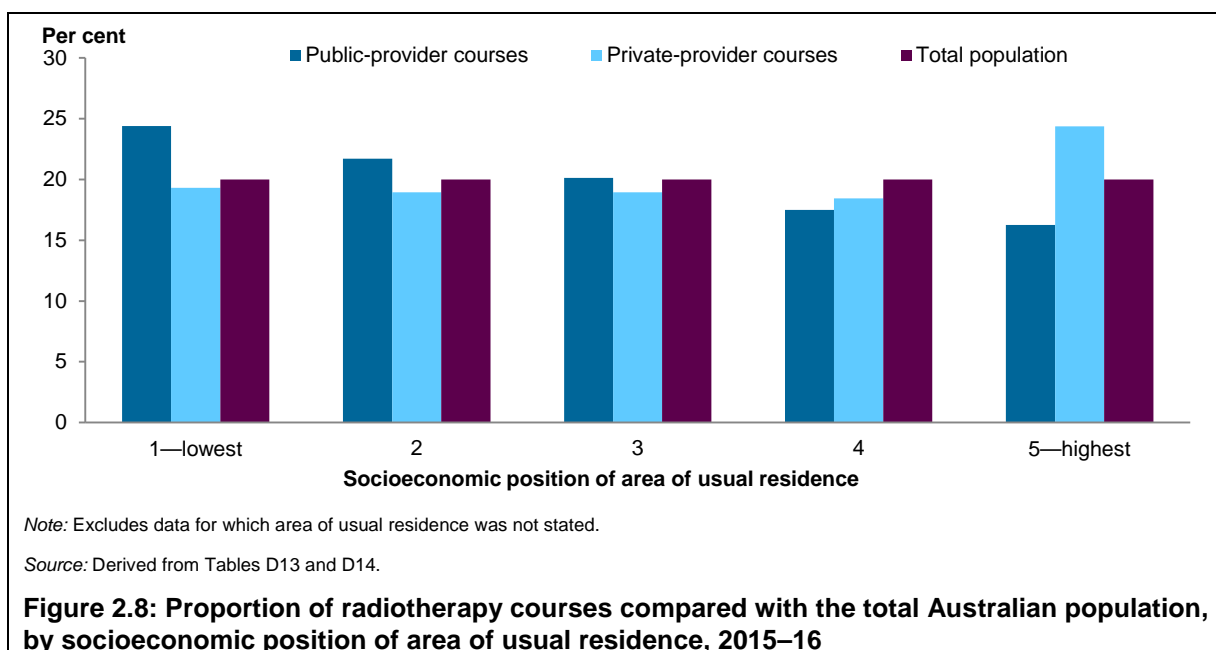
Table D12 and Figure 2.7 show the remoteness area in which patients lived compared with the proportions of the Australian population living in these areas (see Box 2.1 for a description of the remoteness areas used). Geographic data on area of usual residence are not adjusted for age and other factors that may influence the need for services (see section on 'Standardisation' in Chapter 1).



Socioeconomic position

Figure 2.8 provides information on the socioeconomic position of the areas in which radiotherapy patients lived compared with the distribution of the Australian population as a whole, for those courses where the area of usual residence of the person was reported (see Box 2.3 for information on the way this information is derived).

In 2015–16, patients who began receiving radiotherapy were more likely to live in areas classified as being of low socioeconomic position than in areas of higher socioeconomic position. Overall, 20% of courses of radiotherapy that began in the period were provided to patients who lived in the lowest socioeconomic area compared with 17% who lived in the highest socioeconomic area (Table D13). Data presented in this publication are not adjusted for age and other factors that may influence the need for services (see section on ‘Standardisation’ in Chapter 1).



Box 2.3: Socioeconomic position

Data on socioeconomic position groups are defined using the ABS's Socio-Economic Indexes for Areas (SEIFA) 2011 (ABS 2013b).

The ABS generated the SEIFA 2011 data using a combination of 2011 Census data such as income, education, health problems/disability, Internet access, occupation/unemployment, wealth and living conditions, dwellings without motor vehicles, rent paid, mortgage repayments, and dwelling size. Composite scores are averaged across all people living in Census collection districts, and also compiled for higher levels of aggregation. The SEIFAs are described in detail on the ABS website <www.abs.gov.au>.

The SEIFA Index of Relative Socio-Economic Disadvantage is one of the ABS's SEIFA indexes. The relative disadvantage scores indicate the collective socioeconomic position of the people living in an area, with reference to the situation and standards applying in the wider community at a given point in time. A relatively disadvantaged area is likely to have a high proportion of people of low socioeconomic position, though, such an area is also likely to contain people who are have a relatively high socioeconomic position.

Each socioeconomic group contains 20% of the national population, though this distribution is not even within each state and territory.

Breakdowns by socioeconomic position are based on the area of usual residence of the patient, not the location of the radiotherapy service.

Socioeconomic position groups are as follows:

- | | |
|-----------|---------------------------------------|
| 1—lowest | lowest socioeconomic position |
| 2 | second-lowest socioeconomic position |
| 3 | middle |
| 4 | second-highest socioeconomic position |
| 5—highest | highest socioeconomic position. |

3 Radiotherapy waiting times

This chapter looks at waiting times by state and territory for public providers, private providers, and in total. A waiting time was calculated for every record with a valid ready-for-care date and radiotherapy course start date, representing 97% of courses of radiotherapy reported to the NRWTD that began in 2015–16 (almost 58,700 records) (Table D15) (see Box 3.1 for details of data exclusions for this chapter).

Data are split by public and private sector in this chapter, but comparisons should be made with caution because some data recording practices may differ across individual sites, states and territories, and sectors, particularly in the way ready-for-care dates are set, which affects the calculation of waiting times. These differences may also reflect varying service provision arrangements between the public and private sectors (and in both sectors across jurisdictions). Data providers have supported a continuing work program to improve the comparability of the data.

Comparison of waiting times between 2013–14, 2014–15 and 2015–16 should be treated with caution due to differences in participation rates by private radiotherapy providers (as outlined in Chapter 2), which generally report shorter waiting times. Of all records submitted by the private sector, 91% contained waiting times data, compared with almost 100% of records submitted by the public sector. Submission of data on radiotherapy courses with valid waiting times by private providers in the 2015–16 collection was greater than in previous years.

Waiting times are presented as the number of days a patient waited at the 50th and 90th percentiles (rounded to the nearest number of whole days). The 50th percentile (the median waiting time, or the middle value in a group of data arranged from lowest to highest for the number of days waited) represents the number of days within which 50% of patients began radiotherapy treatment. The 90th percentile data represent the number of days within which 90% of patients began treatment.

For the reporting of waiting times for emergency courses against the emergency timeframe, data are presented as the proportion of courses where treatment began either on the same day or the day after the patient was ready for care. This is as for the proposed performance indicator discussed in Chapter 1.

Waiting times and ready-for-care dates are further explained in Box 1.2.

Box 3.1: Data exclusion and suppression for analysis of waiting times

Exclusion of missing data from analysis of waiting times for specific variables

In this chapter, waiting times for records where the variable being looked at was not stated are not reported as part of that breakdown (but are included in other waiting times analyses based on other variables). For example, if the intention of treatment was not stated, waiting times are published for these records in the intention-of-treatment breakdown. The extent of missing data for each variable is reported in Chapter 2 and the associated appendix tables.

Exclusion of missing and negative waiting times

In 2015–16, just over 1,880 records had missing waiting times or negative waiting times (where the ready-for-care date was after the radiotherapy start date). The majority of these records were from the two private sites that were unable to provide ready-for-care dates for 2015–16, which was their first year of participation in the collection. All negative or missing waiting times have been excluded from all waiting times calculations.

Suppression of data with small numbers of courses

In this report, waiting times are suppressed for all calculations where the number of contributing courses of radiotherapy was less than 20—that is, for the 50th and 90th percentile, and the proportion of emergency patients calculations. This is because the waiting times reported are likely to be highly volatile when the number of courses of radiotherapy is small.

3.1 Overview of waiting times

Overall, in 2015–16, 50% of patients received treatment within 9 days (compared with 10 days in 2014–15 and 12 days in 2013–14), and 90% of patients received treatment within 27 days (compared with 28 days in 2014–15 and 31 days in 2013–14) (Figure 3.1). The change in profile of participating providers has had an impact on the changes in waiting times between years (this is discussed in more detail in this section).

In relation to public providers, states and territories with lower waiting times at the 50th percentile also generally had lower waiting times for the majority of patients (as represented by the 90th percentile) (Figure 3.1). Across jurisdictions, waiting times at the 50th percentile varied from 6 to 15 days (13 days for public sites). At the 90th percentile, results varied from 16 to 30 days (28 days for public sites). This compares with waiting times of 12 and 29 days for public providers at the 50th and 90th percentiles respectively in 2014–15 and 12 and 31 days for public providers in 2013–14.

Waiting times for private providers were 6 days at the 50th percentile, and 20 days at the 90th percentile. This compares with 6 and 22 days, respectively, for 2014–15 and 12 and 28 days, respectively, for 2013–14. But private provider participation rates were much lower in 2013–14 than in 2014–15 and 2015–16, and this difference reduces comparability between reporting periods.

Comparison of waiting times across sectors may be problematic and should be treated with some caution, as outlined earlier in this chapter. Data for private providers are included in the total figures for Australia.

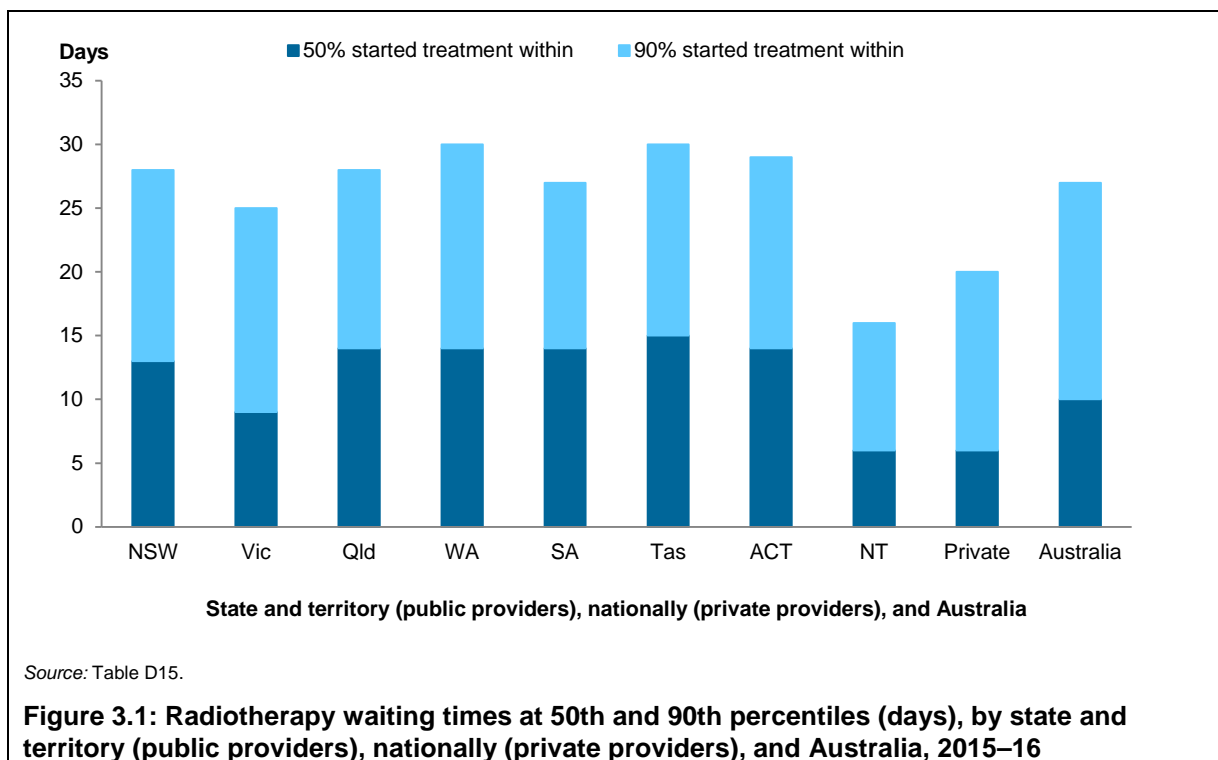
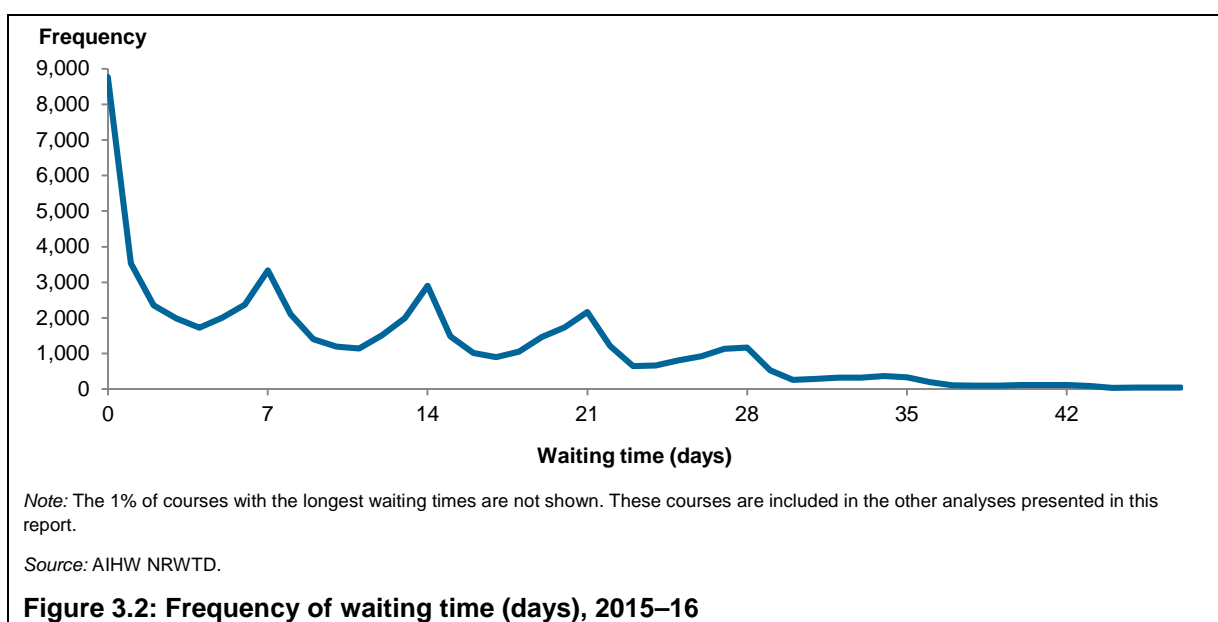


