TITLE:

Understanding the role of knowledge in the practice of expert nephrology nurses.

ABSTRACT

This paper, which is abstracted from a larger study into the acquisition and exercise of nephrology nursing expertise, aims to explore the role of knowledge in expert practice. Using grounded theory methodology, the study involved 17 registered nurses who were practicing in a metropolitan renal unit in New South Wales, Australia. Concurrent data collection and analysis was undertaken incorporating participant observations and interviews. Having an extensive nephrology nursing knowledge was a striking characteristic of a nursing expert. Expert nurses clearly relied on and utilised extensive nephrology nursing knowledge to practice. Of importance for nursing, the results of this study indicate that domain-specific knowledge is a crucial feature of expert practice.

INTRODUCTION

The existence and acceptance of expert nurse practice have been evident by the increasing amount of literature that has become available (see for example Adams et al. 1997, Brown & Tiavale 1996, Christensen & Hewitt-Taylor 2006, Edwards 1998, Jasper 1994). Since Benner (1984) first applied the Dreyfus and Dreyfus model to nursing, the interest in expertise has been gaining momentum. Benner identified five levels of competence in clinical nursing practice based on the Dreyfus model of skill acquisition. These levels are novice, advanced beginner, competent, proficient and expert. According to Benner, nurses move through these levels as they develop in their clinical practice, and that expert nurses possess attributes which make their practice superior.

Whilst there is general agreement within the literature that expertise is dependent upon the acquisition of a number of skills and attributes (Benner 1984, Macleod 1993), the description of expert nursing practice is, nevertheless, incomplete. It is not clear whether expertise derives from personal qualities of the nurses that are made evident in practice or whether expertise is dependent on practicing within specific clinical settings.

In response to the complex health care required for people with renal failure nephrology nursing has evolved as a distinct specialty area of nursing. The specialty encompasses a number of subspecialty areas including general nephrology, haemodialysis, peritoneal dialysis and renal transplantation units (Stewart & Bonner 2000). Nephrology nurses practice in primary, secondary and tertiary care settings and in the home (Tamplet Ulrich 2006), in which the focus is on the provision of renal replacement therapy, teaching self-care, assisting individuals to make informed choices regarding the type and proposed location of therapy, and the prevention of related illnesses or complications associated with renal disease.

One unique aspect of nephrology nursing is that these nurses have access to and provide nursing care for people over much longer periods of time than most other nurses (Schardin 1995, Tamplet Ulrich 2006). For instance, haemodialysis nursing care can be provided to the same patient for four to six hours, three times per week for as long as the patient remains on haemodialysis. For some nephrology nurses and patients, this can be for many years and, in some cases, greater than twenty years. While renal physicians (nephrologists) would also provide medical care for patients for similarly long periods, it is nephrology nurses who have much more frequent (thrice weekly versus monthly, quarterly or annually) and prolonged contact with the same patient.

This paper describes an important characteristic of expert nursing, which emerged during a grounded theory study into the acquisition of nephrology nursing expertise and the process through which it was acquired.

METHODS

Grounded theory method uses a systematic approach to developing substantive theories which can account for human behaviour. The substantive theory is inducted from the data and seeks to explain the basic social process experienced by a group of participants interacting in a particular context or setting (Glaser 2001). One of the major uses of grounded theory has been in exploratory and descriptive studies (Glaser 1978, Strauss & Corbin 1998). Grounded theory provided an appropriate means of researching nephrology nursing practice, in order to uncover the acquisition and the essence of expertise.

This study was conducted in one renal unit in New South Wales, Australia, which consisted of several in-patient and out-patient areas. Acute and chronic renal replacement services

including renal transplantation and home training facilities for haemodialysis and peritoneal dialysis patients were provided by this unit. A participant selection criterion was developed from existing literature on expert practice (Benner 1984, Dunn et al. 2000, Jasper 1984). The criteria included length of nephrology nursing experience, formal nephrology nursing postgraduate education, personal characteristics, perceived level of practice and whether nursing peers recognised them as an expert nurse. Nurses, who agreed to participate in the study, were identified by a peer nursing panel as either experts or non-experts. Using purposive then theoretical sampling a total of 17 nurses was studied, consisting of six non-experts and eleven expert nurses; all but one was female. Table one summarises the demographic information about the participants.

