## PEER REVIEW HISTORY

## ARTICLE DETAILS

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| **TITLE (PROVISIONAL)** | Public performance reporting and hospital choice: A cross-sectional study of patients undergoing cancer surgery in the Australian private healthcare sector |
| **AUTHORS** | Prang, Khic-Houy; Canaway, Rachel; Bismark, Marie; Dunt, David; Miller, Julie; Kelaher, Margaret |

## VERSION 1 – REVIEW

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| **REVIEWER** | Sarah L. Goff<br>University of Massachusetts Medical School - Baystate<br>United States |
| **REVIEW RETURNED** | 18-Dec-2017 |

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| **GENERAL COMMENTS** | General: This study reports the results of a national survey of individuals with private insurance who had surgery for colon, breast, or lung cancer in the prior calendar year. Sample based on claims data. The manuscript is well written and the methods generally sound with the exception of the description of the qualitative analysis of open-ended questions. The biggest issue I see with the study that, although it makes sense to sample private-insure patients given the limited choice for public-insure, the private hospitals are not required to publicly report performance data, so it is not terribly surprising that patients weren't using it. Otherwise, the findings support many other studies of patients' use of publicly reported quality data and does provide contributions to the literature.<br>Abstract: I think the abstract needs to communicate that even though public reporting is not mandatory for private hospitals, the participants were sampled based on having private insurance.<br>Intro:<br>1. It may be a national difference in terminology, but when the first paragraph talks about "healthcare providers", this would indicate the individual physician. Is this what is meant? Or does "provider" refer to hospital-level or health insurer-level data? Perhaps specify to reduce potential confusion in an international audience.<br>2. Although it arguably belongs in the methods section, this reviewer appreciated the early explanation of the rationale for surveying patients with private health insurance.<br>Methods:<br>1. Can patients readily distinguish whether a hospital is public or private? How? |

2. Although some are moving away from race as demographic variable, there remain reasons in many societies to include it. Can the authors explain the choice to not include?

3. Could you include the codes used to identify patients in an Appendix?

4. Based on an earlier description in the manuscript, it seemed that privately insured patients might not have a claim associated with their surgery (self-funded). “Private patients can be treated in either public or private hospitals, paid entirely by their private healthcare insurance, co-paid with their private healthcare insurance, or self-funded.” Is there any way to assess whether this might have been the case and if this might introduce any systematic bias?

5. 1000 surveys were mailed – what was the total number eligible? How was randomization performed?

6. Could more detail be provided for the power calculation?

7. Could you say a bit more about the content analysis? Was it a qualitative content analysis, were you using word counts? I suggest considering using the COREQ or something like that as a guide for reporting.

8. Could you include the questionnaire?

Results:

1. Can more precise comparisons of the sample to the population of surgical cancer patients be provided?

2. What is the median income for the nation? (I am not sure what a cutoff of $99,999 means in Australia – it is quite a high income in the U.S. where the median household income is about $59,000).

3. “Among those who attended a public hospital, 87% were private patients and 13% were public patients. The small proportion of public patients in the sample may suggest that some of the care provided involved a private component.” I do not understand this sentence. Please explain in more detail how a “public” patient would end up in a sample drawn from private insurance claims. Could this be an error in sampling?

4. Why would nearly 1/3 of the sample not have a choice of hospital if insurance allows this? Geography? Other? Was the reason elicited on the questionnaire?

5. If private hospitals are not required to report PPR, how would patients access it? Perhaps more detail is needed for the percent of private hospitals that do report PPR even though it is not mandated… I see this in the Discussion but think it would be helpful earlier.

