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Room: Hall D

Outcomes versus access

who is most vulnerable?

A wicked issue for cancer surgery in Australia

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Symposium Topics

Patterns of cancer surgery in urban versus rural patients

Patient flows in cancer surgery

Patterns of mastectomy for invasive breast cancer in Queensland

The volume-outcome relationship in cancer surgery – do rural patients have a choice?

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The Queensland Cancer Control Safety and Quality Partnership

Outcomes versus access: who is most vulnerable?

A 'wicked' issue for cancer surgery in Australia

Symposium Chair

Prof. Bruce Barraclough AO
Chair, The Australian e-Health Research Centre
Previous Chair of the Australian Council for Safety and Quality in Healthcare

Panel Members

Dr. Tony Green
Surgeon
Cairns Private Hospital

Dr. Liz Kenny
Senior Radiation Oncologist and Medical Director
Central Integrated Regional Cancer Service

Assoc. Professor Rosemary Knight
Principal Adviser
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Dr. Bernard Mark Smithers
Chairman, Upper GI and Soft Tissue Unit
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Dr. Robert Tam
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The Townsville Hospital

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Organisers

Ms Shoni Colquist, Ms Mary-Jane Courage, Ms Hazel Harden, Dr Dannie Zarate (Queensland Cancer Control Analysis Team)

Summary

Surgery is a critical component of the curative treatment for most cancers. Delays in the provision of surgery and having to travel long distances to receive surgery and its adjuvant treatments is stressful for patients and especially burdensome for older people and their families. In these circumstances patients often decline surgery. To compound this issue, recent Australian patterns of surgery and outcomes data supports international evidence that outcomes for complex cancer surgery are better when the surgery is performed in hospitals that do high volumes of these procedures. The volume-outcomes relationship has led to the centralisation of complex surgery, coinciding with changed referral patterns and reduced operative mortality rates. However, using centralisation to reduce variation in outcomes increases patient travel and restricts choice for more patients which can be a barrier to access to quality cancer care.

This symposium will comprise of 4 oral papers based on population data which describe lower cancer surgery rates in rural areas, especially in older patients; higher postoperative mortality in low volume hospitals where majority of rural patients receive treatment; higher rates of mastectomy and conversion from BCS to mastectomy in rural areas even among young women with small T1 size tumours; and geographic patient flows for cancer surgery. These papers highlight the challenges facing initiatives to improve cancer treatment access and outcomes in rural populations.

The papers will be followed by a panel discussion with inter-jurisdictional representation to explore the following key issues. What are acceptable rates of surgery in elderly and rural populations? Does patient choice make a difference? How much does distance impact on access to surgery?

This symposium supports a clinician led approach to the interpretation of the population data on surgery and outcomes that is currently being generated by health departments across Australia for policy development, cancer services planning and safety and quality initiatives.

1

Patterns of cancer surgery in rural versus urban cancer patients

Dr. Robert Tam
Director of Cardiac Thoracic Surgery
The Townsville Hospital

Background
The poorer outcomes of cancer patients in rural areas has been well documented in Australia and other countries, but the reasons for the disparity remain unclear. In this study, we compared rural versus urban surgery rates in Queensland taking into account differences in demographic and clinical case mix.

Methods
Diagnostic and surgical data on patients diagnosed between 2001 and 2010 with breast cancer (n=24,850), colorectal cancer (n=25,852), and non-small cell lung cancer (NSCLC, n=12,730) were extracted from the Queensland Oncology Repository. The rate of surgery was compared across remoteness of residence categorised into metropolitan, regional, and rural areas. Logistic regression was used to model the rate of surgery across remoteness categories controlling for age, sex, and comorbidity.

Results
The overall surgery rates were 90% for breast cancer, 91% for colorectal cancer, and 20% for NSCLC. In all cancer streams, rural patients had lower surgery rates compared to patients from metropolitan and regional areas. Adjusted odds ratios (OR) of cancer surgery in rural relative to metropolitan patients were 0.59 (95% confidence interval [CI]: 0.57-0.61) for breast cancer, 0.67 (CI: 0.65-0.70) for colorectal cancer, and 0.70 (CI: 0.67-0.73) for NSCLC.

Conclusion
The rate and types of cancer surgery vary between rural and urban patients. Further study is needed to determine the extent to which these differences reflect constraints in access to cancer services in rural areas.

2

Patient flows in cancer surgery

Dr. Liz Kenny
Radiation Oncologist
Central Integrated Regional Cancer Service

Background
We estimated the proportion of cancer patients who received surgery in hospitals outside their health service area of residence to compare the inter-district patient flows in rural and urban areas.

