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Consumer knowledge and attitudes toward public reporting of health care–associated infection data

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Background: There is little information regarding consumer knowledge of health care–associated infection (HAI). Furthermore, it is unclear how meaningful publicly reported HAI data is to consumers, how they may use it, and the most appropriate format for data presentation. The purpose of this study was to explore consumer knowledge and attitudes toward HAI and public reporting.

Methods: A qualitative study design, characterized by a series of semistructured interviews, was undertaken with purposively selected, adult elective surgical inpatients at a large metropolitan acute hospital. Interviews were digitally recorded and transcribed verbatim. Analysis of the data were conducted using thematic analysis.

Results: Twenty interviews were conducted. The 5 major themes identified were: (1) awareness through experience, (2) focus on current illness, (3) patient contribution to infection prevention, (4) sources and mode of information, and (5) influence on choice of hospital.

Discussion: We found broad variation in knowledge, sources of information, and preferences for the type and delivery of information. A significant cohort of participants preferred not to be informed, whereas others were neutral or only mildly interested.

Conclusions: If public reporting of HAI data is to be aimed at consumers, further engagement with consumers is crucial to ensure the information provided is fit for purpose.

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Health care–associated infections (HAIs) are the most common complication affecting patients and cause significant morbidity and mortality.¹ HAIs are considered by safety and quality experts as preventable adverse events.² Fundamental to HAI surveillance is to report data to those “who need to know,” generally those who can authorize change.³ A recent study found that 80% of infection prevention staff report HAI data to a hospital executive.⁴

Although reporting to the hospital executive may be common, a rapidly growing trend in many countries is publicly reporting HAI data, usually as a measure of hospital performance.⁵ In

Australia, there is 1 HAI that is publicly reported at a national level, *Staphylococcus aureus* bacteremia (SAB). After collation and hospital-level risk stratification, data are reported on a Commonwealth government Web site, “MyHospitals,” as an SAB rate per 10,000 patient days (www.myhospitals.gov.au). Visitors to the Web site can compare SAB data between hospitals and against a benchmark.

With increasing consumer and media demand for greater transparency and accountability, and in alignment with the Australian Commission for Safety and Quality in Health Care national surveillance initiative, it is likely that public reporting of other HAIs will occur in the future, as it does in other countries.⁵ Despite the trend toward public reporting, little research has been undertaken to determine if consumers understand publicly reported HAI data, if it provides useful information, or if the data affects decisions regarding health care access. The aim of this study was to explore consumer knowledge and attitudes toward public reporting of HAI data.

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METHODS

Study design

A qualitative study design, characterized by a series of semistructured interviews, was undertaken with inpatients at a large metropolitan acute care public hospital in Victoria, Australia.

Inclusion criteria

Participants were sourced from inpatients on the day admission ward. All participants were required to be >18 years of age, provide consent, understand English, and have been electively admitted for a surgical procedure. No patient identifiable data were collected. Electively admitted surgical patients were identified as preferred participants because the researchers surmised these patients may have sought information about HAIs prior to their admission. In addition, the patients may be more familiar with the type of available information, and thus able to make an informed decision about this research.

Recruitment and sampling

Ethics approval for the study was obtained from the Hospital Human Research Ethics Committee (578/17). A series of semistructured interviews were conducted over a 5-week period by a research nurse. Participants were purposively selected after a discussion with the nurse unit manager regarding their health status, compliance with the inclusion criteria, and perceived willingness to participate.

Participants were approached by the research nurse and introduced to the research topic. They were provided with a participant information and consent form and asked to consider participation. Those who agreed to participate signed the patient consent form. All interviews were conducted in English, in a quiet interview room in person.

Data collection

A general interview guide (Table 1) was developed based on the available literature regarding public reporting of HAI data and consumer preferences. Interview questions focused on what consumers believed to be most important for them to know about HAIs and the best mode of delivery for this information. The interviews were digitally recorded and transcribed verbatim.

Data analysis

Analysis of the data were conducted using thematic analysis⁶ and using Nvivo software (QSR International, Melbourne, Australia) for data management.

RESULTS

Semistructured interviews with 20 inpatients matching the inclusion criteria were conducted between April 2018 and May 2018. Interviews lasted between 7 and 15 minutes. Sixteen of the participants were men, one of whose female partner also contributed to the interview.

