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Public performance reporting and hospital choice: A questionnaire of patients undergoing cancer surgery in the private healthcare sector

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3 Public performance reporting and hospital choice: A questionnaire of patients undergoing cancer
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5 surgery in the private healthcare sector
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Abstract

Objectives National mandatory public performance reporting (PPR) for Australian public hospitals, including measures of cancer waiting times, was introduced in 2011. The aims of this study were to assess whether PPR of hospital data is used by patients with breast, bowel or lung cancer when selecting a hospital for elective surgery and how PPR could be improved to meet their information needs.

Design A national cross-sectional postal questionnaire.

Setting Australian private healthcare sector.

Participants Patients with breast, bowel or lung cancer who attended a hospital for elective surgery (n=243) between January and December 2016.

Outcome measures Patients' choice of hospital, use of PPR information and preferred areas of PPR information. Descriptive and content analyses were conducted.

Results The majority of respondents (94%) attended a private hospital. Almost half could choose a hospital. Choice of hospital was not influenced by PPR data (92% unaware) but by their specialist (90%). Respondents considered PPR to be important (70%) but did not want to see the information, preferring their general practitioners (GPs) to tell them about it (40%). Respondents considered costs of surgery (59%), complications (58%) and success rates (57%) to be important areas of information that should be publicly reported. Almost half suggested that quality indicators be reported at the individual clinician level. Content analysis of the open-ended questions identified four themes: 1) decision-making factors; 2) data credibility; 3) unmet information needs; and 4) unintended consequences.

Conclusions Our findings suggest that PPR of hospital data had no substantial impact on patients' choice of hospital. Nonetheless, many respondents expressed interest in using PPR information in the future. To increase PPR awareness and usability, personalised and integrated information on

1
2
3 cost and quality of hospitals is required. Dissemination of PPR information via specialists and GPs
4
5 could assist patients in interpreting the data and to support decision-making.
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8 **Strengths and limitations of the study**

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- 10 • There have been very few studies on the impacts of PPR on consumers' choice of hospitals in
11 the private healthcare sector since the introduction of national mandatory PPR of public
12 hospital data in Australia.
13
- 14 • This study used a national cross-sectional questionnaire in the private healthcare sector to
15 assess the use of PPR of hospital data by patients with breast, bowel or lung cancer to
16 inform hospital choice.
17
- 18 • Given the growing prevalence of PPR data being disseminated through the internet, this
19 study provided further insights into the level of demands for PPR and preferred areas of PPR
20 information.
21
- 22 • The results are not generalisable to other cancer elective surgeries, younger patients and
23 public hospitals because of the non-population representative characteristics of respondents
24 (older women who used private hospitals).
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Introduction

There are growing efforts within healthcare systems internationally to measure and publicly disseminate healthcare providers' performance data for greater transparency, to increase accountability and to improve quality of care [1, 2]. Public performance reporting (PPR) of healthcare providers' data is aimed at improving the quality of care by guiding consumers to select high quality providers over low quality providers. It aims to stimulate quality improvement among providers by identifying areas in which they underperform. These pathways are interconnected by providers' motivation to maintain or increase market share [3].

In many countries, such as the United States (US) and the United Kingdom (UK), PPR of hospital and individual clinician's performance data has been a central feature of government health policy [4]. In Australia, national mandatory PPR of public hospital data was introduced in 2011. All public hospitals are required to provide data to the Australian Institute of Health and Welfare (AIHW) which is then reported via the MyHospitals website [5]. PPR on the MyHospitals website is voluntary for private hospitals. Some private healthcare providers (e.g. Healthscope [6]) and most states/territory government also have their own PPR websites (e.g. the Victorian Health Services Performance [7]).

Prior research indicates that PPR changes healthcare providers' behaviour but has limited impact on consumers' healthcare decision-making [8-10]. Previous research also suggests that consumers want more choice over their healthcare [11]. However, results from questionnaires conducted in the US and the Netherlands showed that most consumers do not use or barely use PPR information when selecting a specialist or a hospital [12-15]. This may be because consumers are not aware of PPR information, they do not have access to it and they do not understand or trust it [8, 15, 16]. Instead, consumers rely on various sources of information to make an informed hospital choice including: advice from their general practitioner (GP); their previous experience; family and friends'

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3 experiences; the reputation of the hospital; and the distance of the hospital from their home [13, 14,
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5 17, 18].
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8 Given the recent introduction of PPR in Australia, there have been few studies on the
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10 impacts of PPR on Australian consumers' choice of hospitals [19], particularly in the private
11
12 healthcare sector [20]. To address this gap, the present study aimed to assess whether PPR of
13
14 hospital data was used by patients with breast, bowel or lung cancer to inform hospital choice; the
15
16 level of demands for PPR; and how PPR could be improved to meet their information needs. The
17
18 focus was on patients with access to private healthcare undergoing cancer elective surgery because
19
20 choice of hospital is likely to be possible and cancer waiting times are publicly reported for all public
21
22 and some private hospitals [5]. It should be noted that most surgery for cancer is categorised as
23
24 'elective' as it falls outside 'emergency' surgery. Elective surgery does not imply non-essential or
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26 cosmetic surgery. It is surgery that is considered necessary following a medical assessment of the
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28 patient but admission can be delayed for at least 24 hours. Public patients are then place on a
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30 hospital waiting list for planned surgery, with recommended maximum wait times classified as
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32 urgent (within 30 days), semi-urgent (within 90 days) or non-urgent [5]. In the private sector,
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34 patients can usually access elective surgery more quickly than in the public sector, especially for
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36 semi-urgent or non-urgent cases. Better understanding of factors that influence hospital choice,
37
38 including PPR information, can help explain consumers' decision making processes and inform
39
40 policy-makers whether greater resources should be allocated to PPR.
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44 **Methods**

45 *Australian healthcare system*

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50 Australia has a universal publicly funded health insurance scheme (Medicare) which provides
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52 free access to public hospitals [21]. Private healthcare insurance is also available and encouraged by
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54 government policy (i.e. high income earners receive a tax penalty for not purchasing, and middle
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3 income earners receive a private health cover rebate.) [22]. In 2014-15, there were 10.1 million
4 (57.1%) Australian adults with private healthcare insurance [23]. Private patients can be treated in
5 either public or private hospitals, paid entirely by their private healthcare insurance, co-paid with
6 their private healthcare insurance, or self-funded. Private patients can exercise greater choice of
7 specialist, hospital and timing of procedures than public patients.
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13 14 *Study design*

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17 This study is part of a larger research program which aims to improve understanding of how
18 PPR might improve quality of care in public and private hospitals in Australia by examining the
19 perspectives of multiple stakeholders. Previous components of the research program include
20 interviews with healthcare consumer advocates, providers, purchasers (public and private funders of
21 healthcare services) [24], senior hospital clinical administrators [25, 26] and general practitioners
22 (forthcoming). This component of the research program uses a quantitative approach to understand
23 the use of PPR information when selecting a hospital for surgery among patients with breast, bowel
24 or lung cancer. A national cross-sectional study design of the private healthcare sector was
25 conducted using postal questionnaires.
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36 37 *Questionnaire design*

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39 We developed a short questionnaire with four sections: 1) cancer type; 2) hospital stay; 3)
40 hospital choice; and 4) about you. The first section included two questions about the type of cancer
41 the participants had, period of diagnosis, and confirmation of undergoing cancer surgical treatments
42 between 1st January and 31st December 2016. The second section included two questions about the
43 type of hospital they attended (i.e. public or private hospital) and their status (public or private
44 patient). The third section included 10 questions about factors influencing their hospital choice, the
45 awareness and use of the available PPR information, preferred areas of PPR information (i.e. quality
46 and performance indicators), level of data presentation, the importance of PPR information and
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3 barriers to using PPR information. This section included two additional open-ended questions about
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5 any concerns or experiences of PPR they would like to share. The final section included demographic
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7 characteristics such as gender, age, marital status, education, employment status, occupation,
8
9 income and health care insurance status. The questionnaire was piloted with a consumer group from
10
11 Peter MacCallum Cancer Centre in Victoria [27] to identify ambiguities or difficult questions and to
12
13 ensure that the questionnaire could be completed in a timely manner. The consumer group included
14
15 five women aged between 35-45 years. Four women previously had cancer, including three in the
16
17 last 12 months. The questionnaire was revised in response to the comments received from the
18
19 consumer group.
20

21 22 *Sample*

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25 Participants were identified and contacted by the Australian Government Department of
26
27 Human Services (DHS) through their Medicare Benefits Schedule (MBS) records (including procedure
28
29 codes). Eligibility criteria included: participants aged 18 years and over; diagnosed with breast,
30
31 bowel or lung cancer; and attended an Australian hospital for cancer surgical treatments between 1st
32
33 January and December 2016. MBS is a list of Medicare services subsidised by the Australian
34
35 government [28]. Therefore, the sample included only those who made a Medicare claim (i.e.
36
37 private patients in public or private hospital). Patients who did not make a Medicare claim (i.e. public
38
39 patients in public hospital in which there are no costs to the patients) are not included. Their records
40
41 are managed by the individual state governments. The selection of the appropriate MBS procedure
42
43 codes was done by the researchers in consultation with a surgeon who specialises in cancer care.
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46 47 *Data collection*

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50 The postal questionnaire was open between April and July 2017. Study invitations were
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52 mailed out to a random sample of 1,000 eligible participants by the Australia Government DHS. We
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54 required 264 participants to achieve a 90% confidence level with a 5% margin of error. The expected
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3 response rates of previous research conducted by the Centre were approximately 20-30%.
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5 Researchers were not provided with contact details of the selected sample. Study invitations
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7 included a cover letter from the DHS, a plain language explanation of the study, the questionnaire
8
9 and a reply-paid envelope addressed to the researchers. Each participant received a \$10 e-gift card
10
11 as reimbursement for their time if they included an email address with their return questionnaire.
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13 14 *Data analysis*

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17 Descriptive analyses of the closed-ended questions were conducted using the Statistical
18
19 Package for the Social Sciences (SPSS) version 23. Content analyses of the two open-ended questions
20
21 were conducted using NVivo version 11.
22

23 24 *Ethical considerations*

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27 Ethical approval for this study was granted by the Melbourne School of Population and
28
29 Global Health Human Ethics Advisory Group, The University of Melbourne. The return of the
30
31 questionnaire was taken as an indication of voluntary consent to participate.
32

33 34 **Results**

35 36 37 *Sample characteristics*

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40 In total, 243 participants completed the questionnaire (24.3% response rate). Compared to
41
42 respondents, non-respondents were more likely to be male and younger. The sample was somewhat
43
44 representative of the Australian population who had cancer elective surgery. Patients with breast
45
46 and lung cancer were slightly over-represented whereas patients with bowel cancer were under-
47
48 represented [29].
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50
51 The characteristics of the respondents are described in Table 1. Over 60% of respondents
52
53 were diagnosed with breast cancer, 27% with bowel and 10% with lung cancer, with the majority
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55 diagnosed in the last 12 months (70%). Almost all the respondents were women (99%) aged
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3 between 55 and 74 years (62%). The majority were born in Australia (77%) and married/in a defacto
4 relationship (79%). Almost 30% had a bachelor/postgraduate degree, a slight under-representation
5 of the Australian women population with a bachelor degree or higher [30]. Half of the respondents
6 were pensioners/retirees and 40% were employed. Of those employed, over 60% worked in a
7 professional or managerial position. Over half had a household income of less than \$99,999. Fewer
8 than half (44%) had healthcare benefits (e.g. healthcare card which entitles access to cheaper
9 prescription medicines). Almost all respondents (97%) had private health insurance, which usually
10 covered both hospital treatment and extras such as outpatient physiotherapy (88%).
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19 20 *Hospital stay and choice* 21

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23 Respondents self-reported that 94% attended a private hospital and 6% attended a public
24 hospital for cancer surgery. Among those who attended a public hospital, 87% were private patients
25 and 13% were public patients. The small proportion of public patients in the sample may suggest
26 that some of the care provided involved a private component. Costs of private hospitals were
27 reportedly covered partly by the respondents and their health insurance (49%) or fully covered by
28 their health insurance (47%). Almost half (48%) of the respondents attended their preferred
29 hospital, 28% did not have a choice in hospital, and 25% did not have a hospital preference. Of those
30 who did not have a choice of hospital, 37% would have liked to have had a choice.
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41 *Awareness and use of PPR information* 42

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44 Ninety-two percent of respondents reported no awareness of PPR information. Of those
45 who were aware of it, 88% did not use it when selecting a hospital and 56% considered PPR to be of
46 little or no importance to inform their choice of hospital. Reasons cited for not using PPR
47 information included limited choice of hospital, as well as prior experience with certain hospitals,
48 and trust in the advice of their doctor: "We only have a private and public hospital where I live, so
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3 *choice was limited regardless of the information provided”; “I was too sick to do any research at the*
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5 *time. I took advice from my specialist”.*

6 7 8 *Factors influencing hospital choice*

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11 Table 2 presents the factors that influenced the choice of hospital. PPR data did not
12 influence choice of hospital. The most common factors that impacted hospital selection were
13 specialists (90%), reputation of the hospital (24%), distance to the hospital from home (24%),
14 patients’ previous experience (18%), and GPs advice (17%).

15 16 17 18 19 20 *Barriers affecting the use of PPR*

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23 Table 3 shows the barriers affecting the use of PPR in selecting a hospital. The most common
24 barriers impeding the use of PPR data included lack of PPR awareness (74%), lack of PPR relevance
25 (11%) and interested in PPR for their condition solely (10%).

26 27 28 29 30 *Source of PPR information*

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33 Despite the lack of PPR awareness and barriers to the use of PPR, overall 71% of
34 respondents considered PPR to be very important or important to inform their choice or family
35 members’ future choice of hospital. However, most respondents did not want to access PPR
36 information themselves, preferring their GPs or other healthcare providers to tell them about it
37 (40%). Other preferred sources of PPR information included websites (35%), printed
38 books/directories (10%) and mobile phone applications (3%). A small proportion of respondents did
39 not want any PPR information (9%).