Figure 3.2 shows the frequency of waiting times (in days) reported in 2015–16 across Australia. Waiting times peaked about each seven days, which reflects that most services are closed on the weekend, and that patients who start a course of radiotherapy usually do so towards the beginning of a working week. Of all patients, 99% were treated within 46 days during 2015–16—a reduction in waiting times from 55 days in 2014–15, and 62 days in 2013–14. But caution should be used in interpreting these results, due to the differences in participation rates by private providers between years. The remaining 1.0% of courses (not shown in Figure 3.2) included some waiting times substantially greater than 46 days, which are likely to indicate data quality issues associated with the reporting of data for some courses of radiotherapy.



3.2 Clinical characteristics

This section presents radiotherapy waiting times by:

- intention of treatment,
- emergency status, and
- principal diagnosis.

Intention of treatment

The intention of treatment may be prophylactic, curative, or palliative (see Box 2.2). The intent might change during the course of treatment, following additional diagnostic information. For example, this occurs regularly in cases of lung cancer, where patients may have begun curative treatment, but additional results becoming available lead to their treatment being re-classified as palliative. At this time, the treatment plan would be modified based on the most recent results, the patient's ready-for-care date would be reviewed, and (potentially) a new course of radiotherapy would begin. But this may not be current practice in all services, and so is likely to affect some reported waiting times and data quality overall in this collection.

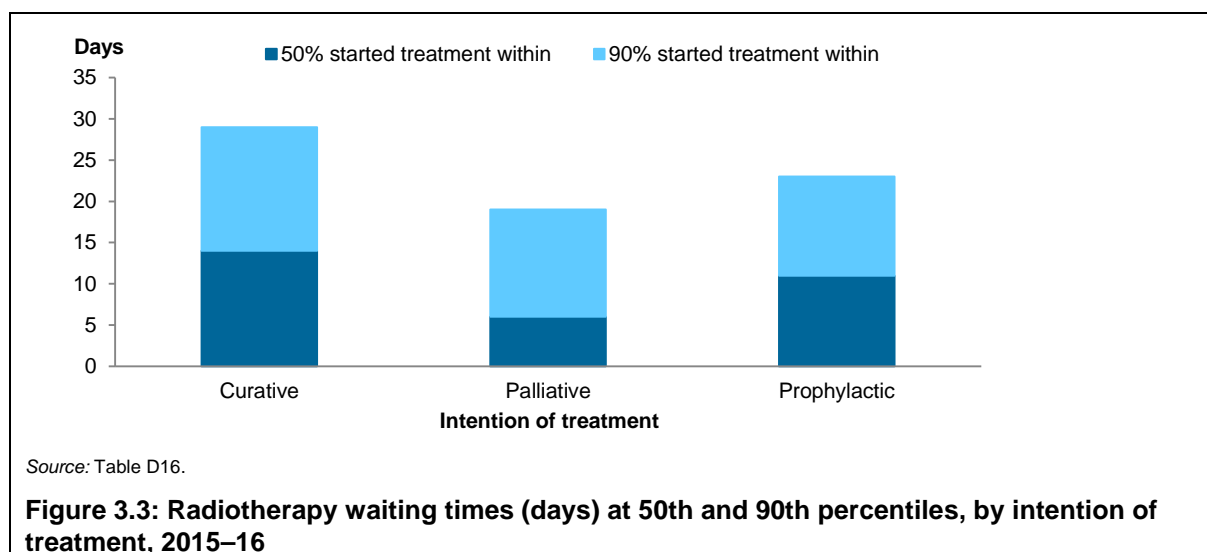
When considering waiting times by intention of treatment, in most (but not all) cases, palliative patients need less complex treatment techniques, so it is 'often relatively simple to fit in a short palliative schedule without causing significant delay to other patients' (RANZCR 2013).

For patients who received radiotherapy to cure disease, 50% started treatment within 14 days, and 90% within 29 days (Figure 3.3).

For those who received palliative radiotherapy, 50% started treatment within 6 days, and 90% within 19 days.

And for those who were treated to prevent further disease (prophylactic), 50% started treatment within 11 days, and 90% within 23 days.

Across states and territories and the private sector, median waiting times varied by intent: for curative radiotherapy, between 7 and 21 days; for palliative radiotherapy, between 4 and 12 days; and for prophylactic radiotherapy, between 5 and 17 days (Table D16).



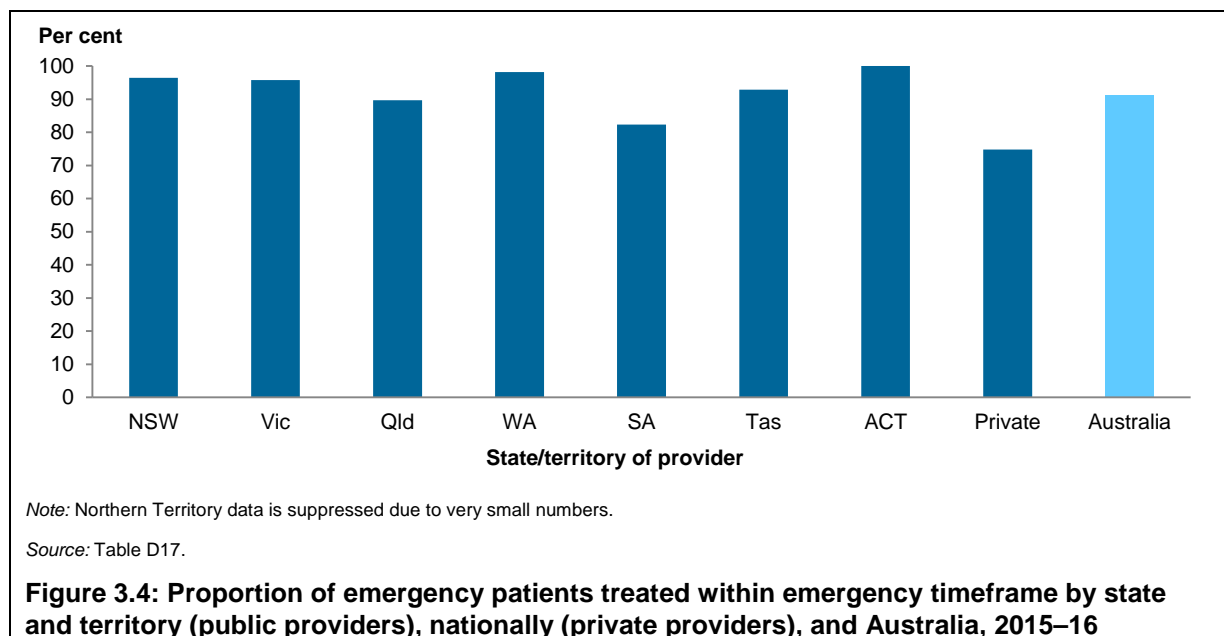
Emergency status

Patients who need emergency treatment are those for whom the treating clinician has assessed that the waiting time for treatment should not exceed 24 hours. But as this collection measures waiting times in days, rather than hours, in this report patients needing emergency treatment are reported as having had treatment on time if they had it either on the same day they were ready for care, or the following day.

For patients clinically assessed as needing emergency care, treatment usually does not rely on radiotherapy alone; a patient is likely to begin other treatments (for example, medication or chemotherapy) almost immediately after being recognised as needing emergency treatment, with the intention that radiotherapy will follow within 24 hours.

For those who started emergency treatment in 2015–16, 91% began treatment within the emergency timeframe, and 8.7% waited two days or longer (Figure 3.4). The percentage of emergency treatments that began within the emergency timeframe is the same as those seen in 2014–15 and 2013–14. The proportion treated within the emergency timeframe varied across states and territories, from 82% to 100%, though in some jurisdictions the number of emergency courses was very small (Figure 3.4).

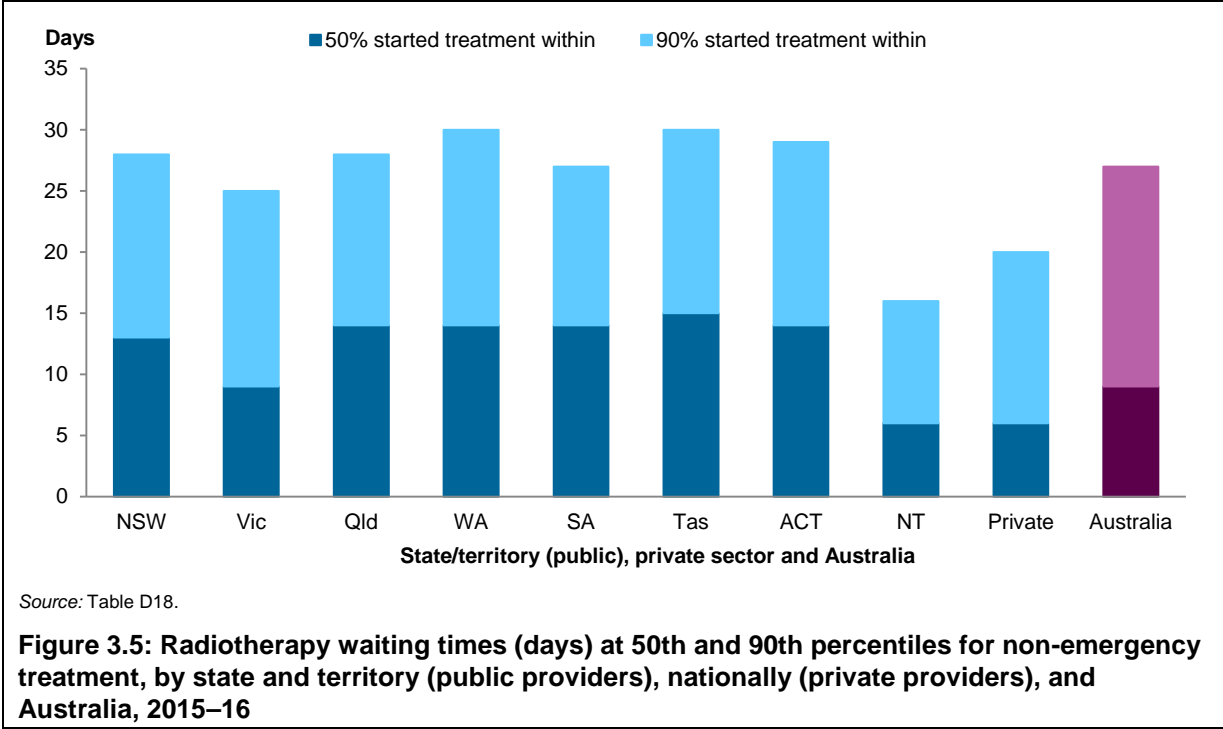
There was variation between the public and private sectors, with 94% of emergency patients beginning treatment within the recommended timeframe in the public sector, compared with 75% in the private sector. Analysis of the distribution of the data suggests that the lower percentage of courses meeting the emergency timeframe in the private sector may be due to data quality issues associated with reporting of this information for the sector, and perhaps indicating a different application of this data item in the private sector. For example in the private sector the longest 10% of waiting times for emergency patients were over 6 days, whereas this was only 1.1% in the public sector.