[Insert Table 1]

Ethical Approval

Ethical approval was obtained from university and health institutional ethics committees. Nurses who worked permanently in each of these areas were invited to participate in this study. Written informed consent was obtained from each participant prior to the commencement of data collection. Verbal permission from patients who were receiving nursing care during observation episodes was also obtained.

Data Collection and Analysis

Data collection was undertaken by the author and occurred over a nine-month period, and consisted of a total of thirty-two episodes (103 hours) of participant observations and thirty-seven (24 hours) of interviews. Participant observation and interviews are typical data collection methods used in grounded theory (Strauss & Corbin 1998). In this study

observations occurred on various shifts spread across the entire week and in all renal areas. Observational or field notes were recorded in the presence of the participant and handwritten into a notebook. Following each observation, participants were interviewed to gather data concerning the participant's perspective of their practice. Questions were generated from field notes and sought rationales for nursing actions. Interviews were conducted in a private office located near the ward and were audiotaped for subsequent verbatim transcription. Anonymity of data was achieved through the use of pseudonyms.

In grounded theory research, analysis of data follows each data collection episode using the processes of substantive and theoretical coding (Glaser 1978). Initially a line by line analysis of the data was undertaken and this resulted in many codes. Some of these codes were 'in-vivo' codes; that is, codes that reflected the actual words or actions of the participants. Gradually, as more data were collected and analysed, it become apparent that there were similarities in the practice of expert nurses and these codes were subsumed into categories. Properties (characteristics) of each expert category began to emerge as concurrent data collection and analysis proceeded. Simultaneous with the emergence of expert categories and their properties, data were collected from non-expert nephrology nurses in order to identify categories and properties specific to that group of nurses. Questions about the similarities and dissimilarities between expert and non-expert nephrology nursing practice were developed and explored in subsequent data collection episodes with both groups. During the analytical process the level of ability and depth of knowledge of non-expert nurses were in marked contrast to those of the experts. This finding enabled confirmation of the shape or dimension of the expert category. Further data collection and analysis occurred to identify common and conceptualised categories which were more inclusive and explained more of the data. According to Glaser (1978), several questions need to be asked of the data in order to refine

categories and their properties. Some of the questions that were of asked of the data in this study were: To what broader category does this group relate? What is actually happening in the data? What label can I give this broader category? This technique of questioning the data was consistently applied all of the data until no further categories emerged. Theoretical saturation of categories had been achieved. QSR NUD*IST assisted with data management during the process of data analysis.

FINDINGS

The goal of this study was to gain an understanding of the acquisition and exercise of nephrology nursing expertise. A three-stage process of this phenomenon was revealed; non-expert, experienced non-expert and expert stages (Bonner & Greenwood 2006). Each stage consisted of four interrelated conceptual categories which described how the nurse practiced. These categories or characteristics of nephrology nurses were *knowledge*, *experience*, *skill* and *focus*. The purpose of this paper is to discuss an important characteristic of expert nephrology nursing practice that is, *knowledge*.

The characteristic identified as *knowledge* and its role in expert nephrology nursing practice emerged as a significant finding. In this study, a nurse's knowledge was conceptually defined as an understanding of the facts, values, and procedures related to the context and practice of nephrology nursing. A nurse's level of knowledge informed her or him about what to do, when to do it, with whom, when, why and how, and the likely consequences of their actions.

Having an *extensive nephrology nursing knowledge* was a striking characteristic of a nursing expert. Expert nurses clearly relied on and utilised *extensive nephrology nursing knowledge* to practice. In comparison to other non-expert nurses, this characteristic was revealed in the

manner in which these nurses utilised their domain-specific knowledge. Firstly, expert nurses *use multiple sources of knowledge* to guide their practice and, lastly, when questioned about their practice, expert nurses were better able to provide *precise rationales for* [their] *practice*.

