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## Title of the paper

# *Public reporting of hospital performance data: Multiple stakeholders' perspectives*

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## Abstract

### Background

Mandatory public performance reporting (PPR) of hospitals is widely considered a key tool for improving hospital quality. PPR is hypothesised to improve quality of care through leading consumers to select high quality healthcare providers and services or eliciting organisational response to improve quality by identifying areas in which they underperform. Despite a shift to mandatory PPR for public hospitals in Australia and elsewhere, evidence of its impacts on quality of care is mixed. To date, there has been limited study of the impacts of PPR in Australia.

### Aim

The aim of the project was to better understand the perceptions of PPR among various stakeholder groups and identify strategies to improve the impact of Australian PPR on quality of care in hospitals.

### Methods

Semi-structured interviews were conducted with 98 stakeholders in Australia. This included: representatives of healthcare consumer (n=7), purchaser (n=19 public and private funders of healthcare services), and provider (n=15) organisations; public hospital medical directors (n=17); and general practitioners (n=40). All interviews were audio recorded and transcribed verbatim. The data were analysed using thematic analysis.

### Results

Stakeholders' perceptions of what PPR is, its purpose and whom it is for varied considerably. Perceived barriers to strengthening PPR and its impact were many. The barriers can be categorised as: conceptual; 2) systems-level; 3) technical and resource related; and 4) socio-cultural. Current systems of PPR of hospital data were considered unlikely to influence consumer choice as there is limited awareness of PPR, and what is reported is considered to lack meaning or be difficult to interpret. The results suggest areas in need of further development for strengthening PPR systems and frameworks supportive of PPR.

## Conclusions

Informants highlighted the need to tailor and align the objective of PPR with its relevant audience and audience needs in order to increase PPR awareness and usage, and to strengthen its impact on quality of care. Multiple PPR frameworks may be required to suit different audiences.

## Key words

Public performance reporting; hospital performance data; quality of care; stakeholders; qualitative research

## Background

There has been increasing emphasis for healthcare systems internationally to measure and publicly release performance information on the quality of healthcare services and providers [1, 2]. Public performance reporting (PPR) of healthcare services and providers' data has been proposed as a mechanism for improving quality of care by providing more transparency and greater accountability of healthcare providers [1, 2]. In theory, PPR is hypothesised to improve quality of care through two pathways: selection and change [3]. In the selection pathway, PPR encourage consumers to select high quality healthcare services and providers over low quality services and healthcare providers. In the change pathway, PPR motivate quality improvement activities in healthcare organisations by identifying underperforming areas. These pathways are interconnected by healthcare providers' motivation to maintain or increase market share.

In the United States (US), PPR of health insurance plans, hospitals and individual clinicians have been available for over a decade [4]. Similarly, in the United Kingdom (UK), PPR of hospitals and individual clinicians is 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]. Indicators reported on the MyHospitals website include 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 not mandatory for private hospitals, although some participate on a voluntary basis. 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]).

PPR, often packaged as 'report cards' and 'provider profiles', is targeted at a wide range of audiences including consumers, clinicians, organisational healthcare providers (i.e. public/private hospitals executives boards and managers,) purchasers (i.e. government health departments, private health insurance funders) and the media [8-10]. PPR serves a variety of purposes for different audiences. For example, PPR affect consumers' selection of health plans but not selection of individual providers or hospitals [9, 10]. This may be because consumers do not always perceive differences in quality of healthcare providers [11] and they do not trust or understand PPR data [8, 12]. Similarly, clinicians reportedly do not often use PPR data [13-16] because they are unclear how it can be used as a support tool to improve patient outcomes and they are sceptical about its validity and reliability [13, 14]. In contrast, PPR exerts the greatest effect among organisational healthcare providers by stimulating quality improvement activity [8-10] which in turn should improve patients' clinical and health outcomes [8, 9, 17].