In 2015–16, 50% of non-emergency patients waited for treatment for 9 days or less, and 90% of patients waited for 27 days or less (Figure 3.5). As emergency patients made up a very small proportion (2.0%) of radiotherapy cases, the results for non-emergency patients are the same as the results for all courses.

The median waiting times across states and territories (for public sector providers) varied from 6 to 15 days, and 90% of non-emergency courses started within a range of 16 to 30 days (Table D18).

In the private sector, 50% of non-emergency patients waited for treatment for 6 days or less, while 90% of patients waited 20 days or less.



Principal diagnosis

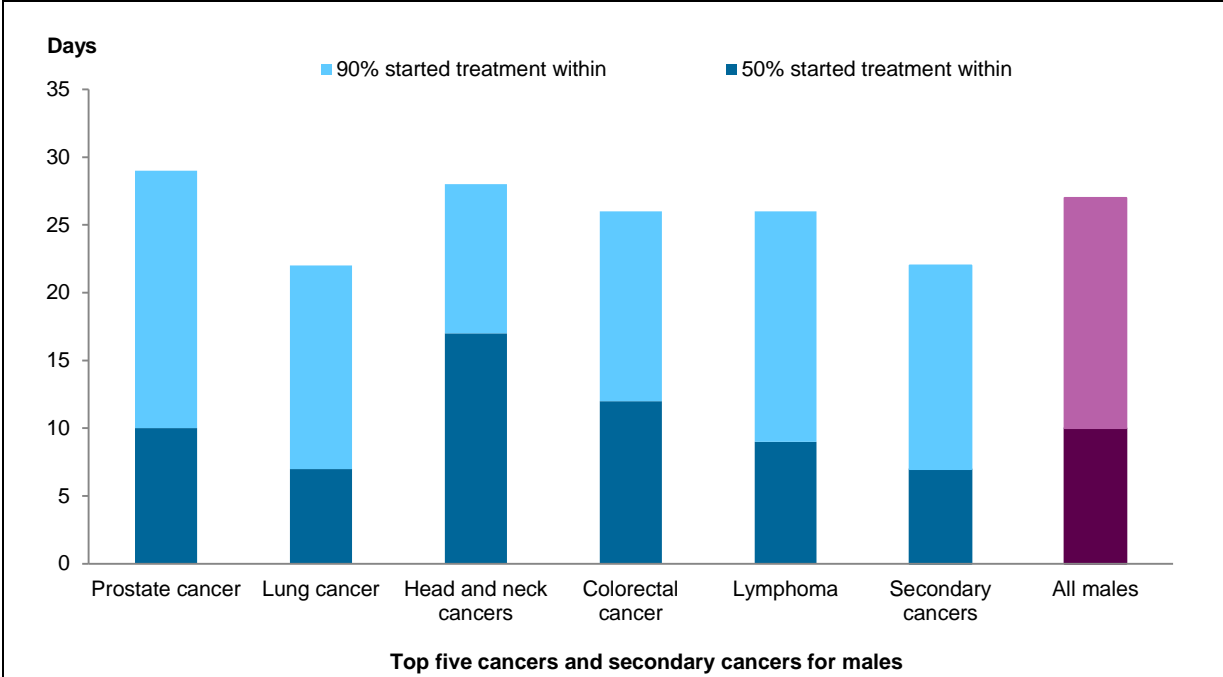
The majority of radiotherapy treatment is delivered to treat cancer. Figures 3.6 and 2.7 present waiting times for radiotherapy for the five most frequently reported cancers and secondary cancers in the NRWTD for males and females, respectively. For those principal diagnoses that appear in the lists for both males and females (lung cancer, colorectal cancer, lymphoma, and secondary cancers) there is little difference between waiting times for males and females. The data should be treated with caution given the apparent data quality issues associated with the reporting of principal diagnosis data (see ‘Principal diagnosis’ section in Chapter 2).

For males, the longest waiting times at the 50th percentile were for head and neck cancers (17 days), while the longest waiting times at the 90th percentile was for prostate cancer (29 days) (Figure 3.7). For females, the longest waiting times at the 50th percentile were for colorectal cancer (12 days), and at the 90th percentile, it was for breast cancer (28 days) (Figure 3.7).

For both males and females, the shortest waiting times at both the 50th and 90th percentiles were for secondary cancers and lung cancer—50% were treated within 7 days for both lung cancer and secondary cancers.

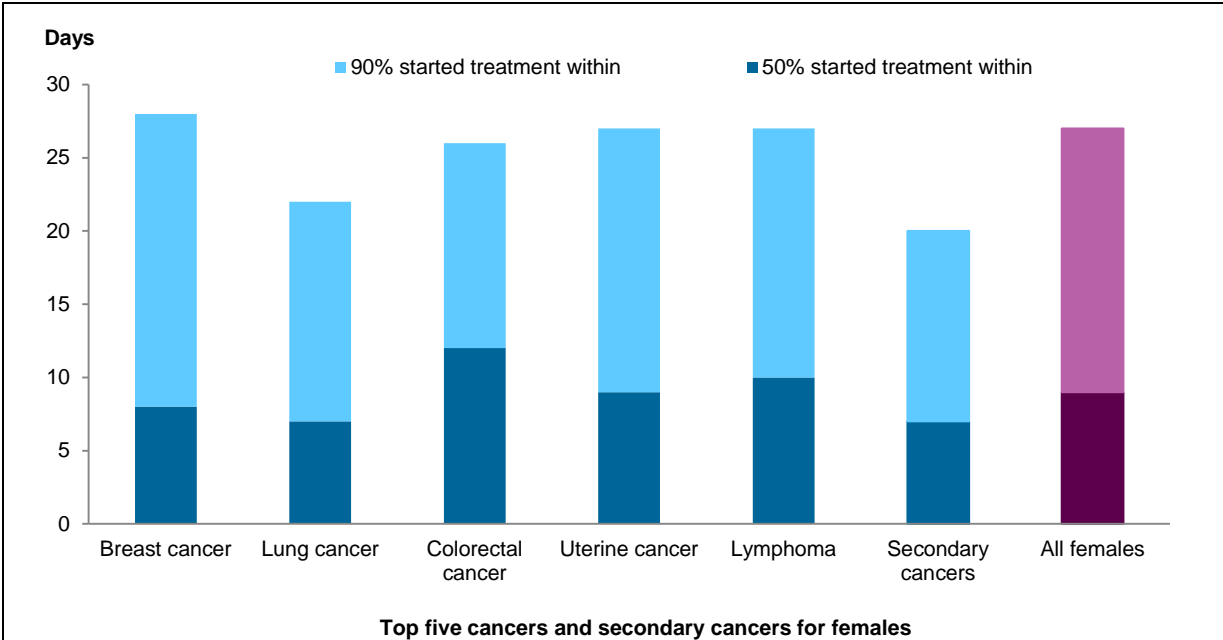
A small number of non-cancer conditions are treated with radiotherapy. Of these non-cancer cases, 50% started treatment within 5 days, and 90% within 62 days (non-cancer codes are ICD-10-AM principal diagnosis codes that are not between

C00 and D48 (cancer codes) or other non-diagnosis codes such as Z codes—which are considered ‘not stated’).



Sources: Tables D19 and D23.

Figure 3.6: Radiotherapy waiting times (days) at 50th and 90th percentiles for the top five cancers for which radiotherapy was provided, males, 2015–16



Sources: Tables D20 and D23.

Figure 3.7: Radiotherapy waiting times (days) at 50th and 90th percentiles for the top five cancers for which radiotherapy was provided, females, 2015–16

Relationship between intention of treatment and principal diagnosis

There is a relationship between the intention of treatment and principal diagnosis. For example, certain types of cancer are more likely than others to be treated palliatively (lung cancer and secondary cancers), while others are more likely to be treated curatively (breast cancer and head and neck cancers).

Tables D21 and D22 show waiting times at the 50th and 90th percentiles by principal diagnosis (the five most frequently reported cancers and secondary cancers) and intention of treatment, for males and females, respectively.

Median waiting times for males being treated for prostate cancer were 15 days when curative, and 6 days when palliative. Median waiting times for females being treated for breast cancer were 10 days when curative, and 5 days when palliative. This may indicate that the intention of treatment has more influence on waiting time than the principal diagnosis.

3.3 Patient demographics

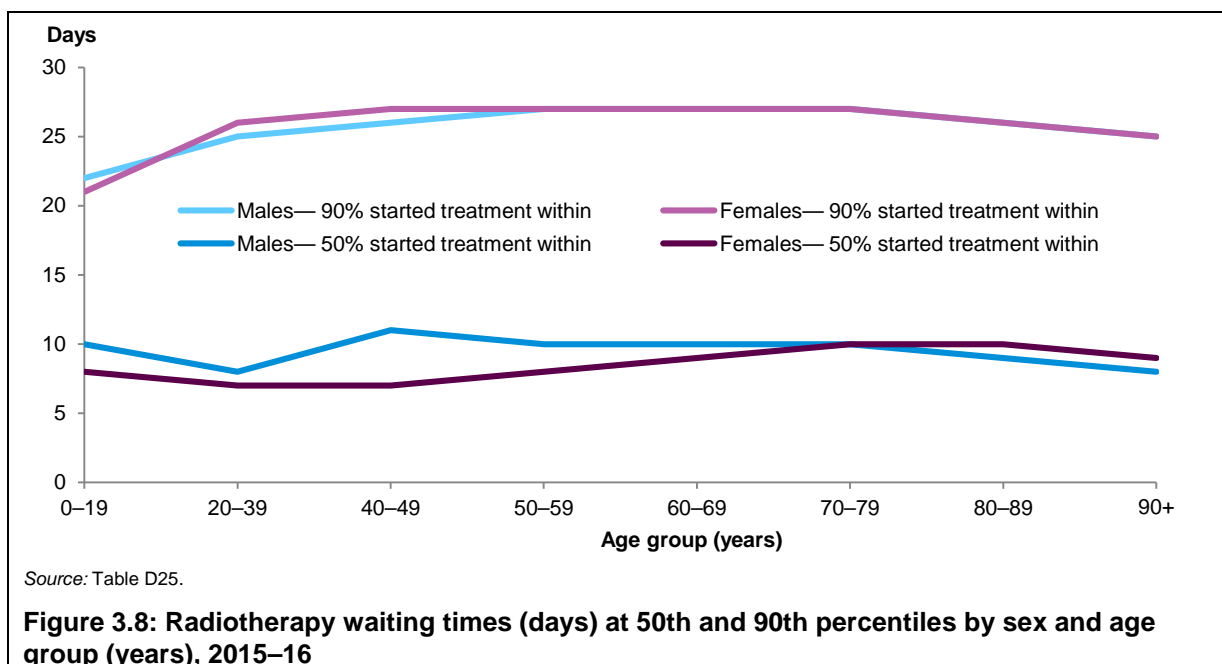
Sex and age

Nationally, males and females were treated within very similar timeframes, with some variation across states and territories (Table D23).

Among public sector providers, median waiting times for males varied between 6 and 15 days, and for females the range was between 5 and 15 days.

For both males and females receiving treatment in the private sector, 50% were treated within 6 days, compared with 13 for males and 12 days for females in the public sector.

Although waiting times varied across the age groups, 50% of patients waited between 7 days (for those aged 20–39) and 10 days (for those aged 60–89), while 90% of patients waited between 22 days (for those aged 0–19) and 25–27 days for all other age groups (Table D24).



Indigenous status

Overall, Aboriginal or Torres Strait Islander patients had lower waiting times than non-Indigenous patients—50% of Indigenous patients waited for treatment 8 days or less (compared with 11 days or less for non-Indigenous patients), and 90% of Indigenous patients waited 25 days or less (compared with 28 days for non-Indigenous patients) (Table D26).

Shorter waiting times for Indigenous patients may, in part, reflect a disproportionately high percentage of radiotherapy courses delivered to Indigenous Australians in the Northern Territory, where overall waiting times for radiotherapy were shorter than other jurisdictions—in the Northern Territory, 17% of courses were delivered to Indigenous Australians compared with 0.8% of courses delivered nationwide.

Indigenous patients were also more likely than non-Indigenous patients to receive radiotherapy for palliative care, which made up 47% of care delivered to Indigenous Australians compared with 38% for non-Indigenous Australians. Due to the extent of missing data, as well as data quality concerns (as outlined in Chapter 2, Table 2.3), these results should be interpreted with caution.