Expert nephrology nurses have developed a large number of schemata and scripts with which to store both propositional and procedural knowledge. This large knowledge resource has been built up from both formal courses (e.g., post-graduate courses) and through attendance at continuing education programs (e.g., conferences, workshops). Knowledge gained from these sources has provided significant knowledge to support their practice (i.e., rationales) and allowed them to be at the forefront of nephrology nursing. Lastly, experiential learning from the many years spent performing nephrology nursing skills has provided them with knowledge about what to do, when to do it, with what and how to do it.

For expert nurses, the theoretical and practical knowledge which they had acquired during a postgraduate nephrology nursing course had been proceduralised into their routine practice to the extent that it was difficult for them to identify where they had learnt something. When probed during interviews, all experts acknowledged the importance of this education but recognised that it often lay dormant until needed. For instance, Sam was asked to think back to the time when she had not undertaken the nephrology course and compare what her knowledge was like then and now. Sam stated:

> *You believe you did have the knowledge before but it's more grounded when you've done the course…I think during the course you realise there is other ways of doing things, not just the one way you've been taught, it opens your eyes to other areas, other renal units, and renal is a big area so there's more*

than just PD [peritoneal dialysis]*, there's more than just haemodialysis and*

you've got to understand everything regarding the patient not just the dialysis

aspect (Sam).

The result of having *extensive nephrology nursing knowledge* was that expert nurses utilised many sources of knowledge to support their practice and they were more adept than either experienced non-expert or non-expert nurses at linking from different sources of knowledge in a more meaningful way. Finally, expert nurses were able to provide accurate and precise rationales for their practice; they knew more than other nurses when to perform an activity; they also knew why it needed to be done and what would be the consequences of their actions. By having extensive domain knowledge the relative level of skilfulness of expert nurses was different from that of other nurses. Expert nurses' level of performance was noticeably more autonomous and self-directed. In addition, the knowledge of expert nurses was greatly proceduralised and, hence, mostly automatic, allowing them to divert their attention beyond the task at hand. The focus of the expert nurse was habitually on the patient.

During the study, the satellite haemodialysis unit was trialling a new Vitamin E impregnated dialyser on selected patients. Non-expert nurses knew only that these were different dialysers; experienced non-expert nurses revealed a partial understanding of how the dialysers differed from the usual ones and why these dialysers were being trialled. By comparison, expert nurses knew precisely why the dialysers were being trialled, on whom, why and what the results were. This also clearly demonstrates the level of understanding of research, and participation in and evaluation of new products by expert nurses.

It's considered to be bioactive in that Vitamin E is an antioxidant, it mops up

free radicals and because one of the big problems with dialysis patients is they

get a lot of atherosclerosis etc, it is supposed to inhibit or to partially inhibit

the progression of those diseases. So [a renal physician and I selected] *three*

people [to use this dialyser] o*ne who isn't holding his haemoglobin very well,*

one who gets heaps of headaches on dialysis and one who's got real bad

amyloid joint pain (Prue).

Expert nurses utilised a number of resources such as professional seminars, conferences, reading journals or learning from medical staff to add to this knowledge; nurses in the earlier stages of expertise acquisition, by comparison, did not identify these as sources of knowledge. Another significant source of knowledge for expert nurses was the vastness of experience they possessed. Experience had provided them with a wealth of opportunity to observe others, to practice and to obtain feedback. These factors had enabled expert nurses to develop superior propositional and procedural knowledge in comparison to other nurses and this, in turn, allowed them to practice nephrology nursing with ease.

Working here in an area that I have the knowledge and the background where

so many things are very familiar and I think that's a lot of it too, it's familiarity

with what you're doing (Fran).

