

## PROJECT REPORT

# Radiation therapy education for rural and remote GPs

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## ABSTRACT

**Introduction:** Radiation therapy (RT) plays an important role in the treatment of many malignancies, either as a primary treatment or adjuvant modality. The referral base for many New South Wales (NSW) radiation oncology departments extends across rural and remote NSW regions. There are limited resources and support available to GPs in these rural areas to assist them in caring for patients considering or about to undergo RT, and those who have completed RT treatment and have returned to their rural residence. The project described aimed to develop an electronic learning (e-learning) information resource for: (1) both health professionals and patients in the NSW rural sector on general RT information; and (2) GPs on the specifics of radiation induced skin reactions. In order to produce a comprehensive information package and resource for rural GPs and their patients, a needs assessment was conducted on a sample GP population.



**Methods:** The needs assessment was conducted via distribution of a survey to 1700 rural GPs throughout NSW. The survey was developed using patient and clinician input; and SPSS software (SPSS Inc; Chicago, IL, USA) was used for data analysis. The collected data were analysed descriptively to quantify the GPs' responses.

**Results:** A response rate of 22% was achieved. Of the respondents, 93.9% had previously cared for a patient undergoing radiation therapy, and 76.7% felt they had insufficient information to support their patient through this process. In total, 96.1% of the GPs indicated the need for information about acute and chronic radiation induced skin reactions. The need for educational material to be available in both hard copy and electronically was identified.

**Conclusion:** The results indicate that most GPs have cared for an RT patient and few felt they had sufficient information. There was genuine interest from the respondents in obtaining an information and resource package that would assist them in the care of these patients.

**Key words:** e-learning, general practitioners, patient information, radiation therapy.

## Introduction

There were 88 398 new incidences of cancer detected in Australia during 2001, an increase from the 65 966 new cases in 1991, illustrating the large impact cancer has on society<sup>1</sup>. Over the past 30 years, the incidence of cancer in the Australian state of New South Wales (NSW) has risen substantially, and is predicted to rise another 25% by 2011<sup>2</sup>.

The modern treatment approach to cancer care is multidisciplinary, with surgical, medical and radiation oncology treatments playing significant roles<sup>3</sup>. The literature suggests that 50% of cancer sufferers should receive radiation therapy (RT), either as a primary treatment or as an adjuvantive, combined approach, in both palliative and curative treatments<sup>4</sup>. Radiation therapy involves the use of ionising radiation to cause irreparable damage to tumour cells, while minimising the dose received by the normal tissue of surrounding structures. This maximises the therapeutic effect of RT and minimises treatment morbidity experienced by the patient<sup>5</sup>.

The radiation oncology team is largely multidisciplinary, consisting of medical, allied health and nursing staff. Radiation oncology departments require a large support network of medical physicists, biomedical engineers and information technology specialists to operate effectively.

Because of this, radiation oncology departments are more often situated in metropolitan or large regional centres and rarely in rural or remote settings. For example, the referral base from the NSW rural and remote health sector of the Calvary Mater Newcastle (CMN) Department of Radiation Oncology exceeds 250 000 people. From the 1615 patients receiving treatment at the CMN in 2007, 27.7% of these were from rural and remote regions. This necessitates rural patients who require RT to relocate to the area of the nearest radiation oncology department for the duration of their treatment, which can be for between one and 7 weeks, or more in some cases. This relocation can have a large financial and psychosocial impact on patients and their families.

Following the completion of their RT course, rural patients return to their homes. Any acute side-effects of the RT will not have resolved on completion of the course, and may even increase in severity before beginning to resolve 10 to 14 days after treatment completion<sup>6,7</sup>. This means that the immediate after care of acute radiation reactions is often managed by GPs. In some cases the knowledge of GPs in rural and remote locations is not adequate enough to deal with patients' concerns. Mallingier, Griggs and Shields<sup>8</sup> suggest that information may not be delivered effectively during this time, because physicians are not confident to discuss the issues relating to this specialist area. Compounding this, GPs may have very little support and



training in the management of acute and long-term radiation induced side-effects. Currently, there is very little RT information readily available in the rural setting to patients and health professionals. This can impact on referrals and decision-making, and can potentially increase patient anxiety.