40 41 42 43 44 45 46 47 48 *Preferred types of PPR information*

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51 Table 4 shows the types of PPR information that respondents most wanted access to.
52 Respondents considered costs of surgery (59%), complications (58%) and success rates (57%)
53 important areas to report on. Respondents reported that they preferred PPR information to be
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3 reported at the individual clinician level (48%), followed by hospitals (31%) and specific clinical units
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5 within hospitals (18%).
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8 *Additional comments and concerns related to PPR*
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11 Almost half of the respondents (48%) provided information in response to one or both open-
12
13 ended questions. Analysis of their responses revealed four themes: 1) decision-making factors; 2)
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15 data credibility; 3) unmet information needs; and 4) unintended consequences. Themes two, three
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17 and four provided further insights into PPR of hospital data which were not captured in the
18
19 quantitative findings.
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22 *1. Decision-making factors*
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25 Consistent with the quantitative findings, choice of hospital was determined by advice from
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27 specialists or GPs rather than PPR information. Although respondents perceived PPR to be important
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29 for hospital's accountability and transparency, they reported that their choices were restricted to
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31 the hospital or hospitals where their specialist performed surgery. Other respondents had relied on
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33 their GP's for a specialist recommendation:
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37 "I did not check on the hospital. My surgeon was recommended as the 'best' by my GP
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39 who I trust and she could operate quickly and worked out of a specific hospital - no
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41 choice to be made." (Respondent #39)
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44 Some respondents preferred their GPs to be informed about PPR information and relay it to
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46 them, or direct them to an appropriate website or other resource to inform their decision.
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48 Additional factors influencing patients' selection of hospital included family and friends.
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51 *2. Data credibility*
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3 Although over 90% of respondents reported not being aware of PPR, they nonetheless
4 raised concerns with the reliability, validity and timeliness of the data. Some were cynical and
5 suspicious of the data, questioning its trustworthiness:
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10 “The hospitals information accuracy. No hospital is going to let ‘issues’ out otherwise
11 loss of patients means loss of money and so it goes. In an ideal world, we could
12 ‘believe’ the information and make our decisions as consumers with accuracy. I don't
13 believe the information will truly reflect the real world. I have seen government
14 departments fudge stuff.” (Respondent #200)
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21 Some respondents expressed their lack of clarity and concern around who collected the data
22 (i.e. independent body), how it was collated (i.e. qualifications and experiences of the people, data
23 quality processes), and why certain areas of information (i.e. quality and performance indicators)
24 were chosen to be reported.
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30 *3. Unmet information needs*

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33 Respondents reported the following areas of information (currently not available on the
34 MyHospitals website) to be of interest: patient experiences; hospital cleanliness; food quality;
35 nursing standards (e.g. bedside manners); and hospital facilities (e.g. available entertainments such
36 as movie/tablet rentals). However, several respondents worried that reporting patient experiences
37 may be misleading and damaging to a hospital’s reputation if there were no site moderators:
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44 “As a patient I am not a medical expert as are other patients. We can comment on the
45 level of care but not the medical treatment. So, my opinion and that of other patients is
46 very subjective. Just like 'TripAdvisor' someone could rubbish a hospital with no
47 medical grounds or expertise.” (Respondent #52)
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53 *4. Unintended consequences*

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3 Additional PPR concerns raised by respondents included unnecessary stress and increased
4 pressure on hospital staff because of PPR. Some respondents likened PPR of hospital data to the
5 education reporting system which compares how a school is performing on the National Assessment
6 Plan Literacy and Numeracy (NAPLAN) tests with other similar schools. A respondent claimed that
7 increased focus on reporting in the education sector resulted in poorer education and expressed
8 concern that PPR of hospital data could similarly lead to a deterioration in the quality of care
9 provided. Some respondents suggested that the PPR systems need to be design in a way which
10 minimises administrative burden and is supportive of hospital staff:
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20 "It would have to be carefully designed to be fair to all involved without creating
21 excessive administrative and pressure and hierarchy as sometimes happens in schools
22 reporting - overly burdensome for staff so counter-productive." (Respondent #57)
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27 Discussion

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30 The results of the study, which are reflective of experiences in the private healthcare sector,
31 highlighted that many respondents did not use PPR information to inform their hospital choice,
32 mainly because they were not aware of it. This is consistent with previous studies [12-15]. Instead,
33 as patients, they were guided by their specialists when selecting a hospital. Almost half of the
34 respondents reported that they did have a choice of hospital, which suggests they were involved in
35 the decision-making process with their specialists. Others have reached similar conclusion [31].
36 Although determining how the specialists and patients selected hospitals was not part of this study,
37 the responses to the open-ended questions revealed that the availability of specialists and where
38 he/she performed the elective surgery generally determined which hospital they attended as
39 patients. Future research is required to explore the decision-making process between specialists and
40 patients, and whether the dissemination of PPR information to patients via specialists (as potential
41 mediators of patient choice) is feasible.
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3 The limited awareness of PPR among respondents may be associated with the lack of
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5 mandatory PPR for private hospitals. Half of all Australian private hospitals voluntarily participate on
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7 the MyHospitals website but they do not necessarily report on all of the quality indicators that public
8
9 hospitals do [5]. Some private healthcare providers (e.g. Healthscope) publish their own PPR
10
11 websites to help patients make informed decisions [6]. However, Healthscope reports aggregated
12
13 data on quality indicators for all their private hospitals combined, instead of individual hospitals,
14
15 specialists or conditions – this limits its relevance and usability for healthcare consumers. Almost half
16
17 of the study respondents proposed that publicly reported hospital-related information (which
18
19 includes quality and performance indicators) be reported at the level of individual specialists. In the
20
21 US and the UK, ratings of individual specialists working in hospitals are publicly reported [4]. There is
22
23 evidence that public reporting of individual specialists' data have led to improvement in the quality
24
25 of care [32, 33]. However, unintended consequences such as 'cream skimming' and 'gaming' (i.e.
26
27 avoiding treating high risk patients who are likely to have poor outcomes) have also been reported
28
29 [34, 35]. In Australia, debates surrounding PPR of individual specialist-level continues [36-38].
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33 Consistent with previous research, we found the following performance indicators to be of
34
35 relevance to patients: costs of surgery; complications rates; success rates; patient experiences;
36
37 hospital cleanliness; and food quality [39, 40]. None of these quality indicators are currently
38
39 reported on the MyHospitals website [5]. Patient experience is one of 17 indicators recommended
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41 to be publicly reported but methodological issues has prevented its disclosure. In contrast, several
42
43 states' performance websites actively report on patient experiences, complications, and standards
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45 of cleaning to various level of details [7, 41-43]; the Bureau of Health Information in New South
46
47 Wales the most thorough and interactive in its web-based reporting [41]. In other countries, such as
48
49 England, The Netherlands and the US, patient reported experience and outcomes are routinely
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51 collected and available for consumers to view. These measures are found to be positively associated
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53 with delivery of care [44], clinical outcomes [45], clinical effectiveness and patient safety [46].
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3 None of the performance websites in Australia describe costs of surgery. There are no costs
4
5 associated with attending an Australian public hospital as a public patient. It may not be surprising
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7 then that costs of surgery and associated out-of-pocket costs are not reported. However, knowing
8
9 out-of-pocket costs was considered important for patients with private healthcare insurance. Costs
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11 of elective surgery were fully covered by private healthcare insurance in only 47% of cases, with one
12
13 respondent commenting that out-of-pocket cost for her breast cancer surgery was \$7,500. In
14
15 Australia, there are limited publicly available sources for patients to access information on out-of-
16
17 pocket costs for inpatient and outpatient care [47, 48]. The Royal Australasian College of Surgeons in
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19 collaboration with Medibank (an Australian private health insurer), publishes surgical variance
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21 reports which describe average out-of-pocket charges for surgeons and other medical services (i.e.
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23 anaesthetist, assistant surgeon and for diagnostics). Their reports were not targeted at consumers
24
25 but for specialists, to encourage improvement in private hospital clinical outcomes and patient care.
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27 In the US, report cards and reporting websites (e.g. OpsCost [49], Healthcare Bluebook [50], Fair
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29 Heath consumers [51]) have been developed to help consumers compare hospital quality and cost of
30
31 care. Evaluation of report cards with cost information, in an experimental setting, showed that some
32
33 employees avoided low-cost providers because they perceived low-cost care as substandard and
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35 higher prices as proxy for higher quality [52]. The authors suggest that including quality indicators
36
37 with costs data may improve consumers' decision-making. Given the limited research in this area
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39 and the growth in comparative quality and cost websites, further studies are warranted to evaluate
40
41 its accessibility, usefulness and content for consumers.
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45 Although many respondents considered PPR to be important for transparency and
46
47 accountability, they were sceptical of the reliability and validity of PPR data. The reason for this is
48
49 unclear given that most patients were not aware of PPR. Some comments from the open-ended
50
51 questions demonstrated lack of understanding of how PPR data was collected, and collated and the
52
53 methodologies used to construct the quality indicators. In support, past research suggests that
54
55 consumers distrust PPR data because they have difficulties interpreting the information [8, 16, 53].
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3 In the US, consumer-focused best practice guidelines have been developed for presenting,
4 promoting and disseminating PPR data to improve its comprehensibility and perceived trustworthiness
5 [40, 54].
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10 Patients preferred that the dissemination of PPR information to occur via their GPs. In
11 Australia, GPs are gatekeepers to secondary care with patients requiring their referral for non-
12 emergency access. Therefore, GPs are in a good position to help patients interpret PPR data or guide
13 patients to appropriate resources to support decision-making. However, past research shows that
14 GPs rarely used PPR information when referring patients to hospitals because they are unaware of
15 PPR data and they were concerned about its reliability and validity [55, 56]. Addressing these barriers
16 are essential if GPs are to be a viable source of PPR information for their patients.
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25 *Limitations*

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28 These findings should be interpreted carefully due to several limitations. Given the non-
29 population representative characteristics of respondents (older women who used private hospitals),
30 the results are not generalisable to other cancer elective surgeries, younger patients and public
31 hospitals. Future research is needed to gather data from a larger sample and to expand this study to
32 other elective surgeries and public patients in public hospital (could be recruited via the individual
33 state government which hold their records). Recall bias may have also affected our results,
34 particularly among elderly patients. However, we attempted to minimise recall bias by ensuring that
35 only patients who had cancer elective surgery within the last 12 months were eligible to complete
36 the questionnaire.
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48 *Conclusions*

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50 PPR of hospital data appears to have no substantial impact on selection of hospitals among a
51 randomly selected cohort of Australian patients with breast, bowel or lung cancer who were treated
52 as private patients. Almost one third of respondents reported no choice of hospital and current PPR
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3 information did not appear to meet their information needs. Nevertheless, a substantial number
4
5 of respondents expressed interest in PPR information and claimed that they would use it in their
6
7 future decision-making. Given the growing prevalence of performance data being publicly
8
9 disseminated through the internet, further efforts are required to develop quality and cost
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11 indicators of interest to patients. While this study focused on people treated for cancer, it has
12
13 relevance for all consumers of healthcare. The dissemination of PPR information to patients via
14
15 specialists and GPs may enable patients to make clinically and financially informed choices with the
16
17 assistance of their medical doctors.
18

19 20 **Contributors**

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22
23 MK, DD and MB conceptualised and designed the study and obtained its funding. KP, RC and MK
24
25 contributed to the design of the questionnaire. KP, MK and JM selected the sample (MBS procedure
26
27 codes). KP collected, analysed and interpreted the data and drafted the manuscript. RC, MB, DD, JM
28
29 and MK contributed to data interpretation and critically reviewed the manuscript. All authors read
30
31 and approved the final manuscript.
32

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35
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38
39 authors and not the funding agency.
40

41 42 **Competing interests**

43
44
45 The authors declare that they have no competing interests.
46

47 48 **Data sharing statement**

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50
51 The dataset analysed during the current study are not publicly available due to participants'
52
53 confidentiality.
54

55 56 **Acknowledgements**

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Table 1 Demographic characteristic of respondents (n=243)

	N (%)
Cancer Type	
<i>Breast</i>	155 (63.8%)
<i>Bowel</i>	65 (26.7%)
<i>Lung</i>	23 (9.5%)
Diagnosis period	
<i>Less than 12 months</i>	176 (72.4%)
<i>Between 1 and 5 years ago</i>	65 (26.7%)
<i>More than 5 years ago</i>	2 (0.8%)
Gender	
<i>Male</i>	49 (20.2%)
<i>Female</i>	191 (98.8%)
<i>Missing</i>	3 (1.2%)
Age groups	
<i>25-34</i>	3 (1.2%)
<i>35-44</i>	13 (5.3%)
<i>45-54</i>	36 (14.8%)
<i>55-64</i>	77 (31.7%)
<i>65-74</i>	73 (30.0%)
<i>75-84</i>	32 (13.2%)
<i>85+</i>	6 (2.5%)
<i>Missing</i>	3 (1.2%)
Country of birth	
<i>Australia</i>	186 (76.5%)
<i>Others</i>	53 (21.8%)
<i>Missing</i>	4 (1.6%)
Marital status	
<i>Single/never married</i>	10 (4.1%)
<i>Married/in a defacto relationship</i>	193 (79.4%)
<i>Widowed/divorced/separated</i>	37 (15.2%)
<i>Missing</i>	3 (1.2%)
Education	
<i>Postgraduate</i>	25 (10.3%)
<i>Bachelor</i>	45 (18.5%)
<i>Diploma/certificate</i>	75 (30.9%)
<i>High school</i>	93 (38.3%)
<i>Missing</i>	5 (2.1%)
Employment	
<i>Full-time</i>	45 (18.5%)
<i>Part-time/casual</i>	34 (14.0%)
<i>Self-employed</i>	18 (7.4%)
<i>Retired/pensioner/unemployed</i>	124 (51.0%)
<i>Other*</i>	18 (7.4%)

Missing	4 (1.6%)
Occupation (limited to those working)	
Manager	22 (22.7%)
Professional	39 (40.2%)
Technician or trades worker	4 (4.1%)
Community of personal service worker	3 (3.1%)
Clerical or administrative worker	15 (15.5%)
Sales worker	0 (0.0%)
Machinery operator or driver	0 (0.0%)
Labourer	0 (0.0%)
Never worked for a wage	0 (0.0%)
Other	13 (13.4%)
Missing	1 (1.0%)
Household income	
Less than \$25,000	22 (9.1%)
\$25,000 to \$49,999	51 (21.0%)
\$50,000 to \$99,999	69 (28.4%)
\$100,000 or more	51 (21.0%)
Prefer not to stay	36 (14.8%)
Missing	14 (5.8%)
Health care benefits	
Yes	107 (44.0%)
No	134 (55.1%)
Missing	2 (0.8%)
Private health insurance	
Yes	235 (96.7%)
Hospital cover only	28 (11.9%)
Extra's cover only	1 (0.4%)
Hospital and extras cover	206 (87.7%)
No	5 (2.1%)
Missing	3 (1.2%)

*others include those who are currently not working due to their illness and home duties.

Table 2 Factors influencing hospital choice*

	N (%)
Specialist	218 (89.7%)
Distance of the hospital from home	57 (23.5%)
Reputation of the hospital	57 (23.5%)
Own experience	44 (18.1%)
General practitioners	42 (17.3%)
Length of waiting list	37 (15.2%)
Health insurer provider	20 (8.2%)
Family members/friends	22 (9.1%)

Hospital catchment area	17 (7.0%)
Size of the hospital	4 (1.6%)
Hospital/other website	3 (1.2%)
Performance reporting website	0 (0.0%)
Booklet/leaflet or someone else at GP clinic	0 (0.0%)

*total does not reflect 100% as patients could select multiple factors

Table 3 Barriers affecting the use of PPR information*

	N (%)
Not aware	179 (73.7%)
Not relevant	26 (10.7%)
Results about own condition	23 (9.5%)
Accuracy of the information	8 (3.3%)
No internet access	7 (2.9%)
Too difficult to understand	3 (1.2%)
It was out of date	2 (0.8%)
Unsure how to use the information	0 (0.0%)

*total does not reflect 100% as patients could select multiple factors

Table 4 Preferred types of PPR information*

	N (%)
Costs of surgery	144 (59.3%)
Complications rates	141 (58.0%)
Successful recovery	138 (56.8%)
Patient's experience/satisfaction	132 (54.3%)
Medical errors	110 (45.3%)
Waiting times	109 (44.9%)
Readmission rates	91 (37.4%)
Mortality rates	72 (29.6%)
Length of stay	45 (18.5%)

*total does not reflect 100% as patients could select multiple factors

STROBE Statement—Checklist of items that should be included in reports of *cross-sectional studies*

	Item No	Recommendation
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract p.2 (b) Provide in the abstract an informative and balanced summary of what was done and what was found p.2
Introduction		
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported pp.4-5
Objectives	3	State specific objectives, including any prespecified hypotheses p.5
Methods		
Study design	4	Present key elements of study design early in the paper p.6
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection p.7
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants p.7
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable p.6
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group p.6
Bias	9	Describe any efforts to address potential sources of bias NA
Study size	10	Explain how the study size was arrived at p.7
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding p.8 (b) Describe any methods used to examine subgroups and interactions NA (c) Explain how missing data were addressed NA (d) If applicable, describe analytical methods taking account of sampling strategy NA (e) Describe any sensitivity analyses NA
Results		
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed p.8 (b) Give reasons for non-participation at each stage p.8 (c) Consider use of a flow diagram NA
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders p.8 (b) Indicate number of participants with missing data for each variable of interest p.21 (Table 1)
Outcome data	15*	Report numbers of outcome events or summary measures pp.9-10 (in text). and pp.21-23 (Tables 1, 2,3 and 4)
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were

		adjusted for and why they were included NA
		(b) Report category boundaries when continuous variables were categorized NA
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period NA
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses NA
Discussion		
Key results	18	Summarise key results with reference to study objectives pp.13-15
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias p.16
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence pp.13-16
Generalisability	21	Discuss the generalisability (external validity) of the study results p.16
Other information		
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based p.17

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.