Data were sorted into 5 main themes: (1) awareness through experience, (2) focus on current illness, (3) patient contribution to infection prevention, (4) sources and mode of information, and (5) influence on choice of hospital. A selection of short extracts of the interviews are listed in Table 2 to illustrate each theme.

Table 1

Question guide for semistructured interviews

Information provided or accessed

You have come in for an elective procedure. Were you provided any information about (hospital) infections before your admission?

If so, what type of information were you provided with?

Was this information helpful? Did you read it?

Did it make you change the way you approached this admission?

Have you ever had an infection following a hospital admission? (Tell me about your experience.)

What sort of information about infections in hospitals is important to you? Tell me what it is that you think patients need to know.

Prompts

- Things that you could do yourself to minimize the risk of infection?
- How the hospital and health care workers prevent spreading infections?
- If this hospital has more or fewer infections than other hospitals?

Public data and use

If you wanted more information about infections at this hospital, which method of delivery would you best suit your needs?

(Prompts: TV, newspaper, Web site, other?)

If the hospital released the data on its infections every 6 months, would you access this information?

Would it influence anything that you do?

Prompts

- Decide where to go for care?
- Ask more questions about it when you come into the hospital?
- Find out more about hospital infections?

How would you best like to have infection data presented?

Prompts

- Graphs
- Tables with numbers
- League ladder (Would you like to compare hospital infection rates?)
- Stars
- Other

Do you know about the *MyHospitals* Web site?

What do you know about it?

Did you look at the Web site before you were admitted to hospital?

Is there anything else you would like to tell me about this topic?

Thank you for your participation.

Awareness of HAI

Most of the participants had very limited knowledge of HAIs. There was a general awareness of infection and hygiene but none of the participants appeared to have any in-depth knowledge. Commonly, participants had limited experience in hospitals, and for many, this was their first experience with surgery. Patients in this situation tended to be less aware of the risks of infection.

One participant, who had a history of respiratory infections, was very aware of his vulnerability to infection after a lung transplant. He presented on this occasion for removal of skin lesions but had not had any discussions about infections. Another participant, who had an experience of an HAI that contributed to limb amputation, demonstrated some infection knowledge but was more intent on being very critical of the hospital where he was first treated.

Participants who had thought about the possibility of infection had only a very sketchy understanding. Some confused HAIs with common communicable diseases, such as the common cold. However, the need to separate potentially infectious people from others is relevant to HAI prevention and was acknowledged by 1 participant.

All participants were asked if they had heard of the *MyHospitals* Web site and, if so, had they accessed it for information about HAIs before coming in for surgery. Two participants said that they had heard of it, but neither one had accessed the Web site. One participant, who was a public servant, related it to another similar government Web site, but said that he had not looked at *MyHospitals*.