The project described aimed to:

1. Define the current level of rural GP knowledge on RT information for patients.
2. Explore the desire of rural GPs to receive education on general RT topics and post-RT patient management.
3. Develop, implement and evaluate a educational resource to address identified areas of interest

All training and educational packages developed would be supported by an existing e-learning platform at the CMN Radiation Oncology Department called 'The Knowledge Tank'. The Knowledge Tank facilitates access to information and training for users anywhere and at anytime, as well as providing a constant and reproducible point of reference. In order to provide information and education to the target groups, adherence to educational design principles was necessary. A detailed educational design plan was required which included a needs assessment. This project report will discuss the development of a survey instrument and both quantitative and qualitative results.

## Methods

### *Development of the survey instrument*

The needs assessment was performed by a questionnaire (Appendix I) that included the following topics:

- GPs' previous experiences in caring for a patient involved in radiation therapy
- GPs' level of general knowledge on RT

- the information GPs view as important to provide to a patient considering or undergoing RT
- the information GPs feel important to have access to regarding RT
- what level of information on radiation induced skin injury is preferred by GPs
- how the information should be delivered and distributed to both patients and GPs.

The survey was based on quality assurance work previously conducted at the CMN that explored the issues important to patients as they begin their journey into the radiation oncology environment. Given the wide variety of potential RT treatment morbidities, radiation induced skin injury was targeted by the survey because it is a side-effect most patients will experience during their course of RT<sup>6,7</sup>.

### *Data collection*

The survey was distributed to 1700 GPs via the NSW Rural Doctors Network. Data collection began in June 2007 and ceased in September 2007. All surveys were accompanied by an information sheet detailing the background of the project, and an addressed reply-paid envelope to return the completed survey. The information sheet informed GPs that return of the completed survey implied consent for the data in it to be used for the this project, resultant professional publications and conference presentations. A follow-up reminder notice was placed on the NSW Rural Doctors' Network website 1 month after distribution. No direct contact could be made with participants to prompt return of the surveys because access to the distribution database was not available to the researchers. All returned surveys were anonymous unless the participant chose to include personal details.

### *Data analysis*

The quantitative data retrieved from the survey were entered in SPSS v15.0.0 (<http://www.spss.com/products/>). The GPs' responses for each survey section were examined descriptively. Qualitative data that were provided in open-



ended questions and comments were subjected to a content analysis. The content analysis required the following steps:

1. All qualitative data were analysed in MS Excel.
2. The data were read by the researcher to become familiar with overall content.
3. The data were then re-read from hard copy, and common themes were identified.
4. The identified themes were grouped into categories to illustrate key areas of interest within the data

## Results

### *Response rate*

Of the 1700 surveys distributed, 374 complete surveys were returned, providing a 22% response rate. The distribution of responses within the four major area health services in NSW is shown (Table 1).

From the 374 GPs who responded, 93.9% had cared for a patient who had received RT, but only 23.3% of those felt they had sufficient information to discuss issues impacting on the patient's care (Fig1). The remaining 76.7% provided detailed responses regarding the type of information the GPs felt would be beneficial to provide to the patient (Fig2).

In addition to these responses, analysis of the open-ended questions revealed several themes that the GPs felt should also be included for the patient's benefit (Fig3), and for both the patient and GP's benefit (Fig4).

### *How to deliver the information*

When the participants were asked which electronic media they would prefer for the delivery of information (for professional and patient use), there was no overwhelming majority for delivery via CD or online. However, many GPs indicated delivery preferences other than in electronic (Table 2).

### *Skin care management information*

A total of 96.1% of the respondents indicated they would find information about acute and chronic radiation skin reactions useful in caring for a patient undergoing or completing a course of RT. Figure 5 shows the specific information they felt would be useful.

### *Content analysis*

Analysis of the qualitative data indicated three main categories that GPs feel are beneficial for both their own professional development and as specific patient resources (Fig4). These include:

- site-specific treatments and reactions
- logistical information
- survival statistics.

