

## B: Methods

Supporting document for the Extended  
Medicare Safety Net Review Report 2009

**PREPARED BY:**

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**B: Methods – Supporting document for the Extended Medicare Safety Net Review Report 2009**

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## B: METHODS FOR ESTIMATING THE IMPACT OF THE EXTENDED MEDICARE SAFETY NET

This document gives more detail about the methods used in Section 4 of the Review of the Extended Medicare Safety Net (EMSN).

The methods were developed to help isolate the impact of the EMSN on the:

- average fee charged per medical service
- average Medicare benefit paid per service, including EMSN benefit
- average Medicare net benefit paid per service, including EMSN benefit
- average out-of-pocket (OOP) cost per service
- services used per capita
- percentage of services bulk billed.

Quarterly data from the first quarter of the 2000 calendar year through to the third quarter of 2008 were used to examine the pre- and post-EMSN time trends. The review therefore had access to data for 35 quarters, of which sixteen occurred before the introduction of the EMSN, and nineteen occurred after its introduction. For each quarter, the review had access to the total number of services used, the number of services bulk billed, the fees charged, the Medicare benefits paid, the total EMSN benefits paid, and the OOP costs. Each data field was further categorised by in-hospital and out-of-hospital status. These data were made available for each of the (approximately) 5,700 items on the Medicare Benefits Schedule (MBS). All current dollar figures were converted to constant 2007 dollars using the quarterly national Consumer Price Index.

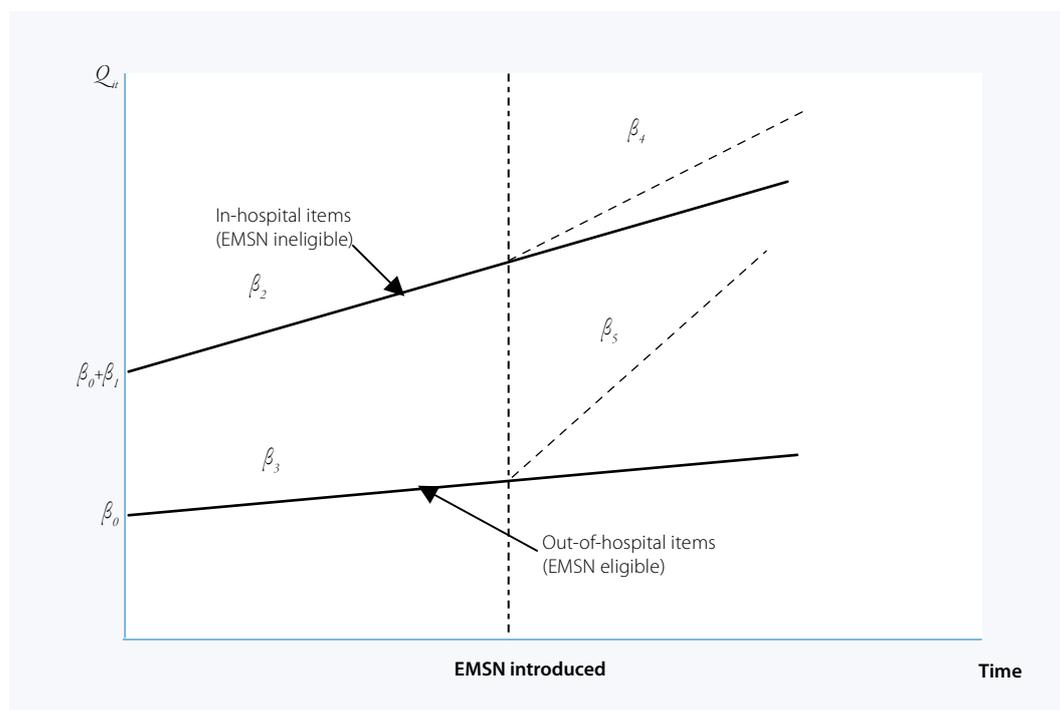
An important challenge for this analysis is to isolate the impacts of the EMSN from changes that are not attributable to its introduction. It is possible that other changes in the health care market occurred around the same time as the EMSN, such as increases to Medicare benefits and the introduction of new items. If this were the case, there is a risk that the type of analysis described above may wrongly attribute estimated changes to the EMSN. We have developed several strategies to address this concern and strengthen the causal interpretation of the results. Firstly, we include in-hospital services in the analysis. As the EMSN does not apply to these services, they serve as a control group to observe whether there were changes occurring to the overall medical market at the time the EMSN was introduced.