For expert nurses there were other sources of knowledge which additionally supported their ability to practice nephrology nursing at an expert level. Kim, for example, received information about a patient's condition and their ability to learn peritoneal dialysis from

another nurse. The following is a verbatim transcript of a phone call Kim received while being observed:

> "She is an elderly lady - isn't she? Is she still on oxygen? Last time I saw her she was on oxygen. Is she up and about and mobile?"
>
> Discusses with caller [a nurse at the renal ward] whether her son will come for a couple of hours to see the PD unit and what it involves, and whether the son was also willing to learn how to perform the dialysis (Kim, 1st observation).

Kim used this information to plan the patient's training sessions including whether the patient was able to travel to the training unit but, more importantly for this patient, whether her son would be present to translate the instructions to his mother.

In addition, a further source of knowledge for expert nurses was information gained from *knowing the patient*. *Knowing the patient* was significant to this study and deserves particular attention in these findings as a sub-category of *using multiple sources of knowledge* because of the unique longevity of the relationship between expert nurse and people with renal failure. For most patients, renal failure is a chronic, life-long disease which they have to manage for many years. It is common for patients to have some insight into their disease, the signs and symptoms they experience and what treatment to expect. Patients, therefore, provide nurses with information about what has been happening to them recently, in terms of their health.

It was only expert nurses, during observation episodes, who fully recognised what the patient was telling them, and thus enabled them to question (i.e., assess) in a more purposeful manner to establish what the problems were. For instance, the medical staff had told Fran that a particular patient, who had recently been discharged following a renal transplant, had been to the emergency department the night before with haematuria but the medical staff did not

know how severe the haematuria had been. While the researcher observed, Fran questioned the patient about the colour, consistency and amount of haematuria he had had the previous night compared with now. During the subsequent interview, she was questioned about why she asked the patient about the haematuria when she had already been informed by the medical staff, she stated that:

> *I like to know from the patient what's been happening because what we see in their urine now isn't necessarily what has been happening outside, and he actually did have a lot worse haematuria than his urine sample would have indicated when I looked at it this morning* (Fran).

This information from the patient allowed Fran to decide which blood and urine tests she would need to collect. The ordering of laboratory tests is outside the domain of nursing practice and this issue will be examined later in this chapter. A consequence of having knowledge from the patient together with specialised knowledge about transplant rejection enabled Fran to provide appropriate and timely nursing interventions.

In addition, some expert nurses in this study had continued contact over prolonged periods of time, even over several decades, with the same patient, and this provided them with additional knowledge. *Knowing the patient* was a concept which clearly distinguished expert from non-expert practice. Expert nurses knew what the patient had been through in the past, what their initial entry onto dialysis was related to, what types of renal replacement therapy (i.e., haemodialysis, peritoneal dialysis, renal transplantation) they had received in the past, what current medications they were on, what sort of responses they got from their medications, how compliant with treatment they were, whether or not they had any understanding of their

disease, medications or other treatment requirements. Non-expert nurses, by comparison, knew only minimal details about patients. Patients are so well known by expert nurses that "they don't have to say anything, you can just look at a person that you've known and pick it [identify a problem]" (Sandra).

Knowing the patient made it easier for expert nurses to "simply avoid problems and avoiding problems is what a dialysis [unit] is all about basically" (Prue). Having knowledge of what the patient is like meant that expert nurses could:

> *more or less judge if* [they] *saw them sick* [or] *well, what they're like when they're in the in-between phase…and it is easier sometimes if someone does know the patient to say 'oh they are always like that or they're not like that or this is unusual with them this is out of character* (Agatha).

Expert nurses, because of their extensive theoretical and patient-specific knowledge and depth and breadth of their experience in nephrology nursing, were able to recognise clinical and other cues coming from patients. These signs and cues were not apparent to non-expert nurses who were concentrating on getting the task done. Expert nurses were, as well, cued to probe for further information and knew how to utilise this in the interests of the patient, demonstrating firm links between expert knowledge and expert nursing interventions.

Expert nurses were consistently able to provide thorough and precise explanations for their actions. Interview questions were derived from observations of a nurse's actions including verbal "actions" throughout observation episodes. These questions were designed specifically to probe action rationales.