BMJ Open

Public performance reporting and hospital choice: A cross-sectional study of patients undergoing cancer surgery in the Australian private healthcare sector

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3 Public performance reporting and hospital choice: A cross-sectional study of patients undergoing
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5 cancer surgery in the Australian private healthcare sector
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Abstract

Objectives National mandatory public performance reporting (PPR) for Australian public hospitals, including measures of cancer waiting times, was introduced in 2011. PPR is voluntary for private hospitals. The aims of this study were to assess whether PPR of hospital data is used by patients with breast, bowel or lung cancer when selecting a hospital for elective surgery and how PPR could be improved to meet their information needs.

Design A national cross-sectional postal questionnaire.

Setting Australian private healthcare sector.

Participants Private patients with breast, bowel or lung cancer who attended a public or private hospital for elective surgery (n=243) in 2016.

Outcome measures Patients' choice of hospital, use of PPR information and preferred areas of PPR information. Descriptive and conventional qualitative content analyses were conducted.

Results Most respondents (94%) attended a private hospital. Almost half could choose a hospital. Choice of hospital was not influenced by PPR data (92% unaware) but by their specialist (90%). Respondents considered PPR to be important (70%) but did not want to see the information, preferring their general practitioners (GPs) to tell them about it (40%). Respondents considered costs of surgery (59%), complications (58%) and success rates (57%) to be important areas of information that should be publicly reported. Almost half suggested that quality indicators be reported at the individual clinician level. Analysis of the open-ended questions identified four themes: 1) decision-making factors; 2) data credibility; 3) unmet information needs; and 4) unintended consequences.

Conclusions PPR of hospital data had no substantial impact on patients' choice of hospital. Nonetheless, many respondents expressed interest in using it in the future. To increase PPR awareness and usability, personalised and integrated information on cost and quality of hospitals is

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3 required. Dissemination of PPR information via specialists and GPs could assist patients in
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5 interpreting the data and support decision-making.
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8 **Strengths and limitations of the study**

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- 11 • There have been very few studies on the impacts of PPR on consumers' choice of hospitals in
12 the private healthcare sector since the introduction of national mandatory PPR of public
13 hospital data in Australia.
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 - 16 • This study used a national cross-sectional questionnaire in the private healthcare sector to
17 assess the use of PPR of hospital data by patients with breast, bowel or lung cancer to
18 inform hospital choice.
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 - 21 • Given the growing prevalence of PPR data being disseminated through the internet, this
22 study provided further insights into the level of demands for PPR and preferred areas of PPR
23 information.
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 - 26 • The results are not generalisable to other cancer elective surgeries, younger patients and
27 public hospitals because of the non-population representative characteristics of respondents
28 (older women who used private hospitals).
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Introduction

There are growing efforts within healthcare systems internationally to measure and publicly disseminate healthcare providers' (i.e. hospitals and clinicians) performance data for greater transparency, to increase accountability and to improve quality of care [1, 2]. Public performance reporting (PPR) of healthcare providers' data is aimed at improving the quality of care by guiding consumers to select high quality providers over low quality providers. It aims to stimulate quality improvement among providers by identifying areas in which they underperform. These pathways are interconnected by providers' motivation to maintain or increase market share [3].

In many countries, such as the United States (US) and the United Kingdom (UK), PPR of hospital and individual clinician's performance data has been a central feature of government health policy [4]. In Australia, national mandatory PPR of public hospital data was introduced in 2011. All public hospitals are required to provide data to the Australian Institute of Health and Welfare (AIHW) which is then reported via the MyHospitals website [5]. Quality indicators reported on the MyHospitals website are underpinned by the Performance and Accountability Framework. The framework identifies 48 indicators, of which 17 are hospital indicators and 31 are primary healthcare indicators. Hospital indicators publicly reported include hand hygiene, staphylococcus aureus infections, time patients spent in emergency department, cancer surgery waiting times and financial performance of public hospitals. Indicators yet to be publicly reported, due to their associated methodological issues, include measures of mortality, unplanned readmission rates, patient experiences and access to services by type of service compared to need.

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]. 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

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2
3 states/territory government also have their own PPR websites (e.g. the Victorian Health Services
4 Performance [9] and New South Wales Bureau of Health Information [10]). Quality indicators varies
5 across MyHospitals, private healthcare providers and states/territory government websites.
6
7 Examples of additional quality indicators reported on the private healthcare providers and
8 states/territory government websites but not on the MyHospitals website include patient
9 experiences, Apgar scores for babies (assessment of a baby's wellbeing after birth), patient falls,
10 pressure injuries and rehabilitation outcomes.
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19 Prior research indicates that PPR changes healthcare providers' behaviour but has limited
20 impact on consumers' healthcare decision-making [11-13]. Previous research also suggests that
21 consumers want more choice over their healthcare [14]. However, results from questionnaires
22 conducted in the US and the Netherlands showed that most consumers do not use or barely use PPR
23 information when selecting a specialist or a hospital [15-18]. This may be because consumers are not
24 aware of PPR information, they do not have access to it and they do not understand or trust it [11,
25 18, 19]. Instead, consumers rely on various sources of information to make an informed hospital
26 choice including: advice from their general practitioner (GP); their previous experience; family and
27 friends' experiences; the reputation of the hospital; and the distance of the hospital from their home
28 [16, 17, 20, 21].
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41 Given the recent introduction of PPR in Australia, there have been few studies on the
42 impacts of PPR on Australian consumers' choice of hospitals [22], particularly in the private
43 healthcare sector [23]. The focus was on patients with access to private healthcare undergoing
44 cancer elective surgery because choice of hospital is likely to be possible and cancer waiting times
45 are publicly reported for all public and some private hospitals [5]. It should be noted that most
46 surgery for cancer is categorised as 'elective' as it falls outside 'emergency' surgery. Elective surgery
47 does not imply non-essential or cosmetic surgery. It is surgery that is considered necessary following
48 a medical assessment of the patient but admission can be delayed for at least 24 hours. Public
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3 patients are then place on a hospital waiting list for planned surgery, with recommended maximum
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5 wait times classified as urgent (within 30 days), semi-urgent (within 90 days) or non-urgent [5]. In
6
7 the private sector, patients can usually access elective surgery more quickly than in the public sector,
8
9 especially for semi-urgent or non-urgent cases. Better understanding of factors that influence
10
11 hospital choice, including PPR information, can help explain consumers' decision making processes
12
13 and inform policy-makers whether greater resources should be allocated to PPR. Therefore, the
14
15 present study aimed to assess whether PPR of hospital data was used by patients with breast, bowel
16
17 or lung cancer to inform hospital choice; factors that influence their hospital choice; the level of
18
19 demands for PPR; barriers to using PPR; and how PPR could be improved to meet their information
20
21 needs.
22

23 24 **Methods**

25 26 *Australian healthcare system*

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30 Australia has a universal publicly funded health insurance scheme (Medicare) which provides
31
32 free access to public hospitals [24]. Private healthcare insurance is also available and encouraged by
33
34 government policy (i.e. high income earners receive a tax penalty for not purchasing, and middle
35
36 income earners receive a private health cover rebate) [25]. In 2014-15, there were 10.1 million
37
38 (57.1%) Australian adults with private healthcare insurance [26]. Private patients can choose to be
39
40 treated in either public or private hospitals. To access public or private hospital for non-emergency
41
42 care, patients must be referred by their GPs. Issues of payments for private hospitals are generally
43
44 discussed during the consultations [27]. Medicare covers 75% of the Medicare Benefits Schedule
45
46 (MBS) fee for private patients. The remaining 25% is paid entirely by their private healthcare
47
48 insurance, co-paid with their private healthcare insurance, or self-funded if the patient does not
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50 have private healthcare insurance. Private patients can exercise greater choice of specialist, hospital
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52 and timing of procedures than public patients.
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Study design

This study is part of a larger research program which aims to improve understanding of how PPR might improve quality of care in public and private hospitals in Australia by examining the perspectives of multiple stakeholders. Previous components of the research program include interviews with healthcare consumer advocates, providers, purchasers (public and private funders of healthcare services) [28], senior hospital clinical administrators [29, 30] and general practitioners (forthcoming). This component of the research program uses a quantitative approach to understand the use of PPR information when selecting a hospital for surgery among patients with breast, bowel or lung cancer. A national cross-sectional study design of the private healthcare sector was conducted using postal questionnaires.

Questionnaire design

We developed a short questionnaire with four sections: 1) cancer type; 2) hospital stay; 3) hospital choice; and 4) about you (Appendix A). The first section included two questions about the type of cancer the participants had, period of diagnosis, and confirmation of undergoing cancer surgical treatments between 1st January and 31st December 2016. The second section included two questions about the type of hospital they attended (i.e. public or private hospital) and their status (public or private patient). The third section included 10 questions about factors influencing their hospital choice, the awareness and use of the available PPR information, preferred areas of PPR information (i.e. quality and performance indicators), level of data presentation, the importance of PPR information and barriers to using PPR information. This section included two additional open-ended questions about any concerns or experiences of PPR they would like to share. The final section included demographic characteristics such as gender, age, marital status, education, employment status, occupation, income and health care insurance status. The questionnaire was piloted with a consumer group from Peter MacCallum Cancer Centre in Victoria [31] to identify ambiguities or difficult questions and to ensure that the questionnaire could be completed in a

1
2
3 timely manner. The consumer group included five women aged between 35-45 years. Four women
4
5 previously had cancer, including three in the last 12 months. The questionnaire was revised in
6
7 response to the comments received from the consumer group.
8
9

10 *Sample*

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12 Participants were identified and contacted by the Australian Government Department of
13
14 Human Services (DHS) through their MBS records (including procedure codes). Eligibility criteria
15
16 included: participants aged 18 years and over; diagnosed with breast, bowel or lung cancer; and
17
18 attended an Australian hospital for cancer surgical treatments between 1st January and 31st
19
20 December 2016. MBS is a list of Medicare services subsidised by the Australian government [32].
21
22 Therefore, the sample included only those who made a Medicare claim (i.e. private patients in public
23
24 or private hospital). Patients who did not make a Medicare claim (i.e. public patients in public
25
26 hospital in which there are no costs to the patients) are not included. Their records are managed by
27
28 the individual state governments. The selection of the appropriate MBS procedure codes (Appendix
29
30 B) was done by the researchers in consultation with a surgeon who specialises in cancer care. In
31
32 total, 29,793 eligible participants were identified (52% with breast cancer, 32% with bowel cancer
33
34 and 16% with lung cancer). A stratified sampling by cancer type was performed for 1,000 eligible
35
36 participants. Samples within each stratum were selected with simple random sampling.
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41 *Data collection*

42
43 The postal questionnaire was open between April and July 2017. Study invitations were
44
45 mailed out to a random sample of 1,000 eligible participants by the Australia Government DHS. A
46
47 sample size calculation for cross-sectional study was conducted [33]. The confidence level was set at
48
49 90% with a 5% margin of error. The estimate proportion of the population who used PPR when
50
51 selecting a hospital was set at 0.4. The required sample size is 261 participants. The expected
52
53 response rates of previous research conducted by the Centre were approximately 20-30%.
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3 Researchers were not provided with contact details of the selected sample. Study invitations
4 included a cover letter from the DHS, a plain language explanation of the study, the questionnaire
5 and a reply-paid envelope addressed to the researchers. Each participant received a \$10 e-gift card
6 as reimbursement for their time if they included an email address with their return questionnaire.
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10 11 12 *Data analysis*

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15 Descriptive analyses of the closed-ended questions were conducted using the Statistical Package for
16 the Social Sciences (SPSS) version 23. A conventional qualitative content analyses of the two open-
17 ended questions were conducted using NVivo version 11. A conventional qualitative content analysis
18 aims to interpret meaning from the content of text data without using preconceived categories [34].
19
20
21 Codes were derived directly from the text data and then grouped into categories that represent
22 similar meanings.
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27 28 *Ethical considerations*

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31 Ethical approval for this study was granted by the Melbourne School of Population and
32 Global Health Human Ethics Advisory Group, The University of Melbourne. The return of the
33 questionnaire was taken as an indication of voluntary consent to participate.
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38 **Results**

39 40 41 *Sample characteristics*

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44 In total, 243 participants completed the questionnaire (24.3% response rate). Compared to
45 respondents, non-respondents were more likely to be male and younger. The sample was somewhat
46 representative of the Australian population who had cancer elective surgery. Patients with breast
47 (64% vs. 58%) and lung cancer (9% vs. 7%) were slightly over-represented whereas patients with
48 bowel cancer were under-represented (27% vs 35%) [35].
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3 The characteristics of the respondents are described in Table 1. Over 60% of respondents
4
5 were diagnosed with breast cancer, 27% with bowel and 10% with lung cancer, with the majority
6
7 diagnosed in the last 12 months (70%). Almost all the respondents were women (79%) aged
8
9 between 55 and 74 years (62%). The majority were born in Australia (77%) and spoke English (95%).
10
11 The majority were married/in a defacto relationship (79%). Almost 30% had a
12
13 bachelor/postgraduate degree, a slight under-representation of the Australian women population
14
15 with a bachelor degree or higher [36]. Half of the respondents were pensioners/retirees and 40%
16
17 were employed. Of those employed, over 60% worked in a professional or managerial position. Over
18
19 half had a household income of less than \$99,999. The median annual gross household income in
20
21 Australia for the 2015-16 period was \$84,032 [37]. Fewer than half (44%) had healthcare benefits
22
23 (e.g. healthcare card which entitles access to cheaper prescription medicines). Almost all
24
25 respondents (97%) had private health insurance, which usually covered both hospital treatment and
26
27 extras such as outpatient physiotherapy (88%).
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30 31 *Hospital stay and choice*

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34 Respondents self-reported that 94% attended a private hospital and 6% attended a public
35
36 hospital for cancer surgery. Among those who attended a public hospital, 87% were private patients
37
38 and 13% were public patients. The small proportion of public patients in the sample may suggest
39
40 that some of the care provided involved a private component (e.g. certain diagnostic imaging and
41
42 pathology services are not fully covered by Medicare [38]). Alternatively, this could have been a
43
44 clerical error in the MBS records. Costs of private hospitals were reportedly covered partly by the
45
46 respondents and their health insurance (49%) or fully covered by their health insurance (47%). Three
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48 percent of respondents self-funded their treatments. Almost half (48%) of the respondents attended
49
50 their preferred hospital, 28% did not have a choice in hospital, and 25% did not have a hospital
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52 preference. Of those who did not have a choice of hospital, 37% would have liked to have had a
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54 choice.
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Awareness and use of PPR information

Ninety-two percent of respondents reported no awareness of PPR information. Of those who were aware of it, 88% did not use it when selecting a hospital and 56% considered PPR to be of little or no importance to inform their choice of hospital. Reasons cited for not using PPR information included limited choice of hospital, as well as prior experience with certain hospitals, and trust in the advice of their doctor: *"We only have a private and public hospital where I live, so choice was limited regardless of the information provided"; "I was too sick to do any research at the time. I took advice from my specialist"*.

Factors influencing hospital choice

Table 2 presents the factors that influenced the choice of hospital. PPR data did not influence choice of hospital. The most common factors that impacted hospital selection were specialists (90%), reputation of the hospital (24%), distance to the hospital from home (24%), patients' previous experience (18%), and GPs advice (17%).

Barriers affecting the use of PPR

Table 3 shows the barriers affecting the use of PPR in selecting a hospital. The most common barriers impeding the use of PPR data included lack of PPR awareness (74%), lack of PPR relevance (11%) and interested in PPR for their condition solely (10%).