Secondly, for each professional group in this study we examine whether in-hospital trends differ from out-of-hospital trends. For example, we examine whether psychiatrists' average out-of-hospital fees (EMSN eligible) changed compared to their average in-hospital fees (EMSN ineligible).

Thirdly, we include net Medicare benefits in the analysis, which are essentially the amount of money patients get back from Medicare Australia, excluding the EMSN component. This allows us to estimate the impact of changes to benefits that are not directly attributable to the EMSN. For example, we can detect changes to MBS fees over the period, the introduction of new Medicare items during the period, and changes in the types of services provided. These strategies make the analysis and its conclusion more robust.

Figure B.1 is a diagrammatic representation of the empirical strategy. The horizontal axis is measurement of time and the vertical axis represents one of the outcomes of interest (for example the average fee charged per service). The first test of EMSN impact is to determine whether the slope for out-of-hospital services changes significantly following the introduction of the EMSN (is  $\beta_5$  statistically different from zero). A positive answer is consistent with evidence for EMSN impact. The second test is to determine whether the slope following the introduction of the EMSN is different for services provided out-of-hospital and in-hospital (is  $\beta_4$  statistically different from  $\beta_5$ ). A positive answer provides further evidence of EMSN impact.

**Figure B.1: Empirical strategy for measuring the implications of the EMSN**



Six models were estimated, each corresponding to one of the outcomes of interest:

$$\text{Equation 1} \quad Avefee_{it} = \alpha_0 + \alpha_1 Time_{t=1, \dots, 35} + \alpha_2 EMSNd + \alpha_3 EMSNtime_{t=1, \dots, 19}$$

$$\text{Equation 2} \quad Aveben_{it} = \beta_0 + \beta_1 Time_{t=1, \dots, 35} + \beta_2 EMSNd + \beta_3 EMSNtime_{t=1, \dots, 19}$$

$$\text{Equation 3} \quad Avenetben_{it} = \beta_0 + \beta_1 Time_{t=1, \dots, 35} + \beta_2 EMSNd + \beta_3 EMSNtime_{t=1, \dots, 19}$$

$$\text{Equation 4} \quad Aveoop_{it} = \phi_0 + \phi_1 Time_{t=1, \dots, 35} + \phi_2 EMSNd + \phi_3 EMSNtime_{t=1, \dots, 19}$$

$$\text{Equation 5} \quad Servcap_{it} = \theta_0 + \theta_1 Time_{t=1, \dots, 35} + \theta_2 EMSNd + \theta_3 EMSNtime_{t=1, \dots, 19}$$

$$\text{Equation 6} \quad BBrate_{it} = \sigma_0 + \sigma_1 Time_{t=1, \dots, 35} + \sigma_2 EMSNd + \sigma_3 EMSNtime_{t=1, \dots, 19}$$

Where the dependent variables: *Avefee* relates to the average fee charged by providers in time period *t* by professional group *i*; *Aveben* relates to the average Medicare (including EMSN) benefit per service paid by government; *Avenetben* relates to the average Medicare (excluding EMSN) benefit per service paid by government; *Aveoop* relates to the average OOP per service paid directly by the patient; *Servcap* is the number of services per capita consumed in time *t* for professional group *i*; and *BBrate* is the proportion of services that were bulk billed in time period *t* by professional group *i*.

Since the average OOP cost is equal to the average fee minus the average benefit paid, Equation 4 is effectively the difference between the dependent variables of equations 1 and 2.

Each equation includes the same set of independent variables:

- *Time* coefficients ( $\alpha_1, \beta_1, \phi_1, \theta_1$  and  $\sigma_1$ ) estimate the pre-EMSN time trend in the dependent variable. It takes on the value of 1 in the first quarter of 2000 and 35 in the third quarter of 2008.
- *EMSNd* is a dummy variable taking on the value of 1 from the first quarter of 2004 onwards, 0 otherwise. The *EMSNd* coefficients ( $\alpha_2, \beta_2, \phi_2, \theta_2$  and  $\sigma_2$ ) estimate the instantaneous effect the EMSN may have had on the corresponding dependent variable.
- *EMSNtime* variable takes on the value of 1 in the first quarter of 2004 and the value of 19 in the third quarter of 2008. The *EMSNtime* coefficients ( $\alpha_3, \beta_3, \phi_3, \theta_3$  and  $\sigma_3$ ) estimate the post-EMSN time trend on the corresponding dependent variable.
- The constant ( $\alpha_0, \beta_0, \phi_0, \theta_0$  and  $\sigma_0$ ) is the intercept and represents the average fee, benefit, OOP costs, etc for profession *i* at time = 0.