Methods
The proportion of patients who received cancer surgery in hospitals outside their health service areas of residence was estimated for Queensland residents treated with surgery for female breast cancer (n=22,124), colorectal cancer (23,381), and non-small cell lung cancer (2,570) diagnosed between 2001 and 2010.

Results
Among patients who underwent cancer surgery, 13% travelled to hospitals outside their health service areas of residence to receive treatment. The rate was much higher among rural patients, 31% of whom received treatment outside their area of residence; in contrast, only 5% of urban patients went outside their districts to receive treatment. The difference is most pronounced with lung cancer where all surgeries were performed in urban hospitals, hence 100% of rural lung cancer patients received surgery outside their area of residence, compared to 27% among urban patients. In both breast and colorectal cancers, 4% of urban patients travelled for surgery, compared to 27% of rural patients.

Conclusion
Around one out of three cancer surgery patients from rural areas are treated in hospitals outside their district of residence. Inter-district flow is greatest for lung cancer patients in rural areas.

3

Patterns of mastectomy for invasive breast cancer in Queensland

Dr. Tony Green
Surgeon
Cairns Private Hospital

Background
Breast conservation surgery (BCS) is the treatment of choice for small breast cancers. Higher rates of mastectomy in rural compared to urban breast cancer patients are commonly reported in Australia and other countries. In Queensland many rural patients have to travel outside of their Hospital of Health Service of residence for their surgery. Distance has been cited as a barrier to access to quality cancer care.

Methods
The rate of definitive mastectomy among 22,124 Queensland women who underwent surgery for removal of invasive breast cancers diagnosed in 2001-2010 was estimated using the Queensland Oncology Repository. Multivariate logistic regression was used to model the variation in mastectomy rate due to age, residence at diagnosis, socioeconomic status, tumour size, and the presence of lobular carcinoma and multifocal tumours.

Results
Mastectomy accounted for 42% of all definitive breast cancer surgeries in this study. In multivariate regression, the rate increased with increasing tumour size and was higher in patients with multifocal tumours and lobular carcinoma. Mastectomy was significantly more common in rural compared to urban women regardless of age or tumour size and histological characteristics (odds ratios [OR] 1.4; 95% confidence interval [CI]: 1.3-1.6). The rate of mastectomy was higher in rural areas even among young (< 40 year-old) women with T1 (< 2 cm) tumours (OR 1.9; CI 1.2 – 3.1). Rural women also had higher rates of mastectomy conversions relative to an initial or index breast conserving surgery (BCS); 19% of rural women initially treated with BCS had a subsequent mastectomy, compared to only 13% of index BCS among urban women.

Conclusion
Mastectomy is more common in rural compared to urban Queensland regardless of age or tumour characteristics. A higher proportion of young rural women who have BCS as the index surgery ultimately have mastectomy as a follow up procedure.

4

The volume-outcome relationship in cancer surgery - do rural patients have a choice?

Dr. Mark Smithers
Chairman, Upper GI and Soft Tissue Unit
Princess Alexandra Hospital, Queensland Health

Background
Evidence of higher operative mortality for complex cancer surgeries performed in low volume hospitals have led to the consolidation of these procedures in high volume centres in many health service networks around the world. In this study, we analysed the volume-outcome relationship in three complex cancer surgeries in Queensland and estimated the proportion of patients treated by low volume hospitals according to their remoteness of residence.

Methods
We analysed the 30-day postoperative mortality rate of all Queensland residents who underwent Whipple surgery for pancreatic cancer (n=664), lobectomy, partial resection, or pneumonectomy for non-small cell lung cancer (n=2,570), and gastrectomy for gastrointestinal cancers (n=1,017) diagnosed between 2001 and 2010. The median annual hospital volume in each procedure group was used to divide hospitals into low and high volume categories, while patients were classified into metropolitan, regional, and rural groups based on residence at diagnosis. Risk adjustments were made using proportional hazards regression controlling for demographic and clinical characteristics.

Results
The 30-day postoperative mortality rates were 2.7% for Whipple surgery, 1.8% for NSCLC resection, and 4.0% for gastrectomy. Relative to high volume hospitals, the risk of postoperative death in low volume hospitals was 4.8 times higher (95% confidence interval [CI]: 1.5-15.0) for Whipple surgery, 2.5 times higher (CI: 1.6-4.1) for NSCLC resection, and 1.7 times higher (CI: 0.9-2.9) for gastrectomy. Across the three procedure groups, 75% of rural patients underwent surgery in low volume hospitals, compared to 55% and 45% for metropolitan and regional patients respectively.

Conclusion
Complex cancer surgery outcomes are poorer in low volume hospitals. Referral to high volume hospitals is likely to impact the majority of rural cancer patients who are treated in low volume centres.