Area of usual residence

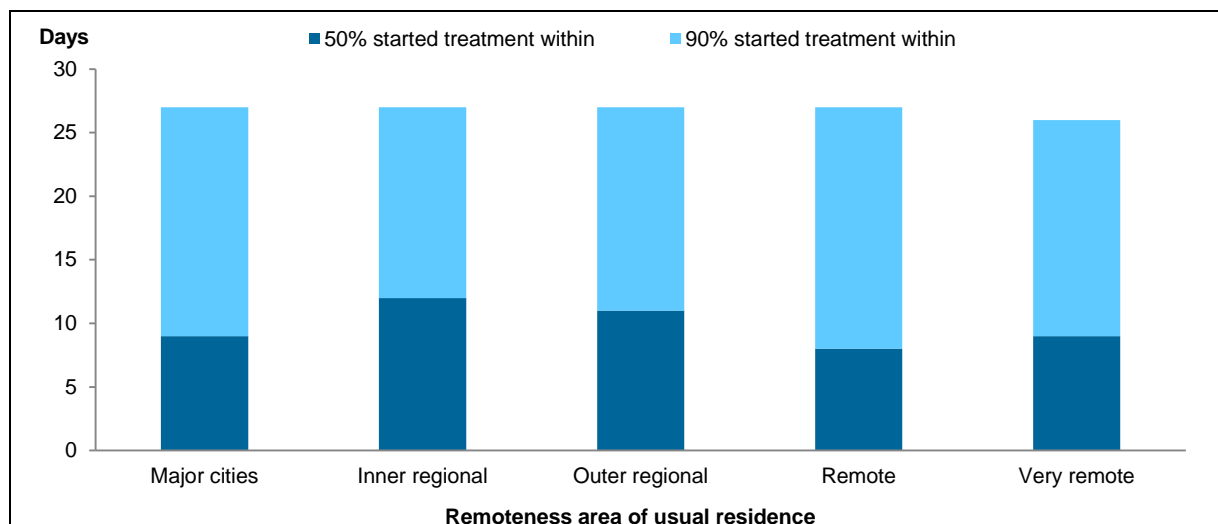
Area-of-residence data available in this collection enables reporting on the remoteness and socioeconomic position of the area where a patient usually lives (see Section 2.3 for an explanation of the limitations inherent in using area-of-usual-residence data).

Differences between distributions of services across sectors should be kept in mind when considering differences in waiting times by remoteness and socioeconomic position. For example, people who usually reside in an area classified as the highest socioeconomic position are more likely to attend private providers, who have lower overall waiting times.

Remoteness areas

Figure 3.9 shows waiting times for patients based on the remoteness area in which they usually live (see Box 2.1 for a description of the remoteness area categories). People who lived in *Remote* areas had lower reported median waiting times (8 days) compared with those living in the other geographic areas, the highest being *Inner Regional* at 12 days. At the 90th percentile, waiting times for all geographic areas were 27 days, except for *Very remote* areas, where the waiting time was 26 days.

For people who live in *Remote* areas, these data may not give a comparable picture of how long they wait for radiotherapy—there may be different treatment pathways, possibly involving waiting for radiation oncologists who visit remote areas regularly, or having to make arrangements to visit treatment sites elsewhere.



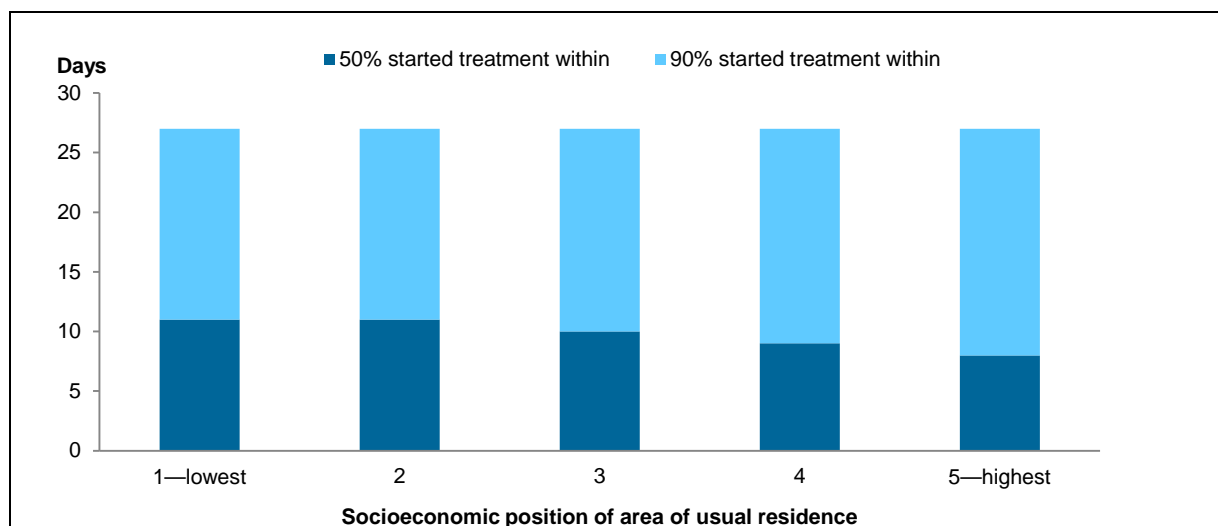
Source: Table D27.

Figure 3.9: Radiotherapy waiting times (days) at 50th and 90th percentiles by remoteness area of usual residence, 2015–16

Socioeconomic position

Figure 3.10 presents waiting times by socioeconomic position. Fifth 1 represents the areas of lowest socioeconomic position in Australia, and fifth 5 the areas of highest socioeconomic position (see Box 2.3 for an explanation of socioeconomic position).

Nationally, the lowest median waiting time was for patients living in the fifth with the highest socioeconomic position (8 days). Waiting times increased as socioeconomic position decreased, with the two lowest socioeconomic fifths waiting the longest time (11 days). At the 90th percentile, patients in all areas were treated within 27 days.



Source: Table D28.

Figure 3.10: Radiotherapy waiting times (days) at 50th and 90th percentiles, by socioeconomic position of area of usual residence, 2015–16

Appendix A: Participating radiotherapy providers

Table A1: Radiotherapy service providers in Australia, by public/private provider status and participation status, 2013–14, 2014–15, and 2015–16

	Public provider	Private provider	2013–14	2014–15	2015–16
New South Wales					
Blacktown Cancer and Haematology Centre	✓				●
Calvary Mater Newcastle	✓		●	●	●
Central Coast Cancer Centre (Gosford Hospital)	✓		●	●	●
Central West Cancer Service (Orange Base Hospital)	✓		●	●	●
Chris O'Brien Lifehouse (Sydney) ^(a)		✓	●	●	●
Crown Princess Mary Cancer Centre (Westmead Hospital, Sydney)	✓		●	●	●
Genesis CancerCare Hurstville (Waratah Private Hospital)		✓		●	●
Genesis CancerCare, Macquarie University Hospital (Sydney)		✓		●	●
Genesis CancerCare, Newcastle (Lake Macquarie Private Hospital)		✓		●	●
Genesis CancerCare St Vincent's Clinic (Sydney) ^(b)		✓		●	●
Genesis CancerCare, The Mater Hospital (Sydney)		✓		●	●
Illawarra Cancer Care Centre (Wollongong Hospital)	✓		●	●	●
Liverpool Cancer Therapy Centre	✓		●	●	●
Macarthur Cancer Therapy Centre (Campbelltown Hospital)	✓		●	●	●
Mid North Coast Cancer Institute, Coffs Harbour	✓		●	●	●
Mid North Coast Cancer Institute, Port Macquarie	✓		●	●	●
Nepean Cancer Care Centre	✓		●	●	●
North Coast Cancer Institute (Lismore Base Hospital)	✓		●	●	●
North West Cancer Centre (Tamworth Hospital)	✓		●	●	●
Prince of Wales Hospital (Sydney)	✓		●	●	●
Radiation Oncology Centres, Gosford		✓		●	●
Radiation Oncology Centres, Wahroonga		✓		●	●
Riverina Cancer Care Centre (Wagga Wagga)		✓	●	●	●
Royal Prince Alfred Hospital (Sydney) ^(a)	✓		●		
Royal North Shore Hospital (Sydney)	✓		●	●	●
Shoalhaven Cancer Care Centre (Shoalhaven District Memorial Hospital)	✓		●	●	●
St George Cancer Care Centre (Sydney)	✓		●	●	●
St Vincent's Hospital (Sydney) ^(b)	✓		●	●	

(continued)

Table A1 (continued): Radiotherapy service providers in Australia, by public/private provider status and participation status, 2013–14, 2014–15, and 2015–16

	Public provider	Private provider	2013–14	2014–15	2015–16
Victoria					
Andrew Love Cancer Centre (University Hospital, Geelong)	✓		●	●	●
Austin Radiation Oncology Centre, Olivia Newton-John Cancer and Wellness Centre (Melbourne)	✓		●	●	●
Ballarat Austin Radiation Oncology Centre	✓		●	●	●
Epworth Radiation Oncology, Freemasons (Melbourne)		✓	●	●	●
Epworth Radiation Oncology, Richmond		✓	●	●	●
Peter MacCallum Cancer Centre, Bendigo (Bendigo Radiotherapy Centre)	✓		●	●	●
Peter MacCallum Cancer Centre, Box Hill (Epworth Eastern Medical Centre)	✓		●	●	●
Peter MacCallum Cancer Centre, East Melbourne	✓		●	●	●
Peter MacCallum Cancer Centre, Moorabbin (Monash Medical Centre)	✓		●	●	●
Peter MacCallum Cancer Centre, Sunshine (Sunshine Hospital Radiation Therapy Centre)	✓		●	●	●
Radiation Oncology Victoria, Casey (Casey Radiation Oncology Centre)		✓		●	●
Radiation Oncology Victoria, Epping (Epping Medical and Specialist Centre)		✓	●	●	●
Radiation Oncology Victoria, Frankston (Frankston Private)		✓	●	●	●
Radiation Oncology Victoria, Murray Valley (Murray Valley Private Hospital, Wodonga)		✓	●	●	●
Radiation Oncology Victoria, Ringwood (Ringwood Private Hospital)		✓	●	●	●
Radiation Oncology Victoria, Western (Western Private Hospital, Footscray)		✓	●	●	●
William Buckland Radiotherapy Centre, Gippsland (La Trobe Regional Hospital, Traralgon)	✓		●	●	●
William Buckland Radiotherapy Centre, The Alfred Hospital (Melbourne)	✓		●	●	●
Queensland					
Cairns Base Hospital ^(c)	✓				●
Genesis CancerCare, Chermside (Brisbane)		✓			●
Genesis CancerCare, Nambour (Sunshine Coast)		✓			●
Genesis CancerCare, Tugun (Gold Coast)		✓			●
Genesis CancerCare, Southport (Gold Coast)		✓			●
Genesis CancerCare, Wesley (Brisbane)		✓			●
Gold Coast University Hospital ^(d)	✓				●
Princess Alexandra Hospital (Brisbane)	✓		●	●	●

(continued)

Table A1 (continued): Radiotherapy service providers in Australia, by public/private provider status and participation status, 2013–14, 2014–15, and 2015–16

	Public provider	Private provider	2013–14	2014–15	2015–16
Radiation Oncology at the Mater Centre (Brisbane) ^(e)	✓		●	●	●
Radiation Oncology Centres, Toowoomba ^(f)		✓	●	●	●
Radiation Oncology Centres, Bundaberg		✓		●	●
Radiation Oncology Centres, Cairns ^{(c)(f)}		✓	●	●	
Radiation Oncology Centres, Fraser Coast		✓		●	●
Radiation Oncology Centres, Gold Coast ^{(d)(f)}		✓	●	●	
Radiation Oncology Centres, Maroochydore ^(g)		✓	●		●
Radiation Oncology Centres, Springfield		✓			●
Rockhampton Hospital ^(h)	✓				
Royal Brisbane and Women's Hospital	✓		●	●	●
Townsville Hospital	✓		●	●	●
Western Australia					
Bunbury Hospital	✓			○	●
Fiona Stanley Hospital (Perth)	✓			○	●
Royal Perth Hospital	✓			○	●
Sir Charles Gairdner Hospital (Perth)	✓		●	●	●
GenesisCare, Shenton House (Joondalup)		✓			○
GenesisCare, Wembley (Perth)		✓			○
South Australia					
GenesisCare, Adelaide (St Andrew's Hospital)		✓	●	●	●
GenesisCare, Bedford Park (Flinders Private Hospital, Adelaide)		✓	●	●	●
GenesisCare, Elizabeth Vale (Calvary Central Districts Hospital, Adelaide)		✓	●	●	●
GenesisCare, Kurralt Park (Tennyson Centre, Adelaide)		✓	●	●	●
Lyell McEwin Hospital ⁽ⁱ⁾	✓		○	●	●
Royal Adelaide Hospital	✓		○	●	●
Tasmania					
Launceston General Hospital	✓		●	●	●
North West Cancer Centre (Burnie)	✓				●
Royal Hobart Hospital	✓		●	●	●

(continued)

Table A1 (continued): Radiotherapy service providers in Australia, by public/private provider status and participation status, 2013–14, 2014–15, and 2015–16

	Public provider	Private provider	2013–14	2014–15	2015–16
Australian Capital Territory					
The Canberra Hospital	✓		●	●	●
Northern Territory					
Alan Walker Cancer Care Centre (Darwin)	✓		●	●	●

● Activity and waiting times data contributed.