For example, Sam was observed performing peritoneal equilibrium tests (PET) for several patients. During the subsequent interview, questions were asked about what was a PET and why and when was it done. Sam provided accurate answers for each of these questions and went on to explain the nursing actions required once the results of the PET were known.

> *Oh it depends on what* [type of peritoneal] *membrane you've got. You might increase the volume, maybe change them round to different percentage of glucose, maybe change the times of the exchanges, maybe shorter dwells or longer dwells, maybe they might be more suitable to CCPD* [Continuous Cycling Peritoneal Dialysis]. A*t least you know what you're dealing with and how you can change what your options are* (Sam).

In this unit, the expert nurses were able to alter a patient's peritoneal dialysis prescription based on a PET result without necessarily consulting a renal physician because some of the physicians "may not fully understand or interpret the results" (Sam).

Expert nurses could also provide a sound rationale for why they had decided to perform their nursing interventions in a particular way. Each rationale was supported by their extensive specialised knowledge and previous experience. In particular, haemodialysis nursing requires the nurse to prescribe a patient's dialysis treatment within unit guidelines. In the following interview excerpt, Agatha explained how the expert nurse determines the haemodialysis treatment for patients.

>*Yes, dialysis, haemodialysis is* [an] *individual prescription for each person and you cannot make a blanket statement for each patient. It's individually tailored, you have guidelines and this is what you can do but each person will be different and therefore you adjust accordingly...* (Agatha).

A nurse, in this unit, will determine how much heparin a patient requires, what type and size dialyser to use, how fast to set the blood pump speed and other dialysis parameters for each patient. When questioned about the decisions nurses had made for a haemodialysis treatment session, expert nurses provided more than a description of what they did, they supported their actions based on knowledge of the patient, knowledge of haemodialysis and the relationship between the two.

>*This gentleman has a bowel obstruction and* [I] *added potassium to his dialysate bath because he has got such large volumes of nasogastric aspirate, he's loosing large volumes of potassium and* [I] *don't want to give this gentleman hypokalaemia so* [I] *was doing that.* [I] *also check him to see the parameters of what his blood results are like, they're not going to be normal, perfect for a fit and healthy person they are going to be abnormal, but normal for him* (Agatha).

DISCUSSION

The role of knowledge in this study was interesting in two respects, namely, the importance of domain-specific knowledge and the role of intuitive knowledge. Although the concept of knowledge is complex, for the purposes of this study *knowledge* was defined as an

understanding of the facts, values and procedures, that is, propositional and procedural knowledge, related to the context and practice of nephrology nursing. This knowledge informed the nurses about what to do, why, when, with whom, how and the likely consequences of their actions.

Findings of the present study are consistent with existing literature of domain specific (nephrology nursing) knowledge. The nature of expert knowledge is such that it is very specific to the domain in which the expert practices, that is, it is context- or content-specific (Norman et al. 1985, Edwards 1998) and that having both domain knowledge and relevant experience is essential for any expert (Naylor 1987, Manley et al. 2005). Domain knowledge, according to existing literature, informs practice and practice, in turn, shapes knowledge.

The findings of this study also add to the discourse on the nature of intuitive knowledge as a characteristic of expert nephrology nursing practice. When asked during interviews, which immediately followed an episode of observation, expert nurses identified that most of the routine aspects of nephrology nursing were practiced with little conscious thought or effort (i.e., *knowing what to do and when to act*). Clearly, these nurses had progressively proceduralised a large amount of domain-specific knowledge into action schemata or scripts which are, by nature, relatively un-articulatable. This finding concurs with criticisms within the nursing literature (see for example, Cash 1995, Christensen & Hewitt-Taylor 2006, English 1993, Paley 1996, Thomas & Fothergill-Bourbonaais 2005) that intuition, as an important characteristic of expert practice, is problematic. Being unable to explicitly express knowing what to do and when to act is, however, consistent with Fitts and Posner's (1967) description of autonomous and automatic practice. According to Fitts and Posner, experts have highly specialised domain-specific knowledge and skills, have developed extensive

memory structures such as pattern-recognition capabilities, and have spent extensive periods of time developing/exercising domain-specific skills. Experts become faster and more fluid at the performance of those skills, and have engaged in deliberate and effortful practice to improve their performance in their chosen domain.