The impact of PPR on quality of care appears to vary depending on its objective and the type of audience [8-10]. However, current formats and dissemination of PPR in Australia tends to be a 'one size fits all' approach regardless of what the primary objective of PPR is or who the target audience is. For example, information on the MyHospitals website is stated to be for "the entire Australian community" including "members of the public, clinicians including doctors and nurses, academics and researchers, hospital and health service managers, journalists and other" [5]. Each audience group may have different ideas about the desired objectives of PPR, the ways in which PPR should be assessed, how PPR data should be interpreted and the course of action in response to PPR data. Furthermore, there has been limited research focusing on PPR in Australia, including on the views of various stakeholders. The aim of the project was to better understand the perceptions of PPR among various stakeholder groups and identify strategies to improve the impact of Australian PPR on quality of care in hospitals.

## Methods

### Design

This project is part of a mixed methods research program which aims to improve understanding of how PPR might improve quality of care in public and private hospitals in Australia. A reference group comprising of industry representatives provided guidance on the content and methodology of the research. This paper examines the combined results of the qualitative component of the study which used three different interview schedules (three groups) to capture information and insights from five different types of stakeholders in Australia: Group 1) representatives of healthcare consumer, provider and purchaser organisations; Group 2) public hospital medical directors in metropolitan or regional Victoria (an Australian state); and Group 3) General Practitioners (GPs) in metropolitan or regional Victoria.

### Recruitment

Group 1 was recruited via purposive sampling. The reference group identified individuals, organisations (e.g. private insurers, professional associations and colleges, consumer advocacy groups) and government agencies and departments for researchers to contact. Group 2 was recruited via a peak medical directors group which included Chief Medical Officers and Directors of Medical Services from 26 regional and metropolitan-based public hospitals throughout Victoria. Group 3 was recruited via the Victorian Primary Care Practice-Based Research Network (VicReN) and GP teaching practices in Victoria. All groups were invited to participate in the project via email and follow-up phone calls were made to organise interview times.

**Data collection**

Ninety-one semi-structured interviews, either face to face or via telephone, were conducted with a total of 98 stakeholders in Australia (two informants participated in seven of the interviews). Interviews were undertaken in stages, with questions tailored to the stage of research and participant group. Interview question guides were developed by the researchers to elicit information and perspectives about: the role of PPR including its strengths and weaknesses; how PPR could be improved; and how or whether PPR impacts on each group (including impacts on hospital quality improvement activities for group 2). All participants were invited to make additional comments to ensure that all topics they wished to discuss were covered. Few of the GP informants had heard of or used PPR data, such as the MyHospitals website. In those instances, the GP interviews focused on the types of information GPs used to inform their decision-making when making referrals and on their perceptions about PPR once it was explained to them.

Table 1 shows the type and number of participants interviewed in each group. Group 1 interviews (n=34) were undertaken (by MK, DD and SM) between February and April 2015. Group 2 interviews (n=17) were conducted (by RC) between June and August 2016. Group 3 interviews (n=40) were undertaken (by KP) between June and September 2016. Informant groups 1 and 2 did not receive compensation for their participation in the project, whereas group 3 participants each received two gold class movie vouchers. The average length of interviews was as follows: group 1 was 36 minutes (range 17-51 minutes); group 2 was 49 minutes (range 30-69 minutes); and group 3 was 21 minutes (range 9-34 minutes). All interviews were audio recorded with the participants' consent.

**Table 1 Participants by type**

| Groups | Type | Sector | Description & Jurisdiction | Interviews | Interviewees |
|---|---|---|---|---|---|
| 1 | Consumer | Consumer | Consumer advocacy organisations with national or state focus, and one independent advocate | 6 | 7 |
| | Provider | Public;<br>Private;<br>Mixed | National and state based health providers and provider associations; national medical practitioner professional colleges, associations and councils | 12 | 15 |
| | Purchaser | Government;<br>Private;<br>Independent | Government health departments from states, territories and Commonwealth; national private health insurance funders; national independent government agencies (relevant Authorities and Commissions) | 16 | 19 |
| 2 | Medical directors | Public | Representatives of 26 of 86 public health services in Victoria* | 17 | 17 |
| 3 | General practitioners | Public | GPs in metropolitan and regional Victoria | 40 | 40 |

* Some medical directors had responsibilities in multiple health services.

