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Healthcare professional perspectives on quality and safety in New Zealand public hospitals: findings from a national survey

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Abstract

Background. Few studies have sought to measure health professional perceptions of quality and safety across an entire system of public hospitals. Therefore, three questions that gauge different aspects of quality and safety were included in a national New Zealand survey of clinical governance.

Methods. Three previously used questions were adapted. A total of 41 040 registered health professionals employed in District Health Boards were invited to participate in an online survey. Analyses were performed using the R statistical environment. Proportional odds mixed models were used to quantify associations between demographic variables and responses on five-point scales. Relationships between other questions in the survey and the three quality and safety questions were quantified with the Pearson correlation coefficient.

Results. A 25% response rate delivered 10 303 surveys. Fifty-seven percent of respondents (95% CI: 56–58%) agreed that health professionals in their District Health Board worked together as a team; 70% respondents (95% CI: 69–70%) agreed that health professionals involved patients and families in efforts to improve patient care; and 69% (95% CI: 68–70%) agreed that it was easy to speak up in their clinical area if they perceived a problem with patient care. Correlations showed links between perceptions of stronger clinical leadership and performances on the three questions, as well as with other survey items. The proportional mixed model also revealed response differences by respondent characteristics.

Conclusions. The findings suggest positive commitment to quality and safety among New Zealand health professionals and their employers, albeit with variations by district, profession, gender and age, but also scope for improvement. The study also contributes to the literature indicating that clinical leadership is an important contributor to quality improvement.

What is known about the topic? Various studies have explored aspects of healthcare quality and safety, generally within a hospital or group of hospitals, using a lengthy tool such as the 'safety climate survey'.

What does this paper add? We used a simple three-question survey approach (derived from existing measures) to measuring healthcare professionals' perceptions of quality and safety in New Zealand's public hospitals. In doing so, we also collected the first such information on this.

What are the implications for practitioners? New Zealand policy makers and health professionals can take some comfort in our findings, but also note that there is considerable scope for improvement. Our finding that more positive perceptions of quality and safety were related to perceptions of stronger clinical leadership adds to the international literature indicating the importance of this. Policy makers and hospital managers should support strong clinical leadership.

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Introduction

A growing number of studies have sought to investigate healthcare professional perspectives on the quality and safety of healthcare delivery in the clinical settings in which they work.[1–6] Various tools for this have been developed, most notably those designed to explore elements of the organisational culture – especially around patient safety.[6] The application of these tools has produced a range of findings related to the development of a safety culture and extent of this among different groups. For example, a North American study found variations in the type of hospital organisational culture – some hierarchical and others more oriented towards teamwork – and that the latter culture was more germane to developing a robust patient safety climate.[7] An Australian study of professionals working in different service areas found that specific services had more positive safety cultures, as well as demographic differences in safety attitudes.[2]

The most utilised survey tools, such as the 'safety climate survey' and derivatives of this[8] have been deployed in a range of

contexts. For the most part, these have involved individual hospitals or services, groups of hospitals or geographic areas such as the state of South Australia. Few prior studies have sought to gauge elements of quality and safety from the perspective of healthcare professionals across an entire country's hospital system,[9] and not previously in New Zealand. However, others have analysed quality systems across entire countries using routine administrative data and the perspectives of managers.[10]

Public hospitals, free at the point of service and universally accessible, dominate the hospital sector in New Zealand, which has a tax-funded 'national' health system, albeit with regional variations due to decentralised administrative arrangements.[11] In 2012, as part of a wider study of clinical governance and leadership, we asked healthcare professionals in New Zealand public hospitals about the quality and safety environment. The aim was to gauge professionals' perspectives of key components of quality and safety, given that improvement in these areas is a government priority. This article discusses the process of designing and conducting the survey study, presents findings and highlights areas of significance.

Methods

Design and setting

In 2009, New Zealand's public hospitals, owned and run by 20 District Health Boards (DHB), were instructed by the government to develop and support 'clinical governance and leadership'.[12] In an earlier survey study, we sought to assess progress with this.[13] We were subsequently approached by the government to undertake a broader follow-up study that would involve surveying all registered health professionals employed by hospitals in 19 DHB (Canterbury did not participate due to the earthquake recovery process). Following consultation with government agencies and the 20 DHB, in a process that involved around 200 managers and health professionals reviewing the survey, some adaptations to the original survey tool were made. In essence, the focus of the survey remained the same: respondent knowledge of, commitment to and perceptions of DHB management support for developing components of clinical governance and leadership. These components were spelled out in advisory material and subsequently endorsed by the Minister of Health as government policy, with an expectation that DHB implement them.[12,14] The government-funded Health Quality and Safety Commission (HQSC) joined the project as a co-funder as they wished to include quality and safety questions in a national health workforce survey. We then reviewed quality and safety survey tools and items and produced a long list for the HQSC. From this, three items, which closely matched with the priorities of the HQSC, were selected to be added to the 14 other clinical governance survey items contained in the main survey.

