Health professionals' perception of patient safety culture in acute hospitals: an integrative review

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Abstract

Objective. Globally, the degree of patient harm occurring in healthcare was first publicised in the 1990s. Although many factors affect patient safety, in the US the Institute of Medicine identified hospital organisational culture as one factor contributing to a reduction in errors. This led to the development of many tools for measuring the safety culture of hospital staff. The aim of the present study was to review the literature on patient safety culture in acute hospitals to identify: (1) how patient safety is viewed by health professionals; (2) whether patient safety culture is perceived differently at the hospital versus ward level; and (3) whether clinicians and managers place the same importance on patient safety.

Methods. Following a search of electronic databases using OneSearch and a manual search of grey literature, an integrative review method identified 11 articles as being suitable to meet the review's aims. The search terms of patient safety culture, patient safety and safety climate were used. To ensure relevancy to current practice, the search was restricted to the period 2010–15.

Results. Hospital patient safety culture is not a shared vision, because health professional groups have different views. In the present study, 67% of articles examined found doctors to have a poorer perception of the patient safety culture than nurses and allied health professionals. All health professional groups reported a more positive view of their ward safety culture than that of the hospital safety culture. Furthermore, managers of the health professionals reported more positively on patient safety culture than bedside clinicians.

Conclusion. This review provides an international understanding of health professionals' views of patient safety. From an Australian context, the review highlights the need for further investigation, because there is a lack of recent Australian literature in the acute hospital setting relating to patient safety culture.

What is known about the topic? Globally, many research papers have reported upon the correlation between a positive patient safety culture and a reduction in healthcare errors.

What does this paper add? The present integrative review highlights that regardless of the country of origin, there are differences in the way that a hospital patient safety culture is perceived among different health professional groups, particularly between managers and bedside clinicians.

What are the implications for practitioners? Individual health professional groups, and managers and clinicians, have different views on the patient safety culture; therefore, training needs to involve everyone to create a shared vision for patient safety.

Introduction

The present integrative review, which is part of a research project, describes the attitudes of various health professional groups towards patient safety culture (PSC) in Australia and another 16 countries. The reported attitudes from these countries may be used to raise awareness and improve PSC within the Australian healthcare sector.

A PSC has been described as the shared attitudes, beliefs, values and perceptions of safety issues within an organisation.[1] PSC includes a safety climate, which is the perceived value placed on safety by the organisation.[2] The two related terms of culture and climate are used interchangeably in the literature, but the focus of the present review is safety culture. Although organisations may have different views, a positive PSC should mean that whenever people enter healthcare, they are protected from harm. This protection is sometimes lacking because there are numerous incidences of patients experiencing harm within healthcare services.[3]

PSC was first reviewed in response to reports into healthcare safety, including the Harvard Medical Practice Study[4] from the

US, the Quality in Australian Health Care Study[5] and the seminal report from the US To Err is Human.[6] These reports highlighted the degree of patient harm from healthcare and made recommendations to improve patient safety in hospitals. The Institute of Medicine in the US identified PSC as a factor to reduce errors. Assessing the existing PSC is the first step in identifying areas for improvement; thus, many evidence-based surveys have been developed to measure the dimensions that comprise a PSC, including the Patient Safety Climate in Healthcare Organizations (PSCHO),[7] the Safety Attitudes Questionnaire (SAQ),[8] the Modified Stanford Instrument[9] and surveys developed by the Agency for Healthcare Research and Quality (AHRQ).[1] Examples of the PSC dimensions that have been measured are teamwork, communication, management support for safety, and error reporting.[1,7–9]

The hospital PSC can be described as the organisation's pattern of response to problems and opportunities that arise.[10] There is evidence that these organisational responses and their expectations regarding safety contribute to safe work practices.[10] The ward PSC, which is a subculture of the hospital's PSC, is influenced by the manager's expectations and safety priorities.[10] Managers promoting the hospital's clinical governance strategies is essential for patient safety so that the ward subcultures hold the same core values as the organisation in which they function.[11]

The aims of the present study were to address the following questions: (1) what are health professionals' perceptions regarding patient safety and do these views differ among different health professionals; (2) is the perception of PSC different at the hospital versus ward level; and (3) do clinicians and managers place the same importance on PSC?