Table 2
Selected participant quotes by theme

Theme	Exemplar participant quote
(1) Awareness of HAI	<p>"When I was under the (Hospital A) in – it was a bloody terrible shemozzle but I got sick and I came to the (Hospital B) and they said the infection was in the bone but that's because (Hospital A) hadn't done something. They hadn't controlled the infection properly and they'd have to take my leg off." (Participant 30)</p> <p>"...if they got a virus or whatever it is – they shouldn't be together with other patients because it – if you've had an operation, it's very easy to catch." (Participant 7)</p> <p>"There's going to be infections in a hospital, the hospital's the place where the most infections are in the country you know, there's not much you can do..." (Participant 16)</p>
(2) Primary focus on current illness	<p>"No, I'm having heart surgery. Apparently, they're going to stop my heart. I'm not really worried about a bloody infection. I'm just hoping they can start my heart up again. ... Infection is the last thing on my mind..." (Participant 16)</p> <p>"I was really not thinking of it and I suppose this may be because of the fact that I'm in here with melanoma and that's all I can think about at the moment." (Participant 10)</p> <p>"I didn't read the book from the heart surgeon because I thought it was a bit scary and I thought I've got to have it done anyway." (Participant 4)</p>
(3) Patient contribution to infection prevention	<p>Q: "Do you think the patients need to know what they can do to minimize their risks?"</p> <p>A: "Yeah, I think that's going to be a good idea, ... lots of like hygiene stuff around everywhere, so. . . Yeah that's prevention I guess, isn't it?" (Participant 14)</p> <p>"No, I mean you could do as much as you can do ... you could walk past some dirty (expletive) in the street before you walked in the door of the hospital, and he could get a germ on you or something... I don't think there's much you can do before you come to the hospital, and what they can do here, this is one of the cleanest places on earth." (Participant 16)</p> <p>"... one of the ... pre-admission nurses. Yeah, she was telling me ... what percentage there was of being infected, how to stop smoking, stuff like that, shower, teeth, hygiene, yeah, pretty much." (Participant 17)</p>
(4) Sources and mode	<p>"I've seen it sometimes when it's on the TV or you'll see people getting golden staph and all that stuff." (Participant 5)</p> <p>"I didn't even think about infections when I came in for those operations and now you have given me something else to think about. ... I think the less the patient knows, the better. ... " (Participant 1)</p> <p>"So, I'd rather find out from somebody who knows directly. I would pay attention to things that I read or saw but I'd be more confident if it was somebody really telling me." (Participant 4)</p>
(5) Influence on choice of hospital	<p>"Well, put it this way, I'm not covered by anything, so I have no choice. I go where I'm told to go." (Participant 1)</p> <p>"...they did the CT scan, next thing there's a big uproar, I'm admitted to the hospital, I'm in an ambulance, I'm at the airport, I'm in an airplane, I'm down here within an hour it's all happened, and here I am." (Participant 19)</p> <p>"I came here because they've got all my records here. I've been dealing with them for more than 20 years and they're very, very good to me and I really appreciate that. ... the doctors and the nurses and that, they're very good." (Participant 18)</p>

HAI, health care–associated infections.

Primary focus on current illness

The main patient priority for participants was their current surgery. Many stated they were very nervous and were neither concerned nor interested in the potential for acquiring an infection. One participant was very anxious about the cardiac surgery that he was having that day. He did not want to know about infection risk, as it was too much for him to consider at that time. Another example was a young man who was awaiting excision of a large melanoma on his leg. He was clearly distracted and admitted that he was not thinking about anything but the surgery and the possible sequelae. Similarly, another participant had received a booklet about her surgery, which included information about potential infections; however, she did not read it because she found it too alarming.

Patient contribution to infection prevention

Handwashing and keeping generally clean were the 2 most important contributions participants cited when asked about their role in infection prevention. Aside from those admitted for cardiothoracic surgery, most of the participants said that infections had not been discussed with them prior to admission.

The potential risks of HAIs were rarely discussed preoperatively, with conversations between surgeons and patients focused on the details of the operation being proposed. In contrast, a patient who attended a preadmission clinic prior to surgery was provided information by the clinic nurse on infection prevention before being admitted for surgery.

Sources and mode

Very few participants were provided with specific information about HAIs, and most had only a general idea, which they sourced from

the media. Anecdotal evidence from family and friends was also a strong source of information about HAIs. One participant admitted that she found medical television shows to be a good source of information.

There was a mixture of patients who wanted to know more, and others who were concerned that too much information would increase anxiety, in the context that HAI was an unlikely event. Having the choice not to know was important for some people. One participant did not want any information about HAIs and thought that it would be detrimental to tell people who already had enough to worry about.

There was a wide variety of responses when participants discussed the preferred mode of information about HAIs. A few reported that they did not use computers at all and would not access digital information. Others stated that they would refer to Google to learn what they wanted to know. Although 1 participant suggested that pamphlets should be available for those who were interested in finding out more information, another participant pointed out that there would need to be a range of information formats to suit the wide variety of patient education levels and age groups. A popular participant choice was that patients would be informed about the HAI information directly by health professionals when they came in for an appointment. Face-to-face discussions were favored and provided patients the opportunity to ask questions.

Participants were asked about their preferred format for data presentation and whether the ability to compare hospital data would be of interest. One participant expressed a concern that naming hospitals or presenting the infection data in a league ladder-type format could be unfair to the reputation of the hospitals, as the ranking could rapidly fluctuate over time.

Influence on choice of hospital

Knowing the rate of HAIs at the different hospitals was not the main determinant for the participants when choosing where to go for

care, although it was a potential consideration for some. Other factors such as their previous relationship with the surgeon and staff and the reputation of the hospital were more important in the decision-making process. In some cases, the choice of hospital was out of their hands. One participant said that the only times he had been admitted to a hospital to date had been after sporting injuries. Therefore, he would go to whichever hospital was closest. Not having health insurance was also a factor which impacted decision-making.