### Data analysis

Interview recordings were transcribed verbatim and initially imported into QSR NVivo10 for coding [18]. Thematic analysis was used for reporting themes within each group data [19]. Two researchers independently coded four transcripts from group 1 (RC and MB), three transcripts from group 2 (RC and MB) and five transcripts from group 3 (KP and RC). The resultant coding trees for each group were then compared between the researchers. Discrepancies were discussed and resolved, leading to the development of an agreed coding tree for each group. Two researchers completed coding of the remaining transcripts in groups 1 (RC), 2 (RC) and 3 (KP). For theme development and revision, similar codes were clustered together and subsequently collapsed into emergent themes. The researchers discussed the emergent themes identified from the data until consensus was reached. Constant comparative method was then used to identify commonalities and points of divergence in the narrative between the different groups [20].

Many themes emerged from the data. Manuscripts that further describe the methods and explore the findings from the different informant groups have been previously written and elsewhere submitted. This paper brings together the data from the various groups. Four themes, common across the informant groups, are discussed below.

### Ethical considerations

Ethical approval for this study was granted by the Melbourne School of Population and Global Health Human Ethics Advisory Group, The University of Melbourne. Written consent was obtained from all participants prior to data collection to record and use their interview data.

## Results

During data analysis it became clear that there was no consistently agreed definition or notion of what PPR is. Variable understanding of what is meant by 'public' and whom 'the public' are were conveyed. PPR activities were conceived across a broad spectrum from reporting for consumers, to reporting to different agencies such as funders and regulators. One medical director commented that most of his colleagues "see public reporting as information that comes from the Department of Health to individual hospitals, used by management and sometimes by staff, but not actually, technically, available in the public domain". Despite this, four PPR related themes, common across all stakeholder groups, emerged from the data related to PPR as follows:

1. objective or purpose of PPR;
2. utility or usefulness of PPR;
3. barriers to strengthening and using PPR; and
4. strategies for improving PPR systems.

These themes are expanded on below with a focus on the most commonly raised issues and perspectives. Perspectives at odds with the common opinion are also raised to show the diversity of opinion. While the themes are not entirely mutually exclusive, they are elaborated on under the four theme headings.

### 1. PPR objectives

Informants cited multiple objectives of PPR. Those most commonly mentioned aligned directly with the objectives mentioned most in the literature – i.e. increasing provider transparency and accountability, driving quality and safety improvements, and informing consumers' healthcare decision-making. Other lesser mentioned objectives included establishing public trust and confidence, enabling comparisons to be made against peer performance, and prompting better use of resources and allocation of funding. Some of the medical directors suggested that empowering consumers and encouraging their participation was an important aspect of PPR. There were perceptions evident across the stakeholder groups that certain objectives were best aligned with different audiences. For example, consumer audiences needed PPR to inform their decision-making, providers needed it to drive performance, quality, safety and outcome improvements, and purchasers most needed it to increase provider accountability. It was clear, however, that the stakeholder groups themselves did not necessarily perceive that PPR was meeting its objectives, particularly not those aligned to their group, and that systems of PPR needed greater clarity of purpose. This is further discussed below at the utility of PPR section.

### *Increasing transparency and accountability*

Increasing healthcare system transparency was an objective of PPR considered central and necessary for increasing accountability and driving service improvements. Some informants, across all stakeholder groups, highlighted that transparency and accountability are essential within a taxpayer funded public healthcare system – that the public has a "right" to know how health services are performing. Transparency and accountability were also perceived as important for building the public's awareness, trust and confidence in the health system. For some providers, in particular, transparency and accountability (i.e. providing information about both good and bad performance) was crucial for maintaining reputation, gaining consumer trust and confidence, and empowering consumers to be more informed about risks and engaged in their healthcare. This was particularly noted by medical directors of rural health services that were aware that their patients had little choice of service provider, so maintaining their trust was essential to ensure that they did not avoid accessing their local providers. Government purchasers, responsible for funding the public healthcare system, also highlighted the importance of transparency and accountability. Private insurance company and consumer representatives particularly wanted greater transparency in the private sector. The lack of mandated PPR in the private sector was lamented by consumer representatives. The following quote encapsulates some of the issue discussed around reasons to offer PPR:

> At the end of the day I think it's all about consumer confidence. As a health service you really care about the quality and safe and effective patient centred care that you deliver. And you want to be able to say we're as good as anybody. I think it's very important. And it's also just basic, you know, in the public sector, it's basic accountability and transparency. (Public sector provider informant quote)