○ Activity data contributed only.

(a) This site was known as Royal Prince Alfred Hospital (a public provider) until November 2013. In this report, this site is reported as a private provider, but in the 2013–14 report (AIHW 2015), it was treated as a public provider.

(b) In August 2015, this site began a partnership with Genesis CancerCare St Vincent's Clinic (a private provider). In this report, this site is reported as part of Genesis CancerCare St Vincent's Clinic, but in the 2013–14 and 2014–15 reports (AIHW 2015, 2016), it was reported as St Vincent's Hospital (public provider).

(c) This site participated as Radiation Oncology Centres, Cairns (private) in 2013–14 and 2014–15, and as Cairns Base Hospital (public) in 2015–16.

(d) This site participated as Radiation Oncology Centres, Gold Coast (private) in 2013–14 and 2014–15, and as Gold Coast University Hospital (public) in 2015–16.

(e) This site participated as part of the Princess Alexandra Hospital in 2013–14.

(f) Known as Radiation Oncology Queensland (ROQ) in 2013–14.

(g) Known as Oceania, Maroochydore in 2013–14.

(h) This site opened 11 days before the end of the reporting period for this data collection, providing fewer than 20 courses of radiotherapy in that time, so data have not been submitted to the collection for 2015–16.

(i) The data for this site were reported as part of the data for the Royal Adelaide Hospital in 2013–14 and 2014–15.

Notes:

1. In this report, 'sector' relates to whether the site where treatment is delivered (facility or individual service location) is publicly or privately owned. Private providers under contract to deliver services exclusively to public patients manage some sites, and are considered to be public providers for this report. Some private sites have a contract or partnership arrangement in place to provide services to public patients, but also provide services to private patients. In this report these services are characterised as private, along with services that provide services to private patients only.

2. Blank cells indicate years in which that site either did not operate or did not provide data to the collection.

Appendix B: Data quality summary

National Radiotherapy Waiting Times Database, 2015–16

The National Radiotherapy Waiting Times Database (NRWTD) (METeOR identifier: 598445) is a compilation of data supplied to the AIHW based on the Radiotherapy Waiting Times National Minimum Data Set (NMDS) (METeOR identifier: 579304), which were collected from participating radiotherapy providers for the period 2015–16. This is the first year of data collection under NMDS arrangements, though data for 2013–14 and 2014–15 were collated as pilot collection data supported by a data set specification.

Each record provides information relating to a course of radiotherapy that began in the reference period (that is, where the waiting period associated with the course of radiotherapy ended in the reference period). Other data collected includes administrative details, patient demographic characteristics and some clinical information, including:

- establishment identifier
- establishment location (Australian Statistical Geography Standard 2011, SA2)
- ready-for-care date
- radiotherapy start date
- person identifier
- emergency status (yes/no)
- intention of treatment (curative, palliative, prophylactic)
- principal diagnosis (ICD-10-AM 9th edition)
- sex
- date of birth
- Indigenous status
- patient area of usual residence (SA2).

Summary of key issues

Reporting by radiotherapy providers for this NMDS was mandatory for public providers; all private providers also participated on a voluntary basis. The way in which data definitions are applied may vary, particularly the setting of the *Ready-for-care date* which influences the reported waiting time for a course of treatment. These differences cannot be resolved or compensated for in this data collection. This may particularly affect comparisons of data across states and territories, and across sectors.

Institutional environment

The Australian Institute of Health and Welfare (AIHW) is a major national agency set up by the Australian Government under the *Australian Institute of Health and Welfare Act 1987* to provide reliable, regular and relevant information and statistics on Australia's health and welfare. It is an independent corporate Commonwealth entity established in 1987, governed by a management Board, and accountable to the Australian Parliament through the Health portfolio.

The AIHW aims to improve the health and wellbeing of Australians through better health and welfare information and statistics. It collects and reports information on a wide range of topics and issues, ranging from health and welfare expenditure, hospitals, disease and injury, and mental health, to ageing, homelessness, disability and child protection.

The Institute also plays a role in developing and maintaining national metadata standards. This work contributes to improving the quality and consistency of national health and welfare statistics. The Institute works closely with governments and non-government organisations to achieve greater adherence to these standards in administrative data collections to promote national consistency and comparability of data and reporting.

One of the main functions of the AIHW is to work with the states and territories to improve the quality of administrative data and, where possible, to compile national datasets based on data from each jurisdiction, to analyse these datasets and disseminate information and statistics.

The *Australian Institute of Health and Welfare Act 1987*, in conjunction with compliance to the *Privacy Act 1988*, (Cth) ensures that the data collections managed by the AIHW are kept securely and under the strictest conditions with respect to privacy and confidentiality.

For further information see the AIHW website <www.aihw.gov.au>.

The state and territory health authorities received the data used in this report from public radiotherapy providers. States and territories use these data for service planning, monitoring and internal and public reporting. These public radiotherapy providers may be required to provide data to states and territories through a variety of administrative arrangements, contractual requirements or legislation.

Some private providers that have a contract or partnership arrangement to provide services to public patients were required to participate, while other private providers (that were not obliged by a contract or a partnership agreement to participate) did so voluntarily. Some private providers submitted data directly to the AIHW, while others submitted data through their state or territory health authority.

Timeliness

The reference period for this data set is 2015–16. This includes records for all patients who started a course of radiotherapy between 1 July 2015 and 30 June 2016. These data were first published in June 2017.

Accessibility

The AIHW publishes data from this collection on its website at <www.aihw.gov.au>.

Interpretability

Metadata information for the Radiotherapy Waiting Times NMDS is published in the AIHW's Metadata Online Registry (METeOR) at

<<http://meteor.aihw.gov.au/content/index.phtml/itemId/517220>>.

Relevance

The Radiotherapy Waiting Times NMDS collects information about the length of time that patients wait for radiotherapy in Australia, and the factors that affect waiting times. Information is also collected on the number of courses of radiotherapy provided and key

demographic and clinical information about the patients who received this treatment. The scope of the NMDS is patients who began a course of radiotherapy in the reporting period in Australia. The scope is restricted to measuring one period of time in a patient's treatment pathway, the time between being assessed as ready for care by a radiation oncologist and commencing treatment. This may not be the only waiting period in a patient's treatment pathway.

The Radiotherapy Waiting Times NMDS was created in response to a request from the Australian health ministers (via the then Australian Health Ministers' Conference) for data on the length of time people in Australia have waited for radiotherapy.

Accuracy

Several quality issues were identified, though it is not possible to quantify their impact:

- For 2015–16, all but one of the 78 public radiotherapy sites, and all 33 private sites operating in Australia provided data for the Radiotherapy Waiting Times NMDS. The one public site that did not provide data began operating only a short period (11 days) before the end of the reference period, providing fewer than 20 courses of radiotherapy in that time. This makes coverage of the radiotherapy courses that began in the reference period effectively 100%.
- Providers are primarily responsible for the quality of the data they provide. But the AIHW does extensive validations on the data received. Data are checked for valid values and logical consistency. Potential errors are queried with data providers at the time data are loaded, and corrections and resubmissions may be made in response to these queries. The AIHW does not adjust data to account for possible data errors or for missing or incorrect values. But 1,884 records with negative or missing waiting times, mostly from the private sector, were disregarded in the calculation of waiting times.
- Reporting by radiotherapy providers for this NMDS was mandatory for public providers, and a high proportion of private providers also participated. The way in which data definitions were applied might vary, particularly the setting of the ready-for-care date, which influences the reported waiting time for a course of treatment. These differences cannot be resolved or compensated for in this data collection. This may particularly affect comparisons of data across states and territories and, across sectors.
- Data from South Australia on intention of treatment should be treated with caution, particularly those on prophylactic courses of treatment. There is likely to be an over-count of prophylactic courses, and an under-count in one or more of the other intention of treatment categories.
- Victoria has noted that there is likely to be some under-count of emergency courses in their jurisdiction. Some codes have been mapped by data providers from local coding systems, such as Emergency status in Victoria. This practice has led to possible under-identification of emergency courses in Victoria.
- Some providers were unable to code patients' area of usual residence using full address details—in these cases most providers mapped from patients' suburb and postcode data to the required statistical area level 2 (SA2) code, a geographical mapping code to which the socioeconomic and remoteness characteristics of the area can be assigned. This method is considered to be sufficient to identify an area of usual residence (ABS 2012).
- Data on Indigenous Australians should be interpreted with caution, as there was a high proportion of courses of radiotherapy for which the Indigenous status of the patient was not reported (39%). Where Indigenous status was reported, no checks on data quality were possible, so data were accepted as submitted by data providers.

- The variation in patterns of principal diagnoses in this report may indicate data quality issues. For example, Victoria reports the primary site of the cancer, rather than the principal diagnosis, and practices and interpretation may also vary across other providers.
- In 2013–14 and 2014–15, data for public and private service providers in Victoria were contributed on a different basis to other data suppliers—Victoria provided data for courses of radiotherapy that ended (not started) in those collection periods. This is as a result of Victoria sourcing data for the pilot data collections from its state-wide radiotherapy data set, which collects data on the basis of course completion. Whilst reported on a different basis, these data are considered broadly equivalent to data contributed by other data suppliers. However some care is needed in comparing 2015–16 data (which was provided for courses that began in the period) with 2014–15 and 2013–14 data for Victorian public providers. In addition, there was an under-count of courses for Victorian public providers in 2013–14, due to the non-inclusion of records where courses started prior to the reference period.
- In 2013–14 and 2014–15, public provider activity in South Australia was under-counted due to technical issues with the data extraction process. Waiting times in South Australia for those years may also have been affected by data quality issues associated with the setting of ready-for-care dates, particularly for breast and prostate cancers. So caution should be used when comparing 2015–16 data with 2014–15 data for South Australia (2013–14 waiting times data for South Australia were not published).

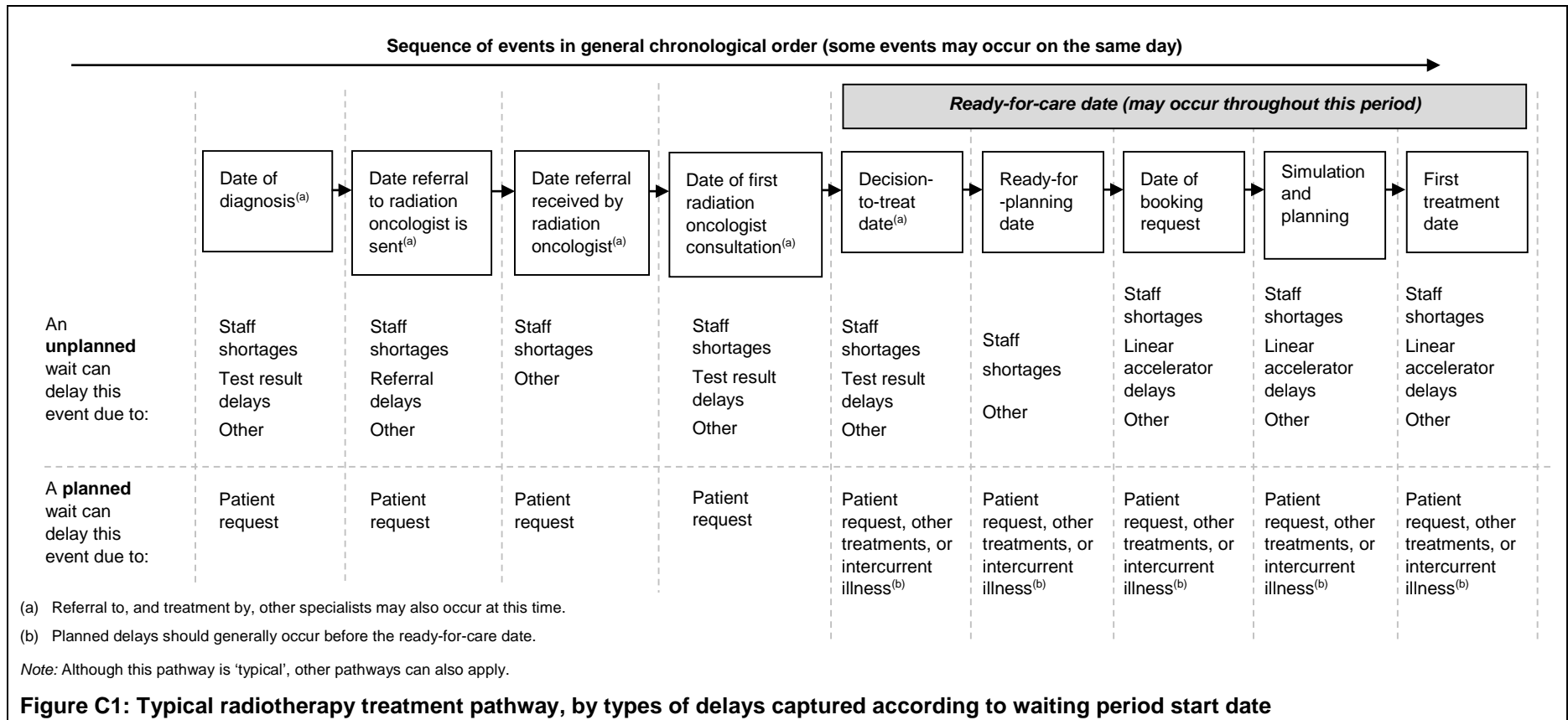
Coherence

Although 2015–16 is the first year of collection of radiotherapy waiting times data as an NMDS, rather than as a pilot collection, the metadata upon which the data collections are based did not change. As a result, the 2013–14, 2014–15, and 2015–16 data collections are broadly comparable. The following differences should be noted:

- participation by private sites rose substantially in the 2015–16 data collection (100%), compared with the 2014–15 collection (76%) and the 2013–14 data collection (47%)
- some care is needed in comparing data for Victorian public providers across years (see ‘Accuracy’ section in this Appendix).

Appendix C: A typical radiotherapy treatment pathway

Figure C1 displays many of the dates that occur through a typical radiotherapy treatment pathway. Many components of this treatment pathway could be viewed as contributing to a patient’s waiting time. In the NRWTD, the waiting time reported is measured as the time between the date the patient is ready for care to the date the course of radiotherapy began. Factors that are, and are not, expected to influence the ready-for-care date are described in the metadata for *Ready-for-care date* available in the METeOR (METeOR identifier: 448141) <meteor.aihw.gov.au>.



Appendix D: Detailed statistical tables

Radiotherapy activity and patients

Table D1: Radiotherapy courses by state and territory (public providers), and sector, 2015–16

	Public sector providers								Sector		Australia
	NSW ^(a)	Vic ^(b)	Qld	WA ^(c)	SA ^(b)	Tas	ACT	NT	Public (total)	Private ^(d)	
Number											
2013–14	15,226	9,480	6,254	1,924	1,581	1,647	1,364	189	37,665	9,992	47,657
2014–15	14,145	10,707	5,964	3,801	1,654	1,789	1,293	428	39,781	16,595	56,376
2015–16	13,208	10,174	7,261	4,237	2,231	1,710	1,342	464	40,627	19,953	60,580
Per cent^(e)											
2013–14	31.9	19.9	13.1	4.0	3.3	3.5	2.9	0.4	79.0	21.0	100.0
2014–15	25.1	19.0	10.6	6.7	2.9	3.2	2.3	0.8	70.6	29.4	100.0
2015–16	21.8	16.8	12.0	7.0	3.7	2.8	2.2	0.8	67.1	32.9	100.0

(a) The drop in the number of courses in New South Wales between 2013–14 and 2014–15 is due to reflects one service each year moving from the public to the private sector.

(b) In 2013–14 and 2014–15, data in South Australia were under-counted, and in 2013–14, data for Victoria were under-counted (see Chapter 1).

(c) The increase in the number of courses in WA reflects an increase in the number of services participating from one in 2013–14 to four in 2014–15 and 2015–16.

(d) The number of private providers contributing to this collection has varied between years from 16 out of 34 sites in 2013–14, to 26 out of 34 sites in 2014–15, and 22 out of 33 sites in 2015–16.

(e) Totals may not equal the sum of individual cells due to rounding.

Table D2: Radiotherapy courses by intention of treatment by state and territory (public providers), and sector, 2015–16

	Public sector providers								Sector		Australia
	NSW	Vic	Qld	WA	SA ^(a)	Tas	ACT	NT	Public (total)	Private	
Number											
Curative	7,710	5,552	4,386	2,946	1,238	1,074	768	235	23,909	11,176	35,085
Palliative	5,366	4,545	2,712	1,251	596	593	574	218	15,855	7,048	22,903
Prophylactic	129	49	5	8	395	0	0	11	597	88	685
Not stated	3	28	158	32	2	43	0	0	266	1,641	1,907
Total	13,208	10,174	7,261	4,237	2,231	1,710	1,342	464	40,627	19,953	60,580
Per cent^(b)											
Curative	58.4	54.6	60.4	69.5	55.5	62.8	57.2	50.6	58.9	56.0	57.9
Palliative	40.6	44.7	37.4	29.5	26.7	34.7	42.8	47.0	39.0	35.3	37.8
Prophylactic	1.0	0.5	0.1	0.2	17.7	0.0	0.0	2.4	1.5	0.4	1.1
Not stated	0.0	0.3	2.2	0.8	0.1	2.5	0.0	0.0	0.7	8.2	3.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Data from South Australia on intention of treatment should be treated with caution, particularly for prophylactic rates of treatment.

Prophylactic rates are likely to have been over-counted, and one or more of the other intention-of-treatment categories are likely to have been under-counted.

(b) Totals may not equal the sum of individual cells due to rounding.

Table D3: Radiotherapy courses, by intention of treatment and age group (years), 2015–16^(a)

	Intention of treatment			Australia
	Curative	Palliative	Prophylactic	
Number				
0–19	321	77	9	407
20–39	1,368	594	25	1,987
40–49	3,309	1,402	53	4,764
50–59	6,732	3,706	142	10,580
60–69	10,292	6,450	181	16,923
70–79	9,062	6,251	166	15,479
80–89	3,509	3,787	90	7,386
90+	489	630	19	1,138
Per cent^(b)				
0–19	78.9	18.9	2.2	100.0
20–39	68.8	29.9	1.3	100.0
40–49	69.5	29.4	1.1	100.0
50–59	63.6	35.0	1.3	100.0
60–69	60.8	38.1	1.1	100.0
70–79	58.5	40.4	1.1	100.0
80–89	47.5	51.3	1.2	100.0
90+	43.0	55.4	1.7	100.0

(a) Records for which the intent or age was not stated are not included in this table.

(b) Totals may not equal the sum of individual cells due to rounding.

Table D4: Radiotherapy courses by emergency status by state and territory (public providers), and sector, 2015–16

	Public sector providers								Sector		Australia
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	
Number											
Emergency	424	120	214	58	136	56	78	6	1,092	145	1,237
Non-emergency	12,784	10,054	7,047	4,179	2,095	1,654	1,264	458	39,535	18,589	58,124
Not stated	0	0	0	0	0	0	0	0	0	1,219	1,219
Total	13,208	10,174	7,261	4,237	2,231	1,710	1,342	464	40,627	19,953	60,580
Per cent^(a)											
Emergency	3.2	1.2	2.9	1.4	6.1	3.3	5.8	1.3	2.7	0.7	2.0
Non-emergency	96.8	98.8	97.1	98.6	93.9	96.7	94.2	98.7	97.3	93.2	95.9
Not stated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	2.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Totals may not equal the sum of individual cells due to rounding.

Table D5: Radiotherapy courses by intention of treatment and emergency status, 2015–16

	Emergency status			Australia
	Emergency	Non-emergency	Not stated	
Number				
Curative	41	35,044	0	35,085
Palliative	1,185	21,718	0	22,903
Prophylactic	1	684	0	685
Not stated	10	678	1,219	1,907
Total	1,237	58,124	1,219	60,580
Per cent^(a)				
Curative	0.1	57.8	0.0	57.9
Palliative	2.0	35.9	0.0	37.8
Prophylactic	0.0	1.1	0.0	1.1
Not stated	0.0	1.1	2.0	3.1
Total	2.0	95.9	2.0	100.0

(a) Totals may not equal the sum of individual cells due to rounding.

Table D6: Radiotherapy courses by principal diagnosis^(a) and intention of treatment by state and territory (public providers), and sector, males, 2015–16

	Number					Per cent				
	Curative	Palliative	Prophyl- actic	Not stated	Total	Curative	Palliative	Prophyl- actic	Not stated	Total ^(b)
Prostate cancer	5,198	2,829	20	288	8,335	62.4	33.9	0.2	3.5	100.0
Lung cancer	1,236	3,133	38	111	4,518	27.4	69.3	0.8	2.5	100.0
Head and neck cancers	1,982	365	17	31	2,395	82.8	15.2	0.7	1.3	100.0
Colorectal cancer	1,080	658	11	46	1,795	60.2	36.7	0.6	2.6	100.0
Lymphoma	612	336	20	23	991	61.8	33.9	2.0	2.3	100.0
Secondary cancers	311	1,491	75	141	2,018	15.4	73.9	3.7	7.0	100.0
Other cancer	5,770	4,390	143	317	10,620	54.3	41.3	1.3	3.0	100.0
Non cancer	100	18	3	9	130	76.9	13.8	2.3	6.9	100.0
Not stated	70	41	5	8	124	56.5	33.1	4.0	6.5	100.0
Total	16,359	13,261	332	974	30,926	52.9	42.9	1.1	3.1	100.0

(a) Based on data reported about the principal diagnosis associated with the course of radiotherapy. Principal diagnosis data should be treated with caution, as the way data providers interpret the definition of principal diagnosis varies. Diagnoses are reported as an ICD-10-AM (9th edition) code and grouped here as follows: prostate cancer (C61), lung cancer (C33–C34), head and neck cancer (C00–C14, C30–C32), colorectal cancer (C18–C20), lymphoma (C81–C85), secondary cancers (C77–C79), other cancer (other codes between C00 and D48 that are not one of the top five cancers reported separately), non cancer (all other codes not between C00–D48 and Z00–Z99). Codes in the range Z00–Z99 are reported here as 'not stated' as they represent the reason for the encounter rather than the diagnosis.

(b) Totals may not equal the sum of individual cells due to rounding.

Table D7: Radiotherapy courses by principal diagnosis^(a) and intention of treatment by state and territory (public providers), and sector, females, 2015–16

	Number					Per cent				
	Curative	Palliative	Prophyl- actic	Not stated	Total	Curative	Palliative	Prophyl- actic	Not stated	Total ^(b)
Breast cancer	11,091	2,432	108	338	13,969	79.4	17.4	0.8	2.4	100.0
Lung cancer	890	2,179	51	77	3,197	27.8	68.2	1.6	2.4	100.0
Colorectal cancer	580	465	5	27	1,077	53.9	43.2	0.5	2.5	100.0
Uterine cancer	499	221	10	53	783	63.7	28.2	1.3	6.8	100.0
Lymphoma	415	254	14	19	702	59.1	36.2	2.0	2.7	100.0
Secondary cancers	220	1,146	74	123	1,563	14.1	73.3	4.7	7.9	100.0
Other cancer	4,838	2,893	90	262	8,083	59.9	35.8	1.1	3.2	100.0
Non cancer	120	13	1	8	142	84.5	9.2	0.7	5.6	100.0
Not stated	66	35	0	2	103	64.1	34.0	0.0	1.9	100.0
Total	18,719	9,638	353	909	29,619	63.2	32.5	1.2	3.1	100.0

(a) Based on data reported about the principal diagnosis associated with the course of radiotherapy. Principal diagnosis data should be treated with caution, as the way data providers interpret the definition of principal diagnosis varies. Diagnoses are reported as an ICD-10-AM (9th edition) code and grouped here as follows: breast cancer (C50), lung cancer (C33–C34), colorectal cancer (C18–C20), uterine cancer (C54–C55), lymphoma (C81–C85), secondary cancers (C77–C79), other cancer (other codes between C00 and D48 that are not one of the top five cancers reported separately), non cancer (all other codes not between C00–D48 and Z00–Z99). Codes in the range Z00–Z99 are reported here as 'not stated' as they represent the reason for the encounter rather than the diagnosis.

(b) Totals may not equal the sum of individual cells due to rounding.