Methods

An integrative review was undertaken because this method draws together findings from different research designs, such as qualitative and quantitative studies, as well as clinical experts.[12,13] An advantage of this type of review is the inclusion of opposing findings to provide a more rounded response to a clinical question.[14] Soares *et al.*[12] highlighted that conducting an integrative review requires rigour when analysing and synthesising the data gathered. Bias may occur during the analysis and synthesis phases of the review due to the reviewer choosing articles they prefer and encountering difficulties when bringing together the different methodologies. This potential for bias is a disadvantage of the integrative review, but was overcome in the present review by applying well-defined inclusion and exclusion criteria to the selection process.[14]

The integrative review was restricted to papers published between 2010 and 2015 to ensure relevancy to current practice. To be eligible for inclusion in the review, studies had to have been conducted in an acute hospital setting and written in English. Studies within a community or primary care setting, focused solely on paediatric populations or performed in out-patient care settings were excluded.

Search strategy

An electronic database search was conducted using OneSearch, a search tool of library holdings without the need to search individual databases. The key search terms used were 'patient safety culture', 'patient safety' and 'safety climate', with a date range of 2010–15. The initial search identified 1657 references with a further 12 identified through manual searches of the grey literature (Fig. 1). The search was further refined to hospital settings and the resulting abstracts and titles read. Each was coded onto a spreadsheet to record the type of article, country, setting, population and findings as described by Crawford and Rondinelli.[14] After completing the filtering process, 11 studies met the inclusion criteria and were included in the integrated review.[15–20,22–26] Saturation was reached at this point, with further articles being repetitive of those already gathered. The reporting used quantitative methodology (Table 1).

The studies included in the review had rigorous methodologies, were from 17 different countries and used a cross-section of the available tools to measure PSC.

Data analysis

Quantitative studies were analysed, according to the review questions, to provide a rounded view of the current state of PSC research internationally.

Results

PSC perception among different health professionals

Perceptions of PSC by health professionals were compared in six studies.[15–20] Although three different tools were used in the six studies, similar PSC dimensions were measured, allowing comparisons to be made.

Campbell *et al.*[15] investigated the extent of variation in PSC across units within a US hospital, finding that nurses were more positive than doctors on the following dimensions: organisational learning; the frequency of event reporting; handovers and patient transitions; staffing; and non-punitive response to errors. For the other safety dimensions of the Campbell *et al.* study, namely supervisor support for safety, hospital management support for safety, teamwork within units, teamwork across hospital units, communication openness, communication about error and the overall perception of safety, nurses' and doctors' perceptions were comparable.

In a Lebanese study of healthcare workers' perceptions of patient safety, El-Jardali *et al.*[16] investigated differences in PSC between doctors, nurses, pharmacists and a mixed group that included dietitians, laboratory staff, radiology staff and hospital managers. El-Jardali *et al.*[16] reported that the mixed group had the most positive overall perception of patient safety and more frequently reported adverse events. The pharmacists perceived PSC more positively than did nurses, with doctors having the least positive perception of PSC. Doctors also reported adverse events less frequently.

A Chinese study found that, overall, nurses reported a more positive PSC than doctors.[17] In that study, the dimension in relation to fear of blame was the only aspect that doctors reported more positively than nurses.