In May–June 2012, a total of 41 030 professionals, including doctors, nurses, midwives and allied service providers, were invited by their DHB human resources department to participate in the online survey. Inclusion criteria were that invitees must be registered health professionals, in ongoing full- or part-time employment with their DHB, and with an official DHB email address (in theory, any such DHB employee has one). Invites, containing a link to the survey website, were sent by email to employee email addresses. Three follow-up emails were sent to employees at weekly intervals. A national communications campaign ensured that all 19 DHB distributed standard instructions.

Ethical approval

The study protocol and survey tool were reviewed, including for ethical considerations, and approved by the National Executive of the National Health Board, the Board and executive team of the HQSC, and the chief executive officer and leadership teams of the 19 DHB.

Measures

As noted, the full survey contained items probing clinical governance development and is available in Appendix S1 (available online as supplementary material to this paper). The three quality and safety questions each investigated different dimensions of quality and safety activities. The first, adapted from the 'safety climate survey',[6,8] which contains a set of questions aiming to measure the extent to which the working environment is one that is conducive to providing safe healthcare, looked at the teamwork environment as an emerging literature suggests that strong teams provide higher quality and safer healthcare.[15,16] The second question, derived from a survey of North American hospitals,[9] was around user involvement for the reason that care should be both patient centred and incorporate the views of patients.[17,18] The third question, again from the safety climate survey, was intended to investigate a key component of the safety climate: whether professionals feel comfortable speaking up about problems with patient care. This is important for the potential to prevent patient harm and is promoted in other industries such as air transport.[19]

The three questions were:

(1) Health professionals in this DHB work together as a well-coordinated team.
(2) Health professionals in this DHB involve patients and families in efforts to improve patient care.
(3) In this clinical area, it is easy to speak up if I perceive a problem with patient care.

Each question had an associated five-point Likert scale: disagree strongly; disagree slightly; neither disagree nor agree; agree slightly; agree strongly.

Statistical analyses

Statistical analyses were performed using the R statistical environment.[20] Proportional odds mixed models were used to quantify associations between demographic variables and responses on the five-point ordinal Likert scales while accounting for correlations between employees in the same DHB. These proportional odds mixed models were fitted using the *clmm* function of the R package *ordinal*,[21] which uses the methods described by Tutz and Hennevogl,[22] with DHB entered as the grouping variable and gender, age, years of experience and professional group as independent variables to examine their individual effect and to control for potential confounding. These models yielded odds ratios, which gave an indication of the propensity of members of a particular demographic group to respond towards the 'agree strongly' end of the Likert scale compared with members of the reference group. Relationships between other questions in the survey and the three quality and

safety questions were quantified with the Pearson correlation coefficient. This was calculated on the DHB means for the questions compared.

Results

Respondents

We received completed surveys from 10 303 respondents (25%), with a response range of 7–49% between DHB. Twenty-five percent of all registered doctors, 18% of nurses, 21% of midwives and 36% of allied professionals responded. Respondent characteristics were relatively close to those of the broader health professional workforce, as shown in Table 1. The narrow 95% confidence intervals indicate a high level of precision, and the good coverage of different demographic groups gives confidence that the range of responses across these groups was covered.[23]

The three questions

Some 57% of respondents (95% CI: 56–58%) agreed that health professionals in their DHB worked together as a well-coordinated team. There was substantial variation across the DHB, ranging from 47 to 70% of respondents by DHB agreeing with the question. Seventy percent of respondents (95% CI: 69–70%) agreed that health professionals in their DHB involved patients and families in efforts to improve patient care, with a variation between DHB of 63–78%. Meanwhile, 69% (95% CI: 68–70%) agreed that in their clinical area it was easy to speak up if they perceived a problem with patient care, with variation of 63–78% between respondents from the different DHB.

Pearson correlation results

Table 2 shows the correlations between key survey items pertaining to elements of clinical governance and leadership and performances on the three quality and safety questions. Although there are several correlations of interest, the results indicate that DHB perceived by respondents to have enabled stronger clinical leadership and decision making (Q4), to have facilitated a partnership between health professionals and management (Q9), and to have given responsibility to their team for clinical service decision making (Q13), tend to have a stronger performance on the teamwork question (Q15).

Similarly, DHB perceived to have enabled stronger clinical leadership and decision making (Q4), where respondents believe quality and safety is the goal of every clinical initiative (Q11) and of every clinical resourcing or support initiative (Q12), had a stronger performance on the question about involving patients and families (Q16).