### *Driving quality and safety improvements*

Transparency and accountability were considered by many to be key drivers to quality and safety improvements. Driving improvements in performance, quality, safety and outcomes was the objective of PPR most commonly mentioned across all informant groups (excepting GPs who little discussed the objectives of PPR). This was often discussed in terms of PPR's potential to stimulate improvements and help create safe hospital environments. How and whether PPR actually facilitates such improvement, in real-world current practice, was queried. Some purchasers and providers (including medical directors) viewed PPR as "incredibly valuable" and "important" for improving organisational performance and patient outcomes. Some reiterated that PPR was not about “blaming” and “punishing” health service providers for poor performance but the opportunity to compare performance with their peers:

> I think where public reporting becomes very useful is in the area of benchmarking groups of clinicians, individual clinicians, or organisations. [They] can be encouraged to improve performance if they fare poorly against their peers, and so making it very public at a level which is low enough so that you know individual services can be held to account. (State government purchaser informant quote)

*Informing consumer healthcare decision-making*

Purchasers and providers far more commonly suggested that the purpose of PPR was to drive consumer empowerment and inform consumer decision-making and choice than consumers representatives did. The medical directors, in particular, thought that PPR was important to consumers for those reasons. While one consumer representative said access to PPR data was important to “encourage consumers to make informed decisions about where they might go to receive treatment, where’s going to be safest”, it was also said that such information was more valuable about the private sector (where it is not currently mandated) where consumers have more scope to choose their provider.

Informing choice and informing consumer healthcare decisions were differentiated by some informants. It was widely mentioned by informants across all groups that, due to health system constraints in Australia, consumers have little choice of provider, particularly in the public sector. Informing healthcare decision-making, on the other hand, by providing information about services and providers that consumers do have access to, was seen as a means to encourage consumer empowerment and participation so that they could be partners in their healthcare, knowledgeable about treatment options and potential risks associated with hospital stays.

Some providers mentioned that PPR has little bearing on informing consumer choice because consumers tend to trust their doctor and in “most cases patients go to their GP, the GP tells them which surgeon, [then] the surgeon tells them which hospital”. This lack of choice was supported by a number of GPs who indicated that “even if you want to go for the best and the shiniest clinic, or whatever it is that you think your patient needs, you may be declined entry into that hospital purely based on where your patient lives”.

## 2. PPR utility

The utility or usefulness of current systems of PPR in Australia tended to be discussed in terms of its potential to drive improvements. For healthcare consumers, it was widely suggested that current systems of PPR are unable to meet their needs because it is not offered in ways understandable to them – that while it might be for the public in name, it is not appropriately framed for a general population audience. One consumer representative admitted that “as a patient I’ve never used that [PPR] data for any kind of clinical decision-making purpose”. The informant went on to say:

> I don’t think it’s [PPR] had any real impact on consumer behaviour. 99.9% of conversations I hear about, who and what is good and bad [in healthcare service providers], is just based on people’s experiences […] or whatever. Sometimes it comes from bigger sources like newspapers […] or parliamentary enquiries and that kind of thing, but I’ve never in my life heard anybody

> discussing these statistics outside of [hospital board] meetings. (Consumer representative informant quote)

Informants who considered that PPR had utility for providers suggested that it is targeted to health service managers, not to consumers, and that access to such comparative information was effective in prompting poorer performing services to improve. A government purchaser felt sure that PPR was causing change at the hospital level, but was less sure whether the changes were positive. The barriers and weaknesses this informant raised are further discussed in the next section:

> I have no doubt that the performance reports change behaviour because politicians worry [about them], therefore health bureaucrats worry, therefore things are imposed or if they're not imposed the fear of them being imposed causes people to panic. So the concern with that is, of course, that I have no evidence that the responses which have been made were efficient. Or may indeed have done more harm than good. Maybe the dollars we spent to get Staph [*Staphylococcus aureus*] down could have been spent so much better elsewhere. And that's the big danger: what you measure is what you deal with. (Government purchaser informant quote)

Just one of the interviewed GPs (and only once) had drawn on PPR data to inform their patient referrals; most could not see the utility of it. The reasons given by stakeholder groups why PPR data is not useful are outlined in the next section.