Source of PPR information

Despite the lack of PPR awareness and barriers to the use of PPR, overall 71% of respondents considered PPR to be very important or important to inform their choice or family members' future choice of hospital. However, most respondents did not want to access PPR information themselves, preferring their GPs or other healthcare providers to tell them about it (40%). Other preferred sources of PPR information included websites (35%), printed

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2
3 books/directories (10%) and mobile phone applications (3%). A small proportion of respondents did
4
5 not want any PPR information (9%).

6 7 8 *Preferred types of PPR information*

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10 Table 4 shows the types of PPR information that respondents most wanted access to.
11
12 Respondents considered costs of surgery (59%), complications (58%) and success rates (57%)
13
14 important areas to report on. Respondents reported that they preferred PPR information to be
15
16 reported at the individual clinician level (48%), followed by hospitals (31%) and specific clinical units
17
18 within hospitals (18%).

19 20 21 22 *Additional comments and concerns related to PPR*

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25 Almost half of the respondents (48%) provided information in response to one or both open-
26
27 ended questions. Analysis of their responses revealed four themes: 1) decision-making factors; 2)
28
29 data credibility; 3) unmet information needs; and 4) unintended consequences. Themes two, three
30
31 and four provided further insights into PPR of hospital data which were not captured in the
32
33 quantitative findings.

34 35 36 *1. Decision-making factors*

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39 Consistent with the quantitative findings, choice of hospital was determined by advice from
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41 specialists or GPs rather than PPR information. Although respondents perceived PPR to be important
42
43 for hospital's accountability and transparency, they reported that their choices were restricted to
44
45 the hospital or hospitals where their specialist performed surgery. Other respondents had relied on
46
47 their GP's for a specialist recommendation:
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50 "I did not check on the hospital. My surgeon was recommended as the 'best' by my GP
51
52 who I trust and she could operate quickly and worked out of a specific hospital - no
53
54 choice to be made." (Respondent #39)
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3 Some respondents preferred their GPs to be informed about PPR information and relay it to
4 them, or direct them to an appropriate website or other resource to inform their decision.
5
6 Additional factors influencing patients' selection of hospital included family and friends.
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10 2. *Data credibility*

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12 Although over 90% of respondents reported not being aware of PPR, they nonetheless
13 raised concerns with the reliability, validity and timeliness of the data. Some were cynical and
14 suspicious of the data, questioning its trustworthiness:
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20 "The hospitals information accuracy. No hospital is going to let 'issues' out otherwise
21 loss of patients means loss of money and so it goes. In an ideal world, we could
22 'believe' the information and make our decisions as consumers with accuracy. I don't
23 believe the information will truly reflect the real world. I have seen government
24 departments fudge stuff." (Respondent #200)
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31 Some respondents expressed their lack of clarity and concern around who collected the data
32 (i.e. independent body), how it was collated (i.e. qualifications and experiences of the people, data
33 quality processes), and why certain areas of information (i.e. quality and performance indicators)
34 were chosen to be reported.
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40 3. *Unmet information needs*

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43 Respondents reported the following areas of information (currently not available on the
44 MyHospitals website) to be of interest: patient experiences; hospital cleanliness; food quality;
45 nursing standards (e.g. bedside manners); and hospital facilities (e.g. available entertainments such
46 as movie/tablet rentals). However, several respondents worried that reporting patient experiences
47 may be misleading and damaging to a hospital's reputation if there were no site moderators:
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3 “As a patient I am not a medical expert as are other patients. We can comment on the
4 level of care but not the medical treatment. So, my opinion and that of other patients is
5 very subjective. Just like 'TripAdvisor' someone could rubbish a hospital with no
6 medical grounds or expertise.” (Respondent #52)
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10 11 12 4. *Unintended consequences* 13

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15 Additional PPR concerns raised by respondents included unnecessary stress and increased
16 pressure on hospital staff because of PPR. Some respondents likened PPR of hospital data to the
17 education reporting system which compares how a school is performing on the National Assessment
18 Plan Literacy and Numeracy (NAPLAN) tests with other similar schools. A respondent claimed that
19 increased focus on reporting in the education sector resulted in poorer education and expressed
20 concern that PPR of hospital data could similarly lead to a deterioration in the quality of care
21 provided. Some respondents suggested that the PPR systems need to be design in a way which
22 minimises administrative burden and is supportive of hospital staff:
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32 “It would have to be carefully designed to be fair to all involved without creating
33 excessive administrative and pressure and hierarchy as sometimes happens in schools
34 reporting - overly burdensome for staff so counter-productive.” (Respondent #57)
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39 40 **Discussion** 41

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43 The results of the study, which are reflective of experiences in the private healthcare sector,
44 highlighted that many respondents did not use PPR information to inform their hospital choice,
45 mainly because they were not aware of it. This is consistent with previous studies [15-18]. Instead,
46 as patients, they were guided by their specialists when selecting a hospital. Almost half of the
47 respondents reported that they did have a choice of hospital, which suggests they were involved in
48 the decision-making process with their specialists. Others have reached similar conclusion [39].
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55 Although determining how the specialists and patients selected hospitals was not part of this study,
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3 the responses to the open-ended questions revealed that the availability of specialists and where
4 he/she performed the elective surgery generally determined which hospital they attended as
5 patients. Future research is required to explore the decision-making process between specialists and
6 patients, and whether the dissemination of PPR information to patients via specialists (as potential
7 mediators of patient choice) is feasible.
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14 The limited awareness of PPR among respondents may be associated with the lack of
15 mandatory PPR for private hospitals. Over a third of Australian private hospitals voluntarily
16 participate on the MyHospitals website [5]. Some private healthcare providers (e.g. Healthscope and
17 Ramsay Health Care) publish their own PPR websites [7, 8]. However, Ramsay Health Care reports
18 aggregated data on quality indicators for all their private hospitals combined, instead of individual
19 hospitals, specialists or conditions – this limits its relevance and usability for healthcare consumers.
20 Recently, Healthscope has launched the MyHealthscope website which allow healthcare consumers
21 to view and compare the performance of each their hospital against the industry rate. Again, the
22 results are not stratified by conditions or reported at the individual specialist-level.
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34 Almost half of the study respondents proposed that publicly reported hospital-related
35 information (which includes quality and performance indicators) be reported at the level of
36 individual specialists. In the US and the UK, ratings of individual specialists working in hospitals are
37 publicly reported [4]. There is evidence that public reporting of individual specialists' data have led
38 to improvement in the quality of care [40, 41]. However, unintended consequences such as 'cream
39 skimming' and 'gaming' (i.e. avoiding treating high risk patients who are likely to have poor
40 outcomes) have also been reported [42, 43]. In Australia, debates surrounding PPR of individual
41 specialist-level continues [44-46].
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51 Consistent with previous research, we found the following performance indicators to be of
52 relevance to patients: costs of surgery; complications rates; success rates; patient experiences;
53 hospital cleanliness; and food quality [47, 48]. None of these quality indicators are currently
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3 reported on the MyHospitals website [5]. Patient experience is one of 17 indicators recommended
4
5 to be publicly reported on the MyHospitals website. However, methodological issues (i.e. lack of
6
7 national comparable information) has prevented its disclosure. In contrast, several states'
8
9 performance websites actively report on patient experiences, complications, and standards of
10
11 cleaning to various level of details [9, 10, 49, 50]; the Bureau of Health Information in New South
12
13 Wales the most thorough and interactive in its web-based reporting [10]. Although some of the
14
15 quality indicators collected by the states are similar, there are no consistency on the tools use to
16
17 collect the data. For example, the inpatient experiences surveys conducted in Victoria (92 questions)
18
19 [51], New South Wales (99 questions) [52] and South Australia (71 questions) [53] are drawn from
20
21 various sources including the NHS inpatient survey, the Picker Institute Questionnaire and the
22
23 Patient Experience Information Development Working group, state's key performance indicators and
24
25 national set of core common patient experience questions. This limits comparison at the national
26
27 level but allows hospital comparison within states. In other countries, such as England, The
28
29 Netherlands and the US, patient reported experience and outcomes are routinely collected and
30
31 available for consumers to view. These measures are found to be positively associated with delivery
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33 of care [54], clinical outcomes [55], clinical effectiveness and patient safety [56].
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38 None of the performance websites in Australia describe costs of surgery. There are no costs
39
40 associated with attending an Australian public hospital as a public patient. It may not be surprising
41
42 then that costs of surgery and associated out-of-pocket costs are not reported. However, knowing
43
44 out-of-pocket costs was considered important for patients with private healthcare insurance. Costs
45
46 of elective surgery were fully covered by private healthcare insurance in only 47% of cases, with one
47
48 respondent commenting that out-of-pocket cost for her breast cancer surgery was \$7,500. In
49
50 Australia, there are limited publicly available sources for patients to access information on out-of-
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52 pocket costs for inpatient and outpatient care [57, 58]. The Royal Australasian College of Surgeons in
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54 collaboration with Medibank (an Australian private health insurer), publishes surgical variance
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56 reports which describe average out-of-pocket charges for surgeons and other medical services (i.e.
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3 anaesthetist, assistant surgeon and for diagnostics). Their reports were not targeted at consumers
4 but for specialists, to encourage improvement in private hospital clinical outcomes and patient care.
5
6 In the US, report cards and reporting websites (e.g. OpsCost [59], Healthcare Bluebook [60], Fair
7
8 Heath consumers [61]) have been developed to help consumers compare hospital quality and cost of
9
10 care. Evaluation of report cards with cost information, in an experimental setting, showed that some
11
12 employees avoided low-cost providers because they perceived low-cost care as substandard and
13
14 higher prices as proxy for higher quality [62]. The authors suggest that including quality indicators
15
16 with costs data may improve consumers' decision-making. Given the limited research in this area
17
18 and the growth in comparative quality and cost websites, further studies are warranted to evaluate
19
20 its accessibility, usefulness and content for consumers.
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23
24 Although many respondents considered PPR to be important for transparency and
25
26 accountability, they were sceptical of the reliability and validity of PPR data. The reason for this is
27
28 unclear given that most patients were not aware of PPR. Some comments from the open-ended
29
30 questions demonstrated lack of understanding of how PPR data was collected, and collated and the
31
32 methodologies used to construct the quality indicators. In support, past research suggests that
33
34 consumers distrust PPR data because they have difficulties interpreting the information [11, 19, 63].
35
36 In the US, consumer-focused best practice guidelines have been developed for presenting,
37
38 promoting and disseminating PPR data to improve its comprehensibility and perceived trustworthiness
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40 [48, 64].
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44 Patients preferred that the dissemination of PPR information to occur via their GPs. In
45
46 Australia, GPs are gatekeepers to secondary care with patients requiring their referral for non-
47
48 emergency access. Therefore, GPs are in a good position to help patients interpret PPR data or guide
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50 patients to appropriate resources to support decision-making. However, past research shows that
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52 GPs rarely used PPR information when referring patients to hospitals because they are unaware of
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3 PPR data and they were concerns about its reliability and validity [65, 66]. Addressing these barriers
4
5 are essential if GPs are to be a viable source of PPR information for their patients.
6

7 8 *Limitations*

9
10 These findings should be interpreted carefully due to several limitations. Given the non-
11
12 population representative characteristics of respondents (older women who used private hospitals),
13
14 the results are not generalisable to other cancer elective surgeries, younger patients and public
15
16 hospitals. Future research is needed to gather data from a larger sample and to expand this study to
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18 other elective surgeries and public patients in public hospital (could be recruited via the individual
19
20 state/territory government which hold their records). Recall bias may have also affected our results,
21
22 particularly among elderly patients [67, 68]. However, we attempted to minimise recall bias by
23
24 ensuring that only patients who had cancer elective surgery within the last 12 months were eligible
25
26 to complete the questionnaire.
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28

29 30 *Conclusions*

31
32 PPR of hospital data appears to have no substantial impact on selection of hospitals among a
33
34 randomly selected cohort of Australian patients with breast, bowel or lung cancer who were treated
35
36 as private patients. Almost one third of respondents reported no choice of hospital and current PPR
37
38 information did not appear to meet their information needs. Nevertheless, a substantial number
39
40 of respondents expressed interest in PPR information and claimed that they would use it in their
41
42 future decision-making. Given the growing prevalence of performance data being publicly
43
44 disseminated through the internet, further efforts are required to develop quality and cost
45
46 indicators of interest to patients. While this study focused on people treated for cancer, it has
47
48 relevance for all consumers of healthcare. The dissemination of PPR information to patients via
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50 specialists and GPs may enable patients to make clinically and financially informed choices with the
51
52 assistance of their medical doctors.
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Contributors

MK, DD and MB conceptualised and designed the study and obtained its funding. KP, RC and MK contributed to the design of the questionnaire. KP, MK and JM selected the sample (MBS procedure codes). KP collected, analysed and interpreted the data and drafted the manuscript. RC, MB, DD, JM and MK contributed to data interpretation and critically reviewed the manuscript. All authors read and approved the final manuscript.

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Competing interests

The authors declare that they have no competing interests.

Data sharing statement

The dataset analysed during the current study are not publicly available due to participants' confidentiality.

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For peer review only

Table 1 Demographic characteristic of respondents (n=243)

	N (%)
Cancer Type	
<i>Breast</i>	155 (63.8%)
<i>Bowel</i>	65 (26.7%)
<i>Lung</i>	23 (9.5%)
Diagnosis period	
<i>Less than 12 months</i>	176 (72.4%)
<i>Between 1 and 5 years ago</i>	65 (26.7%)
<i>More than 5 years ago</i>	2 (0.8%)
Gender	
<i>Male</i>	49 (20.2%)
<i>Female</i>	191 (78.6%)
<i>Missing</i>	3 (1.2%)
Age groups	
<i>25-34</i>	3 (1.2%)
<i>35-44</i>	13 (5.3%)
<i>45-54</i>	36 (14.8%)
<i>55-64</i>	77 (31.7%)
<i>65-74</i>	73 (30.0%)
<i>75-84</i>	32 (13.2%)
<i>85+</i>	6 (2.5%)
<i>Missing</i>	3 (1.2%)
Country of birth	
<i>Australia</i>	186 (76.5%)
<i>Others^a</i>	53 (21.8%)
<i>Missing</i>	4 (1.6%)
Language spoken at home	
<i>English</i>	230 (94.7%)
<i>Others^b</i>	8 (3.3%)
<i>Missing</i>	5 (2.1%)
Marital status	
<i>Single/never married</i>	10 (4.1%)
<i>Married/in a defacto relationship</i>	193 (79.4%)
<i>Widowed/divorced/separated</i>	37 (15.2%)
<i>Missing</i>	3 (1.2%)
Education	
<i>Postgraduate</i>	25 (10.3%)
<i>Bachelor</i>	45 (18.5%)
<i>Diploma/certificate</i>	75 (30.9%)
<i>High school</i>	93 (38.3%)
<i>Missing</i>	5 (2.1%)
Employment	
<i>Full-time</i>	45 (18.5%)

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<i>Part-time/casual</i>	34 (14.0%)
<i>Self-employed</i>	18 (7.4%)
<i>Retired/pensioner/unemployed</i>	124 (51.0%)
<i>Other^f</i>	18 (7.4%)
<i>Missing</i>	4 (1.6%)
Occupation (limited to those working)	
<i>Manager</i>	22 (22.7%)
<i>Professional</i>	39 (40.2%)
<i>Technician or trades worker</i>	4 (4.1%)
<i>Community of personal service worker</i>	3 (3.1%)
<i>Clerical or administrative worker</i>	15 (15.5%)
<i>Sales worker</i>	0 (0.0%)
<i>Machinery operator or driver</i>	0 (0.0%)
<i>Labourer</i>	0 (0.0%)
<i>Never worked for a wage</i>	0 (0.0%)
<i>Other</i>	13 (13.4%)
<i>Missing</i>	1 (1.0%)
Household income	
<i>Less than \$25,000</i>	22 (9.1%)
<i>\$25,000 to \$49,999</i>	51 (21.0%)
<i>\$50,000 to \$99,999</i>	69 (28.4%)
<i>\$100,000 or more</i>	51 (21.0%)
<i>Prefer not to stay</i>	36 (14.8%)
<i>Missing</i>	14 (5.8%)
Health care benefits	
<i>Yes</i>	107 (44.0%)
<i>No</i>	134 (55.1%)
<i>Missing</i>	2 (0.8%)
Private health insurance	
<i>Yes</i>	235 (96.7%)
<i>Hospital cover only</i>	28 (11.9%)
<i>Extra's cover only</i>	1 (0.4%)
<i>Hospital and extras cover</i>	206 (87.7%)
<i>No</i>	5 (2.1%)
<i>Missing</i>	3 (1.2%)

^aothers include Argentina, Bosnia and Herzegovina, Canada, China, Croatia, Denmark, England, France, Germany, Hungary, India, Iran, Ireland, Italy, Malta, New Zealand, Philippines, Romania, Scotland, Taiwan, The Netherlands, Uruguay, USA, Vietnam and Wales.