A statistically significant result for either the *EMSNd* or *EMSNtime* variables implies that the introduction of the EMSN is associated with a change in pre-existing time trends at the time of the introduction of EMSN or in the period afterwards.

Comparisons of *EMSNd* and *EMSNtime* coefficients between any of the professional groups and the operations group will reveal whether or not there has been a differential impact between out-of-hospital and in-hospital services. A statistically significant difference between out-of-hospital and in-hospital services strengthens the evidence that the EMSN is the causal factor in explaining changes over time.

In addition, this review also addressed the issue of potential substitution of fees from the in-hospital to the out-of-hospital setting. The model outlined in Equation 7 was used to estimate this potential EMSN implication.

**Equation 7**

$$Avefee_{it} = \gamma_0 + \gamma_1 IN + \gamma_2 Timein_{t=1, \dots, 35} + \gamma_3 Timeout_{t=1, \dots, 35} + \gamma_4 EMSNdin + \gamma_5 EMSNdout... \\ + \gamma_6 EMSNtimein_{t=1, \dots, 19} + \gamma_7 EMSNtimein_{t=1, \dots, 19}$$

Here the dependent variable, *Avefee*, relates to the average fee charged by providers in time period *t* by professional group *i*;  $\gamma_0$  is the average out-of-hospital fee charged by professional group *i* in time period  $t=0$ , and  $\gamma_0 + \gamma_1$  is the corresponding average in-hospital fee;  $\gamma_2$  and  $\gamma_3$  is an estimate of the pre-EMSN quarterly change in average fees for in-hospital and out-of-hospital services, respectively;  $\gamma_4$  and  $\gamma_5$  is a measure of the instantaneous effect of the EMSN on in-hospital and out-of-hospital services respectively; and  $\gamma_6$  and  $\gamma_7$  is an estimate of the quarterly change in average fees for the post-EMSN period for in-hospital and out-of-hospital services respectively.

A statistically significant difference between  $\gamma_2$  and  $\gamma_3$  or between  $\gamma_4$  and  $\gamma_5$  implies that the EMSN has had a differential impact on average fees charged by provider group *i* for services provided in the out-of-hospital setting compared to those provided by the same provider group in the in-hospital setting.

We used Ordinary Least Squares (OLS) regression analysis to estimate the models.

**Table 3.1 Items used to identify individuals with selected medical conditions**

MEDICAL CONDITION	MBS ITEM	DESCRIPTION
<b>Mental Illness</b>	306	PSYCHIATRY – attendance of 45–75 minutes
	316	PSYCHIATRY – attendance of 45–75 minutes, where the patient has had more than 50 consultations in a calendar year
<b>Diabetes</b>	66551	Quantitation of glycosylated haemoglobin performed in the management of established diabetes
<b>GP care plan</b>	720/721	Preparation of a GP management plan
<b>Cancer – chemotherapy</b>	13915	CYTOTOXIC CHEMOTHERAPY – Administration for one hour or less
	13918	CYTOTOXIC CHEMOTHERAPY – Administration for more than one hour but less than six hours
	13921	CYTOTOXIC CHEMOTHERAPY – Administration for more than six hours, first day of treatment
	13924	CYTOTOXIC CHEMOTHERAPY – Administration for more than six hours, each day subsequent to the first day of treatment
	13927	CYTOTOXIC CHEMOTHERAPY – intra-arterial push technique or intra-arterial infusion for one hour or less
	13930	CYTOTOXIC CHEMOTHERAPY – intra-arterial infusion more than one hour and less than 6 hours
	13933	CYTOTOXIC CHEMOTHERAPY – intra-arterial infusion more than one hour and less than 6 hours
	13936	CYTOTOXIC CHEMOTHERAPY – intra-arterial infusion more than 6 hours
	13939	IMPLANTED PUMP OR RESERVOIR, loading with cytotoxic agent or agents
	13942	AMBULATORY DRUG DELIVERY DEVICE – loading with cytotoxic agent or agents
	13945	LONG-TERM IMPLANTED DRUG DELIVERY DEVICE FOR CYTOTOXIC CHEMOTHERAPY – accessing of.
	13948	CYTOTOXIC AGENT – instillation of, into body cavity
<b>Cancer – radiation oncology</b>	15100	RADIOTHERAPY, DEEP OR ORTHOVOLTAGE each attendance at which fractionated treatment is given at 3 or more treatments per week – 1 field
	15103	– 2 or more fields up to a maximum of 5 additional fields (rotational therapy being 3 fields)
	15106	RADIOTHERAPY, DEEP OR ORTHOVOLTAGE each attendance at which fractionated treatment is given at 2 treatments per week or less frequently – 1 field
	15109	– 2 or more fields up to a maximum of 5 additional fields (rotational therapy being 3 fields)
	15112	RADIOTHERAPY, DEEP OR ORTHOVOLTAGE attendance at which single dose technique is applied 1 field