In addition to this, GPs reported specific patient resources that need to be included (Fig3), all quite substantial and distinct topics not readily assimilated into groups. The majority of GPs also indicated the mechanisms and management of radiation-induced skin reactions was a topic that should be explored in the training material.

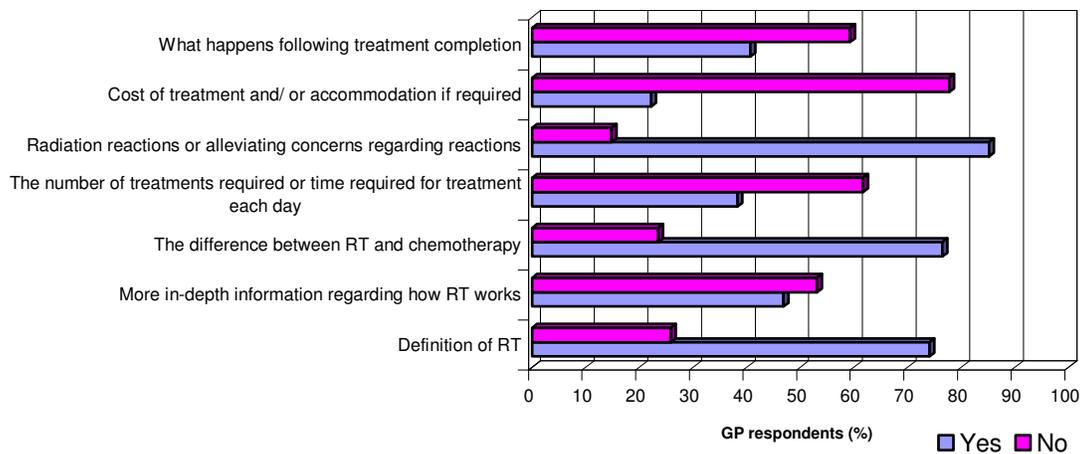
## Discussion

The initial response rate to the surveys was encouraging; however, this was not sustained and the low (22%) overall response rate limits the generalisability of the study. There may be a number of reasons for the low response rate, such as the heavy workloads of rural GPs, and a perceived lack of need for further knowledge of RT. However, with well over 300 GPs responding from a cross-section of NSW, the sample was successful in representing the target audience. The distribution of responses within area health services were generally evenly distributed within larger populated regions.