## 3. Barriers to PPR

The greatest barriers to the utility or usefulness of current systems of PPR in Australia included that: it's purpose is not clear; it is not widely known about; the data is outdated; the data lacks rigour, or is not comparable; the information gained from the data lacks relevance (e.g. poor choice of indicator, or data not made meaningful); consumers lack choice in which public hospital they can attend, particularly in regional/rural areas (so the data cannot be used to inform choice); and consumers lack knowledge and confidence in using PPR data for informing their healthcare decision making (poor health literacy). Such barriers prevented the strengthening of PPR systems and its greater impact. These and other barriers were conceptually divided into the following subthemes: conceptual, systems-level, technical and resource, and socio-cultural barriers.

### *Conceptual*

The conceptual barriers largely related to PPR's unclear objective, purpose and target audience – as outlined above. Lack of clarity about whom is or should be the target audience for PPR, alongside lack of clarity of purpose, lead to issues with the implementation of PPR frameworks and PPR frameworks being described as flawed.

### *Systems-level*

System-level barriers to a national system of comparable PPR of hospital data included jurisdictional differences created by Australia's tiered system of government, and the associated operational barriers of decision-making, assignment of responsibility and funding having to be negotiated across multiple levels (these operational barriers contributed significantly to the technical barriers discussed below). Also, Australia's geography (which includes vast regional areas or scattered population) coupled with the design of the healthcare system (limiting consumer choice of provider); lack of mandated private sector PPR; lack of consumer awareness and access to PPR (preventing its use); lack of consumer and clinician involvement in the design of PPR systems (their input would make the systems more relevant and meaningful to those audiences); and, for providers, a lack of incentive to contribute data and use data for PPR and other quality improvement activities.

The design of the healthcare system, including restrictive geographical catchments for public hospitals that “lock” people in to attending certain hospitals, was a considered to prevent fulfilment of the objective of informing consumer choice in Australia. Many informants indicated that there is “no real system of choice in Australia”, particularly in regional/rural areas. It was highlighted that consumers are most likely to attend a hospital based on emergency admission, a GP referral, or wherever their specialists work regardless of “how crummy the hospital may be” – that healthcare consumers have little opportunity to exercise choice.

Furthermore, all informants across all stakeholder groups remarked that PPR information would be more valuable in the private sector where patients can exercise greater hospital choice, in particularly for elective surgery given that they are largely performed in private hospitals. Stakeholder groups considered the lack of mandate for private sector reporting a weakness of the current health system in Australia.

*Technical and resource*

Technical and resource related barriers to the utility and improvement of PPR related to the: complexities inherent within data and its collection; lack of meaningfulness and relevance of the data and its presentation, especially for consumers (related to lack of appropriate translation of the data); data inconsistencies and questionable rigour; and lack of adequate resources and capacity to better develop systems of PPR.

All informant stakeholder groups raised concerns about the reliability, validity and granularity of PPR data particularly for benchmarking hospitals because “not everyone collects the data you want and that means that when people collect it it’s not consistent across the geographical areas that you're collecting, or the cohort that you're collecting” (Private sector purchaser informant quote). The relevance, quality, rigour (trustworthiness) and timeliness of the data were frequently questioned. The following quote, from a government employee, highlights a perception of intrinsic problems in the current data collection and delivery of a national system of PPR:

> I think the comparability of our data is, you know, often leaves a significant amount to be desired. Now that’s true everywhere, and even in, ostensibly unitary systems, that’s always going to be a problem. But I think as we, sometimes, scratch around deeper, it's actually often more difference really in the underlying data between jurisdictions than one might’ve hoped for, with, you know, potentially obvious consequences [i.e. methodological issues]; therefore how far can we go? I think that’s particularly the case with costing information and anything that relies on clinical coding. I think sometimes there's been a bit of overreaching on what's really achievable, what's really valid comparisons. (Government purchaser informant quote)

One government department representative suggested that current PPR quality indicators “either become so abstract as to be meaningless or so detailed as to be useless”.

Stakeholder groups recognised that the right indicators were often not collected “we hit the target and miss the point”, with the MyHospitals website focusing on access and process indicators instead of relevant clinical outcomes.

