Clinical competence in the perioperative environment: implications for education

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The purpose of this study was to explore the culture of a perioperative department to identify elements of the culture that impacted on nurses' resilience. The field setting was a tertiary referral hospital in southeast Queensland which provided 24 hour surgical coverage. Fieldwork was conducted over a 6 week period. Nurses, doctors and support staff who worked across perioperative specialties of anaesthetics, recovery and scrub/scout roles were observed and interviewed. The observation notes and interviews were transcribed and thematic analysis occurred. These textual data were analysed in three phases.

Three themes emerged from the analysis, the first, primacy of specialist knowledge and demonstration of competence, is the focus of this paper. Cultural significance was ascribed to clinical competence, which was described in terms of the knowledge and experience nurses possessed. These findings have implications in the ways which perioperative education is currently approached, and may suggest the need for educational reform.

Background

There is a shortage of nurses throughout Australia, both in generalist and specialist areas such as perioperative. Perioperative nursing is vulnerable to shortages due to its unique environment, post registration education and training requirements, and the subtle nuances that discursively define relationships and communications among team members. New surgical techniques and models of service delivery, coupled with the increasing demand for perioperative services, have seen an expansion and intensification of the nurses' role in this setting.

For perioperative nurses, gaining the skills and knowledge required to provide safe and effective patient care has historically been approached in an ad hoc manner, an 'on the job' experience. Currently in Australia, there is a paucity of formal courses designed to address the education needs of specialist areas such as perioperative nursing. Consequently, this is the gradual attrition of nurses from the perioperative specialty, as many struggle to develop the clinical skills which are ultimately derived from a specialist knowledge base.

The technical omnipresence that typifies the perioperative area has been associated with information that is unique to the context, a form of knowledge not used or necessarily required or taught in other clinical settings. There appears to be vast differences in the types of knowledge needed to work in perioperative as compared with other areas of nursing. Contemporary perioperative practice is surrounded by forms of knowledge that are idiosyncratic to the environment, which include standards of perioperative practice, guidelines for performing a count procedure, principles related to aseptic technique and the management of instruments and equipment.

A decrease in educational opportunities at the undergraduate and postgraduate levels in Australia and perceived lack of professional development has had negative consequences for nurses who have chosen to work in operating room nursing. Clinical rotations to the perioperative specialty have slowly been eliminated from undergraduate programs because of tertiary sector nursing educators' view that perioperative education is unnecessary at the undergraduate level. Of concern is the lack of clinical exposure to the perioperative environment that undergraduate nursing students currently receive, which means that they are less likely to seek employment in the specialty after registration. Therefore, nurses who choose to work in the perioperative setting begin their careers with little or no exposure to perioperative nursing and are ill prepared to enter the specialty.

As long ago as 1988, Wallis identified the importance of...
implementing education programs at the hospital department level specifically tailored to support new graduates' integration and effective functioning in perioperative settings, especially in consideration of the shift of nursing education to the tertiary sector. Over the intervening 18 years since Wallis' paper, there has been an increase in patient acuity and complexity of technology, which has been an intensification of the work performed by perioperative nurses. This situation, coupled with the lack of clinical exposure that nursing students receive at undergraduate level, is evidenced in the declining numbers of nurses recruited to the specialty. Despite the efforts made by associations such as the Australian College of Operating Room Nurses (ACORN), nursing school curricula have been slow to respond to this need for inclusion of a perioperative component in basic nurse education.

In perioperative nursing, where clinical competence is leveraged against the provision of specialty education, developing knowledge and competence characterises nurses' ability to perform their roles effectively. To date, there has been little research which has explored elements of perioperative culture that have the potential to impact on nurses' perceived competence.

The study

The aim of this mini-ethnography was to describe the perioperative culture, since this research method focuses on describing social microcosms, in this instance an operating room. It was essential to gain more in-depth understanding of operating room culture, rather than merely describing the most common features of this culture.

