



## Experiences of nurses as postgraduate students of pharmacology and therapeutics: A multiple case narrative study



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### SUMMARY

**Background:** Pharmacology and therapeutics are essential components of educational programmes in prescribing, yet little is known about students' experiences in studying these subjects for a prescribing role.

**Objective:** To investigate the views and experiences of nurses as postgraduate students who were studying pharmacology and therapeutics in preparation for a prescribing role.

**Design:** Qualitative study using a multiple case narrative approach.

**Settings:** The participants were undertaking or had recently completed a Master's degree programme; they worked in a range of clinical areas and services in the Auckland region.

**Participants:** Twenty nurses, with advanced clinical backgrounds and experience engaged in postgraduate studies in pharmacology and therapeutics.

**Methods:** A semi-structured interview of approximately 1 h was undertaken with each participant. Transcripts were analysed within and across cases using Narralyzer® software to support thematic analysis.

**Results:** There were four broad thematic areas. In the first, 'prescribing in the context of advanced nursing practice', participants reflected on why prescribing authority was important to them. In the second theme, 'adequacy of prior pharmacology knowledge' they discussed the relative lack of pharmacology in their undergraduate programmes and in nursing practice. In the third, 'drawing on clinical experience in acquiring pharmacology knowledge', participants discussed how, as they grappled with new pharmacological science, they drew on clinical experience which facilitated their learning. In the fourth theme, 'benefits of increased pharmacology knowledge' they discussed how their studies improved their interactions with patients, medical colleagues and as members of multi-disciplinary teams.

**Conclusions:** All nurses viewed their studies in pharmacology as fundamental to their roles as prescribers, through knowledge development and an increase in confidence. Although pharmacology theory was new to many participants, their learning was facilitated because they were able to reflect on previous clinical experience and apply this to theory.

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### Introduction

The authority to prescribe has traditionally been the domain of medical and dental practitioners. In recent years, a number of other health professional groups, including midwives, nurses and pharmacists, have attained the right to prescribe medicines within their scope of practice (Department of Health, 2006). In the United Kingdom (UK), for example, accredited nurses and pharmacists have been able to register as supplementary prescribers since 2003 and independent prescribers since 2007 (Latter and Blenkinsopp, 2011). While the important contribution of pharmacists as prescribers is acknowledged,

the focus of this paper is on the educational preparation of nurse prescribers, using nurse practitioners (NPs) in New Zealand (NZ) as a model. Accredited NPs in NZ have been able to register as independent prescribers since 2005 (Lim et al., 2007). Recent amendments to the Medicines Act have extended independent prescribing authority to accredited diabetes clinical nurse specialists and pharmacists (Ministry of Health, 2011), and more widely to other clinical nurse specialists as delegated prescribers (Ministry of Health, 2013).

To be approved as an NP in NZ, a nurse must have worked in a specific area of clinical practice (commonly referred to as a 'scope of practice') for at least five years, and to have a completed a clinical Master's degree in Nursing. Pharmacology and therapeutics are included in the Master's programmes, or as stand-alone courses for nurses who have already completed a Master's degree (Lim et al., 2007). Building on courses in advanced clinical practice, applied biomedical sciences and assessment/diagnostic reasoning, the core prescribing courses are in principles of

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pharmacology and therapeutics, together with a practical course (termed the Practicum) in which students commence prescribing under the direction of a medical mentor. It is pertinent to note that students can be either hospital- or community-based, although the majority are from the hospital sector. For this reason, the courses in the principles of pharmacology and therapeutics are 'generic' while the Practicum is 'contextual' and determined by the individual's area of practice.

Other countries that have introduced nurse prescribing also require practitioners to complete pharmacology and therapeutics courses before they can prescribe, but the educational levels and depth at which these subjects are integrated into the preparation of nurse prescribers differ considerably (Hemingway and Davies, 2006). Expanded roles for nurses including diagnosis and prescribing, and calls to include specific training and education in pharmacology at both the undergraduate and postgraduate levels, have posed new challenges for educationalists in reviewing the underlying holistic philosophy of nursing with its emphasis on 'caring', rather than 'curing' (Morrison-Griffiths et al., 2002).