In the present study, the use of *multiple sources of knowledge* by expert nurses was consistent with existing literature. Expert nephrology nurses used knowledge gained from a wide variety of sources in comparison to other nurses. It has already been noted that their extensive domain-specific knowledge had developed from formal (i.e., postgraduate nephrology nursing course), augmented by informal and experiential learning. They also utilised other sources of knowledge more frequently and in greater depth than other nurses; these sources included doctors, other nurses, other health care workers and patients. It was particularly evident in the way in which expert nurses interacted with patients that they gained important clinically relevant knowledge from patients.

Other nurse researchers have noted the use of multiple sources of knowledge by expert nurses (Thomas & Fothergill-Bourbonnais 2005). For instance, Pyles and Stern (1983) suggest that a matrix or nursing gestalt is operating in the decision making of expert nurses whereby they link together nursing knowledge, past clinical experiences, identifying cues presented by patients, and sensory clues (e.g., observation and assessment). Similarly, Conway (1996) agrees that expert nurses have the ability to integrate multiple sources of knowledge which she termed "simultaneous complex reasoning" (p. 58). In addition, four distinct types of expert nurse practitioners, who draw on different types of knowledge, also emerged from Conway's (1996) study. Technologists use a wide range of knowledge including anticipatory, diagnostic, technical ("know-how") and monitoring knowledge. Traditionalists are concerned

with getting the work done, managing care in an environment of scarce resources, and relying on more medical knowledge than any of the other experts. Specialists use knowledge of assessment, diagnosis, quality of life and transformative ability to extend their role by prescribing treatments and medications. They define their expertise in terms of a specific field of practice and/or techniques associated with nursing care. Humanist existentialists, the fourth type, viewed patients holistically, were passionate about nursing practice and were able to use a combination of theoretical knowledge, values, and experience to inform their practice.

In the present study, expert nephrology nurses function, according to Conway's (1996) typology, as a combination of all four types. Expert nephrology nurses were simultaneously technologists, traditionalists, specialists and existentialists. During this study, these nurses utilised a wide range of knowledge which incorporated significant diagnostic, technical and monitoring knowledge. Their practice was supported by a large component of medical knowledge which, at times, was more highly specialised than that of some medical staff. Expert nephrology nurses were clearly specialists who practiced in a discrete specialty area of nursing and were unquestionably involved in assessing, diagnosing and prescribing nursing and medical health care to people with renal failure. Lastly, the expert nurses in this study were also unmistakably humanist existentialists; they were unmistakably patient-focused and needed to practice with optimal flexibility for any given task situation. This clearly required them to use a combination of "knowledges" to inform their practice.

The importance of *knowing the patient* as a concept has emerged from various nursing studies conducted in different nurse/patient settings (Evans 1996, Henderson 1997, Jenny & Logan 1992, 1994, Luker et al. 2000, Manley et al 2005, Radwin 1995, Tanner et al. 1993, Thomas

& Fothergill-Bourbonnais 2005). In these studies, getting to know the patient emerged as an essential antecedent for clinical decision-making and the provision of good quality nursing care. *Knowing the patient* was central to the practice of expert nephrology nurses; it was used as a strategy by them to access, elaborate and apply domain-specific knowledge. In many instances, expert nurses had provided nursing interventions to the same patients for long periods of time, even over two decades. This allowed them to know the patients' responses to particular situations such as the ability to cope with ultrafiltration of fluid during dialysis treatment. It also helped them to interpret subtle cues or recognise problems patients were experiencing. Expert nurses used the knowledge gained in this way when planning and prescribing individual dialysis treatment sessions for patients, and to intervene early to manage problems. They also used patient-specific knowledge to explain to less experienced nurses what to do for patients.