Table D8: Radiotherapy courses by sex of patient by state and territory (public providers), and sector, 2015–16

	Public sector providers								Sector		Australia
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	
Number											
Males	6,766	4,995	3,933	2,257	1,127	914	621	247	20,860	10,066	30,926
Females	6,442	5,179	3,327	1,980	1,104	796	719	217	19,764	9,855	29,619
Not stated	0	0	1	0	0	0	2	0	3	32	35
Total	13,208	10,174	7,261	4,237	2,231	1,710	1,342	464	40,627	19,953	60,580
Per cent^(a)											
Males	51.2	49.1	54.2	53.3	50.5	53.5	46.3	53.2	51.3	50.4	51.0
Females	48.8	50.9	45.8	46.7	49.5	46.5	53.6	46.8	48.6	49.4	48.9
Not stated	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Totals may not equal the sum of individual cells due to rounding.

Table D9: Radiotherapy courses by age group (years) by state and territory (public providers), and sector, 2015–16

	Public sector providers								Sector		Australia
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	
Number											
0–19	118	104	89	36	31	1	10	0	389	26	415
20–39	405	433	308	147	91	34	37	24	1,479	553	2,032
40–49	961	883	717	339	183	130	118	62	3,393	1,465	4,858
50–59	2,365	1,845	1,405	784	452	319	264	115	7,549	3,327	10,876
60–69	3,792	2,886	2,164	1,288	640	522	399	150	11,841	5,627	17,468
70–79	3,610	2,550	1,758	1,089	553	466	331	82	10,439	5,592	16,031
80–89	1,716	1,311	726	479	250	208	148	31	4,869	2,812	7,681
90+	241	162	94	75	31	30	26	0	659	551	1,210
Not stated	0	0	0	0	0	0	9	0	9	0	9
Total	13,208	10,174	7,261	4,237	2,231	1,710	1,342	464	40,627	19,953	60,580
Per cent^(a)											
0–19	0.9	1.0	1.2	0.8	1.4	0.1	0.7	0.0	1.0	0.1	0.7
20–39	3.1	4.3	4.2	3.5	4.1	2.0	2.8	5.2	3.6	2.8	3.4
40–49	7.3	8.7	9.9	8.0	8.2	7.6	8.8	13.4	8.4	7.3	8.0
50–59	17.9	18.1	19.3	18.5	20.3	18.7	19.7	24.8	18.6	16.7	18.0
60–69	28.7	28.4	29.8	30.4	28.7	30.5	29.7	32.3	29.1	28.2	28.8
70–79	27.3	25.1	24.2	25.7	24.8	27.3	24.7	17.7	25.7	28.0	26.5
80–89	13.0	12.9	10.0	11.3	11.2	12.2	11.0	6.7	12.0	14.1	12.7
90+	1.8	1.6	1.3	1.8	1.4	1.8	1.9	0.0	1.6	2.8	2.0
Not stated	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Totals may not equal the sum of individual cells due to rounding.

Table D10: Radiotherapy courses by sex and age group (years), 2015–16^(a)

	Number			Per cent ^(b)		
	Males	Females	Australia	Males	Females	Australia
0–19	231	184	415	0.4	0.3	0.7
20–39	721	1,311	2,032	1.2	2.2	3.4
40–49	1,356	3,500	4,856	2.2	5.8	8.0
50–59	4,291	6,583	10,874	7.1	10.9	18.0
60–69	9,069	8,374	17,443	15.0	13.8	28.8
70–79	9,783	6,242	16,025	16.2	10.3	26.5
80–89	4,800	2,881	7,681	7.9	4.8	12.7
90+	671	539	1,210	1.1	0.9	2.0
Not stated	4	5	9	0.0	0.0	0.0
Australia	30,926	29,619	60,545	51.1	48.9	100.0

(a) Does not include 35 records for which sex was not stated.

(b) Totals may not equal the sum of individual cells due to rounding.

Table D11: Radiotherapy courses by remoteness area of usual residence by state and territory (public providers), and sector, 2015–16

	Public sector providers								Sector		Australia ^(a)
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	
Number											
Major cities	8,905	5,539	4,365	3,111	n.p.	0	808	n.p.	23,010	12,391	35,401
Inner regional	3,460	2,049	863	500	n.p.	1,108	253	n.p.	8,275	3,676	11,952
Outer regional	777	494	1,520	453	64	568	148	331	4,355	1,094	5,449
Remote	35	11	91	126	15	27	1	77	384	156	541
Very remote	7	3	74	44	1	7	0	51	187	46	234
Not assigned ^(b)	23	2,077	348	2	1,833	0	132	0	4,415	2,589	7,004
Total	13,208	10,174	7,261	4,237	2,231	1,710	1,342	464	40,627	19,953	60,580
Per cent											
Major cities	67.4	54.4	60.1	73.4	n.p.	0.0	60.2	n.p.	56.6	62.1	58.4
Inner regional	26.2	20.1	11.9	11.8	n.p.	64.8	18.8	n.p.	20.4	18.4	19.7
Outer regional	5.9	4.9	20.9	10.7	2.9	33.2	11.0	71.3	10.7	5.5	9.0
Remote	0.3	0.1	1.3	3.0	0.7	1.6	0.1	16.6	0.9	0.8	0.9
Very remote	0.1	0.0	1.0	1.0	0.0	0.4	0.0	10.9	0.5	0.2	0.4
Not assigned ^(b)	0.2	20.4	4.8	0.0	82.2	0.0	9.8	0.0	10.9	13.0	11.6
Total^(a)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Totals may not equal the sum of individual cells due to rounding.

(b) Includes records for which remoteness area could not be assigned, including 260 people living overseas and missing data.

Table D12: Proportion of the total population, 2015, and radiotherapy courses^(a), by remoteness area of usual residence, 2015–16 (%)

	Australian population distribution								Australia	Radiotherapy courses
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT		
Major cities	74.5	77.1	62.4	77.0	73.6	..	99.0	..	70.9	66.1
Inner regional	19.1	18.7	20.2	9.2	10.9	65.9	1.0	..	18.1	22.3
Outer regional	5.9	4.1	14.5	7.3	11.9	32.1	..	58.2	8.8	10.2
Remote	0.4	0.1	1.7	4.0	2.7	1.6	..	20.1	1.4	1.0
Very remote	0.1	..	1.2	2.5	0.9	0.5	..	21.7	0.9	0.4
Total^(b)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) For courses where a valid area of usual residence was provided.

(b) Totals may not equal the sum of individual cells due to rounding.

Source: For Australian population data—ABS unpublished data (for 2015).

Table D13: Radiotherapy courses by socioeconomic position of area of usual residence by state and territory (public providers), and sector, 2015–16

	Public sector providers								Sector		Australia ^(a)
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	
Number											
1—lowest	4,005	1,653	1,578	458	130	766	125	118	8,833	3,354	12,187
2	3,179	1,563	1,401	1,067	156	286	143	67	7,862	3,286	11,148
3	2,435	1,741	1,619	984	36	287	141	44	7,287	3,286	10,573
4	1,623	1,745	1,420	738	62	334	256	154	6,332	3,202	9,534
5—highest	1,938	1,395	895	987	14	37	542	74	5,882	4,228	10,110
Not assigned ^(b)	28	2,077	348	3	1,833	0	135	7	4,431	2,597	7,028
Total	13,208	10,174	7,261	4,237	2,231	1,710	1,342	464	40,627	19,953	60,580
Per cent											
1—lowest	30.3	16.2	21.7	10.8	5.8	44.8	9.3	25.4	21.7	16.8	20.1
2	24.1	15.4	19.3	25.2	7.0	16.7	10.7	14.4	19.4	16.5	18.4
3	18.4	17.1	22.3	23.2	1.6	16.8	10.5	9.5	17.9	16.5	17.5
4	12.3	17.2	19.6	17.4	2.8	19.5	19.1	33.2	15.6	16.0	15.7
5—highest	14.7	13.7	12.3	23.3	0.6	2.2	40.4	15.9	14.5	21.2	16.7
Not assigned ^(b)	0.2	20.4	4.8	0.1	82.2	0.0	10.1	1.5	10.9	13.0	11.6
Total^(a)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) Totals may not equal the sum of individual cells due to rounding.

(b) Includes records for which SEIFA could not be assigned, including 260 people living overseas and missing data.

Table D14: Proportion of the total population, 2015, and radiotherapy courses, by socioeconomic position of area of usual residence^(a), 2015–16 (%)

	Australian population distribution									Radiotherapy courses
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia ^(b)	
1—Lowest	24.7	16.7	18.9	9.4	25.3	43.5	0.2	32.7	20.0	23.3
2	22.4	17.4	18.7	19.0	30.3	16.2	1.3	14.4	20.0	21.1
3	17.4	22.0	24.7	21.9	13.6	18.7	2.9	13.5	20.0	19.7
4	13.7	24.7	22.2	20.5	21.7	19.5	32.2	24.0	20.0	17.7
5—Highest	21.8	19.2	15.5	29.2	9.1	2.2	63.4	15.5	20.0	18.1
Total^(c)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(a) For courses where a valid area of usual residence was provided.

(b) Australia includes other territories.

(c) Totals may not equal the sum of individual cells due to rounding.

Sources: For Australian population—ABS 2013b; ABS 2016.

Radiotherapy waiting times

Table D15: Radiotherapy waiting times at 50th and 90th percentiles (days) by state and territory (public providers), and sector, 2013–14, 2014–15 and 2015–16

	Public sector providers									Sector		
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	Australia	
2013–14												
50% started treatment within	12	10	16	n.p.	n.a.	13	12	7	12	12	12	
90% started treatment within	33	28	34	n.p.	n.a.	26	24	22	31	28	31	
Number of courses with valid waiting times data	15,226	9,480	6,254	1,924	0	1,647	1,364	189	36,084	2,565	38,649	
2014–15												
50% started treatment within	13	10	13	n.p.	12 ^(a)	14	13	5	12	6	10	
90% started treatment within	31	27	31	n.p.	26 ^(a)	27	23	14	29	22	28	
Number of courses with valid waiting times data	14,145	10,683	5,964	2,148	1,654	1,789	1,293	428	38,104	14,340	52,444	
2015–16												
50% started treatment within	13	9	14	14	14	15	14	6	13	6	9	
90% started treatment within	28	25	28	30	27	30	29	16	28	20	27	
Number of courses with valid waiting times data	13,208	10,172	7,261	4,234	2,230	1,710	1,342	464	40,621	18,075	58,696	

(a) Data for South Australia for 2014–15 should be treated with caution due to concerns about the setting of ready-for-care dates (see Chapter 1).

Table D16: Radiotherapy waiting times (days) at 50th and 90th percentiles, by intention of treatment by state and territory (public providers), and sector, 2015–16

	Public sector providers								Sector		
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	Australia
Curative											
50% started treatment within	19	15	18	18	19	19	21	7	18	7	14
90% started treatment within	33	28	32	31	28	34	31	18	31	23	29
Palliative											
50% started treatment within	7	6	7	8	6	12	10	5	7	4	6
90% started treatment within	21	15	20	23	18	23	21	12	20	14	19
Prophylactic											
50% started treatment within	17	13	n.p.	n.p.	11	..	..	n.p.	12	5	11
90% started treatment within	27	41	n.p.	n.p.	21	..	..	n.p.	25	18	23

Table D17: Proportion of emergency patients treated within emergency timeframe by state and territory (public providers), and sector, 2015–16 (%)

	Public sector providers								Sector		
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	Australia
Treated within emergency timeframe	96.5	95.8	89.7	98.2	82.4	92.9	100.0	n.p.	93.5	74.8	91.3
Treated within longer timeframe	3.5	4.2	10.3	1.8	17.6	7.1	0.0	n.p.	6.5	25.2	8.7

Table D18: Radiotherapy waiting times (days) at 50th and 90th percentiles for non-emergency treatment by state and territory (public providers), and sector, 2015–16

	Public sector providers								Sector		
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	Australia
50% started treatment within	13	9	14	14	14	15	14	6	13	6	9
90% started treatment within	28	25	28	30	27	30	29	16	28	20	27

Table D19: Radiotherapy waiting times (days) at 50th and 90th percentiles by the top five cancers and secondary cancers for which radiotherapy was provided, by state and territory (public providers), and sector, males, 2015–16^(a)

	Public sector providers								Sector		
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	Australia
50% started treatment within											
Prostate cancer	14	10	10	15	27	20	28	8	14	7	10
Lung cancer	8	8	8	14	14	14	14	6	8	5	7
Head and neck cancers	20	19	19	22	20	19	21	5	19	5	17
Colorectal cancer	17	11	15	19	17	18	20	n.p.	15	6	12
Lymphoma	11	9	14	18	14	17	20	n.p.	13	6	9
Secondary cancers	14	n.p.	13	7	6	13	9	..	9	4	7
90% started treatment within											
Prostate cancer	35	28	28	31	35	37	35	21	32	22	29
Lung cancer	25	21	22	32	25	25	25	11	24	18	22
Head and neck cancers	33	28	32	33	27	29	31	18	30	22	28
Colorectal cancer	28	24	26	32	25	28	28	n.p.	27	19	26
Lymphoma	27	22	28	28	26	34	32	n.p.	27	20	26
Secondary cancers	27	n.p.	25	25	21	26	19	..	23	15	22

(a) Principal diagnosis data should be treated with caution, as the way data providers interpret the definition of principal diagnosis varies. Diagnoses are reported as an ICD-10-AM (9th edition) code and grouped here as follows: prostate cancer (C61), lung cancer (C33–C34), head and neck cancer (C00–C14, C30–C32), colorectal cancer (C18–C20), lymphoma (C81–C85), secondary cancers (C77–C79).

