Distance to the closest radiotherapy facility and survival after a diagnosis of rectal cancer in Queensland

To the Editor: The article by Baade and colleagues[1] is valuable, but further research on clinical interventions and outcomes, as well as collaboration with other stakeholders, is required to improve care.

The main result of Baade et al's analysis of Queensland-wide population-based data was that overall survival of patients with rectal cancer decreases as distance from radiotherapy services increases. The article is important because it documents variation in overall survival of patients with rectal cancer according to where they live. Documenting outcome variation is a necessary first step along the path to improving service delivery. As Baade et al discuss, the next step is to identify the cause(s) of the variation.

This next step could usefully investigate the quality of surgery. Non-randomised studies have shown that high-quality surgery with total mesorectal excision (TME) improves overall survival in patients with rectal cancer.[2] In contrast, neoadjuvant or adjuvant radiotherapy has not yet been shown to improve overall survival, although, as Baade et al note, randomised controlled trials (RCTs) have shown reduced rates of local recurrence, with a corresponding improvement in disease-free survival.[1]

However, some experts have questioned the extent to which

decreases in local recurrence rates, as measured in RCTs, lead to improvements in overall survival (given high-quality TME).[3,4] Also, radiotherapy is not without risk (eg, sexual dysfunction, incontinence, bowel obstruction). Whether an individual patient (in consultation with his or her doctor) decides to have radiotherapy will depend on how he or she judges the trade-off between benefits and harms.[4]

In other words, identifying the cause(s) of variation in overall survival for patients with rectal cancer will not be easy because of the subtleties of everyday clinical practice. Moreover, the subsequent and final step in the pathway — implementing interventions to reduce unwarranted variation — is also not easy. We could make faster progress if there were closer collaboration among researchers in universities or institutes (who can generate new knowledge), budget holders in government (who can do something about modifiable causes of variation), and clinicians (who will be at the leading edge of any changes).

A large amount of predictable health-services research is needed, and collaboration among researchers, budget holders and clinicians is as important as developing investigator-initiated ideas for research projects. Faster optimisation of service delivery could be achieved if budget holders were less suspicious of the motives of research groups,[5] and if research groups put more emphasis on asking budget holders, "How can we help?"

Michael D Coory Public Health Physician

Health Services Research, Murdoch Childrens Research Institute, Melbourne, VIC.

Michael.Coory@mcri.edu.au

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1 Baade PD, Dasgupta P, Aitken JF, Turrell G. Distance to the closest radiotherapy facility and survival after a diagnosis of rectal cancer in Queensland. *Med J Aust* 2011; 195: 350-354.

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To the Editor: We find ourselves in the curious position of criticising an article that supports improving access to radiotherapy. Baade and colleagues looked at cause-specific survival in all patients aged 20–79 years diagnosed with rectal cancer in Queensland.[1] They found a 6% increase in cause-specific mortality risk for each 100 km increment in distance from the nearest radiotherapy facility. They concluded that the apparent poorer outcomes were due to a failure to receive radiotherapy.

However, we suggest that their approach was significantly flawed in a number of ways. We have difficulty in understanding why, when information about the use of radiotherapy is available, this key explanatory factor was not actually measured. The size of the benefit they attribute to greater use of radiotherapy exceeds the expected improvements attributable to adjuvant radiotherapy compared with none at all.[2] The authors state that pathological staging, another factor central to their analysis, is a reliable surrogate for clinical staging. However, they appear not to have made any allowance for the fact that neoadjuvant treatment leads to pathological down-staging. Finally, the main outcome, cause-specific survival, was taken from death certificates and is likely to be inaccurate.

Use of radiotherapy is suboptimal in Australia.[3] If the authors could identify the impact of distance on access to radiotherapy, this would be very valuable for cancer service planning. Clinical input is desirable in future investigations in this area.

Sean A Bydder Radiation Oncologist

Nigel A Spry Radiation Oncologist

Sir Charles Gairdner Hospital, Perth, WA.

sean.bydder@health.wa.gov.au

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> "identifying the cause(s) of variation in overall survival for patients with rectal cancer will not be easy" Coory

In reply: We thank Bydder and Spry for their comments, although we suggest that they have misunderstood our study and its conclusions. We appreciate the opportunity to clarify our results.

Our study provides clear evidence that, after rectal cancer diagnosis, differences in survival are directly correlated with how far patients live from radiotherapy facilities.[1] We did not conclude, as stated by Bydder and Spry, that "the apparent poorer outcomes were due to a failure to receive radiotherapy". This explanation would be simplistic and ignores the many, varied and complex factors (demographic, socioeconomic, geographical and clinical) that together contribute to poorer survival in regional and rural communities.

Cause-of-death codes were based on case reviews by specialised coders using clinical information, in addition to the death certificate. Information on clinical stage is not available in population-based cancer registries and, for some cancers (including colorectal cancer), staging based on pathology reports has been shown to be a reliable substitute.[2] Population-based data on radiation treatment are not available in Queensland.

Finally, whether or not distance from radiotherapy facilities has a direct impact on access to radiation treatment, while outside the scope of our study, is an important question and, with our clinical collaborators, is indeed one focus of the next phase of our work.

Peter D Baade Senior Research Fellow[1]

Paramita Dasgupta Research Officer[1]

Joanne F Aitken Director, Cancer Registry[1]

Gavin Turrell Principal Research Fellow[2]

1 Viertel Centre for Research in Cancer Control, Cancer Council Queensland, Brisbane, QLD.

2 School of Public Health, Queensland University of Technology, Brisbane, QLD.

peterbaade@cancerqld.org.au

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