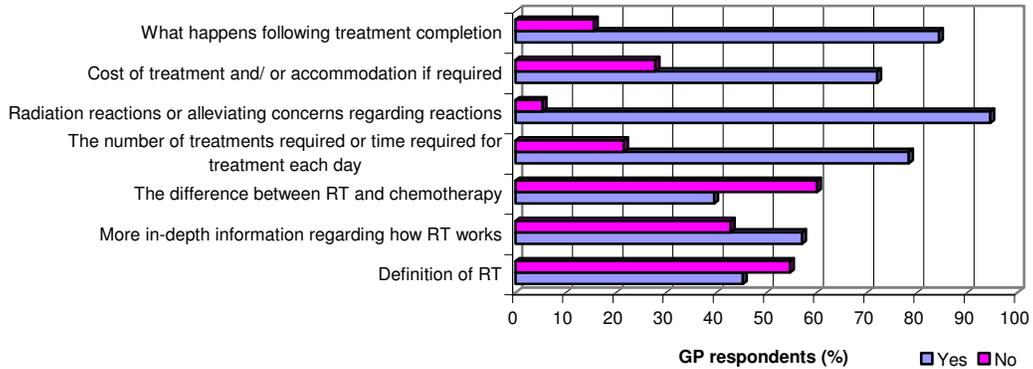


**Table 1: Distribution and response rates of surveys by area health services**

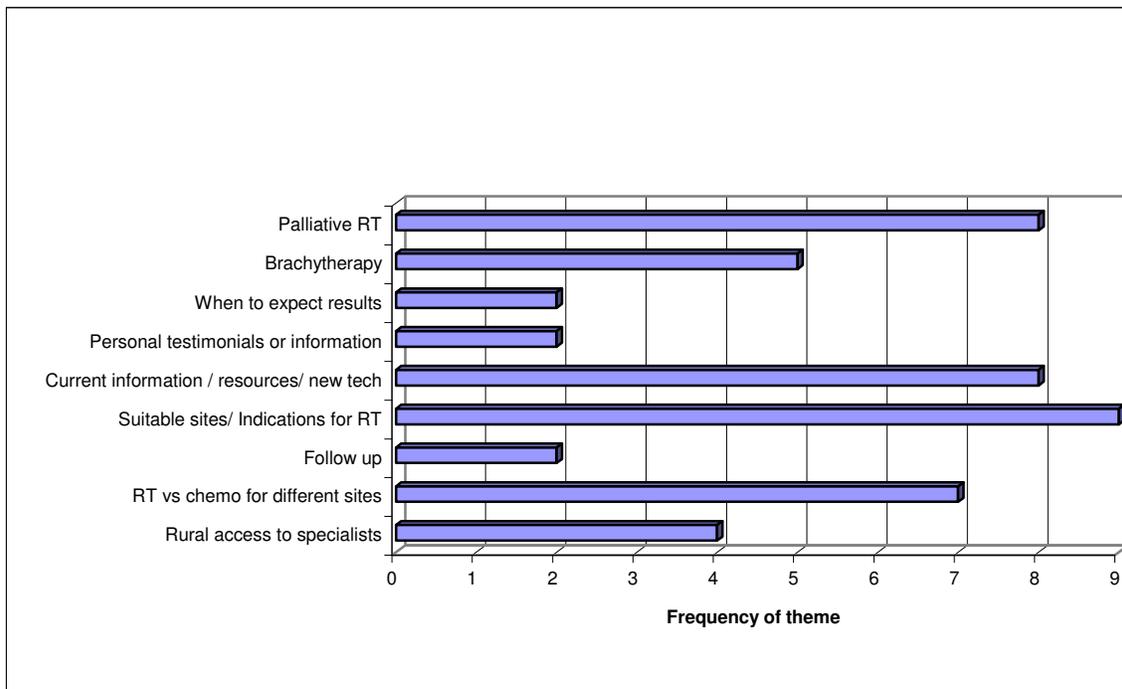
Area health service	No. surveys distributed	Response rate (%)
Great Western	258	14.0
Great Southern	502	16.9
Hunter New England	295	35.3
North Coast	500	16.2



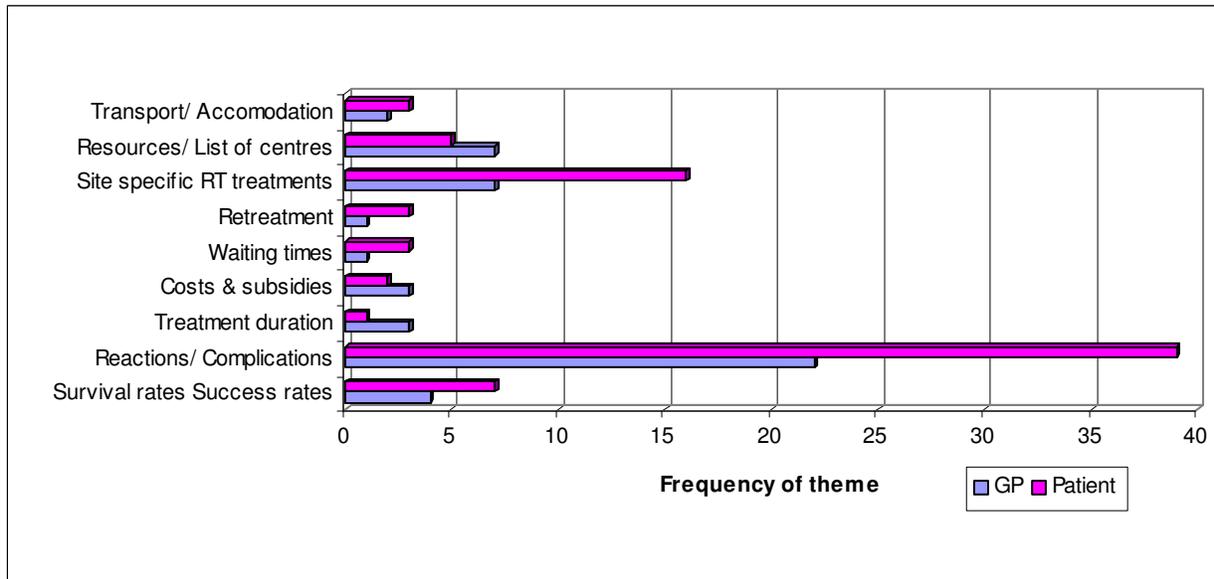
**Figure 1: Whether or not GPs who reported having sufficient knowledge regarding radiation therapy (RT) informed their patients about specific RT topics.**