DHB perceived, once again, to have enabled stronger clinical leadership and decision making (Q4), to have made quality and safety the goal of every clinical (Q11) and resourcing initiative (Q12), and given responsibility to their team for clinical service decision making (Q13), tended to have stronger performance on the question about speaking up (Q17).

Proportional mixed model results

As illustrated in Table 3, on the first question, female respondents were slightly more likely to agree more strongly that health professionals in their DHB hospital work together as a well-coordinated team compared with male respondents; this likelihood was much lower for all the age groups compared with the 20–29-years age group. Respondents with 5 or more years of experience were much less likely to agree. There was no statistically significant difference between professional groups.

Female respondents were more likely to agree more strongly that health professionals in their DHB hospital involve patients and families in efforts to improve patient care; this likelihood was much lower for all the age groups compared with the 20–29-years age group. Respondents with 5 or more years of work experience were also much less likely to agree more strongly. Only nurses had higher odds than doctors of agreeing more strongly with the statement than doctors.

On the question of speaking up when perceiving a problem with patient care, in terms of gender, there was an attenuation of effect to the point of non-statistical significance. The only statistically significant age effect was for the 50–59-years age group, who were 20% more likely to agree more strongly with the statement compared with the reference group. Only nurses had elevated odds of agreeing with the question compared with doctors. However, allied/other staff had reduced odds.

Table 1. Comparison of survey respondent characteristics with the District Health Board (DHB) workforce as a whole

	Survey respondents (%)	DHB workforce (%)
Gender		
Male	22	20
Female	78	80
Professional group		
Doctor	19	18
Nurse	44	56
Midwife	3	4
Allied Health Professional/Other	34	22

Table 2. Correlation matrix of District Health Board means for survey questions compared with the quality and safety questions (Q15–17)

	Q15	Q16	Q17
Q3	0.09	0.31	0.27
Q4	0.76	0.52	0.54
Q6	0.48	0.26	0.25
Q8	0.11	0.29	–0.07
Q9	0.71	0.34	0.56
Q10	0.49	0.32	0.52
Q11	0.49	0.53	0.69
Q12	0.42	0.56	0.67
Q13	0.62	0.44	0.80
Q15	1.00	0.63	0.63
Q16		1.00	0.65
Q17			1.00

Discussion

Fifty-seven percent of respondents believed that health professionals in their DHB work as well-coordinated teams. Although we asked a single question about team work, the level of agreement with the question was not incomparable to that found in other studies measuring teamwork via a series of

Table 3. Proportional odds mixed models of the relationship between gender, age, years of experience and professional group, and the odds of agreeing to each of the quality and safety questions

*Statistically significant at the 0.05 level. DHB, District Health Board

	Health professionals in this DHB work together as a well coordinated team			Health professionals in this DHB involve patients and families in efforts to improve patient care			In this clinical area, it is easy to speak up if I perceive a problem with patient care		
	Odds ratio	95% CI	*P*-value	Odds ratio	95% CI	*P*-value	Odds ratio	95% CI	*P*-value
Gender									
Male	Reference								
Female	1.12	1.01–1.24	0.0265*	1.20	1.08–1.33	0.0004*	1.10	1.00–1.22	0.0538
Age (years)									
20–29	Reference								
30–39	0.64	0.55–0.75	0.0000*	0.69	0.59–0.80	0.0000*	1.02	0.88–1.19	0.7925
40–49	0.59	0.51–0.69	0.0000*	0.61	0.53–0.72	0.0000*	1.10	0.94–1.28	0.2235
50–59	0.61	0.52–0.72	0.0000*	0.71	0.60–0.84	0.0000*	1.21	1.04–1.42	0.0170*
60 and over	0.71	0.59–0.86	0.0005*	0.84	0.69–1.01	0.0697	1.18	0.97–1.43	0.0927
Years of experience									
Under 5 years	Reference								
5–15 years	0.76	0.68–0.85	0.0000*	0.79	0.70–0.88	0.0000*	0.98	0.87–1.09	0.6836
More than 15 years	0.85	0.76–0.97	0.0126*	0.75	0.66–0.85	0.0000*	1.12	0.99–1.26	0.0811
Professional group									
Doctor	reference								
Nurse	1.07	0.95–1.20	0.2561	1.48	1.31–1.66	0.0000*	1.30	1.16–1.45	0.0000*
Midwife	1.09	0.87–1.37	0.4512	1.07	0.85–1.36	0.5560	0.92	0.72–1.16	0.4578
Allied/other	1.01	0.90–1.13	0.9035	0.99	0.89–1.12	0.9235	0.86	0.77–0.96	0.0089*

questions.[2,3,7,24,25] Our finding could, therefore, be viewed as a good starting point. However, in the current context of emphasising teamwork, particularly given the increasing demands of chronic disease and multimorbidity, and of enhancing the patient experience, it also indicates room for improvement. Although the perceptions of respondents from some DHB were more positive than others, there is an obvious demand for national policy makers, DHB leaders, professional-group representatives, and clinical training providers to consider methods for enhancing teamwork where appropriate and, very importantly, the barriers to this. It could be useful to study and seek to emulate cases in which teamwork is well established,[26,27] as well as invest in team-based professional training activities.[15,28]

