ASSESSING THE CULTURE OF SAFETY IN A TERTIARY ICU

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INTRODUCTION

It is quite apparent that improvements in patient safety are required. Landmark reports form the Institute of Medicine in the US[1-2] and the NHS in the UK[3-4], alerted healthcare providers, organizations and consumers to the deficiencies in healthcare practices. Both New Zealand[5] and Australia[6] followed suit with published reports on adverse events in public hospitals.

Research in the field of psychology demonstrates that organizational culture (or the context in which work occurs) has important influences on safety[7,8]. In health, a growing body of literature lends support to the claims of J. Bryan Sexton, Peter Pronovost and the 'The Joint Commission', that 'Safety culture is important, measurable and improvable'.

J. Bryan Sexton:

- Led the creation of the Safety Attitudes Questionnaire (SAQ) which was developed as a method of measuring caregiver attitudes about safety.
- The psychometrics of the SAQ in brief[9]:
  - Data was obtained from six cross-sectional surveys of 10,843 health care providers in 203 clinical areas (including critical care units, operating rooms, inpatient settings, and ambulatory clinics) in three countries (USA, UK, New Zealand).
  - Scale reliability was strong at 0.9 (assessed via Raykov's p coefficient).
  - Multilevel factor analysis produced a six factor model (see Table 1).

Table 1. SAQ factor definitions and example items

Factor: **Definition**	**Example items**
Teamwork climate: perceived quality of collaboration between personnel	- Disagreements in the ICU are appropriately resolved (i.e. what is best for the patient) - Our doctors and nurses work together as a well coordinated team
Job satisfaction: positivity about the work experience	- I like my job - This hospital is a good place to work
Perceptions of management: approval of managerial action	- Hospital management supports my daily efforts in the ICU - Hospital management is doing a good job
Safety climate: perceptions of a strong and proactive organisational commitment to safety	- I would feel perfectly safe being treated in this ICU - ICU personnel frequently disregard rules or guidelines developed for our ICU
Working conditions: perceived quality of the ICU work environment and logistical support (staffing, equipment etc.)	- Our levels of staffing are sufficient to handle the number of patients - The ICU equipment in our hospital is adequate
Stress recognition: acknowledgement of how performance is influenced by stressors	- I am less effective at work when fatigued - When my workload becomes excessive, my performance is impaired

- Studies showed that favourable safety climate scores were associated with:
  - lower nurse turnover and lower risk adjusted patient mortality[10]
  - shorter LOS, fewer medication errors, lower ventilator-associated pneumonia rates, and lower bloodstream infection rates[11]

Recent study:

- Huang and colleagues[12] conducted the SAQ in one tertiary care hospital containing four ICUs.
- Results showed (1) safety culture factors differed significantly across the ICUs of a single hospital; and (2) ICU nursing directors overestimated their personnel's attitudes, particularly for teamwork.
- Their findings suggest that safety culture should be assessed at the ICU level rather than the hospital level or by relying on director opinions.

Peter Pronovost & Colleagues:

- Developed and implemented a 'Comprehensive Unit-based Safety Program' (CUSP) that demonstrated improvements in safety culture[13].
- CUSP involves:
  - staff and hospital leaders actively learning from defects using a structured tool;
  - safety teams implementing tools such as daily goal forms and conducting morning briefings.
- This model was applied in the Keystone ICU project to improve safety in over 100 Michigan ICUs[14].
  - 72 participating ICUs administered the Safety Attitudes Questionnaire (SAQ) to all ICU staff pre- and post-intervention.
  - Context of care items (related to patient safety and perceptions of leadership) on the SAQ improved over time.

AIM

- To assess the current status of a tertiary ICU as a first step to improving its safety culture.

METHOD

- A convenience sample of ICU staff were invited by 2 senior ICU nurses to anonymously complete a computerised version of the SAQ during a 6-week period.
- The SAQ collects demographic information (age, sex, experience) and contains 60 items that are answered using a five-point Likert scale ranging from Disagree Strongly to Agree Strongly. Some items are negatively worded.
- The SAQ has a "Collaboration and Communication" section, where respondents are asked to indicate the quality of collaboration and communication they have experienced with each of the types of providers in their clinical area (e.g., Intensivists, Residents, Nurses, Pharmacists, Wardspeople etc.) using a five-point Likert scale ranging from Very Low to Very High).
- There was an open-ended section for comments. The question was: "What are your top three recommendations for improving patient safety in this ICU."