The findings from this study are consistent with both the general nursing literature and, in particular, the nursing expertise literature with respect to *knowing the patient*. Previous general nursing literature has suggested that knowledge about a patient and their experiences, behaviours, feelings and or perceptions of a situation, problem or issue assists nurses to interpret concerns or anticipate needs (Luker et al. 2000, Thomas & Fothergill-Bourbonnais 2005). *Knowing the patient*, according to Radwin (1996), provides a unique contribution to the delivery of quality patient care as it ensures patients are treated as individuals. In terms of the nursing expertise literature, *knowing the patient* is considered characteristic of expert nursing practice (Jenny & Logan 1992, Manley & Garbett 2000, Radwin 1995, Tanner et al. 1993, Tofias 1989). According to Benner, Tanner and Chesla (1992), having an understanding of what the patient needs is what claims expert nurses' attention. Expert nurses have the ability to assess a patient's condition by recognising a patient's state or an impending

crisis without the patient explicitly reporting her or his symptoms or needs (Morse et al. 1994). *Knowing the patient*, therefore, enhances the nurse's ability to recognise subtle cues and to respond much earlier to problems (Borbasi 1999, Thomas & Fothergill-Bourbonnais 2005).

In addition, the nursing literature suggests that the nurse learns from experience patients' common issues and expectations (Tanner et al. 1993, Manley et al 2005), and of the antecedents and consequences of specific patient situations (Radwin 1995). This enables the construction of generalisable knowledge about patients with similar problems (Jenny & Logan 1992, MacLeod 1993). *Knowing the patient* may facilitate astute assessment of, recognition of or evaluation of specific patient problems which in turn may enhance the development of expertise in some nurses (Radwin 1996).

Finally, the present study found that *knowing the patient* had the additional benefit by increasing work satisfaction. Expert nephrology nurses enjoyed what they were doing, they were motivated and they had a commitment to patients and other nurses. This finding was also consistent with the existing literature which suggests that *knowing the patient* develops from continuity of contact and a sense of closeness between the nurse and the patient (Radwin 1996). Forming a positive working relationship with patients has also been linked to nurses deriving more satisfaction from work (Luker et al. 2000).

The findings from this study suggest that the concept *knowing the patient* warrants further investigation. This concept was an important component for expert knowledge; it would be interesting, therefore, to examine these aspects in other nursing specialties.

Study limitations

This study was designed to be exploratory, descriptive, and theory-generating. Consistent with qualitative research, the sample size was small and the context confined to one renal unit; data collection was extensive and reached theoretical saturation. The findings of this study are not generalisable, however they may be applicable to other nephrology nurses, other renal units or more widely in other fields of nursing.

CONCLUSION

Whilst the larger study sought to gain an understanding of the acquisition and exercise of nephrology nursing expertise, the role of knowledge in the practice of expert nurses was a significant finding. Expert nurses possessed extensive domain-specific knowledge which they used effectively to guide and support their practice. They were able to draw on a widely diverse range of knowledge sources by comparison with other nurses and, of significance, knowledge was also gained from *knowing the patient*. Expert nurses were able to utilise their extensive knowledge to provide *precise rationales for their practice*. The findings of this study suggest that the acquisition of domain-specific knowledge from both formal educational programs and from experience in renal units was clearly required to enable expert nephrology nursing practice.

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Table 1: Participant Demographic Information

	EXPERT (n=11)	NON-EXPERT (n=6)
Nursing Experience (all)	8 – >25 years	0.5 – 23 years
Nephrology Nursing Experience	8 – 25 years	0.25 – 21 years
Qualifications • *Initial RN Preparation (Hospital)* • *Initial RN Preparation (Tertiary)* • *Nephrology Qualification* • *Other*	9/11 2/11 11/11 5/11	2/6 4/6 1/6 0/6
Hours worked • *Part-time* • *Full-time*	2/11 (20 – 24 hrs/wk) 9/11 (38 hrs/wk)	1/6 (8 hrs/wk) 5/6 (38 hrs/wk)