Fieldwork allowed a deeper understanding of how group members' worlds were constructed and influenced through context. Essentially, fieldwork encompasses the notion that the researcher is the 'instrument' through which data collection occurs. It was necessary to gain a viewpoint from the participants' (insiders') perspectives, therefore experience, and portray the culture from this perspective. However, it was equally important for the author to move from the reality of participants to conceptual interpretations about the beliefs and routines within this context (outsiders' perspective). In this way, a delicate balance of both the insiders' and outsiders' perspectives was achieved.

Ethics approval for this study was obtained from the Human Research Ethics Committee of the university and hospital. Informed written consent was obtained for all observations and interviews. Participants were given a formal invitation letter containing information regarding the study's aims, procedures, risks and benefits. Participants were informed about their right to withdraw any time during the study.

The field setting was a busy eight operating room department in a major hospital in southeast Queensland which offered 24-hour surgical services. This department was staffed by approximately 100 RNs, who worked either in the scrub/Scout or anaesthetic/post anaesthetic recovery unit roles.

Sample

A combination of purposive and snowball sampling methods were used to recruit participants during fieldwork. The purposive sample was criterion based. During the field entry phase, those nurses who displayed an interest in the study were identified, and new participants were recruited based on the recommendations of potential participants. The advantage with this snowball sampling approach was that the knowledgeable participant was more likely to recommend others who provided detailed information with regard to the culture under study. Participants with special knowledge or experience included novices and expert members alike, who were chosen based on the particular information they possessed and were willing to share. Selection of participants was also based on their involvement in a particular scenario that was unfolding during fieldwork. Thus, participants were able to provide information that specifically related to their experiences and perceptions of the event.

Data collection

Four data collection strategies were used during the fieldwork phase - field notes recording participant observation, a reflective journal, and formal and informal interviews (an acknowledged triangulation of exploratory approaches on the same phenomenon). During fieldwork, the author participated in the daily routines and developed ongoing relations with the staff, while observing what was happening. Field notes were not only a passive account of the facts of an event, they also included interpretations of what was seen and experienced during observation and participation. As the author had practised for many years as a perioperative nurse, she kept a journal to acknowledge her previous experiences to ensure professional objectivity was maintained.

In-depth formal interviews were used to elicit specific information to reflect the participants' worldview, and were conducted at the discretion of the participants. Seven formal interviews were conducted with a range of participants in nursing, medical and auxiliary roles. Prior to each interview, demographic data that included age, gender, year of experience and role were collected. Each interview took 30-45 minutes to complete. Twenty informal interviews involved asking questions about observed events and interactions immediately after they had occurred. Informal interviews were driven by the situation, lasted 10-15 minutes and were paraphrased.

Data analysis

All interviews and observations were transcribed. Strauss & Corbin identify qualitative analysis as an "iterative process" and, just in the same way that fieldwork is not a linear activity, so analysis involves a constant comparative method in order to develop categories and themes throughout the analysis. The data were analysed through oscillating back and forth between these three processes; open coding, categorising of data and identifying themes. Open coding involved a search through all of the transcription data to apply descriptor codes to chunks of words, sentences or paragraphs of text and identify significant concepts evident in the direct verbatim, informal interviews and field notes. This process was repeated for accuracy and explanation, until no new codes were found. Categories that arose from cross comparisons of the codes were examined for regularities that seemed to capture the essence of the meanings or experiences and behaviours across multiple situations - abstractions which symbolised higher order concepts or themes.
Research rigour
A number of techniques were used to enhance the credibility of findings. During the fieldwork period, data were collected through observations, focused and informal interviews and reflective journalling. Using multiple methods of data collection and multiple sources of evidence enabled a broad range of issues to be crosschecked, thus achieving convergent validity or ‘confirmation’ of data. Additionally, the congruency between the participants’ experiences, and interpretations of these, were taken back to participants to verify whether the descriptions faithfully reflected the human experience of participants.

Findings
There were a variety of participants interviewed both formally and informally, including staff from medical, nursing and supporting roles. A description of the informants interviewed is displayed in Table 1. Informants’ ages ranged from 27–53 years, with the average age being 42.7 years (SD=10.3). Their years of experience averaged 14.1 years (SD=11.7).