MEDICAL CONDITION	MBS ITEM	DESCRIPTION
<b>Cancer – radiation oncology (continued)</b>	15115	– 2 or more fields up to a maximum of 5 additional fields (rotational therapy being 3 fields)
	15211	RADIATION ONCOLOGY TREATMENT, using cobalt unit or caesium teletherapy unit each attendance at which treatment is given – 1 field
	15214	– 2 or more fields up to a maximum of 5 additional fields (rotational therapy being 3 fields)
	15215	RADIATION ONCOLOGY TREATMENT, using a single photon energy linear accelerator with or without electron facilities – each attendance at which treatment is given – 1 field – treatment delivered to primary site (lung)
	15218	RADIATION ONCOLOGY TREATMENT, using a single photon energy linear accelerator with or without electron facilities – each attendance at which treatment is given – 1 field – treatment delivered to primary site (prostate)
	15221	RADIATION ONCOLOGY TREATMENT, using a single photon energy linear accelerator with or without electron facilities – each attendance at which treatment is given – 1 field – treatment delivered to primary site (breast)
	15224	RADIATION ONCOLOGY TREATMENT, using a single photon energy linear accelerator with or without electron facilities – each attendance at which treatment is given – 1 field – treatment delivered to primary site for diseases and conditions not covered by items 15215, 15218 and 15221
	15227	RADIATION ONCOLOGY TREATMENT, using a single photon energy linear accelerator with or without electron facilities – each attendance at which treatment is given – 1 field – treatment delivered to secondary site
	15230	RADIATION ONCOLOGY TREATMENT, using a single photon energy linear accelerator with or without electron facilities – each attendance at which treatment is given – 2 or more fields up to a maximum of 5 additional fields (rotational therapy being 3 fields) – treatment delivered to primary site (lung)
	15233	RADIATION ONCOLOGY TREATMENT, using a single photon energy linear accelerator with or without electron facilities – each attendance at which treatment is given – 2 or more fields up to a maximum of 5 additional fields (rotational therapy being 3 fields) – treatment delivered to primary site (prostate)
	15236	RADIATION ONCOLOGY TREATMENT, using a single photon energy linear accelerator with or without electron facilities – each attendance at which treatment is given – 2 or more fields up to a maximum of 5 additional fields (rotational therapy being 3 fields) – treatment delivered to primary site (breast)
	15239	RADIATION ONCOLOGY TREATMENT, using a single photon energy linear accelerator with or without electron facilities – each attendance at which treatment is given – 2 or more fields up to a maximum of 5 additional fields (rotational therapy being 3 fields) – treatment delivered to primary site for diseases and conditions not covered by items 15230, 15233 or 15236