^bothers include Danish, Farsi, French, Italian, Mandarin, Serbian and sign language.

^cothers include those who are currently not working due to their illness and home duties.

Table 2 Factors influencing hospital choice*

	N (%)
Specialist	218 (89.7%)
Distance of the hospital from home	57 (23.5%)
Reputation of the hospital	57 (23.5%)
Own experience	44 (18.1%)
General practitioners	42 (17.3%)
Length of waiting list	37 (15.2%)
Health insurer provider	20 (8.2%)
Family members/friends	22 (9.1%)
Hospital catchment area	17 (7.0%)
Size of the hospital	4 (1.6%)
Hospital/other website	3 (1.2%)
Performance reporting website	0 (0.0%)
Booklet/leaflet or someone else at GP clinic	0 (0.0%)

*total does not reflect 100% as patients could select multiple factors

Table 3 Barriers affecting the use of PPR information*

	N (%)
Not aware	179 (73.7%)
Not relevant	26 (10.7%)
Results about own condition	23 (9.5%)
Accuracy of the information	8 (3.3%)
No internet access	7 (2.9%)
Too difficult to understand	3 (1.2%)
It was out of date	2 (0.8%)
Unsure how to use the information	0 (0.0%)

*total does not reflect 100% as patients could select multiple factors

Table 4 Preferred types of PPR information*

	N (%)
Costs of surgery	144 (59.3%)
Complications rates	141 (58.0%)
Successful recovery	138 (56.8%)
Patient's experience/satisfaction	132 (54.3%)
Medical errors	110 (45.3%)
Waiting times	109 (44.9%)
Readmission rates	91 (37.4%)
Mortality rates	72 (29.6%)
Length of stay	45 (18.5%)

*total does not reflect 100% as patients could select multiple factors

How to complete this questionnaire

In this survey we talk about information you might have seen in newspapers, reports or websites that has to do with 'public performance reporting information' about hospitals in Australia. This is information about the quality of hospitals in Australia and is available to Australian residents. For example, information about waiting times in hospitals, the number of people that got infections when they went to hospital, and the length of waiting lists for elective surgery. Images from the 'MyHospitals' website which provide public performance reporting information about hospitals are shown below:

The screenshot shows the MyHospitals website homepage. At the top, there is a navigation bar with links: Home, Our reports, Find hospitals, Compare hospitals, About the data, and About MyHospitals. The main content area is divided into several sections. On the left, there is a search bar for hospitals. In the center, there is a section titled 'Learn about your local hospital' with a sub-heading 'Search and compare performance information for more than 1,000 Australian public and private hospitals.' Below this, there are three interactive tool categories: 'Compare hospitals', 'Map search', and 'Our indicators'. Each category has a brief description and a 'Go to' button. On the right, there is a 'Latest reports' sidebar with a 'View all reports' button and a 'Latest data' section with a 'Download the data' button.

The screenshot shows the 'Compare hospitals' page on the MyHospitals website. The page title is 'Compare hospitals' and the subtitle is 'Use our interactive tools to see how your hospital performs against others'. The main content area is divided into four sections, each with a brief description and buttons to view interactive data or table data. The sections are: 'Financial performance - Efficiency of public hospitals from 2011-12 to 2013-14', 'Financial performance - Relative efficiency of public hospitals in 2011-12', 'Healthcare-associated *Staphylococcus aureus* bloodstream infections', and 'Cancer surgery waiting times'.

Source: <http://www.myhospitals.gov.au/> (Permission received from the Australian Institute of Health and Welfare to publish the images under the CC BY-NC-ND 3.0 license.)

Please answer every question you can. If you are unsure about how to answer a question make your response the closest answer you can, or write a response in the 'other' box.

Please read the instructions about each question carefully. Some questions require you to give only one response, others allow you to mark more than 1 option.

Sometimes you will find the box you have marked has an instruction to go to another question. By following the instructions carefully you will be able to move past questions that do not apply to you.

- Please put a cross in the box next to the answer you choose like this:
- If you make a mistake or wish to change a response, scribble out the mistake and put a cross in the correct box like this:
- Print clearly when written responses are required
- Return completed questionnaire in the reply paid envelope

➤ **The questionnaire starts here at Q1.**

Q1. If you have been diagnosed with any of the following conditions, please indicate approximately how long ago the diagnosis was made. If you had several diagnoses, please indicate approximately how long ago the most recent diagnosis was made.

Mark only one period of time for the condition picked. Please give your best estimate.

I was diagnosed with or had...	Less than 12 months ago	Between 1 and 5 years ago	More than 5 years ago	I never had this
Breast cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bowel cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lung cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q2. Have you had surgery in a hospital in Australia for the cancer listed at Q1 in the last 12 months (i.e. between 1st January and 31st December 2016)?

Yes

No

- If you **do not** have any of the conditions listed at Q1 and you **did not** undergo cancer surgery in a hospital in Australia between 1st January and 31st December 2016 as stated in Q2, you are not eligible to complete this questionnaire. There is no need for you to return this questionnaire. Thank you for your interest.
- If you **do** have any of the conditions listed at Q1 and you **had cancer surgery** in a hospital in Australia between 1st January and 31st December 2016 as stated in Q2, please **continue** and complete the questionnaire. The questions relate specifically to when you were seeking surgical treatment for the cancer you indicated at Q1.

Hospital stay

Q3. Which hospital did you attend for the cancer surgery you indicated at Q1? (Choose ONE answer)

- A public hospital
- A private hospital

Q4. Were you treated in the hospital for the cancer surgery as...(Choose ONE answer)

- a public patient (no cost to you)
- a private patient (costs covered entirely by your health insurance)
- a private patient (costs partly covered by your health insurance, and partly by you)
- a private patient (costs covered entirely by you)

Hospital choice

Q5. Which of the following information types or factors helped you to make a decision about which hospital to be treated at for the cancer listed at Q1? (Mark all that you used)

- | | |
|---|---|
| <input type="checkbox"/> General practitioner (GP) | <input type="checkbox"/> Hospital catchment area |
| <input type="checkbox"/> Specialist/consultant | <input type="checkbox"/> Distance of the hospital from home |
| <input type="checkbox"/> Health insurer provider | <input type="checkbox"/> Reputation of the hospital |
| <input type="checkbox"/> Booklet/leaflet | <input type="checkbox"/> Size of the hospital (i.e. number of beds) |
| <input type="checkbox"/> Hospital website | <input type="checkbox"/> Length of waiting list (i.e. surgery) |
| <input type="checkbox"/> Other internet site (i.e. community forum) | <input type="checkbox"/> None of the above |
| <input type="checkbox"/> Performance reporting website (i.e. MyHospitals) | <input type="checkbox"/> Other (please list) |
| <input type="checkbox"/> Family members/friends | |
| <input type="checkbox"/> Own experience | |
| <input type="checkbox"/> Someone else at GP clinic | |

Q6. Were you able to personally choose the hospital that you went to? (Choose ONE answer)

- I did not have a preference
- Yes
- No → If no, did you want to choose it? Yes No

Q7. At the time that you went to hospital, were you aware of ‘public performance reporting information’ about hospitals? For example, information on the *MyHospitals* website, which you can use to compare hospitals? (Choose ONE answer)

No → (Go to Q9)

Yes → Did you use ‘public performance reporting information’ to help you choose a hospital? Yes No

If yes, how was the information helpful? (Please describe)

If no, why was the information not helpful? (Please describe)

Q8. How important was ‘public performance reporting information’ about hospitals in helping you choose the hospital that you went to? (Choose ONE answer)

Unimportant	Of little importance	Somewhat important	Important	Very important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q9. Have any of the following stopped you from using ‘public performance reporting information’ about hospitals when choosing a hospital? (Mark as many answers as apply)

- | | |
|--|---|
| <input type="checkbox"/> I was concerned about the accuracy of the information | <input type="checkbox"/> I only wanted to know results about my condition |
| <input type="checkbox"/> It was too difficult to understand | <input type="checkbox"/> It was out of date |
| <input type="checkbox"/> It was not relevant to me | <input type="checkbox"/> Other (Please describe) |
| <input type="checkbox"/> I did not know about it | |
| <input type="checkbox"/> I was unsure how to use the information | |
| <input type="checkbox"/> I had no internet access | |

Q10. How would you like to get information about how hospitals in Australia are performing? (Choose ONE answer)

- A printed book or directory
- Mobile phone apps
- I do not want this information
- I do not want to see the information but I want my GP or other healthcare provider to see it and tell me about it
- Websites
- Other (Please describe)

Q11. Of the different types of 'public performance reporting information' about hospitals listed below, which would you most like to use? (Mark as many answers as apply)

- How long people stayed in hospital
- The number of people with health problems or complications (e.g. infections) after their surgery
- The number of people that were readmitted to hospital because they had continued problems
- How much the surgery will cost me
- The experience or satisfaction of other people
- The number of people with minimal or no health problems after the surgery (i.e. successful surgery)
- How long people waited for their surgery
- The number of people that died during their surgery or after their care
- The number of surgical or nursing mistakes that harm other people
- Other (Please describe)

Q12. At what level do you think 'public performance reporting information' about hospitals should be reported (e.g. in the MyHospitals website)? At the level of... (Choose ONE answer)

- Individual doctors (where you CAN see the performance of individual doctors)
- Specific clinical units within hospitals (where individual doctors are NOT identified)
- Hospitals as a whole (where specific doctors and/or the unit where they work are NOT identified)

Q13. Please rank each of the following areas of information in order of importance to you with 1 being the most important and 9 being the least important? (Put the numbers 1 to 9 beside each type of information)

- How long people waited for their surgery
- The number of people that were readmitted to hospital because they had continued problems
- The number of people with health problems or complications (e.g. infections) after their surgery
- The number of people with minimal or no health problems after the surgery (i.e. successful surgery)
- How much the surgery will cost me
- How long people stayed in hospital
- The number of surgical or nursing mistakes that harm other people
- The experience or satisfaction of other people
- The number of people that died during their surgery or after their care

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Q14. If the information you said was important to you at Q11 was publicly available, then how important do you think 'public performance reporting information' about hospitals would be to you in the future if you or a family member needed to choose a hospital for elective treatment? (Choose ONE answer)

Unimportant

Of little
importance

Somewhat
important

Important

Very
important

Q15. Do you have any concerns about using 'public performance reporting information' about hospitals when making a decision about which hospital to choose? (Please describe)

For peer review only

Q16. Do you have any other comments or experiences you would like to share that are related to 'public performance reporting information' about hospitals? (Please describe)

For peer review only

About you

For each question, please give one response

Gender

- Female Male Transgender/intersex/other

Your age in years

Country of birth

What language do you mainly speak at home?

Your postcode

Your state

Marital status

- Single/Never married Married/In a de facto relationship Widowed Divorced/Separated

Do you live...

- with your spouse, partner or family members in a share house (with non-relatives)
 alone others (*please specify*)

Highest level (or equivalent) of education you completed

- Year 8 or below Diploma/Advance diploma
 High school year 9 or 10 Bachelor degree
 High school year 11 or 12 Postgraduate degree (e.g. Masters, PhD)
 Certificate (e.g. TAFE training)

Employment status

- Working full time Student
 Working part time or casual Retired or pensioner
 Self-employed Other (*Please specify*)
 Unemployed

Main area of occupation (If retired, please indicate your previous occupation group)

- Manager Machinery operator or driver (e.g. bus)
 Professional Labourer
 Technician or trades worker Never worked for a wage
 Community or personal service worker Other (Please specify)
 Clerical or administrative worker
 Sales worker

Current approximate annual household income (before tax)

- Less than \$25,000 \$100,000 to \$149,999
 \$25,000 to \$49,999 \$150,000 or more
 \$50,000 to \$74,999 I prefer not to say
 \$75,000 to \$99,999

Please indicate if you have a health care or other health benefits card

- Yes (e.g. Health Care Card, Veterans Affairs, Seniors)
 No

Please indicate if you have private health insurance

- Yes → **What type of private health insurance do you have?**
 Hospital cover ONLY
 Extra's cover ONLY
 Hospital AND Extras cover
 No

Your email address

Your e-gift card will be sent to your chosen email address. If you do not have an email address, list your home address. Please print clearly. This section with your email or postal address will not be kept with the information you have provided, therefore your questionnaire will remain anonymous.

Thank you for your participation in this questionnaire. Please place the questionnaire in the reply paid envelope and post it. You do not have to use a stamp. If you have misplaced the reply paid envelope, please use a plain envelope (no stamp is necessary) and address to:

Dr Khic-Houy Prang Reply Paid 78439
Centre for Health Policy, The University of Melbourne
Level 4, 207 Bouverie Street, Carlton VIC 3010, Australia

Appendix B

Medicare Benefits Schedule procedure codes

Breast cancer	30299, 30300, 30302, 30303, 31506, 31509, 31512, 31515, 31519, 31524, 31530, 31533, 31536, 31548, 45527
Bowel cancer	32006, 32023, 32024, 32025, 32026, 32028, 32039, 35404, 35406, 32000, 32003, 32004, 32005
Lung cancer	30696, 38438, 38440, 38441, 38812, 41898

STROBE Statement—Checklist of items that should be included in reports of *cross-sectional studies*

	Item No	Recommendation
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract p.1 (b) Provide in the abstract an informative and balanced summary of what was done and what was found p.2
Introduction		
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported pp.4-5
Objectives	3	State specific objectives, including any prespecified hypotheses p.6
Methods		
Study design	4	Present key elements of study design early in the paper p.7
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection p.8
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants p.8
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable p.7
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group p.7
Bias	9	Describe any efforts to address potential sources of bias NA
Study size	10	Explain how the study size was arrived at p.8
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why NA
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding p.9 (b) Describe any methods used to examine subgroups and interactions NA (c) Explain how missing data were addressed NA (d) If applicable, describe analytical methods taking account of sampling strategy NA (e) Describe any sensitivity analyses NA
Results		
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed p.9 (b) Give reasons for non-participation at each stage p.9 (c) Consider use of a flow diagram NA
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders p.9 (b) Indicate number of participants with missing data for each variable of interest\ Table 1
Outcome data	15*	Report numbers of outcome events or summary measures pp.10-11 (in text). and Tables 1, 2,3 and 4
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were

		adjusted for and why they were included NA
		(b) Report category boundaries when continuous variables were categorized NA
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period NA
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses NA
Discussion		
Key results	18	Summarise key results with reference to study objectives pp.14-15
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias p.18
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence pp.15-17
Generalisability	21	Discuss the generalisability (external validity) of the study results p.18
Other information		
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based p.19

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.

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Public performance reporting and hospital choice: A cross-sectional study of patients undergoing cancer surgery in the Australian private healthcare sector

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3 Public performance reporting and hospital choice: A cross-sectional study of patients undergoing
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5 cancer surgery in the Australian private healthcare sector
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Abstract

Objectives National mandatory public performance reporting (PPR) for Australian public hospitals, including measures of cancer waiting times, was introduced in 2011. PPR is voluntary for private hospitals. The aims of this study were to assess whether PPR of hospital data is used by patients with breast, bowel or lung cancer when selecting a hospital for elective surgery and how PPR could be improved to meet their information needs.