6. What were the two open-ended questions?

Discussion:

1. Was the finding that many patients wanted individual physician

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| | performance data? Perhaps make more prominent as I do not recall seeing it there.<br>2. I found the commentary about patient experience reporting confusing – methodological issues for some (? Public) but not all? Please clarify. I was also confused by the clause about the Bureau of Health in New South Wales – maybe needs an edit?<br>3. Suggest having a citation for recall bias being worse for elderly patients or may be taken as an age bias.<br>Refs: Well-referenced<br>Tables/Figs:<br>Table 1: Gender 98% F; 20% M; 3%Missing – doesn't add up<br>Rest - fine |

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| **REVIEWER** | Di Xue<br>Fudan University, China |
| **REVIEW RETURNED** | 22-Dec-2017 |

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| **GENERAL COMMENTS** | This article is well written overall, but still have some issues need be address clearly:<br>1. The objectives of this study (or paper) should be clearly stated.<br>2. It is not clear how 1,000 eligible participants were randomly selected and how many eligible patients were listed in MBS.<br>3. As what stated in "Limitations", the study sample is not representative of the targeted population. But if the authors add some comparative analyses of factors influencing hospital choice, barriers affecting the use of PPR information, and preferred types of PPR information among different characteristics of patients (such as gender, age group, education. health care benefits), the results may be more understandable and useful for some specific suggestions and conclusion. |

## VERSION 1 – AUTHOR RESPONSE

Di Xue
Fudan University, China
22-Dec-2017

☐Editorial Requirements

Upon checking your manuscript, I have check that there is an identifiable image on your "Appendix A". With this will you please provide an obtained permission to use that particular figure shown within your "Appendix A".

The following statement has been included in Appendix A (bottom of page 1): "Permission received from the Australian Institute of Health and Welfare to publish the images under the CC BY-NC-ND 3.0 license." See attached file for approval from the Australian Institute of Health and Welfare.

Please revise your title to state the research question, study design, and setting (location). This is the preferred format for the journal.

We have changed the title to “Public performance reporting and hospital choice: A cross-sectional study of patients undergoing cancer surgery in the Australian private healthcare sector”.

Responses to reviewers
Reviewer: 1 Reviewer Name: Sarah L. Goff
Institution and Country: University of Massachusetts Medical School - Baystate, United States
Please state any competing interests: No competing interests

Please leave your comments for the authors below
General: This study reports the results of a national survey of individuals with private insurance who had surgery for colon, breast, or lung cancer in the prior calendar year. Sample based on claims data. The manuscript is well written and the methods generally sound with the exception of the description of the qualitative analysis of open-ended questions. The biggest issue I see with the study that, although it makes sense to sample private-insure patients given the limited choice for public-insure, the private hospitals are not required to publicly report performance data, so it is not terribly surprising that patients weren’t using it. Otherwise, the findings support many other studies of patients’ use of publicly reported quality data and does provide contributions to the literature.

Thank you for your comment. Although private hospitals are not mandated to publicly report their performance, private patients can choose to be treated in private or public hospital which publicly report their performance. This information has been included in the Australian Healthcare system section on page 6.

1. Abstract: I think the abstract needs to communicate that even though public reporting is not mandatory for private hospitals, the participants were sampled based on having private insurance.

Thank you for your comment. The abstract has been revised and the following sentences have been added to the objectives and participants’ sections, respectively: “PPR is voluntary for private hospitals” and “Private patients with breast, bowel or lung cancer who attended a public or private hospital for elective surgery (n=243) in 2016.”

Intro:
2. It may be a national difference in terminology, but when the first paragraph talks about “healthcare providers”, this would indicate the individual physician. Is this what is meant? Or does “provider” refer to hospital-level or health insurer-level data? Perhaps specify to reduce potential confusion in an international audience.

Healthcare providers refer to both individual clinicians and hospitals. We have now made this explicit in the first paragraph.

3. Although it arguably belongs in the methods section, this reviewer appreciated the early explanation of the rationale for surveying patients with private health insurance.

Thank you for your comment. The rationale for focusing on patients with private health insurance remains in the introduction.

Methods:
4. Can patients readily distinguish whether a hospital is public or private? How?