MEDICAL CONDITION	MBS ITEM	DESCRIPTION
<b>Cancer – radiation oncology (continued)</b>	15242	RADIATION ONCOLOGY TREATMENT, using a single photon energy linear accelerator with or without electron facilities – each attendance at which treatment is given – 2 or more fields up to a maximum of 5 additional fields (rotational therapy being 3 fields) – treatment delivered to secondary site
	15245	RADIATION ONCOLOGY TREATMENT, using a dual photon energy linear accelerator with a minimum higher energy of at least 10MV photons, with electron facilities – each attendance at which treatment is given – 1 field – treatment delivered to primary site (lung)
	15248	RADIATION ONCOLOGY TREATMENT, using a dual photon energy linear accelerator with a minimum higher energy of at least 10MV photons, with electron facilities – each attendance at which treatment is given – 1 field – treatment delivered to primary site (prostate)
	15251	RADIATION ONCOLOGY TREATMENT, using a dual photon energy linear accelerator with a minimum higher energy of at least 10MV photons, with electron facilities – each attendance at which treatment is given – 1 field – treatment delivered to primary site (breast)
	15254	RADIATION ONCOLOGY TREATMENT, using a dual photon energy linear accelerator with a minimum higher energy of at least 10MV photons, with electron facilities – each attendance at which treatment is given – 1 field – treatment delivered to primary site for diseases and conditions not covered by items 15245, 15248 or 15251
	15257	RADIATION ONCOLOGY TREATMENT, using a dual photon energy linear accelerator with a minimum higher energy of at least 10MV photons, with electron facilities – each attendance at which treatment is given – 1 field – treatment delivered to secondary site
	15260	RADIATION ONCOLOGY TREATMENT, using a dual photon energy linear accelerator with a minimum higher energy of at least 10MV photons, with electron facilities – each attendance at which treatment is given – 2 or more fields up to a maximum of 5 additional fields (rotational therapy being 3 fields) – treatment delivered to primary site (lung)
	15263	RADIATION ONCOLOGY TREATMENT, using a dual photon energy linear accelerator with a minimum higher energy of at least 10MV photons, with electron facilities – each attendance at which treatment is given – 2 or more fields up to a maximum of 5 additional fields (rotational therapy being 3 fields) – treatment delivered to primary site (prostate)
	15266	RADIATION ONCOLOGY TREATMENT, using a dual photon energy linear accelerator with a minimum higher energy of at least 10MV photons, with electron facilities – each attendance at which treatment is given – 2 or more fields up to a maximum of 5 additional fields (rotational therapy being 3 fields) – treatment delivered to primary site (breast)
	15269	RADIATION ONCOLOGY TREATMENT, using a dual photon energy linear accelerator with a minimum higher energy of at least 10MV photons, with electron facilities – each attendance at which treatment is given – 2 or more fields up to a maximum of 5 additional fields (rotational therapy being 3 fields) – treatment delivered to primary site for diseases and conditions not covered by items 15260, 15263 or 15266

MEDICAL CONDITION	MBS ITEM	DESCRIPTION
<b>Cancer – radiation oncology (continued)</b>	15272	RADIATION ONCOLOGY TREATMENT, using a dual photon energy linear accelerator with a minimum higher energy of at least 10MV photons, with electron facilities – each attendance at which treatment is given – 2 or more fields up to a maximum of 5 additional fields (rotational therapy being 3 fields) – treatment delivered to secondary site
	15303	INTRAUTERINE TREATMENT ALONE using radioactive sealed sources having a half-life greater than 115 days using manual afterloading techniques (Anaes.)
	15304	INTRAUTERINE TREATMENT ALONE using radioactive sealed sources having a half-life greater than 115 days using automatic afterloading techniques (Anaes.)
	15307	INTRAUTERINE TREATMENT ALONE using radioactive sealed sources having a half-life of less than 115 days including iodine, gold, iridium or tantalum using manual afterloading techniques (Anaes.)
	15308	INTRAUTERINE TREATMENT ALONE using radioactive sealed sources having a half-life of less than 115 days including iodine, gold, iridium or tantalum using automatic afterloading techniques (Anaes.)
	15311	INTRAVAGINAL TREATMENT ALONE using radioactive sealed sources having a half-life greater than 115 days using manual afterloading techniques (Anaes.)
	15312	INTRAVAGINAL TREATMENT ALONE using radioactive sealed sources having a half-life greater than 115 days using automatic afterloading techniques (Anaes.)
	15315	INTRAVAGINAL TREATMENT ALONE using radioactive sealed sources having a half-life of less than 115 days including iodine, gold, iridium or tantalum using manual afterloading techniques (Anaes.)
	15316	INTRAVAGINAL TREATMENT ALONE using radioactive sealed sources having a half-life of less than 115 days including iodine, gold, iridium or tantalum using automatic afterloading techniques (Anaes.)
	15319	COMBINED INTRAUTERINE AND INTRAVAGINAL TREATMENT using radioactive sealed sources having a half-life greater than 115 days using manual afterloading techniques (Anaes.)
	15320	COMBINED INTRAUTERINE AND INTRAVAGINAL TREATMENT using radioactive sealed sources having a half-life greater than 115 days using automatic afterloading techniques (Anaes.)
	15323	COMBINED INTRAUTERINE AND INTRAVAGINAL TREATMENT using radioactive sealed sources having a half-life of less than 115 days including iodine, gold, iridium or tantalum using manual afterloading techniques (Anaes.)
	15324	COMBINED INTRAUTERINE AND INTRAVAGINAL TREATMENT using radioactive sealed sources having a half-life of less than 115 days including iodine, gold, iridium or tantalum using automatic afterloading techniques (Anaes.)
	15327	IMPLANTATION OF A SEALED RADIOACTIVE SOURCE (having a half-life of less than 115 days including iodine, gold, iridium or tantalum) to a region, under general anaesthesia, or epidural or spinal (intrathecal) nerve block, requiring surgical exposure and using manual afterloading techniques (Anaes.)