Design A national cross-sectional postal questionnaire.

Setting Australian private healthcare sector.

Participants Private patients with breast, bowel or lung cancer who attended a public or private hospital for elective surgery (n=243) in 2016.

Outcome measures Patients' choice of hospital, use of PPR information and preferred areas of PPR information. Descriptive and conventional qualitative content analyses were conducted.

Results Most respondents (94%) attended a private hospital. Almost half could choose a hospital. Choice of hospital was not influenced by PPR data (92% unaware) but by their specialist (90%). Respondents considered PPR to be important (70%) but they did not want to see the information, preferring their general practitioners (GPs) to tell them about it (40%). Respondents considered surgery costs (59%), complications (58%), and recovery success rates (57%) to be important areas of information that should be publicly reported. Almost half suggested that quality indicators should be reported at the individual clinician level. Analysis of the open-ended questions identified four themes: 1) decision-making factors; 2) data credibility; 3) unmet information needs; and 4) unintended consequences.

Conclusions PPR of hospital data had no substantial impact on patients' choice of hospital. Nonetheless, many respondents expressed interest in using it in the future. To increase PPR awareness and usability, personalised and integrated information on cost and quality of hospitals is

1
2
3 required. Dissemination of PPR information via specialists and GPs could assist patients to interpret
4
5 the data and support decision-making.
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8 **Strengths and limitations of the study**

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- 10 • This study used a national cross-sectional questionnaire in the private healthcare sector to
11 assess the use of PPR of hospital data to inform hospital choice, among patients with breast,
12
13 bowel or lung cancer.
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- 16 • The results are not generalisable to other cancer elective surgeries, younger patients or
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18 public hospital settings, because of the non-population representative characteristics of
19
20 respondents.
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- 23 • Given the nature of the study, there is a risk of recall bias, in particularly among elderly
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25 respondents.
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Introduction

There are growing efforts within healthcare systems internationally to measure and publicly disseminate healthcare providers' (i.e. hospitals and clinicians) performance data for greater transparency, to increase accountability, and to improve quality of care [1, 2]. Public performance reporting (PPR) of healthcare providers' data is aimed at improving the quality of care by guiding consumers to select high quality providers over low quality providers. It aims to stimulate quality improvement among providers by identifying areas in which they underperform. These pathways are interconnected by providers' motivation to maintain or increase their market share [3].

In many countries, such as the United States (US) and the United Kingdom (UK), PPR of hospital and individual clinician's performance data has been a central feature of government health policy [4]. In Australia, national mandatory PPR of public hospital data was introduced in 2011. All public hospitals are required to provide data to the Australian Institute of Health and Welfare (AIHW) which is then reported via the MyHospitals website [5]. Quality indicators reported on the MyHospitals website are underpinned by the Performance and Accountability Framework. The framework identifies 48 indicators, of which 17 are hospital indicators and 31 are primary healthcare indicators. Hospital indicators publicly reported include: hand hygiene; staphylococcus aureus infections; time patients spent in emergency department; cancer surgery waiting times; and financial performance of public hospitals. Indicators yet to be publicly reported, due to their associated methodological issues, include: measures of mortality; unplanned readmission rates; patient experiences; and access to services by type of service compared to need.

PPR on the MyHospitals website is voluntary for private hospitals. In 2015-16, there were 630 private hospitals in Australia [6] and 36% voluntarily contributed to the MyHospitals website, but they did not necessarily report on all of the quality indicators (as public hospitals are required to do) [5]. 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.

1
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3 In addition, most states/territory governments also have their own PPR websites (e.g. the Victorian
4 Health Services Performance [9], and New South Wales Bureau of Health Information [10]). Quality
5 indicators vary across MyHospitals, private healthcare providers, and states/territory governments
6 websites. Examples of additional quality indicators reported on the private healthcare providers and
7 states/territory governments websites, but not on the MyHospitals website, include: patient
8 experiences; Apgar scores for babies (assessment of a baby's wellbeing after birth); patient falls;
9 pressure injuries; and rehabilitation outcomes.
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18 Prior research indicates that PPR changes healthcare providers' behaviour but has limited
19 impact on consumers' healthcare decision-making [11-13]. Previous research also suggests that
20 consumers want more choice over their healthcare [14]. However, results from surveys conducted in
21 the US and the Netherlands showed that most consumers did not use, or barely used, PPR
22 information when selecting a specialist or hospital [15-18]. This may be because many consumers
23 are not aware of PPR information or do not have access to it, or they do not understand or trust it
24 [11, 18, 19]. Instead, consumers rely on various sources of information to inform their choice of
25 hospital, including: advice from their general practitioner (GP); their previous experience; family and
26 friends' experiences; the reputation of the hospital; and the distance of the hospital from their home
27 [16, 17, 20, 21].
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40 Given the recent introduction of PPR in Australia, there have been few studies on the
41 impacts of PPR on Australian consumers' choice of hospitals [22], particularly in the private
42 healthcare sector [23]. The focus was on patients with access to private healthcare undergoing
43 elective surgery for cancer – because for these patients, choice of hospital is likely to be possible,
44 and cancer waiting times are publicly reported for all public and some private hospitals [5]. It should
45 be noted that most surgery for cancer is categorised as 'elective' because it falls outside of the
46 category of 'emergency' surgery. Elective surgery does not then only encompass non-essential or
47 cosmetic surgery. In Australia, surgery for cancer is categorised as elective because patient hospital
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3 admission can be delayed for at least 24 hours. Public patients are then placed on a hospital waiting-
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5 list for planned surgery, with recommended maximum wait times classified as: urgent (within 30
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7 days); semi-urgent (within 90 days); or non-urgent [5]. In the private sector, patients can usually
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9 access elective surgery more quickly than in the public sector, especially for semi-urgent or non-
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11 urgent cases. Better understanding of factors that influence hospital choice, including PPR
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13 information, can help explain consumers' decision-making processes, and inform policy-makers on
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15 whether greater resources should be allocated to PPR. Therefore, the present study aimed to assess
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17 (among patients with breast, bowel or lung cancer): whether PPR of hospital data was used to
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19 inform their choice of hospital; factors that influence their choice of hospital; their level of demand
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21 for PPR; barriers to their use of PPR; and how PPR could be improved to meet their information
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23 needs.
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25 26 27 **Methods**

28 29 *Australian healthcare system*

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32 Australia has a universal, publicly funded, health insurance scheme (Medicare) that provides
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34 free access to public hospitals [24]. Private healthcare insurance is also available and encouraged by
35
36 government policy (i.e. high income earners receive a tax penalty for not purchasing, and middle
37
38 income earners receive a private health cover rebate) [25]. In 2014-15, there were 10.1 million (57%)
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40 Australian adults with private healthcare insurance [26]. Private patients can choose to be treated in
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42 either public or private hospitals. To access public or private hospital for non-emergency care,
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44 patients must be referred by their GP. Issues around payment of private hospital bills are generally
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46 discussed during the consultations [27]. Medicare covers 75% of the Medicare Benefits Schedule
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48 (MBS) fee for private patients. The remaining 25% is either paid entirely by private healthcare
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50 insurers, co-paid by patients with their private healthcare insurer, or self-funded if the patient does
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52 not have private healthcare insurance. Compared to public patients, private patients can exercise
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54 greater choice in specialist, hospital, and timing of procedures.
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Study design

This study was part of a larger research program which aimed to improve understanding of how PPR might improve quality of care in public and private hospitals in Australia, by examining the perspectives of multiple stakeholders. Previous components of the research program included interviews with healthcare consumer advocates, providers, purchasers (public and private funders of healthcare services) [28], senior hospital clinical administrators [29, 30], and general practitioners [31]. This component of the research program used a quantitative approach to understand the use of PPR information when selecting a hospital for surgery among patients with breast, bowel or lung cancer. A national cross-sectional study design of the private healthcare sector was conducted using postal questionnaires.

Questionnaire design

We developed a short questionnaire with four sections: 1) cancer type; 2) hospital stay; 3) hospital choice; and 4) about you (see supplementary file 1). The first section included questions about the type of cancer participants had, period of diagnosis, and confirmation of cancer surgical treatments between 1st January and 31st December 2016. Section two included questions about the type of hospital attended (i.e. public or private hospital) and patient status (i.e. public or private). The third section included questions on factors influencing hospital choice, awareness and use of the available PPR information, preferred areas of PPR information (i.e. quality and performance indicators), level of data presentation, the importance of PPR information, and barriers to using PPR information. Two open-ended questions were included to capture other issues, concerns or experiences of PPR that respondents might want to share. The final section captured demographic characteristics such as gender, age, marital status, education, employment status, occupation, income, and health care insurance status.

Patient and public involvement

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

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21 Participants were identified and contacted by the Australian Government Department of
22 Human Services (DHS) through their MBS records (including procedure codes). Eligibility criteria
23 included: participants aged 18 years and over; diagnosed with breast, bowel or lung cancer; and
24 attended an Australian hospital for cancer surgical treatments between 1st January and 31st
25 December 2016. MBS is a list of Medicare services subsidised by the Australian government [33].
26 Therefore, the sample included only those who made a Medicare claim (i.e. private patients in public
27 or private hospitals). Patients who did not make a Medicare claim (i.e. public patients in public
28 hospital in which there are no costs to the patients) were not included because their records are
29 managed by individual state governments. The selection of the appropriate MBS procedure codes
30 (see supplementary file 2) was done by the researchers in consultation with a surgeon who
31 specialised in cancer care. In total, 29,793 eligible participants were identified (52% with breast
32 cancer, 32% with bowel cancer and 16% with lung cancer). Stratified sampling by cancer type was
33 performed for 1,000 eligible participants. Samples within each stratum were selected with simple
34 random sampling.
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50 *Data collection*

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3 The postal questionnaire was open between April and July 2017. Study invitations were
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5 mailed out to a random sample of 1,000 eligible participants by the Australia Government DHS. A
6
7 sample size calculation for this cross-sectional study was conducted [34]. The confidence level was
8
9 set at 90% with a 5% margin of error. The estimate proportion of the population who used PPR when
10
11 selecting a hospital was set at 0.4. The required sample size was 261 participants. The expected
12
13 response rate, based on previous research conducted by the Centre for Health Policy, was
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15 approximately 20-30%. Researchers were not provided with contact details of the selected sample.
16
17 Study invitations included a cover letter from the DHS, a plain language explanation of the study, the
18
19 questionnaire and a reply-paid envelope addressed to the researchers. Each participant received a
20
21 \$10 e-gift card as reimbursement for their time if they included an email address with their return
22
23 questionnaire.
24

25 26 27 *Data analysis*

28
29 Descriptive analyses of the closed-ended questions were conducted using the Statistical
30
31 Package for the Social Sciences (SPSS) version 23. A conventional qualitative content analysis of the
32
33 two open-ended questions was conducted using QSR NVivo 11. Conventional qualitative content
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35 analysis aims to interpret meaning inductively from the content of text data without using
36
37 preconceived categories [35]. Codes were derived directly from the text data and then grouped into
38
39 categories that represented similar meaning.
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42 43 *Ethical considerations*

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45 Ethical approval for the study was granted by the Melbourne School of Population and
46
47 Global Health Human Ethics Advisory Group, The University of Melbourne. The return of the
48
49 questionnaire was taken as an indication of voluntary consent to participate.
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51

52 53 **Results**

54 55 56 *Sample characteristics*

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3 In total, 243 participants completed the questionnaire (24% response rate). Compared to
4
5 respondents, non-respondents were more likely to be male and younger. The sample was somewhat
6
7 representative of the Australian population who has had cancer elective surgery. Patients with
8
9 breast (64% vs. 58%) and lung cancer (9% vs. 7%) were slightly over-represented whereas patients
10
11 with bowel cancer were under-represented (27% vs 35%) [36].
12
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14 The characteristics of the respondents are described in Table 1. Almost 64% of respondents
15
16 were diagnosed with breast cancer, 27% with bowel, and 10% with lung cancer, with the majority
17
18 diagnosed in the last 12 months (70%). Almost all respondents were women (79%) aged between 55
19
20 and 74 years (62%). The majority were born in Australia (77%) and spoke English at home (95%), and
21
22 were married/in a defacto relationship (79%). Almost 30% had a bachelor/postgraduate degree (a
23
24 slight under-representation of Australian women with a bachelor degree or higher [37]). Half of the
25
26 respondents were pensioners/retirees and 40% were employed. Of those employed, over 60%
27
28 worked in a professional or managerial position. Over half had a household income less than
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30 AUD\$100,000 (the median annual gross household income in Australia for the 2015-16 period was
31
32 \$84,032 [38]). Fewer than half (44%) held a healthcare benefits card (e.g. healthcare card which
33
34 entitles access to cheaper prescription medicines). Almost all respondents (97%) had private health
35
36 insurance that included hospital treatment, and most (88%) had insurance that also covered 'extras'
37
38 such as outpatient physiotherapy.
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40

41 42 *Hospital stay and choice* 43 44

45 Respondents self-reported that 94% attended a private hospital and 6% attended a public
46
47 hospital for cancer surgery. Among those who attended a public hospital, 87% were private patients
48
49 and 13% were public patients. The small proportion of public patients in the sample may suggest
50
51 that some of the care provided involved a private component (e.g. certain diagnostic imaging and
52
53 pathology services are not fully covered by Medicare [39]). Alternatively, this could have been a
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55 clerical error in the MBS records. Costs of private hospitals were reportedly co-paid by the
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3 respondents and their health insurer (49%), or fully covered by their health insurer (47%). Three
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5 percent of respondents self-funded their treatments. Almost half (48%) of respondents attended
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7 their preferred hospital, 28% did not have a choice in hospital, and 25% did not have a hospital
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9 preference. Of those who did not have a choice of hospital, 37% indicated that they would have liked
10
11 to have had a choice.
12

13 14 *Awareness and use of PPR information*

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17 Ninety-two percent of respondents reported no awareness of PPR information. Of those
18
19 who were aware of it, 88% did not use it when selecting a hospital and 56% considered PPR to be of
20
21 little or no importance to inform their choice of hospital. Reasons cited for not using PPR
22
23 information included limited choice of hospital, as well as prior experience with certain hospitals,
24
25 and trust in the advice of their doctor: *"We only have a private and public hospital where I live, so*
26
27 *choice was limited regardless of the information provided"* (Respondent #111); *"I was too sick to do*
28
29 *any research at the time. I took advice from my specialist"* (Respondent #113).
30
31

32 33 *Factors influencing hospital choice*

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35 Table 2 presents the factors that influenced the choice of hospital. PPR data did not
36
37 influence choice of hospital for any respondent. The most common factors that impacted hospital
38
39 selection were: specialists (90%); reputation of the hospital (24%); distance to the hospital from
40
41 home (24%); patients' previous experience (18%); and GPs advice (17%).
42
43

44 45 *Barriers affecting the use of PPR*

46
47 Table 3 shows the barriers affecting the use of PPR in selecting a hospital. The most common
48
49 barriers impeding the use of PPR data included: lack of PPR awareness (74%); lack of PPR relevance
50
51 (11%); and interested in PPR for their condition solely (10%).
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54 55 *Source of PPR information*

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3 Despite the lack of PPR awareness and barriers to the use of PPR, overall, 71% of
4 respondents considered PPR to be 'very important' or 'important' to inform their choice or family
5 members' future choice of hospital. However, most did not want to access PPR information
6 themselves, preferring their GPs or other healthcare providers to tell them about it (40%). Other
7 preferred sources of PPR information included: websites (35%); printed books/directories (10%); and
8 mobile phone applications (3%). A proportion of respondents did not want any PPR information
9 (9%).