In terms of data granularity, some informants, particularly medical directors, suggested that reporting to the individual clinician-level would ensure that reported information was more meaningful for consumers and that clinicians and providers generally would pay more attention to it, so it would become more useful for prompting quality and service improvements.

*Socio-cultural*

The two most mentioned socio-cultural barriers referred to by informants were issues around consumer health literacy and their ability to understand and interpret PPR, and providers’ institutional cultures which are resistant to PPR and its associated data collection and quality improvement activities. Some informants suggested that lack of a “consumerist culture” in Australia – including lack of consumer empowerment/engagement and partnership in healthcare interactions and decision-making, were fundamental barriers to PPR being able to inform consumer healthcare decision-making. The poor health systems literacy of those tasked with translating data into comprehensible information for consumer audiences was also cited as a barrier to the utility of PPR.

Informants from all stakeholder groups considered consumers’ low health literacy a barrier to greater implementation of PPR. PPR terminologies and statistical concepts such as “hospital separation” and “median” were deemed difficult for consumers to understand and interpret:

> They [consumers] don’t know how to find them [PPR information] and when they do go onto a website it’s not written for the consumer, not written for the public – it’s written for data geeks or policy geeks like me or researchers. It’s not written for the average person. Whereas you go onto WikiHospitals or PatientsLikeMe or numerous others – people find that it is written in a language that they relate to and they find it much easier [to use]. (Consumer representative informant quote)

Poor understanding of PPR by consumers was also related to how the information is presented – as the following quote relating to a state government PPR website highlights:

> It's very visual and it looks very simple, but I don’t think it's really a very accurate reflection for your average Joe in the street to really be able to understand exactly what's happening at a health service level. Immediately you're generally faced with some form of biograph and some numbers down the side, and unless you actually read exactly what is being measured within this graph, and as a person with health background it's easy for me to understand, but your average Joe with fairly low levels of health literacy isn’t going to understand that it's the proportion, that it's the actual number, you know what the trends are like and what is a reasonable expectation for this health service. (Public sector provider representative informant quote)

### 4. Strategies for improving PPR system

Strategies for improving PPR systems were categorised in terms of framework development or systems-level considerations.

*Framework development*

Informants from all stakeholder groups suggested that the objectives, intended audiences and desired outcomes of PPR need to be clearly defined for greater effectiveness of PPR. The following quote highlights this from a consumer representative’s perspective:

> I think people will say: "oh it’s important for transparency sake", which in its own right it is a good goal, but ok, why do we want to be transparent? Do we want to improve quality? Do we want to force people to lift their game? Do we want to just encourage people to lift their game? Do we want patients to vote with their feet? You know, what do we want people do? Do we feel like it’s an informed consent issue? Do people have a right to know certain things about these institutions? I think they’re all possibly laudable aims but you can't really do them all in any one way. And I am not sure this way [PPR] really achieves any of them perfectly. (Consumer representative informant quote)

Once a clear purpose for PPR has been defined, the “right measure” and the “right narrative” can be appropriately chosen and presented according to the information needs of the targeted audience. However, providers and purchasers noted that it was generally “difficult for people to agree on definitions and data collections”. It was clear from the interviews that the very definition of ‘public’ is not clear and that lack of clarity around this definitional issue has ramifications on how the concept of PPR is scoped and conceived (with public said to be understood by many providers as meaning reporting to public government departments and agencies, but not necessarily for the public domain).

Informants across all stakeholder groups considered the following clinical quality indicators essential for PPR: preventable hospitalisations; adverse events/complications; infections rates; readmission rates; and mortality rates. In addition, it was widely recommended that social quality indicators perceived to be meaningful to consumers, such as patients' experiences, satisfaction and complaints, and quality of life, ought to be collected so that "real achievement of the system and not just provision of services and access to services" are publicly reported.

Informants from all stakeholder groups recommended that greater partnership is needed between everyone involved in PPR. Having relevant stakeholders (e.g. consumers and clinicians) involved with governments and agencies in the design and development of PPR system would ensure greater utility of PPR. Such a co-design approach may lead to improvement in consumer participation and empowerment, and hopefully to improved clinical outcomes. In addition, a provider suggested that PPR could have greater effect by having an independent body oversee PPR activities because this should encourage greater trust between all stakeholders:

> I think it would help if there was an agreement on a common approach nationally. I think there probably needs to be a collaboration between providers, funders, clinicians, and governments at a state and federal level. And it probably makes most sense for that to happen under the auspices of the safety and quality commission, because they're generally a well-regarded and trusted body. If it's driven by a particular level of government then that has complicating issues […such as] lack of trust amongst clinicians and providers.