MEDICAL CONDITION	MBS ITEM	DESCRIPTION
<b>Cancer – radiation oncology (continued)</b>	15328	IMPLANTATION OF A SEALED RADIOACTIVE SOURCE (having a half-life of less than 115 days including iodine, gold, iridium or tantalum) to a region, under general anaesthesia, or epidural or spinal (intrathecal) nerve block, requiring surgical exposure and using automatic afterloading techniques (Anaes.)
	15331	IMPLANTATION OF A SEALED RADIOACTIVE SOURCE (having a half-life of less than 115 days including iodine, gold, iridium or tantalum) to a site (including the tongue, mouth, salivary gland, axilla, subcutaneous sites), where the volume treated involves multiple planes but does not require surgical exposure and using manual afterloading techniques (Anaes.)
	15332	IMPLANTATION OF A SEALED RADIOACTIVE SOURCE (having a half-life of less than 115 days including iodine, gold, iridium or tantalum) to a site (including the tongue, mouth, salivary gland, axilla, subcutaneous sites), where the volume treated involves multiple planes but does not require surgical exposure and using automatic afterloading techniques (Anaes.)
	15335	IMPLANTATION OF A SEALED RADIOACTIVE SOURCE (having a half-life of less than 115 days including iodine, gold, iridium or tantalum) to a site where the volume treated involves only a single plane but does not require surgical exposure and using manual afterloading techniques (Anaes.)
	15336	IMPLANTATION OF A SEALED RADIOACTIVE SOURCE (having a half-life of less than 115 days including iodine, gold, iridium or tantalum) to a site where the volume treated involves only a single plane but does not require surgical exposure and using automatic afterloading techniques (Anaes.)
	15338	PROSTATE, radioactive seed implantation of, radiation oncology component, using transrectal ultrasound guidance, for localised prostatic malignancy at clinical stages T1 (clinically inapparent tumour not palpable or visible by imaging) or T2 (tumour confined within prostate), with a Gleason score of less than or equal to 7 and a prostate specific antigen (PSA) of less than or equal to 10ng/ml at the time of diagnosis. The procedure must be performed at an approved site in association with a urologist
	15339	REMOVAL OF A SEALED RADIOACTIVE SOURCE under general anaesthesia, or under epidural or spinal nerve block
	15342	CONSTRUCTION AND APPLICATION OF A RADIOACTIVE MOULD using a sealed source having a half-life of greater than 115 days, to treat intracavity, intraoral or intranasal site
	15345	CONSTRUCTION AND APPLICATION OF A RADIOACTIVE MOULD using a sealed source having a half-life of less than 115 days including iodine, gold, iridium or tantalum to treat intracavity, intraoral or intranasal sites
	15348	SUBSEQUENT APPLICATIONS OF RADIOACTIVE MOULD referred to in item 15342 or 15345 each attendance
	15351	CONSTRUCTION WITH OR WITHOUT INITIAL APPLICATION OF RADIOACTIVE MOULD not exceeding 5 cm. diameter to an external surface
	15354	CONSTRUCTION AND INITIAL APPLICATION OF RADIOACTIVE MOULD 5 cm. or more in diameter to an external surface
	15357	SUBSEQUENT APPLICATIONS OF RADIOACTIVE MOULD referred to in item 15351 or 15354 each attendance