Three themes emerged from the analysis of textual data:
- Primacy of specialist knowledge and demonstration of competence.
- Paradoxical social order and kinship among members.
- Importance of control in a volatile environment.

An overview of these themes is presented elsewhere. This paper provides an in-depth description of the first theme, primacy of specialist knowledge and demonstration of competence, because the culture of the perioperative setting is often considered in relation to clinical competence. Table 2 details the categories and descriptor codes which were encompassed within this first theme.

The theme of primacy of specialist knowledge and demonstration of competence was identified by all informants in the ways they described the esteemed value of clinical expertise which characterised the effectiveness of their performance in a culture where technology was omnipresent. As presented in Table 2, the categories of specialist knowledge and experience, collegial collaboration, peer support and primacy of competence were encompassed in this theme.

Specialist knowledge and experience
Knowledge was given ‘primacy’ in this culture since it was observed that those who had this knowledge were automatically recognised by others as being competent and were highly regarded among peers. Perioperative practice was circumscribed by types of knowledge that included guidelines for performing aseptic technique, standards of sterilisation, organisation of instruments and equipment and the scrub procedure. This was captured in one participant’s verbatim quote:

So much to learn... all the instruments, the instrument names, how to handle them, and how to hand them off to surgeons... just your sterile field, you’ve got to maintain your sterile field, and your

sterility and keep aware of your instruments on your tray... It just so much! Overwhelming... it can be scary, and you want to leave if it is too overwhelming.... – Formal interview 1 (RN – F).

Collegial collaboration
The lack of knowledge associated with the inability to speak the specialty language was manifested in communications that were ineffective and often led to some form of social exclusion. Members needed to determine efficiently the content of non-verbal prompts that often underscored the use of specialised language. Cultural assimilation largely depended on the ability to make interpretations. Effective communication and collegial collaboration relied on specialist knowledge and experience, thus a lack in one area often precipitated a lack in other areas of role performance and, hence, competence. This was frequently observed, particularly when novices were involved, as illustrated in this field note:

When the scrub team had settled at the OR table, the surgeon asked for a ‘sprinkler system’ to be taken on to the table. The scrub nurse’s eyebrows lifted slightly, and she shrugged her shoulders as she turned to the scrub nurse. The scrub clarified this with the surgeon and said, ‘You want a pulse-lavage [sucker-irrigator system] don’t you?’ The surgeon rolled his eyes and nodded deliberately... – Field note 27.

Table 2. Codes and categories for the theme primacy of knowledge and demonstration of competence.

<table>
<thead>
<tr>
<th>Category and descriptor codes</th>
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<tbody>
<tr>
<td>Specialist knowledge and experience</td>
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<tr>
<td>• Technical knowledge</td>
</tr>
<tr>
<td>• Specialist language</td>
</tr>
<tr>
<td>• Education</td>
</tr>
<tr>
<td>• Prepared to learn</td>
</tr>
<tr>
<td>Collegial collaboration</td>
</tr>
<tr>
<td>• Verbal communication</td>
</tr>
<tr>
<td>• Non-verbal communication</td>
</tr>
<tr>
<td>• Teamwork</td>
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<tr>
<td>• Common goals</td>
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<tr>
<td>• Mutual respect</td>
</tr>
<tr>
<td>• Trust</td>
</tr>
<tr>
<td>Peer support</td>
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<tr>
<td>• Support person</td>
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<tr>
<td>• Nurturing of staff</td>
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<tr>
<td>• Making a difference</td>
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<td>• Information sharing</td>
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<tr>
<td>• Easing the pressure on others</td>
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<tr>
<td>• Resource person</td>
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<tr>
<td>Primacy of competence</td>
</tr>
<tr>
<td>• Learning curve</td>
</tr>
<tr>
<td>• Amount of experience</td>
</tr>
<tr>
<td>• Degree of familiarity</td>
</tr>
<tr>
<td>• Pre-emptive behaviours</td>
</tr>
<tr>
<td>• Vigilance</td>
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</tbody>
</table>

Table 1. Description of informants interviewed formally and informally (n=27).