Patients can distinguish between a public or private hospital at the time of the referral as issues of payments for private hospitals will be mentioned then. In Australia, general practitioners (GP) (i.e. family physician, primary care physician) are gatekeepers to secondary care with patients requiring their referral for non-emergency access. The referral process involves a consultation with a GP to discuss medical specialist and hospital options in public or private hospitals (1). This information has been included in the Australian Healthcare System on page 6.

1. Victoria State Government. Choosing hospitals and specialist doctors 2017 [Available from: https://www.betterhealth.vic.gov.au/health/servicesandsupport/choosing-hospitals-and-specialist-doctors].

5. Although some are moving away from race as demographic variable, there remain reasons in many societies to include it. Can the authors explain the choice to not include?

We collected information on country of birth and language mainly spoken at home. Country of birth was previously reported on page 10 and Table 1. We have now included information on language spoken at home in the manuscript and Table 1.

6. Could you include the codes used to identify patients in an Appendix?

The Medicare Benefits Schedule (MBS) codes have been included in Appendix B.

7. Based on an earlier description in the manuscript, it seemed that privately insured patients might not have a claim associated with their surgery (self-funded). “Private patients can be treated in either public or private hospitals, paid entirely by their private healthcare insurance, co-paid with their private healthcare insurance, or self-funded.” Is there any way to assess whether this might have been the case and if this might introduce any systematic bias?

Medicare covers 75% of the MBS fee for private patients attending a public or private hospital. The remaining 25% is either paid entirely by the patient’s private healthcare insurance, co-paid between the patient and their private healthcare insurance or paid entirely by the patient (if they do not have healthcare insurance) (1). Specialist can choose to either bill Medicare and the private healthcare insurance company or bill the patient directly. If the specialist bill the patient directly, the patient pays the specialist and then lodge the bill with Medicare to claim some of the money back. The MBS claims dataset contains all records where a claim has been made by the specialist or the patient. This would include self-funded private patients. Our sample comprised of 6 (3%) patients who self-funded their treatment. This information has been included in the Australian healthcare system paragraph on page 6. The number of patients who self-funded their treatment has been included in the results section on page 10.

1. Australian Government Private Health Insurance Ombudsman. What is covered? 2017 [Available from: http://www.privatehealth.gov.au/healthinsurance/whatiscovered/].

8. 1000 surveys were mailed – what was the total number eligible? How was randomization performed?

The total number of eligible participants was 29,793. This included 52% eligible participants with breast cancer, 32% with bowel cancer and 16% with lung cancer. A stratified sampling by cancer type was performed for 1,000 eligible participants. Samples within each stratum were selected with simple random sampling. This information has been including in the methods section on page 8.

9. Could more detail be provided for the power calculation?

A sample size for cross-sectional study was calculated using the formula from Charan and Biswas' paper (1):
Sample size = z^2*p(1-p)/d^2
where
z = level of confidence (z-score e.g. 1.65 for 90%, 1.96 for 95% and 2.58 for 99%)
p = expected proportion in population based on previous studies; if no prior estimate, the convention is to assume 0.5
d = margin of error
We set the confidence level at 90% and margin of error at 5%. Previous research showed the awareness and use of PPR information by consumers when selecting a hospital range from approximately 10% to 50%. We set the proportion at 0.40.
Sample size = 1.652 x 0.40(1-0.40)/0.052 = 261
This information has been included on pages 8 and 9.
1. Charan J, Biswas T. How to calculate sample size for different study designs in medical research? Indian Journal of Psychological Medicine. 2013;35(2):121-6.

10. Could you say a bit more about the content analysis? Was it a qualitative content analysis, were you using word counts? I suggest considering using the COREQ or something like that as a guide for reporting.

Thank you for your suggestion. We conducted a conventional qualitative content analysis. A qualitative content analysis is a "research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns" (1: p.1278). In conventional qualitative content analysis, coding categories are derived directly from the text data. We classified text data into a number of categories that represented similar meanings. No quantitative content analysis (i.e. word counts) were conducted. The methods section on page 9 has been revised to include information on conventional qualitative content analysis.
1. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. Qualitative Health Research. 2005 Nov;15(9):1277-88.