MEDICAL CONDITION	MBS ITEM	DESCRIPTION
<b>Cancer – radiation oncology (continued)</b>	15360	CATHETER BASED INTRAVASCULAR BRACHYTHERAPY for the treatment of in-stent restenoses of 1 coronary artery, administration of radioactive sealed sources having a half life of less than 115 days using automated intravascular brachytherapy systems approved by the Therapeutic Goods Administration. The procedure must be performed by a radiation oncologist in association with a cardiologist and be associated with a service to which item 38321, 38324, 38327 or 38330 applies.
	15363	CATHETER BASED INTRAVASCULAR BRACHYTHERAPY for the treatment of in-stent restenoses of 1 coronary artery, administration of radioactive sealed sources having a half life of greater than 115 days using automated intravascular brachytherapy systems approved by the Therapeutic Goods Administration. The procedure must be performed by a radiation oncologist in association with a cardiologist and be associated with a service to which item 38321, 38324, 38327 or 38330 applies
	15500	RADIATION FIELD SETTING using a simulator or isocentric xray or megavoltage machine or CT of a single area for treatment by a single field or parallel opposed fields (not being a service associated with a service to which item 15509 applies)
	15503	RADIATION FIELD SETTING using a simulator or isocentric xray or megavoltage machine or CT of a single area, where views in more than 1 plane are required for treatment by multiple fields, or of 2 areas (not being a service associated with a service to which item 15512 applies)
	15506	RADIATION FIELD SETTING using a simulator or isocentric xray or megavoltage machine or CT of 3 or more areas, or of total body or half body irradiation, or of mantle therapy or inverted Y fields, or of irregularly shaped fields using multiple blocks, or of offaxis fields or several joined fields (not being a service associated with a service to which item 15515 applies)
	15509	RADIATION FIELD SETTING using a diagnostic xray unit of a single area for treatment by a single field or parallel opposed fields (not being a service associated with a service to which item 15500 applies)
	15512	RADIATION FIELD SETTING using a diagnostic xray unit of a single area, where views in more than 1 plane are required for treatment by multiple fields, or of 2 areas (not being a service associated with a service to which item 15503 applies)
	15513	RADIATION SOURCE LOCALISATION using a simulator or x-ray machine or CT of a single area, where views in more than 1 plane are required, for brachytherapy treatment planning for I125 seed implantation of localised prostate cancer, in association with item 15338
	15515	RADIATION FIELD SETTING using a diagnostic xray unit of 3 or more areas, or of total body or half body irradiation, or of mantle therapy or inverted Y fields, or of irregularly shaped fields using multiple blocks, or of offaxis fields or several joined fields (not being a service associated with a service to which item 15506 applies)
	15518	RADIATION DOSIMETRY by a CT interfacing planning computer for megavoltage or teletherapy radiotherapy by a single field or parallel opposed fields to 1 area with up to 2 shielding blocks

MEDICAL CONDITION	MBS ITEM	DESCRIPTION
<b>Cancer – radiation oncology (continued)</b>	15521	RADIATION DOSIMETRY by a CT interfacing planning computer for megavoltage or teletherapy radiotherapy to a single area by 3 or more fields, or by a single field or parallel opposed fields to 2 areas, or where wedges are used
	15524	RADIATION DOSIMETRY by a CT interfacing planning computer for megavoltage or teletherapy radiotherapy to 3 or more areas, or by mantle fields or inverted Y fields or tangential fields or irregularly shaped fields using multiple blocks, or offaxis fields, or several joined fields
	15527	RADIATION DOSIMETRY by a non CT interfacing planning computer for megavoltage or teletherapy radiotherapy by a single field or parallel opposed fields to 1 area with up to 2 shielding blocks
	15530	RADIATION DOSIMETRY by a non CT interfacing planning computer for megavoltage or teletherapy radiotherapy to a single area by 3 or more fields, or by a single field or parallel opposed fields to 2 areas, or where wedges are used
	15533	RADIATION DOSIMETRY by a non CT interfacing planning computer for megavoltage or teletherapy radiotherapy to 3 or more areas, or by mantle fields or inverted Y fields, or tangential fields or irregularly shaped fields using multiple blocks, or offaxis fields, or several joined fields
	15536	BRACHYTHERAPY PLANNING, computerised radiation dosimetry
	15539	BRACHYTHERAPY PLANNING, computerised radiation dosimetry for I125 seed implantation of localised prostate cancer, in association with item 15338
	15541	CATHETER BASED INTRAVASCULAR BRACHYTHERAPY PLANNING: computerised radiation dosimetry. The procedure must be performed by a radiation oncologist in association with a cardiologist and be associated with a service to which item 38321, 38324, 38327 or 38330 applies.
	15550	SIMULATION FOR THREE DIMENSIONAL CONFORMAL RADIOTHERAPY without intravenous contrast medium, where: (a) treatment set up and technique specifications are in preparations for three dimensional conformal radiotherapy dose planning; and (b) patient set up and immobilisation techniques are suitable for reliable CT image volume data acquisition and three dimensional conformal radiotherapy treatment; and (c) a high-quality CT-image volume dataset must be acquired for the relevant region of interest to be planned and treated; and (d) the image set must be suitable for the generation of quality digitally reconstructed radiographic images
	15553	SIMULATION FOR THREE DIMENSIONAL CONFORMAL RADIOTHERAPY pre and post intravenous contrast medium, where: (a) treatment set up and technique specifications are in preparations for three dimensional conformal radiotherapy dose planning; and (b) patient set up and immobilisation techniques are suitable for reliable CT image volume data acquisition and three dimensional conformal radiotherapy treatment; and (c) a high-quality CT-image volume dataset must be acquired for the relevant region of interest to be planned and treated; and (d) the image set must be suitable for the generation of quality digitally reconstructed radiographic images