In the US, Blegen *et al.*[18] focused on ward-based multidisciplinary teamwork and communication, finding that nurses perceived a more positive PSC than pharmacists and doctors. That study used a before–after intervention design involving training sessions on PSC. The sessions included identification of local
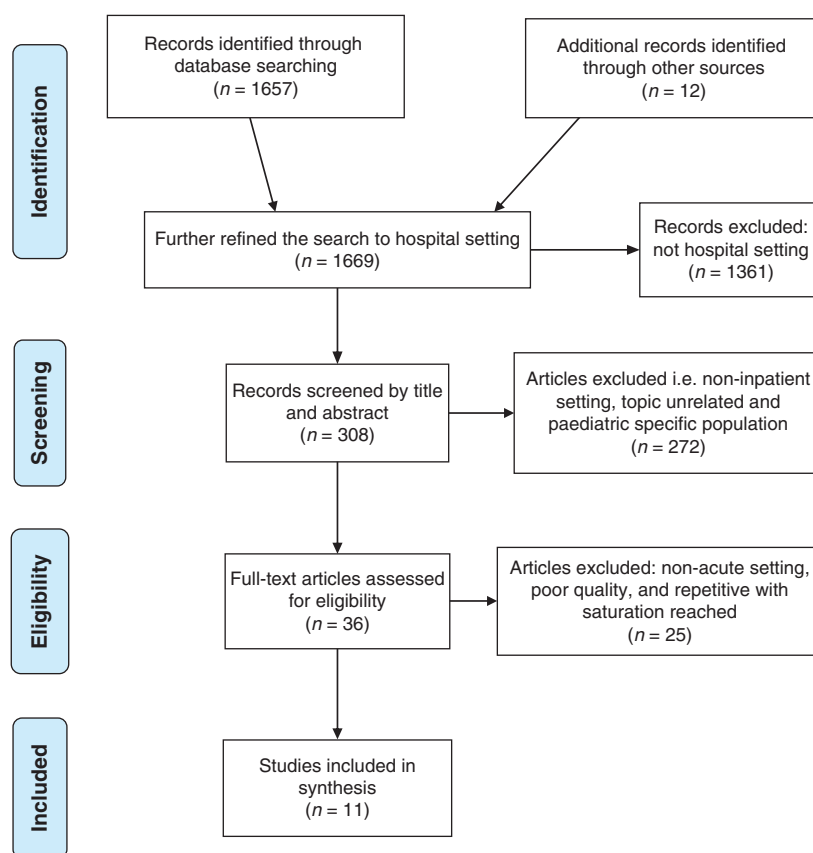
Fig. 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowchart for the screening and selection of studies.

safety issues, teamwork and communication presentations, and ward champions to reinforce the learning. Nurses reported more positively on teamwork and communication around reported errors after the intervention than either pharmacists or doctors.

In contrast to the above, two studies reported a more positive perception of PSC by doctors than nurses. The first of these studies was a large European study on teamwork and safety climate.[19] In that study, doctors had a significantly more positive perception of teamwork within their ward than nurses, whereas both groups had similarly positive perceptions of the safety climate. Nurses and doctors rated the teamwork within their ward more positively than safety.

The second study in which doctors reported more positively on PSC was an Australian study involving nurses and doctors from 10 intensive care units (ICUs).[20] Both nurses and doctors recorded most positive perceptions for teamwork within their unit and were least positive on hospital management responses to safety.[20] In that study, doctors had a significantly more positive attitude towards teamwork, job satisfaction, working conditions and safety climate than nurses.

Although all the aforementioned studies were conducted in acute hospitals, the settings varied from ICUs to acute medical units to the whole hospital. Comparisons among the different health professional groups of nurses and doctors were investigated, but two studies also included pharmacists, with pharmacists reporting a more positive perception of the PSC than doctors in both studies.[16,18] In four of the six studies, nurses reported more positive perceptions of PSC than doctors.[15–18] Three of the studies that reported nurses having a more positive perception of PSC used the AHRQ hospital survey tool;[15,16,18] and one study used the PSCHO tool.[17] The two studies that reported doctors had a more positive perception than nurses used modified versions of the SAQ.[19,20]

Perception of patient safety culture at the hospital and ward levels

The culture of a hospital affects how services are delivered, which is likely to affect the safety and quality of care.[21] Within the hospital, there are often subcultures that define a department or geographical area (e.g. a surgical speciality or surgical ward).[11,21] Five studies were identified that compared the subculture within hospital-level PSC, with each reporting differences between the ward perception of PSC and the wider hospital level.[15,22–25]

Kagan and Barnoy[22] studied organisational culture and error reporting in Israel by reviewing whether the ward subculture was the same as the hospital culture for registered nurses (RNs). The RNs reported significantly more positive perceptions of their ward PSC than they did of the hospital-level PSC.