11. Could you include the questionnaire?

The questionnaire has been included in Appendix A.

Results:
12. Can more precise comparisons of the sample to the population of surgical cancer patients be provided?

Proportion comparing the study sample with the Australian population who had cancer elective surgery have been included on page 10: "Patients with breast (64% vs. 58%) and lung cancer (9% vs. 7%) were slightly over-represented whereas patients with bowel cancer were under-represented (27% vs 35%)."

13. What is the median income for the nation? (I am not sure what a cutoff of $99,999 means in Australia – it is quite a high income in the U.S. where the median household income is about $59,000).

In Australia, the median annual gross household income for the 2015-16 period was $84,032 (1). This has been included on page 10.
1. Australian Bureau of Statistics. Household income and wealth, Australia, 2015-16 2017 [Available from: http://www.abs.gov.au/ausstats/abs@.nsf/mf/6523.0].

14. “Among those who attended a public hospital, 87% were private patients and 13% were public patients. The small proportion of public patients in the sample may suggest that some of the care provided involved a private component.” I do not understand this sentence. Please explain in more detail how a “public” patient would end up in a sample drawn from private insurance claims. Could this be an error in sampling?

To be included in the MBS claims dataset, patients must submit a Medicare claim. Public patients treated in public hospitals incurred no costs as costs are covered entirely by Medicare. Given that the two public patients treated in public hospitals were included in the MBS claims dataset, we presumed that they (or their specialists) must have submitted a Medicare claim for some of their care. For example, certain diagnostic imaging and pathology services are not fully covered by Medicare (1). Alternatively, these could have been clerical errors in the MBS claims dataset. This information has been included on page 10.

1. Australian Government Department of Health. MRI (Magnetic Resonance Imaging) Medicare services fact sheet 2014 [Available from: http://www.health.gov.au/internet/main/publishing.nsf/Content/mri-medicare-services-fact-sheet].

15. Why would nearly 1/3 of the sample not have a choice of hospital if insurance allows this? Geography? Other? Was the reason elicited on the questionnaire?

It is unclear why 28% of respondents did not have a choice of hospital. Unfortunately, we did not include a follow-up question on why choice of hospital was not possible. Instead, the follow up question focused on whether they would have like to have a choice of hospital (see Appendix A). In Australia, some private healthcare insurances have preferred specialist providers to minimise patients’ out-of-pocket costs which may limit their choice of specialist and hospital (1,2). Out-of-pocket costs occur when the specialist charges more than the MBS fee. Some private healthcare insurances fully or partly cover the gap fee.

1. Medibank. Going to hospital 2017 [Available from: https://www.medibank.com.au/health-insurance/going-to-hospital/].
2. Bupa. Going to hospital 2017 [Available from: https://www.bupa.com.au/health-insurance/understanding-your-health-cover/going-to-hospital#bupa-medical-gap-scheme].

16. If private hospitals are not required to report PPR, how would patients access it? Perhaps more detail is needed for the percent of private hospitals that do report PPR even though it is not mandated… I see this in the Discussion but think it would be helpful earlier.

Thank you for your suggestion. We have included the following paragraph in the introduction on pages 4 and 5:

“PPR on the MyHospitals website is voluntary for private hospitals. In 2015-16, there were 630 private hospitals in Australia [6] and 36% voluntarily participate on the MyHospitals website but they do not necessarily report on all the quality indicators that public hospitals do [5]. Some Large private healthcare providers (e.g. Healthscope with 46 hospitals [7] and Ramsay Health Care with 73 hospitals [8]) publish their own PPR websites to help patients make informed decisions. Most states/territory government also have their own PPR websites (e.g. the Victorian Health Services Performance [9] and New South Wales Bureau of Health Information [10]). Quality indicators varies across MyHospitals, private healthcare providers and states/territory government websites. Examples of additional quality indicators reported on the private healthcare providers and states/territory government websites but not on the MyHospitals website include patient experiences, Apgar scores for babies (assessment of a baby’s wellbeing after birth), patient falls, pressure injuries and rehabilitation outcomes.”