**Figure 2: GPs' belief about whether specific patient radiation therapy (RT) information would be beneficial for patients or not.**



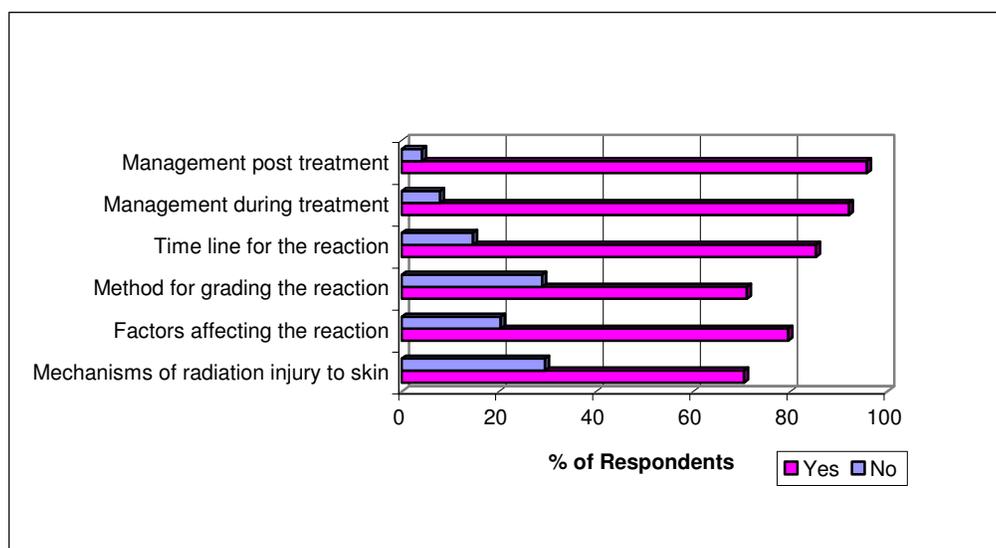
**Figure 3: Emergent themes that GPs identified as important to be included in patient education resources. RT, radiation therapy; tech, technology.**



**Figure 4: Emergent themes that GPs identified as important to be included in patient and GP education resources. RT, radiation therapy.**

**Table 2: Delivery mode preferences for GP and patient distribution**

Delivery mode	Audience	
	GP	Patient
CD	51.7	53.8
Online	41.1	32.6
Face to face	5.5	13.3
Hard copy	1.7	0.3



**Figure 5: Specific information on radiation skin reaction that GPs nominated as a useful addition to the information package.**



The areas surveyed were key areas of importance identified by a quality assurance project completed within the CMN Radiation Oncology Department; this project involved patient, clinician and radiation therapist input. In interpreting the results of this study it is important to note that the instrument used was not a validated survey. While the domains investigated were generated from patient and clinician input, it is possible that not all areas were addressed. However, respondents were given the opportunity to raise other concerns in open-ended questions. The results were analysed qualitatively and will contribute to the design of the educational intervention to follow.

The results indicate that many rural and remote GPs have cared for a patient about to undergo RT, or one who has completed a course of RT. Most importantly, very few of the practitioners felt they had sufficient knowledge to inform and support such a patient. This indicates a need for information available to rural and remote GPs about the general concepts of and practical information on RT, for both professional use and distribution to patients.

This project identified a definite need for an educational strategy to be implemented that addresses all key areas explored in the survey, as well as site-specific treatment reactions and survival statistics. The next stage of this project will involve the development, distribution and evaluation of an educational strategy. The final stage of the project will include a post-intervention survey to assess if any improvement in GP knowledge has been sustained as a result of the educational package. Future projects could explore whether the planned educational strategy could have a measurable impact on patient care.