> So I think having a body like the safety and quality commission drive this sort of process would be essential. (Private sector provider informant quote)

*Systems-level considerations*

It was widely suggested that encouraging institutional reporting cultures will increase the impact of PPR. Providers in particular highlighted the need to address lack of leadership from government, hospital boards and executives, and dismantle the reporting silos within and between hospitals resistant to sharing information and instituting change. Some informants suggested that Australian hospitals need to somehow embrace cultures of open and transparent reporting without threat of blame laden name and shame reporting. Engaging with boards and in particularly clinicians was considered necessary for data collection and quality improvement activities:

> If you look at the evidence, it really all comes down to clinician engagement, and that starts right at the front end of the process. So from the selection of the indicators, if the clinicians involved don’t think it's relevant to their practice, then they're not going to pay any attention to it – so they have to be involved in understanding and selecting indicators, and also in the design of the system, and the information collected has to be fed back not just to the hospital CEO, but down to a unit level and a clinician level to say, and really explain, to say: “Okay this indicator says you're performing better than average, that’s good, what are you doing that’s different?” And the same for people who are performing lower than average. (Provider informant quote)

Addressing some of the barriers presented by poor health literacy could also be addressed by greater consumer engagement, and more resources towards developing user-friendly, meaningful PPR consumer interfaces.

Informants across all stakeholder groups suggested that mandatory PPR in the private sector was necessary given this is where consumers can exercise greater hospital choice. Mandating the private sector to publicly report their performance will ensure that patients are "protected just as much as someone in the public sector" and that a fair comparison is made between the public and private sectors. A private provider approved of the recommended mandate:

> We should be required to report exactly the same things as the publics [public hospitals] are, and if we were required to report them, I would pay attention to them, my board would pay attention to them. I think the jury's out on whether the Joe Public would pay any attention to them – but you know, by there being a clear regulatory requirement, we would comply with it, we have to comply with it. (Private provider informant quote)

## Discussion

The aim of the project was to better understand the perceptions of PPR among various stakeholder groups who have direct contact with the healthcare system in Australia including representatives from healthcare consumer, provider and purchaser organisation (public and private sectors in Australia), medical directors and GPs in metropolitan and regional Victoria. Findings show that the perceptions of what PPR is, its purpose and whom it is for varied throughout the stakeholder groups. This paper outlines conceptual, systems level, technical and resources related, and socio-cultural barriers, raised by stakeholders, which prevent access to and usage of PPR data. Several framework and systems level strategies were recommended by stakeholders for strengthening PPR system.

Achieving key PPR objectives (i.e. increasing provider transparency and accountability, driving quality and safety improvement and informing consumer healthcare decision) were considered difficult because current PPR system appeared to be of limited utility for the various stakeholders, in particularly for consumers as they do not appeared to be the primary targeted audience of PPR. Therefore, clarity on the primary objective and audience for PRR was deemed necessary as having too many objectives and mixed audiences may lead to a PPR system that try to do too many things and not “really achieves any of them perfectly”. Therefore, tailoring and aligning the objective of PPR with its relevant audience and audience needs is important to increase awareness, access and usage to strengthen the impact of PPR. Involving stakeholders in the development and design of various PPR frameworks may be required to suit different audiences. For example, in the USA, consumer-focused best practice guidelines have been developed for presenting, promoting and disseminating PPR data [21]. In the UK, anecdotal comments and consumer experience data are also available for consumers to view [22].