Similarly, in Norway, Ballangrud *et al.*[23] conducted a study of RNs in 10 ICUs to investigate the perception of PSC and to identify potential predictors for overall perception of safety and

Table 1. Summary of the 11 studies included in the present review

PSC, patient safety culture; MDT, multidisciplinary teamwork; AHRQ, Agency for Healthcare Research and Quality; SAQ, Safety Attitudes Questionnaire; Stanford/PSCI, Patient Safety Center of Inquiry; PSCHCO, Patient Safety Climate in Healthcare Organizations; ICUs, intensive care units; RNs, registered nurses; QMS, quality management system

Reference	Country of origin	Purpose of study	Study design, data collection method and tool	Setting and sample	Findings
Campbell et al.[15]	US	To assess the variation in PSC across units within an academic medical centre	Quantitative study; paper-based questionnaire (AHRQ)	Acute hospital, 2163 nurses (80%) and doctors (20%)	Variations found between wards and health professions on safety perception. Operating and emergency units had the lowest overall positive ratings. Ward PSC was rated more positively than hospital PSC. Implications for clinical practice are that when addressing hospital safety problems, a focus on individual units may provide more benefit than a whole-of-hospital approach.
El-Jardali et al.[16]	Lebanon	To explore the association between PSC predictors and outcomes in relation to respondent and hospital characteristics	Quantitative study; paper-based questionnaire (AHRQ)	Private acute hospitals, 6807 healthcare workers, clinical and non-clinical	Event reporting, communication, patient safety leadership and management, staffing and accreditation were identified as major PSC predictors. Significant correlations were observed among the respondents, with nurses reporting more events and having a higher overall perception of safety than doctors. Hospital characteristics were a predictor of the patient safety grade and frequency of events reported, with smaller hospitals reporting more events and having a better overall perception of safety. Implications for clinical practice are the need to provide feedback and have open communication about errors so that adverse event reporting is encouraged.
Blegen et al.[18]	US	To improve unit-based safety culture through the implementation of an MDT and communication intervention	Quantitative study; before–after intervention, paper-based questionnaire (AHRQ)	Medical wards in three hospitals; doctors, nurses and pharmacists (454 staff before and 368 after the intervention)	Improvements were noted on five of 11 patient safety dimensions 1 year after the intervention. A marked improvement in communication openness was reported 1 year later, and an improvement in the overall perception of safety. With highly positive scores for teamwork at the 'before' stage, smaller improvements were noted on this dimension. Nurses reported more positively than both doctors and pharmacists. Implications for clinical practice are that a teamwork and communication intervention can improve staff perception of patient safety.
Chaboyer et al.[20]	Australia	To test the hypotheses that PSC differed between nurses and doctors, as well as between nurse leaders and bedside nurses	Quantitative study; paper-based questionnaire (SAQ)	ICUs, 672 nurses (76.3%) and doctors (13.2%), with 10.4% not identifying their profession	Doctors were more positive than nurses on four of the six PSC measures (job satisfaction, teamwork, safety climate and working conditions). Bedside nurses were more positive than nurse leaders on all six PSC measures with two (working conditions and perception of hospital management) rated significantly lower by nurse leaders. Implications for clinical practice are the need to measure a baseline PSC so that targeted strategies can be implemented to address specific dimensions.
Kagan and Barnoy[22]	Israel	To investigate the association between PSC and the incidence and rate of medical errors by Israeli nurses	Quantitative study; paper-based questionnaire (Stanford/PSCI)	Hospitals (90%) and healthcare services, 247 RNs	PSC was positively and significantly related to the medical error reporting rate. Most nurses encountered medical errors from a daily to a weekly basis, yet half reported their own errors rarely or sometimes. Implications for clinical practice are that a positive PSC can encourage error reporting by staff.

