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The Use of Structured Assessments, Practical Skills and Performance Indicators to Assess the Ability of Pre-Registration Nursing Students' to Apply the Principles of Pharmacology and Therapeutics to the Medication Management Needs of Patients

By

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Abstract

This paper discusses how structured assessments, practical skills and performance indicators can be used to assess the ability of pre-registration nursing students' to analyze and clinically apply the theoretical principles of pharmacology and therapeutics pertinent to medication management. The assessment strategy specifically aims to reinforce the development of clinical reasoning with regard to medication management and supports the need to prepare nurses to become multi-skilled professionals who can meet the challenges of nursing. Learning through practical assessments can enhance the marriage between the integration and synthesis of research evidence and the application of propositional and process knowledge forms to nursing care. The ultimate goal is to educate for capability and in doing so, augment the transition from pre-registration nursing student to an effective and safe nurse practitioner.

Introduction

In 1997, O'Neill & Dluhy presented a model of clinical reasoning that highlighted the transitional stages from beginning clinician to advanced practitioner. This model has been used to develop a theoretical framework for teaching and assessing applied pharmacology and therapeutics to pre-registration nursing students (Banning, 2003). This paper aims to explore the assessment strategy within the framework and how it can be used to assist pre-registration nursing students to assimilate the theoretical principles of pharmacology and how they impact on medication management.

Latter et al., (2000) classified the themes thought to be central to medication education. These included the difficulties nurses experienced when communicating pharmacological knowledge to patients and using evidence to support the consultation, the need to develop patient–centred teaching and develop communication strategies to discuss medication management concerns with patients. These themes will be discussed in the context of the framework of structured assessments, practical skills and performance indicators.

Assessment of Practice

The key to developing a nurse who is proficient in applying theory to improve nursing care and demonstrates clinical reasoning attributes is to continually assess using work-based problem solving techniques and provide support mechanisms to ensure the practical application of nursing (Cooke & Moya, 2002). The value of using this approach to develop these skills cannot be underestimated, albeit resource-dependent for qualified nursing and teaching staff, the preparation of effective, safe, confident nurse practitioners should be the ultimate goal of any nurse education program. The title nurse practitioner is used as this reflects a professional, generalist, nurse with advanced clinical skills and education (Royal College of Nursing, 1989).

Students would receive verbal and written instructions and guidance on the assessment framework that would be used to assess individual clinical performance on completion of placements. Written instructions would also be provided on the performance indicators, based on the framework provided by Gibson & Soanes (2000). This excellent framework was originally produced to assess students studying for an oncology nurse certificate. This framework has been adapted to assess the application of pharmacological theory and therapeutics to nursing practice and medication management.

Clinical assessors would receive guidance, instruction and monthly support sessions on the assessment and mentoring of students (Myrick & Yonge, 2001). This is important as the value of the assessment can only be as a credible as the individual assessor (While, 1994). To assist the successful transition, practice assessors would network with staff and support the assessment of students (Duffy & Watson, 2001).

Developing Skills in Clinical Reasoning

Clinical reasoning is thought to be a hallmark of the nursing expert (Benner, 1984, Moch, 1990, Davies & Hughes, 1995). The sub-components of clinical reasoning have been debated (Flower, 1997) and are thought to reflection, critical thinking, diagnostic reasoning and nursing experience and nursing judgement. Reflection can be construed as a cognitive processing aspect of critical thinking (O'Neill & Dluhy, 1997). It is therefore important that students become skilled in the process of reflection, this can be achieved through structured processing of reflection and discussion during clinical placements and problem-solving exercises with peers and teachers and journal clubs Such exercises have been shown to be of benefit to students (Liimatainen et al., 2001, Seymour et al, 2003).The benefit of undertaking structured reflection is not limited to students, teaching staff have also found it useful (Scanlon et al., 2002). The value to learning has also been reiterated by Cortazzi et al. (2001) "the retelling of significant experiences of learning to others is itself a reflective way for both the teller and the audience to learn more about the experience by interactively weaving together theory and practice with humane threads" p257. These sentiments from students concur with those of Liimatainen et al., (2001).