<table>
<thead>
<tr>
<th>Interview</th>
<th>Nurses</th>
<th>Doctors</th>
<th>Theatre assistants</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Informal</td>
<td>15</td>
<td>5</td>
<td>–</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>6</td>
<td>1</td>
<td>27</td>
</tr>
</tbody>
</table>
Conversely, if participants were experienced, this lessened the potential for a communication schism to occur between various team members, specifically during surgery. One nurse stated that an experienced nurse “can usually guess” what the doctor is requesting even when “you don’t know the name of it, you know what it is”. Accordingly, the ability to be able to make such explicit interpretations from implicit information was another dimension of specialist knowledge and experience.

Peer support

Many participants identified the importance of peer support through the presence of a resource person, someone who had a broad knowledge base and who could assist them in gaining the necessary education that enabled newcomers to make significant contributions as team members. These notions were articulated by one of the nurses whose role it was to provide the necessary educational support to new nursing staff:

To be a good resource person for myself and for the unit. Educating myself to be a good educator, finding time to do in-service type things. To help people and help their day to be happier, so to be a good support person, to be a good resource person, [provide] education... so to feel clever, and have the information that people need, to be helpful, emotionally supportive – Formal interview 2 (RN – F).

Additionally, having somebody in the perioperative environment who readily provided newcomers with information that added to their knowledge base alleviated much of the stress which was associated with the technical aspects of competence. From observational and interview data, it was evident that newcomers who did not have access to a resource person often experienced stress that was coupled with the uncertainty of not knowing particular aspects related to the perioperative nurses’ role. For instance, knowledge of the operative procedure, instrumentation, theatre routine and surgeons’ preferences were identified by various participants as fundamental indicators of competence. In the following verbatim commentary, an experienced nurse provides an exemplar of peer support during an operative procedure:

It’s very important when someone new is scrubbed that whoever is in there should be watching and second guessing... so say that ‘I know they’re going to ask for this and if they don’t get it right away and even if they’re saying quietly ‘this is what you’ll need’ that’s one of the roles that we should be doing – Formal interview 3 (RN – F).

However, the importance of peer support was not only identified by newcomers as being essential, it was equally important to experienced nurses who had to frequently work in unfamiliar surgical specialities outside their clinical expertise. That is, RNs were allocated to surgical teams and would work in a group of specialties. Often, RNs from one surgical team were assigned to work with different teams in other specialities they were unfamiliar with. For experienced RNs, the tacit expectation by non-nursing team members was that they should be familiar with the technical aspects across surgical specialities, ostensibly equivalent to their many years of perioperative experience.

Nonetheless, this was not always the case. Clinically experienced nurses divulged how crucial it was to have a resource person working with them in a specialty that they were unfamiliar with, or had not worked in for a long time. One nurse reflected on the stress associated with a lack of knowledge and familiarity:

If I don’t do a lot of that particular operation, then I find it more stressful... for me to go into neuro, I would not feel comfortable being one of the main ones, because I don’t do that [specialty]... go in and scout but never attempt to scrub or would be with another person who doesn’t know it, you need those skills – Formal interview 2 (RN – F).

Primacy of competence

Primacy of competence was also linked to the ability to manage a variety of stressful situations. Many of the more experienced nurse participants perceived that other team members often considered them clinically incompetent if they lacked specialist knowledge in a particular surgical speciality. If nurses were unable to demonstrate clinical knowledge during a stressful situation, then their competence was often questioned, such was the revered value of these attributes in perioperative culture.

Many of the more experienced nurse informants perceived that other team members often considered them clinically incompetent if they lacked specialist knowledge in a particular surgical speciality. Having the knowledge to competently provide care for perioperative patients also had ramifications for safe nursing practice, as evidenced by this paraphrased comment:

Perioperative nurses are unable to safely care for patients if they do not have the knowledge and skills required to practice in this area. This area is highly specialised, and you need to have particular skills and theoretical preparation that you don’t otherwise get in other areas of nursing. If nurses do not have the skills, then this will also affect patient outcomes in this area – Informal interview 20 (RN – F).