RESULTS

Sample size:

- A response rate of 52% was achieved (63 of 122 ICU staff members).
- Job categories: (response rates)
  - 43% (39 of 90) nursing;
  - 52% (12 of 23) medical;
  - 100% (9 of 9) other staff which included allied health and wardspersons;
  - 3 missing.

Demographics:

Though not statistically significant, on average:

- medical staff did have slightly more intensive care experience than nursing staff ($\bar{x}$=10.94 vs 8.07); and
- nursing staff had worked longer in this particular ICU than medical staff ($\bar{x}$ =6.93 vs 4.39).

Percent Positive scores

- Percent positive scores = 'agree' + 'strongly agree' responses to each question within each of the factor scores (see Table 2).

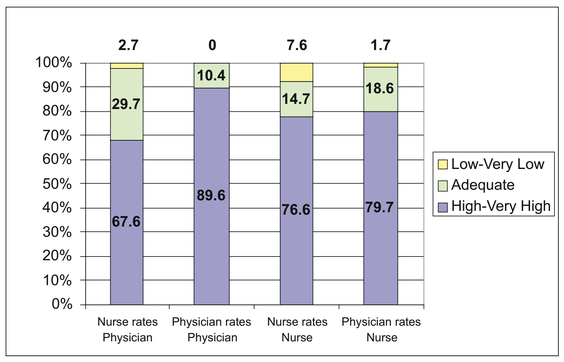
Table 2. Percent positive scores

Factor	Nursing	Medical	Total
Teamwork climate	80.8	83.3	79.4
Job satisfaction	77.4	83.3	77.5
Stress Recognition	71.2	77.1	69.0
Safety Climate	68.5	67.9	65.8
Working Conditions	50.0	58.3	51.2
Perceptions of Management	44.9	39.6	42.9

Positive score benchmark ≥75%

- According to the percentage scores overall:
  - Teamwork Climate and Job Satisfaction rated the highest and were the only two factors to reach the positive score benchmark of 75%;
  - Perceptions of Management followed by Working Conditions rated the lowest.
- Although there were no significant differences between nurses and physicians on any of the factor scores, there was a tendency for physicians to have higher scores for Job Satisfaction, Stress Recognition, and Working Conditions and lower scores on Perceptions of Management than nursing staff.

Rating the quality of "Collaboration and Communication"



- The graph shows the percent of nurses and physicians rating the quality of collaboration and communication with their colleagues as either 'high-very high', 'adequate', or 'low-very low'.

Respondent's recommendations for improving patient safety

Qualitative analyses identified the following major categories:

- Quality and safety issues in clinical management processes (46.4%) including:
  - improved patient supervision (n=8);
  - improve reporting of incident monitoring/near misses (n=5);
  - increase use checklists (n=4), protocols and evidence-based guidelines (n=4).
- Workforce issues (21.6%) e.g. to improve skill mix on each shift (n=7).
- Education (20%) where the majority of responses related to the need for more clinical education and professional development.
- Equipment (10.4%) recommendations were mostly related to manual handling devices (n=6).

DISCUSSION

In this ICU overall, staff were positive about the quality of teamwork and the level of satisfaction with their work. Similar to findings from the U.K., U.S.A. and New Zealand[9] staff were largely disapproving of managerial action and negative about their working conditions.

The recommendations staff made for improving patient safety reflected the lower ranked factor scores with the majority suggesting improvements related to working conditions and the safety climate. This finding could have also impacted on staff's perceptions of management (e.g. insufficient staffing levels and availability of equipment may have been attributed to poor management decisions).

ICU physicians rated the quality of collaboration and communication with other staff higher than what nurses did which is in line with the results of a larger cross-sectional study in the U.S.[15]. When looking for reasons why this might be the case, some of responses to specific questions on the SAQ revealed that:

- nurses found it a little more difficult to speak up if they perceived a problem with patient care; and
- they perceived their input wasn't as well received as what the physicians thought they were.

FUTURE DIRECTIONS

- By highlighting areas of need, this initial assessment provides the basis for determining interventions required for improving the culture of safety within the ICU. Ongoing consultation between ICCMU and ICUs can facilitate this process.
- Extend this single-centre study into a national collaborative project between the ACCCN Quality Advisory Panel, ANZICS Safety and Quality Committee and ICCMU.

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