To become an experienced clinician and proficient in clinical reasoning, a nurse has to be experienced in specific clinical practice and nursing judgement supported by an academic background. These factors are emphasized in a diagramatic representation of the beginning clinician to the advanced practitioner (O'Neill & Dluhy, 1997). The beauty of this model is the complexity and integration of knowledge and experience to show how nurses can develop skills underpinned by a substantial knowledge base to support and develop experience and clinical practice. Although numerous models are available, few actually achieve an equivalent intellectual level of integration and application, it is therefore reasonable to acknowledge these features with students and offer this model as a guide for future professional development. It could be argued that to augment such development, it is important that pre-registration nursing students are nurtured, educated to a graduate standard and provided with the foundation cognitive skills for proficient clinical reasoning (Cooke & Moya, 2002).

An important aspect of professional competency is feedback on clinical performance and is a requisite indicator for learner development and confidence building. Ideally, students should be provided with feedback on clinical performance on completion of a working shift. This can be achieved using the 'feedback sandwich' or the provision of positive, negative and then positive considerations of the students' clinical performance. Students found this method of communication more beneficial than traditional approaches (Glover, 2000). Qualified staff and practice assessors should be encouraged to incorporate this method when discussing clinical performance with students.

Formative and Summative Assessment Strategies
The inclusion of multiple forms of assessment would help students integrate, synthesize and assimilate the theoretical components of the domain with the clinical application and practical skills involved. This approach is valuable as it would not only incorporate strategies to promote critical thinking but would be a powerful tool to assess the students overall performance and ability to clinically reason. This strategy will serve as a safety net for the student who perform poorly in an initial assessment and provide the opportunity to demonstrate that with increasing nursing experience and consolidation of

theory with practice, academic and clinical performance can improve. Moreover, this approach can encourage the student to problem-solve, undertake team work to promote active participation in the learning process through creative discussion, learn from peers, identify individual learning needs, and enhance the integration, synthesis and conceptualization of knowledge (Cooke & Moya, 2002).

A multiple-choice questionnaire (MCQ) would be used as the principal formative assessment. The MCQ permits assessment of the ability of students' to conceptualise a range of theoretical principles and application to clinical practice that cannot be achieved in an essay style examination. The MCQ can also be used as a self-assessment guide to enhance students' self-awareness of their individual learning needs and provide self-direction as an indicator of individual comprehension of the taught component of the domain. These attributes concur with those indicated for critical thinking (Cooke & Moya, 2002).

Summative Assessment

Summative assessments include: a portfolio of clinical evidence, a drug diary, a medication leaflet and reviews of clinical practice involving clinical teaching, communication and patient assessment exercises.

A Portfolio of Clinical Experience

The student will prepare a portfolio of clinical evidence; this is essentially an individualised record of the learning experience and achievements encountered whilst on clinical placement with a narrative account of experiences gained (Gallacher, 2001, Gannon et al., 2001). It is envisaged that the student can acknowledge the value of clinical placements to their individual learning and professional development during the program by writing a short narrative account of experiences encountered. The narrative can then be used to assess the students' clinical reasoning skills in particular their cognitive skills, critical thinking or situation-bound thinking and personal reflection (Fowler, 1997) and the students' comprehension of pathology and the principles of pharmacokinetics and pharmacodynamics relevant to the medication of choice and the

impact of sociological, cultural and behavioural influences on concordance with medication.

The portfolio could include evidence on specific medication, communication styles identified and practiced, considerations of nursing care management, strategies used to develop a patient discharge plan, patient education initiatives and clinical performance reviews and experiences.

It is important to capture the student experience through the writing of a short narrative account of pertinent clinical experiences. This would contribute to the overall assessment of how the student's clinical experience influenced their learning. For example, a student could provide an account of the experience of developing a patient-centered discharge plan and the identification of patient-focused variables that assisted its construction. An illustration of a discharge plan for medication management and the patient information leaflet would support the narrative. To develop students in this way, support would be provided in the writing of the narrative through the provision of specific guidelines, teacher and peer group discussions of clinical experiences and individual tutorial support.

Drug Diary

The aim of this diary is to not only act as a reference source for the student, but also an aid to reinforce the principles of pharmaceutics, pharmacokinetics and pharmaco-dynamics. A diary of selective drug information would be compiled on a collection of drugs that were commonly prescribed in clinical practice. For each drug the student would provide information on the routes of administration available, contra indications for use, mode of action and how to assess the efficacy of the drug, dosing intervals, adverse effects of diet and cigarettes and possible drug interactions. A maximum of 10 drugs should be included and also sources of information. This should form part of a summative assessment.