Discussion

Primacy of knowledge and demonstration of competence was considered by most as the ‘holy grail’ that characterised clinical competence in the perioperative environment. Support for the categories, primacy of competence and specialist knowledge and experience were provided through participants’ descriptions of the various behaviours that characterised clinical competence. Competence, when applied in the behavioural sense, refers to the functional adequacy and capacity to integrate knowledge and skills to attitudes and values in a specific contextual situation of practice. The career path from ‘novice to expert’ is described on the basis of the attainment of additional skills and competencies. Moreover, this career path has been credited with increased staff retention, improved job satisfaction, and increased motivation.

Other authors cite the link between competence and the presence of extensive theoretical and clinical knowledge which nurses are able to draw on to meet the demands of particular situations. Girot and Williams observed that, while competence was related to performance, it was also attributed to the possession of specialist knowledge that concomitantly contributed to role performance. Findings from this study suggested that there was a relationship between competence, specialist knowledge, role performance and acceptance within the team.

This study identified the compelling effects that newcomers were confronted with when they unwittingly entered this foreign environment, since the type of knowledge needed to work in the perioperative setting is vastly different from any other nursing speciality. Similar sentiments were captured in Sigurdsson’s work, which described the reality shock that most newcomers experienced when they were confronted with having to learn how to function effectively in this ‘different world’. Plausibly, without the specialty education required to fulfil role expectations, the novice’s ability to provide appropriate and safe patient care may be compromised.
The current study has acknowledged the importance of collegial collaboration and peer support as contributing to the development of knowledge and competence. For instance, the ability to communicate effectively was contingent on the interpretation of verbal and non-verbal nuances, and this often characterised the level to which nursing roles were performed, a finding corroborated in a series of studies conducted by Lingard and colleagues. Therefore, collaboration and peer support among team members required knowledge in relation to the variations in communication styles, and their significance in context of a particular situation.

**Recommendations**

The generic nature of undergraduate nursing programs that do not address some of the highly specialised skills required to effectively and safely perform expected work roles in specialised environments is problematic. It is generally accepted that the perioperative nursing workforce has been significantly affected during the transition from the hospital sector to the university sector. Undergraduate students need to have been introduced to perioperative nursing in the undergraduate curriculum for them to be willing to consider a career in the operating room.

For perioperative nursing to become an attractive option for nurses, a three-pronged approach is recommended in order to gain the specialist knowledge and skills needed to competently perform nursing roles in this setting.

First, purchasers, providers, educationalists and policy makers need to re-examine the content of pre-registration courses for nurses in the context of providing care for unique patient populations. Providers of education need to consider constructively what health industry stakeholders view as "core skills" in specialty settings such as the perioperative environment.

Second, the introduction of perioperative preceptorship/internship programs as a means of providing structured ongoing theoretical and clinical education may go some way to addressing the perioperative nursing shortage. These programs were first introduced in the United States over a decade ago as a retention and recruitment strategy. Since the inception of these programs, there has been a reported improvement in skills acquisition and development, nurses' morale, and collaboration with other members of the perioperative team. Successful integration and continued recruitment of new graduate nurses in perioperative nursing is largely dependent upon the implementation of appropriate education programs provided at the departmental level.

Finally, at the postgraduate level, structured specialty programs that focus on providing a theoretical base for clinical competencies need to be made available both through internal and external modes of delivery. These programs would need to have a strong clinical component and thus require a joint education venture between universities and clinical facilities.

**Conclusion**

The future of perioperative nursing is jeopardised if education issues at undergraduate and postgraduate levels are not appropriately addressed. The omission of perioperative education and experience at the undergraduate level ignores and undervalues the contribution made by nurses to patient care in this setting. At the postgraduate level, the provision of a structured education program, managed and coordinated through a bipartisan partnership between the university and the health care facility, is imperative if perioperative environments are to retain a nursing presence.

If nurses are to provide skilled and competent patient care in such a highly specialised milieu, then they need to be appropriately supported so that they may acquire the broad knowledge needed to practice safely in this area. In order to retain skilled perioperative nurses, and recruit future nurses to this specialty, education strategies need to be systematically planned and implemented at all levels.

**Acknowledgements**

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**References**

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