The 70% of respondents agreeing that health professionals involve patients and families in efforts to improve patient care is comparable to North American findings (65%).[9] The New Zealand result is positive but there is obvious scope for improvement for the reason that all health professionals should be working towards this. Given that 'public and patient involvement' is a relatively recent addition to the national and international policy agenda,[29] the results of follow-up studies should show improvements. Whereas earlier studies suggest a lack of clarity around how to involve patients and the results to be expected,[30,31] recent efforts point to a focus on the patient experience, from enhancing clinical–patient relationships through to involvement in service design and governance,[18,32,33] as Bisognano suggests:

> At truly patient-centered organisations, patient and family input and engagement are both welcomed and sought out as an integral part of the operations and culture, and staff are respectful to all patients and families, all of the time. In such organisations, patients and families participate on improvement committees, on board committees, in patient and family advisory groups and in other ways to ensure that patients play an active role in all decisions related to improvement.[34]

Sixty-nine percent of respondents agreed that it was easy to speak up about problems with patient care. Again, this gives reason for optimism but also indicates that a solid minority are not comfortable raising patient safety concerns with their peers or superiors. When professionals are not able to voice concerns, perhaps due to an organisational culture in which management or different professional groups have not been receptive to 'speaking up', and where those voicing concerns may feel they could be punished or their career affected as a result, it is patients who may be most likely to suffer.[35] An emerging literature shows links between the 'patient safety climate' and safer healthcare.[36] Several studies also provide useful guidance for how to promote and improve the safety climate.[1,4,5,37]

The more detailed analyses of the three quality and safety questions in this article revealed important findings, with various implications. First, the association between respondent perceptions of strong clinical leadership and decision making in their organisations and superior performance on the three quality questions warrants attention. This finding adds to a growing literature around the role and impact of leadership on healthcare quality.[17,38] The obvious ramification is that all healthcare organisations should be directing attention to supporting clinical leadership and decision making as this may promote an environment conducive to improved teamwork, patient and family involvement and to speaking up.[39,40] Healthcare organisations

should be seeking to learn from one another, especially those whose performances are at the healthier end of the scale, as well as from studies into how to advance clinical involvement in improvement efforts.[41] They should also be linking clinical governance and leadership to quality-improvement activities. As noted elsewhere, such linkage can elicit important gains, particularly around increasing health professional commitment to quality and safety improvement.[42,43]

Second, the differences in respondent perceptions by demographic and professional group lead to a series of questions. It would be useful to further explore why female respondents had more positive perceptions on the three quality questions. There is a need to further investigate why younger respondents had reduced odds of responding positively on the teamwork and patient involvement questions, although this finding has parallels with those from other studies.[2] Perhaps this finding is a function of training and confidence in leading in these areas that may develop with experience, as well as the need for peer and organisational encouragement and support, as noted elsewhere.[35,44] Similar questions surround the finding that respondents 40 years and over have greater odds of speaking up. Why those with longer service have less positive perceptions of teamwork and patient involvement yet higher odds of speaking up also demands further investigation and discussion.

Third, the association between performances on the teamwork and speaking up items and respondent perceptions of quality and safety as a guiding principle of all clinical initiatives suggest that this should be a core component of every healthcare organisation's strategy for quality improvement. With regard to the variation between the 19 DHB, it may be that all have committed at the highest levels to such goals and strategies but the commitment – and the activities and organisational forms that represent this – is less obvious to the front-line health professionals who responded to the survey.

There are, of course, caveats around the research reported in this article. The key one is probably the survey method that underpins the analyses and, especially, the response rate. However, as noted, the dataset is large and relatively representative of the health professional workforce, which boosts confidence. Several follow-up emails were sent in the attempt to raise response rates and some DHB put considerable effort into increasing their staff participation. Given the complicated nature of the survey across 19 DHB, and several professional groups, the response rate could be considered good and certainly on a par with response rates in other complex fields.[9,23,45] The survey method also delivers only quantitative data. Although important for gauging perceptions and establishing a baseline against which to compare future studies, it could be useful to further investigate several of the issues raised above. This would perhaps best be done through qualitative methods that permit in-depth exploration of experiences. These points aside, the inclusion of three selected quality and safety questions in a national health professional survey, each considering a core dimension, has provided useful baseline information and also offers a simple model for evaluation.

Competing interests

The authors declare that there are no competing interests.

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