Medication Information Leaflet

The aim of this leaflet is to provide additional information for the patient on a drug that

they have currently been prescribed. The leaflet would be included within the patient medication management plan and be used as an educational tool for teaching the patient on at least one of their prescribed medications. From a pragmatic viewpoint, specific and relevant pharmacological data could be gleaned from the information collected within the drug diary and be used to assemble the document. In this way, the student can be assessed on their proficiency in selection of relevant sources of information from the patients' perspective and also data that would be a useful reference source.

To assist patient understanding, it is important that the medication information leaflet is presentable, written in a user friendly manner avoiding unfamiliar terminology and includes reference sources (George et al., 1986, Weinman, 1990). Nursing, pharmacy and medical staff should be able to support students with the preparation of the leaflet. The medication information sheet can be used in the medication management plan as both are essential to the discharge plan for the individual patient and in the portfolio of clinical demonstrations.

After completion of four consecutive placements students should have had ample opportunities to commence assembly of both the drug diary and medication information leaflet. To assist this preparation, students will be expected to prepare and present two small case studies using examples from practice. This form of assignment would valuable to the student experience and to developing problem-solving, logical thinking in relation to practice-based issues and creative discussion with peers and teachers. The seminar would contribute to the students' end of year project and can be assessed through small group seminar presentation. This form of teaching strategy is beneficial as it encourages students to present and share ideas in a non-threatening environment (Wilkinson & Wilkinson, 1996). The seminar can be used as a forum to develop confidence in communicating nursing issues and analysing problems and as a team building exercise (Lee & Ryan-Wenger, 1997).

Practical skills and Performance Indicators

Practical skills and performance indicators can assist students in the preparation of assessments. The student should be encouraged to actively participate in practical skills that involve patients, observation of health care staff at work, collection of drug information and performance indicators pertinent to medication management. These features aim to promote the students' ability to make the theoretical links with practical nursing issues.

a. Practical skills that can assist students in the preparation of assessments:

Students should be actively encouraged to participate in:

a. Assisting qualified staff in the admission of a patient to a ward

b. Assisting qualified staff administering medication(s) to patients' during a ward drug round.

c. Preparing patients' nursing notes.

d. Preparing an individual patient discharge plan.

e. Observing qualified nursing, pharmacy and medical staff communicate with patients' on medication management issues.

f. Observing the qualified staff consult patients on medication management and assist the staff when confident to do so.

g. Preparing a patient centered medication teaching plan and a medication information leaflet.

h. Observing nursing and medical staff consult with patients' during routine ward rounds.

i. Working as a team with staff members and other pre-registration students.

b. Observing communication styles.

During training, students need to be exposed to the methods of communication used by health care professionals when consulting with patients. The need for students in training to gain first hand experience of the practical application of communication styles has recently been reiterated by Chant et al. (2002). The supernumerary status of students will allow the student the opportunity to undertake a series of non-participant observations.

The focus of these exercises would be to observe individual communication and consultation styles used by health care professionals during discussion on medication management with patients and observe ability to form a therapeutic alliance between patient and health care professional.

Students are expected to compare the difference in communication styles, the types of information provided by nursing, medical and pharmacy staff, the behaviour and responses of the individual patient to the staff involved and the quality of medication information provided by the patient.

By undertaking structured observation the student will experience the consultation styles and the language used by nursing, pharmacists and medical staff during consultation with patients. The student can us this experience to reflect and compare to their individual style of communication and include specific examples their portfolio of clinical demonstrations. These experiences can be discussed within the narrative account with exploration of how the principles of effective communication were used in clinical situations.

c. Information on Medication

Students are expected to spend one half-day with the hospital drug information pharmacist to assess how drug information is generated from web directories. This experience can guide the student when gathering and retrieving information for their drug diary and medication information leaflet.

Performance Indicators

Performance indicators are preferentially used as a standard by which to assess clinical performance of beginning clinicians with respect to theoretical and practical ability to apply the principles of applied pharmacology and therapeutics to clinical situations and to improve patient care. Performance should be continually assessed. Competencies tend to be an individual assessment which is of historical importance as it gives an indication of what the individual could achieve at that time period but not what they could proficiently

achieve in future (Fraser & Greenhalgh, 2001). Clinical performance reflects situation bound behaviour that can be measured over a period of time not isolated incidents (While, 1994). If we are to educate for capability assessment using competencies will not achieve this goal.

The lack of confidence in competency assessments are reflected in the deficiencies in reliability and validity of the procedures involved, the diversity of grading systems and their approximations used by the assessor (Calmin et al., 2002). The problem is further exemplified when attempting to differentiate the practice various stages of training or the acquisition of knowledge and skills (Ramitru & Burnard, 2001).