Study	Country	Aim	Method	Sample	Findings
Agnew et al.[25]	Scotland	To test whether PSC was associated with worker safety behaviours, and worker and patient injuries	Quantitative study; paper-based questionnaire. (Scottish Hospital Safety Questionnaire)	Acute hospitals, 1866 healthcare professionals (nurses (53%), allied health (22%), nursing or healthcare assistants (13%), medical and dental consultants (12%))	PSC was significantly associated with worker safety behaviours. A weaker, but still significant association was shown between PSC and worker and patient injuries. The strongest predictor of safety compliance was staffing levels. Implications for practice are that fostering a positive patient safety culture can support worker safety.
Ballangrud et al.[23]	Norway	To investigate PSC and potential predictors of the overall perception of patient safety grade and error reporting	Quantitative study; paper-based questionnaire (AHRQ)	ICUs: coronary care, general and mixed; 220 RNs	Nurses were more positive on PSC at the unit level than the hospital level. The type of unit was a predictor of the overall perception of patient safety, with the general ICUs reporting most positively and mixed ICUs reporting fewer errors. Implications for clinical practice are that improvements are required in incident reporting, feedback and communication about errors, as well as organisational learning.
Fujita et al.[24]	Japan	To investigate PSC at the unit level	Quantitative study; paper-based questionnaire (AHRQ)	12 acute, three mixed-care and three long-term care hospitals, 8700 healthcare workers (nurses (46.4%), administration workers (14.4%), doctors (9.2%) and other roles such as allied health and technicians (30%))	Finding of variations in the PSC depending on the type of unit. The combined unit types of obstetrics, gynaecology, perinatal ward or neonatal ICU were significantly more likely to be classified as high PSC units. The dimension of teamwork within hospital units was the biggest influence as to whether a unit was classified as a high or low PSC unit. Implications for clinical practice are that assessing unit PSC can reveal areas for improvement. Improvement measures can be tailored to the individual units because not all units within a hospital share the same PSC.
Kristensen et al.[19]	Seven European countries	To compare differences in teamwork and safety climate between clinical leaders and bedside clinicians, and to investigate the associations of QMSs with teamwork and safety climate	Quantitative study; electronic questionnaires and surveys on the hospital QMS (SAQ modified)	Acute hospitals, nurses and doctors, 3622 clinical leaders and 4903 bedside clinicians	More clinical leaders had a positive perception of teamwork and safety climate than bedside clinicians. There was a positive association between implementing a QMS and teamwork and safety climate. The implications for clinical practice are that initiatives to improve teamwork and safety climate should be tailored differently to clinical leaders than bedside clinicians, and having a QMS can support teamwork and safety climate.
Turunen et al.[26]	Finland	To explore and compare nurse managers' and registered nurses' perceptions of PSC	Quantitative study; electronic questionnaires (AHRQ)	Acute hospitals, 109 nurse managers and 723 RNs	Nurse managers had a more positive overall perception of safety than RNs. Nurse managers reported more positively on communication about errors and thought adverse events were reported more frequently than did RNs. Nurse managers were more positive about management support for patient safety than RNs, and a majority of nurse managers agreed that hospital management showed that patient safety is a top priority. Implications for clinical practice are the need to close the gap in PSC between nurse managers and RNs by sharing training and accountability for patient safety.

Table 1. (*continued*)

Reference	Country of origin	Purpose of study	Study design, data collection method and tool	Setting and sample	Findings
Zhou *et al.*[17]	China	To explore the perceptions of PSC and differences between healthcare workers in China and the US	Quantitative study; paper-based questionnaire (PSCHCO)	Acute hospitals, 1272 healthcare workers (47 managers, 505 doctors, 534 nurses and 186 medical technicians and non-managerial workers)	Hospital managers had a more positive overall perception of safety than other healthcare workers. Mostly positive perceptions of PSC among Chinese workers were similar to those of US workers. However, for Chinese workers, fear of shame and fear of blame were the most reported; 42% of staff in China thought asking for help was a sign of incompetence and telling others about a mistake was embarrassing. Implications for clinical practice are that barriers to reporting and to providing a safe patient environment need to be identified so they can be addressed.

frequency of event reporting. The RNs reported a positive PSC for their wards, but less positively on the wider hospital PSC. The most negative responses found by Ballangrud *et al.*[23] were in relation to the hospital management's support for patient safety.

In a single site US study, Campbell *et al.*[15] compared the perception of PSC by nurses and doctors at the hospital and ward levels, finding that perceptions of PSC varied across the dimensions, but the least positive perceptions were for the hospital-level dimensions of teamwork across units, hospital handovers and feedback and communication about errors. Across wards, there were considerable variations in the perception of PSC, with the emergency department and operating theatre recording the least positive responses.

In a multiple-site study in Japan, Fujita *et al.*[24] examined PSC at the ward level for all healthcare staff, finding variations in attitudes towards PSC depending on the type of ward. The most positive PSC was reported by staff working in obstetrics, gynaecology, perinatal care or the neonatal ICU. Fujita *et al.*[24] found the least positive perception of PSC was reported by staff working in rehabilitation and long-term care. The dimension of teamwork was the strongest predictor of whether a ward reported a positive PSC. As reported in other studies, staff perception of ward PSC was more positive than for hospital PSC, although wards with a more positive PSC had a more positive perception of the hospital PSC.[24]

In Scotland, Agnew *et al.*[25] also reported that healthcare staff were more positive of ward PSC than hospital PSC. Agnew *et al.*[25] also found the hospital-level dimensions of teamwork across wards, hospital handovers and hospital management support for safety received the least positive responses. The most positive response was for teamwork within the wards.