Table D20: Radiotherapy waiting times (days) at 50th and 90th percentiles by the top five cancers and secondary cancers for which radiotherapy was provided, by state and territory (public providers), and sector, females, 2015–16^(a)

	Public sector providers								Sector		
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	Australia
50% started treatment within											
Breast cancer	14	8	14	14	20	18	13	4	12	6	8
Lung cancer	8	7	8	14	14	16	12	3	8	5	7
Colorectal cancer	14	12	15	20	14	17	n.p.	n.p.	14	6	12
Uterine cancer	14	12	6	12	18	n.p.	n.p.	n.p.	12	6	9
Lymphoma	11	9	9	19	14	n.p.	n.p.	n.p.	12	7	10
Secondary cancers	8	n.p.	9	7	7	12	9	n.p.	9	4	7
90% started treatment within											
Breast cancer	31	24	33	29	28	33	28	14	29	21	28
Lung cancer	24	21	25	29	21	41	25	11	25	16	22
Colorectal cancer	27	27	27	31	24	31	n.p.	n.p.	27	19	26
Uterine cancer	29	26	28	27	28	n.p.	n.p.	n.p.	27	21	27
Lymphoma	27	23	27	31	28	n.p.	n.p.	n.p.	27	22	27
Secondary cancers	24	n.p.	24	20	20	25	18	n.p.	21	14	20

(a) Principal diagnosis data should be treated with caution, as the way data providers interpret the definition of principal diagnosis varies. Diagnoses are reported as an ICD-10-AM (9th edition) code and grouped here as follows: breast cancer (C50), lung cancer (C33–C34), colorectal cancer (C18–C20), uterine cancer (C54–C55), lymphoma (C81–C85), secondary cancers (C77–C79).

Table D21: Radiotherapy waiting times (days) at 50th and 90th percentiles by principal diagnosis and intention of treatment, males, 2015–16^(a)

	Curative	Palliative	Prophylactic	Australia
50% started treatment within				
Prostate cancer	15	6	12	10
Lung cancer	17	6	11	7
Head and neck cancers	19	7	n.p.	17
Colorectal cancer	15	7	n.p.	12
Lymphoma	13	7	8	9
Secondary cancers	16	6	12	7
90% started treatment within				
Prostate cancer	33	20	27	29
Lung cancer	28	17	21	22
Head and neck cancers	30	20	n.p.	28
Colorectal cancer	27	21	n.p.	26
Lymphoma	27	21	24	26
Secondary cancers	30	20	24	22

(a) Principal diagnosis data should be treated with caution, as the way data providers interpret the definition of principal diagnosis varies. Diagnoses are reported as an ICD-10-AM (9th edition) code and grouped here as follows: prostate cancer (C61), lung cancer (C33–C34), head and neck cancer (C00–C14, C30–C32), colorectal cancer (C18–C20), lymphoma (C81–C85), secondary cancers (C77–C79).

Table D22: Radiotherapy waiting times (days) at 50th and 90th percentiles by principal diagnosis and intention of treatment, females, 2015–16^(a)

	Curative	Palliative	Prophylactic	Australia
50% started treatment within				
Breast cancer	10	5	10	8
Lung cancer	15	6	9	7
Colorectal cancer	16	7	n.p.	12
Uterine cancer	14	5	n.p.	9
Lymphoma	14	7	10	10
Secondary cancers	14	7	8	7
90% started treatment within				
Breast cancer	28	16	29	28
Lung cancer	29	17	20	22
Colorectal cancer	28	21	n.p.	26
Uterine cancer	28	16	n.p.	27
Lymphoma	28	21	22	27
Secondary cancers	27	19	20	20

(a) Principal diagnosis data should be treated with caution, as the way data providers interpret the definition of principal diagnosis varies. Diagnoses are reported as an ICD-10-AM (9th edition) code and grouped here as follows: breast cancer (C50), lung cancer (C33–C34), colorectal cancer (C18–C20), uterine cancer (C54–C55), lymphoma (C81–C85), secondary cancers (C77–C79).

Table D23: Radiotherapy waiting times (days) at 50th and 90th percentiles by sex, by state and territory (public providers), and sector, 2015–16

	Public sector providers								Sector		
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	Australia
50% started treatment within											
Males	13	10	14	14	14	15	15	6	13	6	10
Females	13	8	14	14	14	15	14	5	12	6	9
90% started treatment within											
Males	28	26	28	31	28	29	30	18	28	21	27
Females	28	25	29	29	27	31	28	14	28	20	27

Table D24: Radiotherapy waiting times (days) at 50th and 90th percentiles by age group (years), states and territories and sector, 2015–16

	Public sector providers								Sector		
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	Australia
50% started treatment within											
0–19	5	9	15	7	10	n.p.	n.p.	..	9	4	8
20–39	9	7	13	13	7	19	11	3	9	4	7
40–49	12	8	13	11	14	14	12	6	11	5	8
50–59	13	10	13	12	14	15	14	5	12	5	9
60–69	14	9	13	15	14	15	15	5	13	6	10
70–79	14	10	14	15	14	16	15	9	13	6	10
80–89	13	10	14	15	14	16	15	8	13	6	10
90+	13	10	12	18	7	14	14	..	13	6	8
90% started treatment within											
0–19	20	20	28	23	21	n.p.	n.p.	..	22	19	22
20–39	27	22	29	31	21	29	25	12	27	18	26
40–49	28	24	29	28	28	29	28	18	27	21	27
50–59	28	25	29	28	26	29	29	16	28	20	27
60–69	29	26	28	30	27	32	29	14	28	20	27
70–79	29	27	28	31	28	31	30	18	28	21	27
80–89	28	24	28	31	28	30	27	15	27	20	26
90+	27	23	28	31	21	36	26	..	27	20	25

Table D25: Radiotherapy waiting times (days) at 50th and 90th percentiles, by sex and age group (years), Australia, 2015–16

	Age group (years)							
	0–19	20–39	40–49	50–59	60–69	70–79	80–89	90+
50% started treatment within								
Males	10	8	11	10	10	10	9	8
Females	8	7	7	8	9	10	10	9
Australia	8	7	8	9	10	10	10	8
90% started treatment within								
Males	22	25	26	27	27	27	26	25
Females	21	26	27	27	27	27	26	25
Australia	22	26	27	27	27	27	26	25

Table D26: Radiotherapy waiting times (days) at 50th and 90th percentiles by Indigenous status, by state and territory (public providers), and sector, 2015–16

	Public sector providers								Sector		
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	Australia
50% started treatment within											
Indigenous	13	12	14	11	n.p.	n.p.	n.p.	3	9	4	8
Non-Indigenous	13	9	13	16	14	15	14	6	13	7	11
90% started treatment within											
Indigenous	26	25	27	29	n.p.	n.p.	n.p.	13	25	19	25
Non-Indigenous	29	26	28	33	28	30	29	17	28	21	28

Table D27: Radiotherapy waiting times at 50th and 90th percentile (days) by remoteness area of usual residence, states and territories and sector, 2015–16^(a)

	Public sector providers								Sector		
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	Australia
50% started treatment within											
Major cities	13	9	13	15	14	..	14	n.p.	13	5	9
Inner regional	14	11	13	11	14	15	15	n.p.	13	9	12
Outer regional	14	12	14	14	12	15	16	6	13	5	11
Remote	19	n.p.	13	17	n.p.	14	n.p.	5	12	3	8
Very remote	n.p.	n.p.	15	15	n.p.	n.p.	..	6	11	7	9
90% started treatment within											
Major cities	28	26	28	30	24	..	28	n.p.	28	20	27
Inner regional	29	27	28	26	22	32	29	n.p.	28	24	27
Outer regional	29	27	28	31	25	27	30	16	28	20	27
Remote	28	n.p.	28	29	n.p.	33	n.p.	13	28	16	27
Very remote	n.p.	n.p.	29	28	n.p.	n.p.	..	18	27	22	26

(a) Excludes records for which remoteness area could not be assigned, including people living overseas and missing data.

Table D28: Radiotherapy waiting times at 50th and 90th percentile (days), by socioeconomic position of area of usual residence, by state and territory (public providers), and sector, 2015–16^(a)

	Public sector providers								Sector		
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Public (total)	Private	Australia
50% started treatment within											
1—Lowest	14	10	13	16	14	15	16	5	13	7	11
2	13	11	14	14	14	15	15	6	13	7	11
3	12	9	13	15	13	16	16	5	13	7	10
4	14	10	13	13	14	15	14	6	13	6	9
5—Highest	13	8	13	14	n.p.	14	14	9	12	4	8
90% started treatment within											
1—Lowest	28	26	28	31	23	29	30	14	28	20	27
2	28	27	27	29	25	32	29	13	28	21	27
3	28	26	28	31	24	29	29	13	28	22	27
4	29	26	28	28	22	34	30	17	28	19	27
5—Highest	30	25	29	30	n.p.	28	28	18	28	21	27

(a) Excludes records for which socioeconomic position could not be assigned, including people living overseas and missing data.

Glossary

Many definitions used in this report can be found in the Radiotherapy waiting times data set specification 2013–15, at <meteor.aihw.gov.au> (METeOR identifier: 517220).

cancer (malignant neoplasm): A large range of diseases in which some of the body's cells become defective, begin to multiply out of control, can invade and damage the area around them, and can also spread to other parts of the body to cause further damage.

chemotherapy: The use of drugs (chemicals) to prevent or treat disease, with the term being applied for treatment of cancer rather than for other uses.

course of radiotherapy: A series of one or more external beam radiotherapy treatments prescribed by a radiation oncologist.

curative: Treatment given with the intention of curing disease. See also **intention of treatment**.

emergency status (radiotherapy): An indicator of whether the treatment required for the patient is clinically assessed as an emergency. An emergency is where the treating clinician has assessed the waiting time for treatment cannot exceed 24 hours (METeOR identifier: 448126).

Indigenous: A person of Aboriginal and/or Torres Strait Islander descent who identifies as an Aboriginal and/or Torres Strait Islander (METeOR identifier: 291036).

intention of treatment: The reason treatment is provided to a patient (METeOR identifier: 583857).

International Statistical Classification of Diseases and Related Health Problems: The World Health Organization's internationally accepted classification of death and disease. The 10th Revision (ICD-10) is currently in use. The ICD-10-AM is the Australian modification of the ICD-10, and is used for reporting by principal diagnosis in this report.

metastasis: See **secondary cancer**.

palliative treatment: Treatment given primarily for the purpose of pain or other symptom control. Consequent benefits of the treatment are considered secondary contributions to quality of life. See also **intention of treatment**.

primary site of cancer: The site of origin of the tumour, as opposed to the secondary or metastatic sites (METeOR identifier: 391340). See also **secondary cancer**.

principal diagnosis: The diagnosis established after study to be chiefly responsible for occasioning a patient's service event or episode (METeOR identifier: 433356).

prophylactic treatment: Treatment given to prevent the occurrence of disease at a site that exhibits no sign of active disease but is considered to be at risk. See also **intention of treatment**.

radiotherapy: Radiation directed at a localised area to kill or damage cancer cells. See also Box 1.1.

ready for care: The date, in the opinion of the treating clinician, on which a patient is ready to commence treatment (METeOR identifier: 448141).

SA2 (Statistical area level 2): A geographic unit used to analyse social, physical and economic differences across Australia. SA2 is defined in the Australian Statistical Geography Standard. Wherever possible SA2s are based on officially gazetted state suburbs and

localities. In urban areas SA2s largely conform to whole suburbs and combinations of whole suburbs, while in rural areas they define functional zones of social and economic links.

secondary cancer: A tumour that originated from a cancer elsewhere in the body. Also referred to as a metastasis.

waiting time: The number of days between when the patient was ready for care, and when the radiotherapy started (METeOR identifier: 517220).

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This report publishes data on 60,600 courses of radiotherapy that were delivered in Australia in 2015–16. For non-emergency treatment, 50% of patients started treatment within 9 days, and 90% within 27 days. For those who needed emergency treatment, 91% began treatment within the emergency timeframe. Data were submitted from 44 public-sector sites and 33 private-sector sites, covering effectively 100% of courses delivered in Australia.

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