A word-of-mouth recommendation influenced 1 participant who was encouraged by a relative who knew of the neurosurgeon. Other participants had a significant attachment to the surgeon or to the hospital because of their previous experience. Those participants who had been treated before by the same surgeon felt that the team knew them and their problems.

Comfort and familiarity with the hospital environment and staff was also an important factor in choice of facility. Having been a patient previously meant that medical records were easily accessible to the staff. It was important to the patients that they were known to the hospital and they felt comfortable being there.

When publicly reporting HAI data, 1 participant suggested that there could be an online tool that would allow consumers to compare hospitals, similar to the current tools that are available to compare insurance or energy providers.

DISCUSSION

Public reporting of HAI data is common in countries with national HAI surveillance.⁵ Although there is little evidence demonstrating that consumers use this information to access health care, there is an association between public reporting and increased quality improvement measures in hospitals.⁷ Although there is extensive literature exploring various aspects of public reporting of HAIs, and the associated debate among clinicians,^{5,7-13} very few studies have explored consumer attitudes and preferences toward HAI data reporting.¹⁴⁻¹⁶

To our knowledge, this study is the first in Australia to explore consumer views on this subject. The 20 interviews with consumers awaiting elective surgery identified a variety of opinions about the type of HAI information consumers want to know about and the way in which they would prefer the information be delivered. Although all participants were electively admitted for a surgical procedure, it was surprising to find that very few recalled receiving information about procedure-related infection risk during their preadmission phase or on admission. Those who reported receiving information were vague as to exactly what specifically had been provided. There are several possible explanations for this, including that patients are not being informed of infection risk, patients are too distracted by their upcoming procedure to take in information about infection risk, or the information they are provided is not meaningful to them.

As health care workers, it is not unusual to assume that patients need to be informed on all aspects of their care to provide an understanding of what to expect of their health care episode. Of interest in our study was a significant cohort of participants who actively did not want to know about their risk of infection, with several others who were neutral or only mildly interested. None of the participants appeared to have a burning desire to find out more information on HAI. This supports findings from a previous study involving community members that found consumers could be frightened by certain HAI data. Providing consumers with this information caused greater apprehension about going to the hospital. Patients preferred to receive information about how to prevent infection.¹⁴

Previous research found a preference for printed information about HAI data.¹⁴ However, despite most participants in our study not seeking information before their surgery, there were differing opinions about the preferred mode of delivery, with a number saying they would be in favor of personal communication from the surgeon.

Our findings point to the need for a very flexible approach. These might include digital platforms, printed information such as pamphlets, and a greater focus on face-to-face discussion with health care professionals.

With regards to purpose, it has been assumed that public reporting of HAI data would influence consumers about their choice of health care provider.¹⁷ However, our study did not find any evidence that consumers would use HAI data to influence their choice of hospital.

This study has several strengths, including a diverse range of participants selected at random and awaiting both minor and major surgery. Methodological rigor was established in the conduct of the study using transparency around recruitment, and the involvement of several members of the research team in data analysis. However, the study also has several limitations. First, participants were limited to acute adult inpatients electively admitted for a surgical procedure. Consumers who were not within the inclusion criteria may have different attitudes and preferences. Second, the study was undertaken at 1 public hospital. Other facilities' approach to the delivery of HAI information may be different. Third, we did not assess the level of education or literacy in our cohort. Such data may explain some of the findings.

In Australia, the National Safety and Quality in Health Service Standards, Standard 2 "Partnering with Consumers" states that health services are required "to provide consumers with information that is meaningful and relevant on the organization's safety and quality performance."¹⁸ If consumers are the real target for the public reporting of HAI data, the purpose of public reporting needs to be identified and greater engagement with consumer groups is crucial.

CONCLUSIONS

Consumer support for public reporting of HAI data were not evident in this study. It is unclear if this information is welcomed by the public, as several participants stated they would prefer to remain ignorant. The value of currently having HAI data available to the public through a Web site is dubious, as most participants had not heard of the Web site and none had accessed it. To provide appropriate information to consumers, more research is needed, with a larger cohort across a range of health service providers.

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