The five studies above indicate a highly positive perception of the PSC at the local ward level than that perceived of the wider hospital culture.

Clinicians' and managers' perceptions of PSC

Many studies have reported that managers have a more positive perception of patient safety dimensions than other hospital workers.[17,19,26] Four studies compared clinicians' perceptions of PSC with those of managers.[17,19,20,26]

In Finland, Turunen *et al.*[26] compared differences in the way bedside nurses and their managers viewed the PSC, finding a significant difference because nurse managers reported more positively on all dimensions of patient safety. The largest difference was in the nurse managers' perceptions of hospital management support for patient safety.

In China, Zhou *et al.*[17] surveyed nurses, doctors and managers about PSC. The management group reported more positively than did bedside clinicians. The entire management group held non-clinical roles, which may have accounted for the difference in perception of PSC. Reasons for their more positive views could be that hospital managers in China are the main drivers of patient safety interventions and do not interact directly with patients.[17]

In a European multiple-site study, Kristensen *et al.*[19] found that nurse managers and medical managers reported more positively on both teamwork and PSC than did bedside clinicians.

Kristensen *et al.*[19] also found that hospitals having a quality management system in place was positively correlated with a more positive PSC. Quality management systems included quality improvement policies, hospital policies, auditing of care, evaluating results and training of professionals.

In contrast, in the Australian study of 10 ICUs, nurse leaders rated significantly lower on working conditions and perception of hospital management than did bedside nurses.[20] There were no significant differences between nurse leaders' and bedside nurses' perceptions of another four patient safety dimensions, namely job satisfaction, teamwork, safety climate and stress recognition. For nine of the 10 ICUs surveyed, the perception of hospital management was rated lowest of the variables by both nurse leaders and bedside nurses.

Discussion

In almost 70% of the studies reported, doctors reported more negatively on PSC than did other health professionals.[15–18] There are some explanations as to why this is, such as different workloads, the level of initial training and ongoing safety training.[15] However, these rationales are not conclusive.

Staff report more positively on PSC at the ward level than at the hospital level, with these findings similar across all professional groups. The hospital PSC, set by executive, should be the dominant culture, but the core values are not perceived as shared by the ward subcultures. This disconnect needs further exploration because managers usually report more positive perceptions of the PSC than bedside clinicians.[17,19,26] Managers having a positive PSC and supporting their staff in patient safety initiatives will affect how the clinicians perceive patient safety.[27] However, it is unclear whether the managers promote the organisation's clinical governance strategies to ensure the wards' and the hospital's expected behaviours are consistent.[11] Clinical governance is set at the executive level, but it needs support to achieve quality care.[28]

These differences in PSC perception between health professionals, managers and clinicians, and the ward and hospital level, need to be addressed so that patient safety becomes everyone's business.[6,11] Having a positive PSC is important because health professionals with a positive PSC are more likely to engage in safety behaviours, such as following procedures and reporting errors.[25] There have been improvements demonstrated with team training programs.[18,29,30] The literature states that if improvements are to be maintained, this training should be ongoing.[29]

Study limitations

The use of six different measurement tools across the studies included in the present review may have affected the results. However, if the hospital has a positive safety culture this should be the finding regardless of the tool used[31]. Also by making comparisons only where similar safety culture dimensions have been measured any effects should be minimal.

Conclusion

This review has highlighted that despite efforts to improve PSC, health professional groups have different views and do not perceive their organisations to be promoting patient safety. It would seem that a PSC is important within their immediate work area for all health professionals. However, when it comes to the PSC of the hospital, it would appear that health professionals feel disconnected from hospital management and their organisation. Potential reasons for this have been cited and include poor communication and the perception that the organisation does not learn from the reported mistakes. The small study that the present review is linked to will examine the aforementioned reasons from an Australian perspective because there is a lack of recent PSC literature in acute hospital settings in Australia.

Competing interests

None declared.

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