17. What were the two open-ended questions?

The two open-ended questions were: “Do you have any concerns about using ‘public performance reporting information’ about hospitals when making a decision about which hospital to choose?” and “Do you have any other comments or experiences you would like to share that are related to ‘public performance reporting information’ about hospitals?”. The questionnaire has been included in Appendix A.

Discussion:
18. Was the finding that many patients wanted individual physician performance data? Perhaps make more prominent as I do not recall seeing it there.

Individual specialist-level information was previously included in a paragraph with the limited awareness of public performance reporting among respondents on page 15. We have separated the paragraph into two paragraphs. Individual specialist-level information is now a stand-alone paragraph.

19. I found the commentary about patient experience reporting confusing – methodological issues for some (? Public) but not all? Please clarify. I was also confused by the clause about the Bureau of Health in New South Wales – maybe needs an edit?

Publicly reported quality indicators vary across national government, states/territory government and private healthcare providers (e.g. patient experiences indicators are reported by some states but not nationally). There is also no consistency on the tools use to collect certain quality indicators (e.g. different patient experiences surveys are used in Victoria, New South Wales and South Australia) which limits national hospital comparison but allows hospital comparison within states.
To provide context, the quality indicators reported on the MyHospitals, states/territory government and private healthcare providers’ websites are described in the introduction on page 4. We have included the following information in the discussion on page 16 to further clarify this:
“Patient experience is one of 17 indicators recommended to be publicly reported on the MyHospitals website. However, methodological issues (i.e. lack of national comparable information) has prevented its disclosure. In contrast, several states’ performance websites actively report on patient experiences, complications, and standards of cleaning to various level of details [9, 10, 49, 50]; the Bureau of Health Information in New South Wales the most thorough and interactive in its web-based reporting [10]. Although some of the quality indicators collected by the states are similar, there are no consistency on the tools use to collect the data. For example, the inpatient experiences surveys conducted in Victoria (92 questions) [51], New South Wales (99 questions) [52] and South Australia (71 questions) [53] are drawn from various sources including the NHS inpatient survey, the Picker Institute Questionnaire and the Patient Experience Information Development Working group, state’s key performance indicators and national set of core common patient experience questions. This limits comparison at the national level but allows hospital comparison within states.”

20. Suggest having a citation for recall bias being worse for elderly patients or may be taken as an age bias.

Thank you for your suggestion. We have included the following references:

- Coughlin SS. Recall bias in epidemiologic studies. Journal of Clinical Epidemiology. 1990 Jan 1;43(1):87-91.
- Bhandari A, Wagner T. Self-reported utilization of health care services: Improving measurement and accuracy. Medical Care Research and Review. 2006;63(2):217-35.

21. Refs: Well-referenced
Tables/Figs:

Table 1: Gender 98% F; 20% M; 3%Missing – doesn't add up. Rest - fine

This error has been corrected: male n=49 (20.2%); female n=191 (78.6%); missing n=3 (1.2%).

Reviewer: 2 Reviewer Name: Di Xue
Institution and Country: Fudan University, China
Please state any competing interests: None declared

Please leave your comments for the authors below
This article is well written overall, but still have some issues need be address clearly:
1. The objectives of this study (or paper) should be clearly stated.

The aims of this study have been revised and included in the last paragraph of the introduction on page 6: "Therefore, the present study aimed to assess whether PPR of hospital data was used by patients with breast, bowel or lung cancer to inform hospital choice; factors that influence their hospital choice; the level of demands for PPR; barriers to using PPR; and how PPR could be improved to meet their information needs."

2. It is not clear how 1,000 eligible participants were randomly selected and how many eligible patients were listed in MBS.

See response to reviewer 1, question #8.