Several systems level issues such as limited choice in rural/regional Australia, restricted hospital geographical catchment, and lack of PPR mandate for the private sector prevented PPR from being used to inform consumer choice. Nonetheless, PPR can assist consumers in their healthcare decision-making and make them more knowledgeable about their local healthcare provider. The increased transparency and accountability afforded by PPR may then stimulate quality and performance improvements among healthcare providers wanting to maintain or improve their reputation. In support, past studies showed quality improvement occurred among healthcare providers who were concerned that PPR would affect their reputation [23, 24]. Therefore, dissemination of PPR data to increase public awareness and engagement is essential regardless of whether consumers used PPR to make an informed choice or not. Furthermore, mandating PPR of private hospital data provides necessary information to enable choice in areas where choice can be exercised. Some private healthcare providers voluntary participate in the MyHospitals website [5] and some publicly report their data on their own websites [6]. Given the current lack of mandate in this area, engaging with private healthcare providers to understand the benefits associated with PPR such as an increase in market share and profit when patients select hospitals with the best performance, may result in an increase in voluntary PPR participation.

Technical and resource related issues such as data integrity, outdated data and irrelevant quality indicators must be addressed to increase PPR usability. Implementing mechanisms to ensuring valid, reliable, consistent and timely reported data are essential. For example, the use of high quality clinical registries to derive quality indicators is recommended over the use of administrative data where possible. Past studies have found substantial variations in clinical outcomes when comparing clinical registry data with administrative data, noting a number of misclassification of cases and non-standardised end points in administrative data [25-28]. Given the lack of clinical registries for various conditions and the availability and inexpensive use of administrative data in PPR, it is imperative that routine data quality checks are conducted on administrative data. In addition, standardising definitions, documentation, data management and using electronic medical records may add to reliable data sources for reporting. Increasing data transparency by explaining how the quality indicators were derived is also essential to improve its perceived trustworthiness among the various stakeholder groups. The collection of meaningful quality indicators such as those reported by the stakeholders including patient reported experience and outcomes will increase the perceived usability of the data. In the UK [29], the Netherlands [30] and the US [31], patient reported experience and outcomes measures are routinely collected and reported as a mechanism to incorporate patient perspectives in quality improvement and to promote choice. These measures are found to be positively associated with delivery of care [32], clinical outcomes[33], clinical effectiveness and patient safety [34].

Lastly, addressing socio-cultural issues such as low health literacy and institutional reporting cultures will be important to encourage PPR usability. In Australia, 60% of adults have low level of health literacy [35]. Subsequently, a national approach to addressing health literacy was endorsed by Australian state and territory health ministers in 2014 [36]. The national approach recommended greater encouragement of consumer engagement and partnership for safe and high quality care. In support, past research showed that increasing consumer engagement and partnership can enhance patient health outcomes and care experiences [37, 38]. Furthermore, strong leadership and fostering a positive organisational culture of quality improvement and learning in healthcare organisations were perceived necessary by the stakeholder groups to strengthen PPR. Similarly, several reviews suggested that an open and honest organisational culture led by chief executives and directors of medical services can improve the quality and performance of hospitals [39, 40].

To date, there has been very little research about PPR in Australia. This research provides insight about PPR from multiple expert stakeholder perspectives. In doing so, it highlights lack of clarity and a wide range of perceptions about what PPR is, its purpose, and how it should or could be used. However, there are limitations that should be considered when interpreting this project's findings. Findings are exploratory and not intended to be generalisable. While perspectives of stakeholders in the private healthcare sector are included, they are limited compared to those representing the public sector. Also, stakeholders in group 1 provided a broader national perspective, whereas stakeholders in groups 2 and 3 provided a Victorian perspective. Future research could draw on the insights gained here to design a study to gather more generalisable data from larger samples.

### *Conclusions*

Stakeholder groups highlighted the need to clearly defined PPR objectives with its relevant audience. Thus, developing multiple PPR systems may be required for different audiences such as healthcare consumers, providers or purchasers. Involving relevant stakeholders in the development of these PPR systems will be necessary to identify appropriate objectives and meaningful quality indicators. Strategies for greater dissemination of PPR to increase public awareness and engagement will also be required to strengthen its impact on quality of care.

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## Declarations

### Competing interests

The authors declare that they have no competing interests.

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### Authors' contributions

MK, DD and MB conceptualised and designed the study and obtained its funding. All authors contributed to one or more interview guides. MK and DD collected data for group 1. RC collected the data for group 2. KP collected the data for group 3. KP and RC analysed the data, interpreted the data and drafted the manuscript. MK, DD and MB critically reviewed and contributed to the manuscript. All authors read and approved the final manuscript.

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