To ensure the effectiveness of performance indicators, it is crucial to assess the efficacy of qualified staff to undertake these assessments. Staff development programs should ensure that practice assessors train and assist staff to update and acquire knowledge and experience of the procedures involved (Edmond, 2001). Qualified staff must feel comfortable with the assessment and acknowledge the practicalities of the procedures involved.

The performance indicator is a valuable tool to assess student ability. The student should be continually assessed on ability to make clinical judgements and perform clinical skills using propositional knowledge to inform their reasoning. Using this system, one would expect students to be prepared to undertake summative practical performance assessments in the final year of the program, as multiple opportunities would have been provided for students to experience and discuss both the practical and theoretical aspects of each performance indicator to be assessed. Moreover, students would also have had opportunities to undertake formative practical assessments and had received a feedback sandwich on their performance with mentors, practice assessors and qualified staff (Glover, 2000). The student will be deemed to have achieved the expected standard when assessors have no major concerns regarding the student's clinical performance.

Examples of performance indicators

Latter et al., (2000) categorized the patient education and clinical judgement themes pertinent to medication education. These themes have been developed further to address patient education skills, communication styles and ability to clinically reason with respect to medication management By incorporating performance indicators with the performance criteria framework developed by Gibson & Soanes (2000) these themes are presented in Boxes I-III.

Box I. Assessment of Patient-Centred Teaching Skills

Performance INDICATOR: To be able to demonstrate safe and effective patient Education skills.	**Assessment criteria**: The student would be assessed by individual ability to achieve items a-f.
A. To consider the health beliefs, theories and knowledge that underpin the patient's learning needs.	B. To sequence education teaching sessions in order not to overload the patient and ensure opportunities are made available to allow the patient to ask questions and clarify information given.
C. To set mutually agreed learning objectives with the patient.	D. To provide printed instructions in the form of a medication leaflet
E. To provide realistic and relevant advice, avoiding the use of technical jargon	F. To allocate time for evaluation of the patients' learning and opportunities for patients' feedback.

Box II. Skills in Effective Communication

Performance Indicator: To demonstrate evidence of effective communication with patients.	**Assessment criteria**: The student would be assessed by individual ability to achieve items a-F.
A. To develop an individualised style of communication.	B. To provide evidence that the student can form a therapeutic relationship with the patient.

C. To set goals to ensure that the patient is involved in decision-making.	D. To communicate effectively and ensure that the patient's autonomy is maintained and that the patient is respected.
E. To involve the patient in discussions to ensure that communication is patient-centered and focused sufficiently to empower the patient.	F. To demonstrate that the student negotiates and collaborates with the patient with regard to care issues.

Box III. Skills in Clinical Reasoning

Performance INDICATOR: To demonstrate clinical reasoning skills when evaluating the patients' medication management.	**Assessment criteria**: The student would be assessed by individual ability to achieve items a-f.
A. To demonstrate clinical reasoning skills when evaluating the patients' medication management.	B. To comprehend the significance of the patient's diagnosis and expected prognosis
C. To establish the significance of the patent's previous medication experience.	D. To analyze relevant evidence pertinent to the patients' cognitive and psychomotor competence and how this may impact on their ability to manage their medication.
E. To consider the effect of the patient's social context issues with respect to medication management.	F. To apply psychosocial behavioural theory to medication-taking behaviour

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Conclusion

This paper has explored the education and communication themes addressed by Latter et al., (2000) that underpinned effective medication management of patients using a series of structured assessments, practical skills and performance indicators. In combination, this series aims to assist students' to assimilate and apply a knowledge of pharmacology and therapeutics using situational learning, structured reflection and problem-solving to develop their experience and clinical reasoning strategies. This process-oriented method

of learning aims to enhance deep rather than surface approaches to learning and to promote a meaningful orientation to learning.

The assessments are specifically developed to assess the ability of student nurses to develop their theoretical understanding, experience of patient management, styles of communicate and gain confidence in discussing medication management concerns with patients. The use of performance indicators and the feedback sandwich are aimed to increase the confidence of students and their clinical performance as they gain experience of nursing. Obviously, the benefits and disadvantages of each of these merits may depend on staffing ratios and staffing skill mix and the need to reconsideration the education of nurses.

If the globalization of nurse education is to become a reality, then the approach used for nurse education in the UK needs to be drastically altered. If we are to meet the needs of the health economy, then we need to start educating for capability.

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