10 11 12 13 14 15 16 17 18 *Preferred types of PPR information*

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20
21 Table 4 lists the types of PPR information that respondents most wanted access to. Over half
22 of all respondents considered costs of surgery (59%), complication rates (58%), recovery success
23 rates (57%), and information on patient's experience and satisfaction (54%) to be important areas to
24 report on. Respondents indicated that they preferred PPR information to be reported at the
25 individual clinician-level (48%), followed by hospital-level (31%), and specific clinical unit-level within
26 hospitals (18%).

27 28 29 30 31 32 33 34 *Additional comments and concerns related to PPR*

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36
37 Almost half of respondents (48%) provided information in one or both open-ended
38 questions. Analysis of their responses revealed four themes: 1) decision-making factors; 2) data
39 credibility; 3) unmet information needs; and 4) unintended consequences. Themes two, three and
40 four provided further insights into PPR of hospital data which were not captured in the quantitative
41 findings.

42 43 44 45 46 47 48 49 *1. Decision-making factors*

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51 Consistent with the quantitative findings, choice of hospital was determined by advice from
52 specialists or GPs rather than PPR information. Although respondents perceived PPR to be important
53 for hospital accountability and transparency, they reported that their choices were restricted to the

1
2
3 hospital or hospitals where their specialist performed surgery. Other respondents had relied on their
4
5 GP for a specialist recommendation:
6

7
8 "I did not check on the hospital. My surgeon was recommended as the 'best' by my GP
9
10 who I trust and she could operate quickly and worked out of a specific hospital – no
11
12 choice to be made." (Respondent #39)
13

14
15 Some respondents preferred their GPs to be informed about PPR information and relay it to
16
17 them, or direct them to an appropriate website or other resource to inform their decision.
18
19 Additional factors influencing patients' selection of hospital included family and friends.
20

21 22 2. *Data credibility* 23

24
25 Although over 90% of respondents reported not being aware of PPR, they nonetheless
26
27 raised concerns with the reliability, validity and timeliness of the data. Some were cynical and
28
29 suspicious of the data, questioning its trustworthiness:
30

31
32 "The hospital's information accuracy. No hospital is going to let 'issues' out, otherwise
33
34 loss of patients means loss of money and so it goes. In an ideal world, we could
35
36 'believe' the information and make our decisions as consumers with accuracy. I don't
37
38 believe the information will truly reflect the real world. I have seen government
39
40 departments fudge stuff." (Respondent #200)
41
42

43
44 Some respondents expressed concern around the lack of clarity around who collected the
45
46 data (i.e. independent body), how it was collated (i.e. qualifications and experiences of the people,
47
48 data quality processes), and why certain areas of information (i.e. quality and performance
49
50 indicators) were chosen to be reported.
51

52 3. *Unmet information needs* 53 54 55 56 57 58 59 60

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2
3 Respondents reported the following areas of information (currently not available on the
4 MyHospitals website) to be of interest: patient experiences; hospital cleanliness; food quality;
5 nursing standards (e.g. bedside manners); and hospital facilities (e.g. available entertainments such
6 as movie/tablet rentals). However, several respondents worried that reporting patient experiences
7 may be misleading and damaging to a hospital's reputation if there were no site moderators:
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12

13
14 "As a patient I am not a medical expert as are other patients (not medical experts). We
15 can comment on the level of care but not the medical treatment. So, my opinion and
16 that of other patients is very subjective. Just like 'TripAdvisor' someone could rubbish a
17 hospital with no medical grounds or expertise." (Respondent #52)
18
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21
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23 4. *Unintended consequences*

24
25
26 Additional PPR concerns raised by respondents included unnecessary stress and increased
27 pressure on hospital staff because of PPR. Some respondents likened PPR of hospital data to the
28 education reporting system which compares how a school is performing on the National Assessment
29 Plan Literacy and Numeracy (NAPLAN) tests with other similar schools. A respondent claimed that
30 increased focus on reporting in the education sector resulted in poorer education and expressed
31 concern that PPR of hospital data could similarly lead to a deterioration in the quality of care
32 provided. Some respondents suggested that PPR systems need to be design in a way which
33 minimises administrative burden and is supportive of hospital staff:
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44 "It would have to be carefully designed to be fair to all involved without creating
45 excessive administrative and pressure and hierarchy, as sometimes happens in schools
46 reporting – overly burdensome for staff, so counter-productive." (Respondent #57)
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51 **Discussion**

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54 The results of the study, which are reflective of experiences in the private healthcare sector,
55 highlighted that many respondents did not use PPR information to inform their hospital choice,
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1
2
3 mainly because they were not aware of it. This is consistent with previous studies [15-18]. Instead,
4
5 as patients, they were guided by their specialists when selecting a hospital. Almost half of
6
7 respondents reported that they did have a choice of hospital, which suggests they were involved in
8
9 the decision-making process with their specialists. Others have reached similar conclusion [40].
10
11 Although determining how the specialists and patients selected hospitals was not part of this study,
12
13 the responses to the open-ended questions revealed that the availability of specialists, and where
14
15 he/she performed the elective surgery, generally determined which hospital was attended. Future
16
17 research is required to explore the decision-making process between specialists and patients, and
18
19 whether the dissemination of PPR information to patients via specialists (as potential mediators of
20
21 patient choice) is feasible.
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23

24
25 The limited awareness of PPR among respondents may be associated with the lack of
26
27 mandatory PPR for private hospitals. Over a third of Australian private hospitals voluntarily
28
29 participate on the MyHospitals website [5]. Some private healthcare providers (e.g. Healthscope and
30
31 Ramsay Health Care) publish their own PPR websites [7, 8]. However, Ramsay Health Care reports
32
33 aggregated data on quality indicators for all of their private hospitals combined, instead of individual
34
35 hospitals, clinicians or conditions – this limits its relevance and usability for healthcare consumers.
36
37 Recently, Healthscope launched the MyHealthscope website which allows healthcare consumers to
38
39 view and compare the performance of each of their hospitals against the industry rate. Again, the
40
41 results are not stratified by conditions nor reported at the individual clinician-level.
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43

44
45 Almost half of the study respondents proposed that publicly reported hospital-related
46
47 information (which includes quality and performance indicators) be reported at the level of
48
49 individual clinicians. In the US and the UK, ratings of individual clinicians working in hospitals are
50
51 publicly reported [4]. There is evidence that public reporting of such data has led to improvement in
52
53 the quality of care [41, 42]. However, unintended consequences such as ‘cream-skimming’ and
54
55 ‘gaming’ (i.e. avoiding treating high risk patients who are likely to have poor outcomes) have also
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2
3 been reported [43, 44]. In Australia, debates surrounding PPR of individual specialist-level continues
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5 [45-47].
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7

8 Consistent with previous research, we found the following performance indicators to be of
9
10 relevance to patients: costs of surgery; complications rates; success rates; patient experiences;
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12 hospital cleanliness; and food quality [48, 49]. None of these quality indicators are currently
13
14 reported on the MyHospitals website [5]. Patient experience is one of the 17 indicators
15
16 recommended to be publicly reported on the MyHospitals website; methodological issues (i.e. lack
17
18 of national comparable information), however, have prevented this. In contrast, several state-based
19
20 performance websites do report on patient experience, complications, and standards of cleaning –
21
22 to various level of details [9, 10, 50, 51]. The Bureau of Health Information in New South Wales is the
23
24 most thorough and interactive in its web-based reporting [10]. Although some of the quality
25
26 indicators collected by the state governments are similar, there is no consistency in the tools used to
27
28 collect the data. For example, the inpatient experiences surveys conducted in Victoria (92 questions)
29
30 [52], New South Wales (99 questions) [53], and South Australia (71 questions) [54], are drawn from
31
32 various sources including the NHS inpatient survey, the Picker Institute Questionnaire, the Patient
33
34 Experience Information Development Working group, each state's key performance indicators, and a
35
36 national set of core common patient experience questions. This limits comparison at the national
37
38 level, but allows hospital comparison within states. In other countries, such as England, the
39
40 Netherlands and the US, patient reported experience and outcomes are routinely collected and
41
42 available for consumers to view. These measures are found to be positively associated with delivery
43
44 of care [55], clinical outcomes [56], clinical effectiveness and patient safety [57].
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48 None of the performance websites in Australia describe costs of surgery. There are no costs
49
50 associated with attending an Australian public hospital as a public patient. It may not be surprising
51
52 then that costs of surgery, and associated out-of-pocket costs, are not reported. However, knowing
53
54 out-of-pocket costs was considered important for patients with private healthcare insurance. Costs
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3 of elective surgery were fully covered by private healthcare insurance in only 47% of cases, with one
4
5 respondent commenting that the out-of-pocket cost for her breast cancer surgery was AUD\$7,500.
6
7 In Australia, there are limited publicly available sources for patients to access information on out-of-
8
9 pocket costs for inpatient and outpatient care [58, 59]. The Royal Australasian College of Surgeons,
10
11 in collaboration with Medibank (an Australian private health insurer), publishes surgical variance
12
13 reports which describe average out-of-pocket charges for surgeons and other medical services (i.e.
14
15 anaesthetist, assistant surgeon and for diagnostics). Their reports are not targeted at consumers but
16
17 for specialists, to encourage improvement in private hospital clinical outcomes and patient care. In
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19 the US, report cards and reporting websites (e.g. OpsCost [60], Healthcare Bluebook [61], Fair Health
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21 consumers [62]) have been developed to help consumers compare hospital quality and cost of care.
22
23 Evaluation of report cards with cost information, in an experimental setting, showed that some
24
25 employees avoided low-cost providers because they perceived low-cost care as substandard, and
26
27 higher prices as a proxy for better quality [63]. The authors suggested that quality indicators
28
29 including costs data may improve consumers' decision-making. Given the limited research in this
30
31 area, and the growth in comparative quality and cost websites, further studies are warranted to
32
33 evaluate its accessibility, usefulness and content for consumers.
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35

36
37 Although many respondents considered PPR to be important for transparency and
38
39 accountability, they were sceptical of the reliability and validity of PPR data. The reason for this was
40
41 unclear given that most patients were not aware of PPR. Some comments from the open-ended
42
43 questions demonstrated lack of understanding of how PPR data is collected and collated, and the
44
45 methodologies used to construct the quality indicators. In support, past research suggests that
46
47 consumers distrust PPR data because they have difficulties interpreting the information [11, 19, 64].
48
49 In the US, consumer-focused best practice guidelines have been developed for presenting,
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51 promoting and disseminating PPR data to improve its comprehensibility and perceived trustworthiness
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53 [49, 65].
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3 Patients preferred that the dissemination of PPR information occur via their GPs. In
4 Australia, GPs are gatekeepers to secondary care with patients requiring GPs' referrals for non-
5 emergency access. Therefore, GPs are in a good position to help patients interpret PPR data or guide
6 patients to appropriate resources to support decision-making. However, past research shows that
7 GPs rarely used PPR information when referring patients to hospitals because they were unaware of
8 PPR data and they had concerns about its reliability and validity [31, 66, 67]. Addressing these
9 barriers are essential if GPs are to be a viable source of PPR information for their patients.
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18 *Limitations*

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21 These findings should be interpreted carefully due to several limitations. Given the non-
22 population representative characteristics of respondents (older women who used private hospitals),
23 the results are not generalisable to other cancer elective surgeries, younger patients and public
24 hospitals. Future research is needed to gather data from a larger sample, and to expand this study to
25 other elective surgeries and public patients in public hospital (who could be recruited via the
26 individual state/territory government which hold their records). Recall bias may have also affected
27 our results, particularly among elderly patients [68, 69]. However, we attempted to minimise recall
28 bias by ensuring that only patients who had cancer elective surgery within the last 12 months were
29 eligible to complete the questionnaire.
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41 *Conclusions*

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44 PPR of hospital data appears to have no substantial impact on selection of hospitals among a
45 randomly selected cohort of Australian patients with breast, bowel or lung cancer who were treated
46 as private patients. Almost one third of respondents reported that they had no choice of hospital,
47 and current PPR information did not appear to meet their information needs. Nevertheless, a
48 substantial number of respondents expressed interest in PPR information and claimed that they
49 would like to use it for their future decision-making. Given the growing prevalence of performance
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3 data being publicly disseminated through the internet, further efforts are required to develop and
4
5 include quality and cost indicators that are of interest to patients. While this study focused on
6
7 people treated for cancer, it has relevance for all consumers of healthcare. Future dissemination of
8
9 PPR information to patients via specialists and GPs may enable patients to make clinically and
10
11 financially informed choices with the assistance of their medical doctors.
12

13 14 **Contributors**

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16
17 MK, DD and MB conceptualised and designed the study and obtained its funding. KP, RC and MK
18
19 contributed to the design of the questionnaire. KP, MK and JM selected the sample (MBS procedure
20
21 codes). KP collected, analysed and interpreted the data and drafted the manuscript. RC, MB, DD, JM
22
23 and MK contributed to data interpretation and critically reviewed the manuscript. All authors read
24
25 and approved the final manuscript.
26

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29
30
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32
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34

35 36 **Competing interests**

37
38
39 The authors declare that they have no competing interests.
40

41 42 **Data sharing statement**

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44
45 The dataset analysed during the current study are not publicly available due to participants'
46
47 confidentiality.
48

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51
52
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56
57

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Table 1 Demographic characteristic of respondents (n=243)

	N (%)
Cancer Type	
<i>Breast</i>	155 (63.8%)
<i>Bowel</i>	65 (26.7%)
<i>Lung</i>	23 (9.5%)
Diagnosis period	
<i>Less than 12 months</i>	176 (72.4%)
<i>Between 1 and 5 years ago</i>	65 (26.7%)
<i>More than 5 years ago</i>	2 (0.8%)
Gender	
<i>Male</i>	49 (20.2%)
<i>Female</i>	191 (78.6%)
<i>Missing</i>	3 (1.2%)
Age groups	
<i>25-34</i>	3 (1.2%)
<i>35-44</i>	13 (5.3%)
<i>45-54</i>	36 (14.8%)
<i>55-64</i>	77 (31.7%)
<i>65-74</i>	73 (30.0%)
<i>75-84</i>	32 (13.2%)
<i>85+</i>	6 (2.5%)
<i>Missing</i>	3 (1.2%)
Country of birth	
<i>Australia</i>	186 (76.5%)
<i>Others^a</i>	53 (21.8%)
<i>Missing</i>	4 (1.6%)
Language spoken at home	
<i>English</i>	230 (94.7%)

1		
2		
3	<i>Others^b</i>	8 (3.3%)
4	<i>Missing</i>	5 (2.1%)
5	Marital status	
6	<i>Single/never married</i>	10 (4.1%)
7	<i>Married/in a defacto relationship</i>	193 (79.4%)
8	<i>Widowed/divorced/separated</i>	37 (15.2%)
9	<i>Missing</i>	3 (1.2%)
10		
11	Education	
12	<i>Postgraduate</i>	25 (10.3%)
13	<i>Bachelor</i>	45 (18.5%)
14	<i>Diploma/certificate</i>	75 (30.9%)
15	<i>High school</i>	93 (38.3%)
16	<i>Missing</i>	5 (2.1%)
17		
18	Employment	
19	<i>Full-time</i>	45 (18.5%)
20	<i>Part-time/casual</i>	34 (14.0%)
21	<i>Self-employed</i>	18 (7.4%)
22	<i>Retired/pensioner/unemployed</i>	124 (51.0%)
23	<i>Other^c</i>	18 (7.4%)
24	<i>Missing</i>	4 (1.6%)
25		
26	Occupation (limited to those working)	
27	<i>Manager</i>	22 (22.7%)
28	<i>Professional</i>	39 (40.2%)
29	<i>Technician or trades worker</i>	4 (4.1%)
30	<i>Community of personal service worker</i>	3 (3.1%)
31	<i>Clerical or administrative worker</i>	15 (15.5%)
32	<i>Sales worker</i>	0 (0.0%)
33	<i>Machinery operator or driver</i>	0 (0.0%)
34	<i>Labourer</i>	0 (0.0%)
35	<i>Never worked for a wage</i>	0 (0.0%)
36	<i>Other</i>	13 (13.4%)
37	<i>Missing</i>	1 (1.0%)
38		
39	Household income	
40	<i>Less than \$25,000</i>	22 (9.1%)
41	<i>\$25,000 to \$49,999</i>	51 (21.0%)
42	<i>\$50,000 to \$99,999</i>	69 (28.4%)
43	<i>\$100,000 or more</i>	51 (21.0%)
44	<i>Prefer not to stay</i>	36 (14.8%)
45	<i>Missing</i>	14 (5.8%)
46		
47	Health care benefits	
48	<i>Yes</i>	107 (44.0%)
49	<i>No</i>	134 (55.1%)
50	<i>Missing</i>	2 (0.8%)
51		
52	Private health insurance	
53	<i>Yes</i>	235 (96.7%)
54		
55		
56		
57		
58		
59		
60		

<i>Hospital cover only</i>	28 (11.9%)
<i>Extra's cover only</i>	1 (0.4%)
<i>Hospital and extras cover</i>	206 (87.7%)
<i>No</i>	5 (2.1%)
<i>Missing</i>	3 (1.2%)

^aothers include Argentina, Bosnia and Herzegovina, Canada, China, Croatia, Denmark, England, France, Germany, Hungary, India, Iran, Ireland, Italy, Malta, New Zealand, Philippines, Romania, Scotland, Taiwan, The Netherlands, Uruguay, USA, Vietnam and Wales.