3. As what stated in "Limitations", the study sample is not representative of the targeted population. But if the authors add some comparative analyses of factors influencing hospital choice, barriers affecting the use of PPR information, and preferred types of PPR information among different characteristics of patients (such as gender, age group, education. health care benefits), the results may be more understandable and useful for some specific suggestions and conclusion.

Thank you for your suggestion. Given the sample size, stratifying the results by gender and age will result in small sub-groups (e.g. females 25-34 years old n=3, males 35-44 years old n=1). Therefore, we did not consider it appropriate to stratify the results.

## VERSION 2 – REVIEW

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| **REVIEWER** | Di Xue<br>Professor<br>Department of Hospital Management<br>Key Laboratory of Health Technology Assessment<br>School of Public Health<br>Fu Dan University<br>Shanghai<br>P.R.China |
| **REVIEW RETURNED** | 21-Feb-2018 |

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| **GENERAL COMMENTS** | This paper is ready for publication. |

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| **REVIEWER** | Sarah L. Goff<br>University of Massachusetts Medical School - Baystate |
| **REVIEW RETURNED** | 26-Feb-2018 |

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| **GENERAL COMMENTS** | The authors did an admirable job of addressing reviewers' questions |

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| | in the revision.<br>One remaining question I had was the power calculations, as reported, state that a sample size of 2614 was needed for 90% confidence level/5% margin of error... but only 1000 surveys were sent out/243 responded - ? typo.<br>There are quite a few minor typos - might benefit from a fresh eyes read. |

## VERSION 2 – AUTHOR RESPONSE

Editorial Requirements:

Patient and Public Involvement statement

Authors must include a statement in the Methods section of the manuscript under the sub-heading 'Patient and Public Involvement'.

This should provide a brief response to the following questions:

-How was the development of the research question and outcome measures informed by patients' priorities, experience, and preferences?

-How did you involve patients in the design of this study?

-Were patients involved in the recruitment to and conduct of the study?

-How will the results be disseminated to study participants?

-For randomised controlled trials, was the burden of the intervention assessed by patients themselves?

-Patient advisers should also be thanked in the contributorship statement/acknowledgements.

If patients and or public were not involved please state this.

The following paragraph was included in the methods section on page 8 of the manuscript:

“The questionnaire was piloted with a consumer group from Peter MacCallum Cancer Centre in Victoria [32] to identify ambiguities or difficult questions, and to ensure that it could be completed in a timely manner. The consumer group included five women aged between 35-45 years; four previously had cancer – including three in the last 12 months. The questionnaire was revised in response to their comments. The consumer group was not involved in the recruitment and conduct of the study. Upon completion of the study, a summary of the results will be provided to the consumer group.”

We have thanked the consumer group from Peter MacCallum Cancer Centre in the acknowledgements.

- Please revise the Strengths and Limitations section (after the abstract) to focus on the methodological strengths and limitations of your study rather than discussing the results.

Thank you for your comment. The strengths and limitations of the study have been revised:

- This study used a national cross-sectional questionnaire in the private healthcare sector to assess the use of PPR of hospital data to inform hospital choice, among patients with breast, bowel or lung cancer.
- The results are not generalisable to other cancer elective surgeries, younger patients or public hospital settings, because of the non-population representative characteristics of respondents.
- Given the nature of the study, there is a risk of recall bias, in particularly among elderly respondents.

Reviewer: 1

Reviewer Name : Sarah L. Goff

Institution and Country: University of Massachusetts Medical School - Baystate

Please state any competing interests: None declared

Please leave your comments for the authors below

The authors did an admirable job of addressing reviewers' questions in the revision.

One remaining question I had was the power calculations, as reported, state that a sample size of 2614 was needed for 90% confidence level/5% margin of error... but only 1000 surveys were sent out/243 responded - ? typo.

This error has been corrected. The sample size required is 261.

There are quite a few minor typos - might benefit from a fresh eyes read.

Thank you for your comment. The manuscript has been proofread by the authors and changes have been made accordingly.

## VERSION 3 – REVIEW