Undergraduate nursing education has been criticised for not providing nurses with a sufficient grounding in the biomedical sciences including anatomy, physiology, biochemistry, microbiology, pathophysiology and pharmacology (Bradley et al., 2007; Courtenay et al., 2009; King, 2004; Latter et al., 2007). However, the issue of 'how much' bioscience (the preferred term in the discipline of nursing) is required remains unresolved (Jordan, 1994). Some authors have argued that although integrated curricula enhance the "epistemological basis of holism in nursing", the development of a separate core pharmacology module in pre-registration programmes would raise the profile of pharmacology and provide nurses with a sound knowledge base for safe and effective medication management (Larcombe, 2003; Morrison-Griffiths et al., 2002). With the advent of nurse prescribing, the need to prepare the nurse prescriber with the skills to assess clients, make judgements about symptoms, read and interpret diagnostic findings and decide on a prescription, suggests that the medical model, with its emphasis on biomedical sciences, may be more appropriate for nurse prescribers (Courtenay et al., 2007).

Several studies have indicated that the gaps in biosciences and pharmacology preparation at the undergraduate level later present difficulties for many nurses taking on extended roles, especially in prescribing (Banning, 2004; Bradley et al., 2007; Courtenay et al., 2009). Banning (2003) argued that education should prepare nurses to be capable practitioners, not merely competent to undertake specific tasks; for this objective to be achieved, educational curricula need to include not only medication management, but also skills in clinical reasoning and decision-making (Carr, 2004).

The mixed findings and perspectives in the literature highlight the need for further research to elucidate the place of biomedical sciences and pharmacology in preparing nurses for a prescribing role. The present study was part of a wider study which explored the experiences of nurses participating in postgraduate prescribing programmes. The focus of this paper is to present their views and experiences of studying pharmacology and therapeutics in preparation for a prescribing role, and to reflect on the value of the current educational programme for nurse prescribers in New Zealand.

## Methods

This study was guided by a constructivist narrative approach using a multiple case narrative strategy. It was undertaken in Auckland, NZ, from 2006 to 2009, ten years after the introduction of prescriptive authority for nurse practitioners. The University of Auckland Human Participants Ethics Committee approved the study (Ref. 2007/249).

### Participants

There were 43 participants in the wider study, including nurses, medical practitioners and midwives. The participants reported here

were a sub-set of 20 registered nurses with advanced skills in a specific clinical practice area (their scope of practice), who were or had recently been engaged in postgraduate pharmacology and therapeutics courses as part of a prescribing programme during the period 2002–2004. They were recruited using a purposive sampling process, whereby the researcher (AL) selected potential participants from a list of postgraduate students. The first twenty students who agreed to participate comprised the sample, described in Table 1. The majority (15) were hospital-based practitioners, and five based in the community.

### Data Collection

In-depth interviews are common to many qualitative research designs (Lincoln and Guba, 2000), and in multiple case narratives are used to understand the experiences of participants and the meanings they make of their experiences. An interview schedule was developed, comprising open-ended questions, informed by the literature and the researchers' experiences as academics in nursing, pharmacology and prescribing. Semi-structured individual interviews lasting approximately 1 h were conducted and audio-recorded. Participants were asked to reflect on their experiences as learners and to identify their strengths and weaknesses in relation to pharmacology, therapeutics and prescribing. The interview approach allowed participants to expand on aspects of particular interest and to add issues not specifically addressed in the questions. This allowed for emergent avenues of questioning to be incorporated into subsequent interviews.

### Data Analysis

The interviews were transcribed and analysed thematically. Data collection and analysis proceeded simultaneously in an iterative manner, so that new data informed analysis and preliminary analysis informed interviewing: issues emerging as particularly important were identified and subsequent participants also asked about those issues. The 'Narralizer®' software was used to generate and develop categories and provided a tool for the researcher to link 'bits' of data extracted from text where thematic analysis was employed to analyse blocks of text (and not separated words) as the analysis unit.

In analysing multiple case narratives to establish core categories and themes, the procedure followed was based on a continual stage approach. Each level was constructed based on the level 'below' it (Shkedi, 2005).

### Trustworthiness

Trustworthiness in interpretation of the findings ensured through establishing an audit trail following the stages of analysis, namely categorisation, mapping, and focused analysis, with all researchers consulting over themes and categories, illustrating the rigour of analysis undertaken to ensure credibility. The use of verbatim quotes to illustrate themes authenticates the findings.

## Results

The findings fell into four broad thematic areas. In the first, '*prescribing in the context of advanced nursing practice*', participants reflected on why it was important to their nursing practice that they were able to prescribe and how they reconciled prescribing practice (historically the domain of medical practitioners) with nursing. The second theme focused on the '*adequacy of prior biomedical and pharmacology knowledge*' developed in the undergraduate pre-registration nursing programme and in nursing practice. In the third theme, "*drawing on clinical experience in acquiring pharmacology knowledge*", participants discussed how, as they grappled with new pharmacological science, their learning was facilitated by drawing on clinical experience. Finally, in the fourth theme, '*benefits to patients and healthcare teams of nurses' increased pharmacology knowledge*' they discussed how their studies

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