MEDICAL CONDITION	MBS ITEM	DESCRIPTION
<p><b>Cancer – radiation oncology (continued)</b></p>	<p>15556</p>	<p>DOSIMETRY FOR THREE DIMENSIONAL CONFORMAL RADIOTHERAPY OF LEVEL 1 COMPLEXITY where:</p> <ul style="list-style-type: none"> <li>(a) dosimetry for a single phase three dimensional conformal treatment plan using CT image volume dataset and having a single treatment target volume and organ at risk; and</li> <li>(b) one gross tumour volume or clinical target volume, plus one planning target volume plus at least one relevant organ at risk as defined in the prescription must be rendered as volumes; and</li> <li>(c) the organ at risk must be nominated as a planning dose goal or constraint and the prescription must specify the organ at risk dose goal or constraint; and</li> <li>(d) dose volume histograms must be generated, approved and recorded with the plan; and</li> <li>(e) a CT image volume dataset must be used for the relevant region to be planned and treated; and</li> <li>(f) the CT images must be suitable for the generation of quality digitally reconstructed radiographic images</li> </ul>
	<p>15559</p>	<p>DOSIMETRY FOR THREE DIMENSIONAL CONFORMAL RADIOTHERAPY OF LEVEL 2 COMPLEXITY where:</p> <ul style="list-style-type: none"> <li>(a) dosimetry for a two phase three dimensional conformal treatment plan using CT image volume dataset(s) with at least one gross tumour volume, two planning target volumes and one organ at risk defined in the prescription; or</li> <li>(b) dosimetry for a one phase three dimensional conformal treatment plan using CT image volume datasets with at least one gross tumour volume, one planning target volume and two organ at risk dose goals or constraints defined in the prescription; or</li> <li>(c) image fusion with a secondary image (CT, MRI or PET) volume dataset used to define target and organ at risk volumes in conjunction with and as specified in dosimetry for three dimensional conformal radiotherapy of level 1 complexity.</li> </ul> <p>All gross tumour targets, clinical targets, planning targets and organs at risk as defined in the prescription must be rendered as volumes. The organ at risk must be nominated as planning dose goals or constraints and the prescription must specify the organs at risk as dose goals or constraints. Dose volume histograms must be generated, approved and recorded with the plan. A CT image volume dataset must be used for the relevant region to be planned and treated. The CT images must be suitable for the generation of quality digitally reconstructed radiographic images</p>

MEDICAL CONDITION	MBS ITEM	DESCRIPTION
<b>Cancer – radiation oncology (continued)</b>	15562	<p>DOSIMETRY FOR THREE DIMENSIONAL CONFORMAL RADIOTHERAPY OF LEVEL 3 COMPLEXITY – where:</p> <p>(a) dosimetry for a three or more phase three dimensional conformal treatment plan using CT image volume dataset(s) with at least one gross tumour volume, three planning target volumes and one organ at risk defined in the prescription; or</p> <p>(b) dosimetry for a two phase three dimensional conformal treatment plan using CT image volume datasets with at least one gross tumour volume, and</p> <p>(i) two planning target volumes; or</p> <p>(ii) two organ at risk dose goals or constraints defined in the prescription.</p> <p>or</p> <p>(c) dosimetry for a one phase three dimensional conformal treatment plan using CT image volume datasets with at least one gross tumour volume, one planning target volume and three organ at risk dose goals or constraints defined in the prescription;</p> <p>or</p> <p>(d) image fusion with a secondary image (CT, MRI or PET) volume dataset used to define target and organ at risk volumes in conjunction with and as specified in dosimetry for three dimensional conformal radiotherapy of level 2 complexity.</p> <p>All gross tumour targets, clinical targets, planning targets and organs at risk as defined in the prescription must be rendered as volumes. The organ at risk must be nominated as planning dose goals or constraints and the prescription must specify the organs at risk as dose goals or constraints. Dose volume histograms must be generated, approved and recorded with the plan. A CT image volume dataset must be used for the relevant region to be planned and treated. The CT images must be suitable for the generation of quality digitally reconstructed radiographic images</p>