^bothers include Danish, Farsi, French, Italian, Mandarin, Serbian and sign language.

^cothers include those who are currently not working due to their illness and home duties.

Table 2 Factors influencing hospital choice*

	N (%)
Specialist	218 (89.7%)
Distance of the hospital from home	57 (23.5%)
Reputation of the hospital	57 (23.5%)
Own experience	44 (18.1%)
General practitioners	42 (17.3%)
Length of waiting list	37 (15.2%)
Health insurer provider	20 (8.2%)
Family members/friends	22 (9.1%)
Hospital catchment area	17 (7.0%)
Size of the hospital	4 (1.6%)
Hospital/other website	3 (1.2%)
Performance reporting website	0 (0.0%)
Booklet/leaflet or someone else at GP clinic	0 (0.0%)

*total does not reflect 100% as patients could select multiple factors

Table 3 Barriers affecting the use of PPR information*

	N (%)
Not aware	179 (73.7%)
Not relevant	26 (10.7%)
Results about own condition	23 (9.5%)
Accuracy of the information	8 (3.3%)
No internet access	7 (2.9%)
Too difficult to understand	3 (1.2%)
It was out of date	2 (0.8%)
Unsure how to use the information	0 (0.0%)

*total does not reflect 100% as patients could select multiple factors

Table 4 Preferred types of PPR information*

	N (%)
Costs of surgery	144 (59.3%)
Complications rates	141 (58.0%)
Successful recovery	138 (56.8%)
Patient's experience/satisfaction	132 (54.3%)
Medical errors	110 (45.3%)
Waiting times	109 (44.9%)
Readmission rates	91 (37.4%)
Mortality rates	72 (29.6%)
Length of stay	45 (18.5%)

*total does not reflect 100% as patients could select multiple factors

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How to complete this questionnaire

In this survey we talk about information you might have seen in newspapers, reports or websites that has to do with 'public performance reporting information' about hospitals in Australia. This is information about the quality of hospitals in Australia and is available to Australian residents. For example, information about waiting times in hospitals, the number of people that got infections when they went to hospital, and the length of waiting lists for elective surgery. Images from the 'MyHospitals' website which provide public performance reporting information about hospitals are shown below:

The screenshot shows the MyHospitals website homepage. At the top, there is a navigation bar with links: Home, Our reports, Find hospitals, Compare hospitals, About the data, and About MyHospitals. The main content area is divided into several sections. On the left, there is a search bar for hospitals. In the center, there is a large image of a doctor examining a patient, with the text 'Learn about your local hospital' and 'Search and compare performance information for more than 1,000 Australian public and private hospitals.' Below this, there are three main interactive tool categories: 'Compare hospitals', 'Map search', and 'Our indicators'. Each category has a brief description and a 'Go to' button. On the right side, there is a sidebar with 'Latest reports' and 'Latest data' sections, each with a 'View all reports' or 'Download the data' button.

The screenshot shows the 'Compare hospitals' page on the MyHospitals website. The page title is 'Compare hospitals' and it includes a sub-header 'Use our interactive tools to see how your hospital performs against others'. The page lists four comparison tools: 'Financial performance - Efficiency of public hospitals from 2011-12 to 2013-14', 'Financial performance - Relative efficiency of public hospitals in 2011-12', 'Healthcare-associated Staphylococcus aureus bloodstream infections', and 'Cancer surgery waiting times'. Each tool has a brief description and buttons to 'View interactive data' or 'View table data'.

Source: <http://www.myhospitals.gov.au/> (Permission received from the Australian Institute of Health and Welfare to publish the images under the CC BY-NC-ND 3.0 license.)

Please answer every question you can. If you are unsure about how to answer a question make your response the closest answer you can, or write a response in the 'other' box.

Please read the instructions about each question carefully. Some questions require you to give only one response, others allow you to mark more than 1 option.

Sometimes you will find the box you have marked has an instruction to go to another question. By following the instructions carefully you will be able to move past questions that do not apply to you.

- Please put a cross in the box next to the answer you choose like this:
- If you make a mistake or wish to change a response, scribble out the mistake and put a cross in the correct box like this:
- Print clearly when written responses are required
- Return completed questionnaire in the reply paid envelope

➤ **The questionnaire starts here at Q1.**

Q1. If you have been diagnosed with any of the following conditions, please indicate approximately how long ago the diagnosis was made. If you had several diagnoses, please indicate approximately how long ago the most recent diagnosis was made.

Mark only one period of time for the condition picked. Please give your best estimate.

I was diagnosed with or had...	Less than 12 months ago	Between 1 and 5 years ago	More than 5 years ago	I never had this
Breast cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bowel cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lung cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q2. Have you had surgery in a hospital in Australia for the cancer listed at Q1 in the last 12 months (i.e. between 1st January and 31st December 2016)?

Yes

No

- If you **do not** have any of the conditions listed at Q1 and you **did not** undergo cancer surgery in a hospital in Australia between 1st January and 31st December 2016 as stated in Q2, you are not eligible to complete this questionnaire. There is no need for you to return this questionnaire. Thank you for your interest.
- If you **do** have any of the conditions listed at Q1 and you **had cancer surgery** in a hospital in Australia between 1st January and 31st December 2016 as stated in Q2, please **continue** and complete the questionnaire. The questions relate specifically to when you were seeking surgical treatment for the cancer you indicated at Q1.

Hospital stay

Q3. Which hospital did you attend for the cancer surgery you indicated at Q1? (Choose ONE answer)

- A public hospital
- A private hospital

Q4. Were you treated in the hospital for the cancer surgery as...(Choose ONE answer)

- a public patient (no cost to you)
- a private patient (costs covered entirely by your health insurance)
- a private patient (costs partly covered by your health insurance, and partly by you)
- a private patient (costs covered entirely by you)

Hospital choice

Q5. Which of the following information types or factors helped you to make a decision about which hospital to be treated at for the cancer listed at Q1? (Mark all that you used)

- | | |
|---|---|
| <input type="checkbox"/> General practitioner (GP) | <input type="checkbox"/> Hospital catchment area |
| <input type="checkbox"/> Specialist/consultant | <input type="checkbox"/> Distance of the hospital from home |
| <input type="checkbox"/> Health insurer provider | <input type="checkbox"/> Reputation of the hospital |
| <input type="checkbox"/> Booklet/leaflet | <input type="checkbox"/> Size of the hospital (i.e. number of beds) |
| <input type="checkbox"/> Hospital website | <input type="checkbox"/> Length of waiting list (i.e. surgery) |
| <input type="checkbox"/> Other internet site (i.e. community forum) | <input type="checkbox"/> None of the above |
| <input type="checkbox"/> Performance reporting website (i.e. MyHospitals) | <input type="checkbox"/> Other (please list) |
| <input type="checkbox"/> Family members/friends | |
| <input type="checkbox"/> Own experience | |
| <input type="checkbox"/> Someone else at GP clinic | |

Q6. Were you able to personally choose the hospital that you went to? (Choose ONE answer)

- I did not have a preference
- Yes
- No → If no, did you want to choose it? Yes No

Q7. At the time that you went to hospital, were you aware of ‘public performance reporting information’ about hospitals? For example, information on the *MyHospitals* website, which you can use to compare hospitals? (Choose ONE answer)

No → (Go to Q9)

Yes → Did you use ‘public performance reporting information’ to help you choose a hospital? Yes No

If yes, how was the information helpful? (Please describe)

If no, why was the information not helpful? (Please describe)

Q8. How important was ‘public performance reporting information’ about hospitals in helping you choose the hospital that you went to? (Choose ONE answer)

Unimportant	Of little importance	Somewhat important	Important	Very important
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q9. Have any of the following stopped you from using ‘public performance reporting information’ about hospitals when choosing a hospital? (Mark as many answers as apply)

- | | |
|--|---|
| <input type="checkbox"/> I was concerned about the accuracy of the information | <input type="checkbox"/> I only wanted to know results about my condition |
| <input type="checkbox"/> It was too difficult to understand | <input type="checkbox"/> It was out of date |
| <input type="checkbox"/> It was not relevant to me | <input type="checkbox"/> Other (Please describe) |
| <input type="checkbox"/> I did not know about it | |
| <input type="checkbox"/> I was unsure how to use the information | |
| <input type="checkbox"/> I had no internet access | |

Q10. How would you like to get information about how hospitals in Australia are performing? (Choose ONE answer)

- A printed book or directory
- Mobile phone apps
- I do not want this information
- I do not want to see the information but I want my GP or other healthcare provider to see it and tell me about it
- Websites
- Other (Please describe)

Q11. Of the different types of 'public performance reporting information' about hospitals listed below, which would you most like to use? (Mark as many answers as apply)

- How long people stayed in hospital
- The number of people with health problems or complications (e.g. infections) after their surgery
- The number of people that were readmitted to hospital because they had continued problems
- How much the surgery will cost me
- The experience or satisfaction of other people
- The number of people with minimal or no health problems after the surgery (i.e. successful surgery)
- How long people waited for their surgery
- The number of people that died during their surgery or after their care
- The number of surgical or nursing mistakes that harm other people
- Other (Please describe)

Q12. At what level do you think 'public performance reporting information' about hospitals should be reported (e.g. in the MyHospitals website)? At the level of... (Choose ONE answer)

- Individual doctors (where you CAN see the performance of individual doctors)
- Specific clinical units within hospitals (where individual doctors are NOT identified)
- Hospitals as a whole (where specific doctors and/or the unit where they work are NOT identified)

Q13. Please rank each of the following areas of information in order of importance to you with 1 being the most important and 9 being the least important? (Put the numbers 1 to 9 beside each type of information)

- How long people waited for their surgery
- The number of people that were readmitted to hospital because they had continued problems
- The number of people with health problems or complications (e.g. infections) after their surgery
- The number of people with minimal or no health problems after the surgery (i.e. successful surgery)
- How much the surgery will cost me
- How long people stayed in hospital
- The number of surgical or nursing mistakes that harm other people
- The experience or satisfaction of other people
- The number of people that died during their surgery or after their care

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Q14. If the information you said was important to you at Q11 was publicly available, then how important do you think 'public performance reporting information' about hospitals would be to you in the future if you or a family member needed to choose a hospital for elective treatment? (Choose ONE answer)

Unimportant

Of little
importance

Somewhat
important

Important

Very
important

Q15. Do you have any concerns about using 'public performance reporting information' about hospitals when making a decision about which hospital to choose? (Please describe)

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Q16. Do you have any other comments or experiences you would like to share that are related to 'public performance reporting information' about hospitals? (Please describe)

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About you

For each question, please give one response

Gender

- Female Male Transgender/intersex/other

Your age in years

Country of birth

What language do you mainly speak at home?

Your postcode

Your state

Marital status

- Single/Never married Married/In a de facto relationship Widowed Divorced/Separated

Do you live...

- with your spouse, partner or family members in a share house (with non-relatives)
 alone others (please specify)

Highest level (or equivalent) of education you completed

- Year 8 or below Diploma/Advance diploma
 High school year 9 or 10 Bachelor degree
 High school year 11 or 12 Postgraduate degree (e.g. Masters, PhD)
 Certificate (e.g. TAFE training)

Employment status

- Working full time Student
 Working part time or casual Retired or pensioner
 Self-employed Other (Please specify)
 Unemployed

Main area of occupation (If retired, please indicate your previous occupation group)

- Manager Machinery operator or driver (e.g. bus)
 Professional Labourer
 Technician or trades worker Never worked for a wage
 Community or personal service worker Other (Please specify)
 Clerical or administrative worker
 Sales worker

Current approximate annual household income (before tax)

- Less than \$25,000 \$100,000 to \$149,999
 \$25,000 to \$49,999 \$150,000 or more
 \$50,000 to \$74,999 I prefer not to say
 \$75,000 to \$99,999

Please indicate if you have a health care or other health benefits card

- Yes (e.g. Health Care Card, Veterans Affairs, Seniors)
 No

Please indicate if you have private health insurance

- Yes → **What type of private health insurance do you have?**
 Hospital cover ONLY
 Extra's cover ONLY
 Hospital AND Extras cover
 No

Your email address

Your e-gift card will be sent to your chosen email address. If you do not have an email address, list your home address. Please print clearly. This section with your email or postal address will not be kept with the information you have provided, therefore your questionnaire will remain anonymous.

Thank you for your participation in this questionnaire. Please place the questionnaire in the reply paid envelope and post it. You do not have to use a stamp. If you have misplaced the reply paid envelope, please use a plain envelope (no stamp is necessary) and address to:

Dr Khic-Houy Prang Reply Paid 78439
Centre for Health Policy, The University of Melbourne
Level 4, 207 Bouverie Street, Carlton VIC 3010, Australia

Appendix B

Medicare Benefits Schedule procedure codes

Breast cancer	30299, 30300, 30302, 30303, 31506, 31509, 31512, 31515, 31519, 31524, 31530, 31533, 31536, 31548, 45527
Bowel cancer	32006, 32023, 32024, 32025, 32026, 32028, 32039, 35404, 35406, 32000, 32003, 32004, 32005
Lung cancer	30696, 38438, 38440, 38441, 38812, 41898

STROBE Statement—Checklist of items that should be included in reports of *cross-sectional studies*

	Item No	Recommendation
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract p.1 (b) Provide in the abstract an informative and balanced summary of what was done and what was found p.2
Introduction		
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported pp.4-5
Objectives	3	State specific objectives, including any prespecified hypotheses p.6
Methods		
Study design	4	Present key elements of study design early in the paper p.7
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection p.8
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants p.8
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable p.7
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group p.7
Bias	9	Describe any efforts to address potential sources of bias NA
Study size	10	Explain how the study size was arrived at p.8
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why NA
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding p.9 (b) Describe any methods used to examine subgroups and interactions NA (c) Explain how missing data were addressed NA (d) If applicable, describe analytical methods taking account of sampling strategy NA (e) Describe any sensitivity analyses NA
Results		
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed p.9 (b) Give reasons for non-participation at each stage p.9 (c) Consider use of a flow diagram NA
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders p.9 (b) Indicate number of participants with missing data for each variable of interest\ Table 1
Outcome data	15*	Report numbers of outcome events or summary measures pp.10-11 (in text). and Tables 1, 2,3 and 4
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were

		adjusted for and why they were included NA
		(b) Report category boundaries when continuous variables were categorized NA
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period NA
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses NA
Discussion		
Key results	18	Summarise key results with reference to study objectives pp.14-15
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias p.18
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence pp.15-17
Generalisability	21	Discuss the generalisability (external validity) of the study results p.18
Other information		
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based p.19

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.