



The rural divide: cancer surgery and survival in Western Australia

Ms Sonja Hall, Professor D'Arcy Holman, Mr Harry Sheiner, Mr Stan Wisniewski, Mr Cameron Platell, Dr Jonathon Ng, Ms Delia Hendrie and Dr James Semmens

Health care workers in rural Western Australia tell many stories about the services their cancer patients care receive, or more often don't receive. Despite all these anecdotes, there is a dearth of objective evidence-based literature to validate these beliefs. This suite of studies examined the effects of living in a rural area or having an admission to a rural hospital after a diagnosis of any of the four major cancers: breast,^{1, 2} lung,³ prostate⁴ and colorectal.⁵ Following this, it followed the patients for five years to see if these factors influenced their survival.⁴⁻⁶

How the study was carried out

Studies often investigate a single institution or rural area; this can lead to bias in the results. Our studies are different as they use the entire population of Western Australia over two decades. Western Australia is fortunate to have a data-linkage system that allows the linking of all hospital discharge statistics, cancer registrations and death records within the state. This system is called The WA Data Linkage System and is located at the Western Australian Department of Health, where it is operated jointly with The University of Western Australia, Curtin University of Technology and the Institute for Child Health Research.⁷ Before the research team could access the records, they were all de-identified so that individuals, their doctors and their hospitals were anonymous.

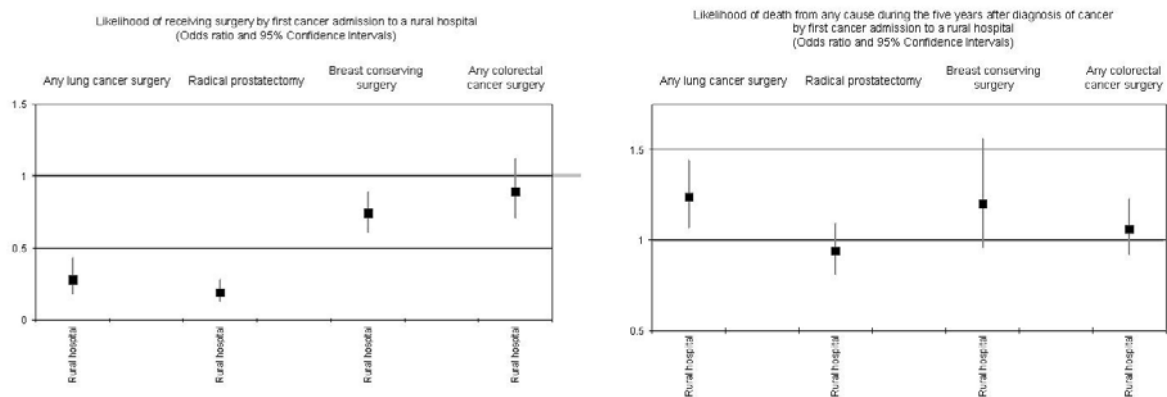
We investigated a multitude of factors. The demographic factors examined, included age, gender (lung and colorectal cancer only), marital status and aboriginality. We also looked at disease related factors such as the number and severity of other illnesses, the year of diagnosis and the pathology of the cancer. Lastly, we looked at various factors of disadvantage including socio-economic status, the possession of private health insurance, first cancer admission to a private hospital and most importantly, the residential location of the patient and if their first cancer admission was to a rural hospital. We adjusted for all these factors in the analysis.

Results

We found that the residential location of the patients had no significant effect on the likelihood of the patients receiving surgery for their cancer or on their five-year survival. The surgical care and survival was different for patients admitted for the first time with cancer to a rural hospital:

- People with lung cancer were far less likely to undergo surgery and were much more likely to be deceased at five-years
- Men with prostate cancer were far less likely to undergo radical prostatectomy

- Women with breast cancer were more likely to have a mastectomy rather than breast-conserving surgery and were more likely to be deceased at five-years
- For colorectal cancer there was a trend to decreased surgery and increased mortality, but neither of these were statistically significant
-



Important points to consider about this study

There are two potential limitations with these studies. Primarily, the stage of the cancer at diagnosis is not routinely collected on the WA Cancer Registry, and it is possible that some of the results will be due to advanced stage at diagnosis in rural patients. Furthermore, no information was available on the patient's preferences; for example, if it was the patients' choice not to proceed to surgery or if there were other factors involved, such as barriers to health system access. These questions require urgent investigation.

Other work in rural health services

Cancer is a major devastating disease and we considered that the pattern of surgery might be different from that for other diseases. We therefore decided to compare the rates of several other surgical procedures between rural and metropolitan residents.⁸ We found that:

- The incidence of cataract procedures was 10% less in rural patients
- The incidence of renal calculi procedures was about 20% less in rural patients
- The incidence of trans-urethral prostatectomy was almost 30% less in rural patients

Future work

The Crawford Society has provided funding for a preliminary investigation of these issues in a small group of lung cancer patients. Some of the clinicians at this conference may be approached for their help with this study and we would like to take this opportunity to express our hope that you can join us in investigating this important issue.

The Centre for Health Services Research will continue to collaborate with clinicians to examine aspects of surgical care and outcomes in the rural sector.

References

1. Hall SE, Holman C, Hendrie D, Spilsbury K. Unequal access to breast-conserving surgery in Western Australia. *Aust. N. Z. J. Surg.* 2004; **74**: 413-419.
2. Hall S, Holman C. Inequalities in breast cancer reconstructive surgery according to social and locational disadvantage in Western Australia. *Eur. J. Surg. Oncol.* 2003; **6**: 519-525.
3. Hall S, Holman C, Sheiner H. The influence of socio-economic and locational disadvantage on patterns of surgical care for lung cancer in Western Australia 1982-2001. *Aust. Health Rev.* 2004; **27**: 69-80.
4. Hall S, Holman C, Wisniewski Z, Semmens J. Prostate cancer: socio-economic, locational and private health insurance affects on care and survival. *British Journal of Urology International* (In Press).
5. Hall S, Holman C, Platell C, Threlfall TJ, Sheiner H. Surgical care and survival after a diagnosis of colorectal cancer: does private health insurance, socio-economic and locational status make a difference? (Paper in progress).
6. Hall S, Holman C, Sheiner H, Hendrie D. The influence of socio-economic and locational disadvantage on survival after a diagnosis of lung or breast cancer in Western Australia. *Journal of Health Services Research & Policy* 2004; **9**: 393-400.
7. Hall S, Holman C, Finn J, Semmens J. Improving the surgical evidence base for promoting quality and equity of service provision using population-based linkage of administrative health records. *Int. J. Qual. Health Care* (In press).
8. Ng J, Hall S, Holman C, Semmens J. Inequalities in rural health care: differences in elective surgical procedure rates between metropolitan and rural Western Australia. *Aust. N. Z. J. Surg.* (Under review).

Contact details for Ms Sonja Hall

Telephone: 08 6488 7374

Facsimile: 08 6488 1188

Email: shall@sph.uwa.edu.au