Although this project will endeavour to use all relevant data and comments in the design of the information packages for rural GPs and their patients, it must be noted that the needs of these groups vastly outweigh the resources of this project. This project will address the deficit of available resource material for rural and remote GPs in NSW. It will endeavour to provide an overview of RT practice for them and their

patients, as well as information and training on assessing and managing radiation-induced skin reactions.

## Acknowledgments

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## Appendix I: Distributed survey



### EXPANDING THE 'KNOWLEDGE TANK' RADIATION THERAPY EDUCATION

This survey has been designed to ascertain what information or knowledge you require regarding radiation therapy (RT) in cancer care and managing radiation induced skin reactions in your clinical practice. It is hoped that by providing this information, materials relevant to your practice will be developed and made accessible to you.

As this project is under a quality improvement initiative, ethics approval is not required. However, your permission is requested in the event that the information collected is used for further analysis and/or publication. By completing this survey, permission is implied.

Thank you

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#### Q1. In your experience as a primary care provider, have you cared for patients who have received RT?

<sub>1</sub> Yes (Continue onto Q2)      <sub>2</sub> No (Continue onto Q4)

#### Q2. Did you feel you had a sufficient amount of current knowledge regarding radiation therapy to discuss issues impacting on the patient's care?

<sub>3</sub> Yes (Continue onto Q3)      <sub>4</sub> No (Continue onto Q4)

#### Q3. If 'yes', what information did you provide to the patient?

- <sub>1</sub> Definition of RT
- <sub>2</sub> More in-depth information regarding how RT works
- <sub>3</sub> The difference between RT and chemotherapy
- <sub>4</sub> The number of treatments required or time required for treatment each day
- <sub>5</sub> Radiation reactions or alleviating concerns regarding reactions.
- <sub>6</sub> Cost of treatment and/ or accommodation if required.
- <sub>7</sub> What happens following treatment completion.



Additional comments –

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**Q4. What information do you feel would be beneficial to have in caring for a patient about to undergo RT?**

- <sub>1</sub> Definition of radiation therapy
- <sub>2</sub> More in-depth information regarding how radiation therapy works
- <sub>3</sub> The difference between radiation therapy and chemotherapy
- <sub>4</sub> The number of treatments required or time required for treatment each day
- <sub>5</sub> Radiation reactions or alleviating concerns regarding reactions.
- <sub>6</sub> Cost of treatment and/ or accommodation if required.
- <sub>7</sub> What happens following treatment completion.

Additional comments –

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**Q5. In addition to the topics listed in Q3 and Q4 are there any other areas that you would like further information on in relation to RT and its role in cancer care.**

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**Q6. In addition to the topics listed in Q3 and Q4 please indicate the information you would find useful in an education package on RT for patient use.**

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**Q7. How would you prefer educational materials presented for your professional development?**

- <sub>1</sub> CD
- <sub>2</sub> On-line

**Q8. In your opinion, what media would be beneficial for your patients?**

- <sub>1</sub> CD
- <sub>2</sub> On-line

**Q9. This project aims to provide information on acute and chronic radiation skin reactions; would you find information on this topic useful in your practice?**

- <sub>1</sub> Yes
- <sub>2</sub> No

**Q10. Of the topics listed below, please indicate the information you would find useful in an education package on radiation induced skin reactions for professional use, by placing a tick in the box next to each comment.**

- <sub>1</sub> Mechanisms of radiation injury to skin
- <sub>2</sub> Factors affecting the reaction



- Method for grading the reaction
- Time line for the reaction
- Management during treatment
- Management post treatment

**Q11. Would you like to participate in a pilot group once the information package is developed?**

- Yes (please provide details)     No

Contact Details for Pilot Inclusion

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Postal Address: \_\_\_\_\_

Post Code: \_\_\_\_\_ Email: \_\_\_\_\_

**Any additional comments regarding this project may be made overleaf.**

The RT Knowledge Tank – Rural Health Project Group wishes to extend thanks for your participation in this endeavor.

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