PROBLEM-BASED LEARNING FOR ADVANCED NURSE PRACTITIONERS

Amanda Featherstone and Ali Hodge report on an innovative approach to educating specialist cancer nurses in advanced practice

Abstract

This article discusses the use of problem-based learning (PBL) in two advanced practice modules. The modules form part of an MSc in advanced practice in cancer care. In the second module the concept of working with partners is developed through the introduction of two new roles, student advanced nurse practitioner and mentor, culminating in high-fidelity simulation scenarios. This allows students to articulate critical thinking and extend clinical decision-making skills. The high-fidelity simulation scenarios are adapted according to student responses, mirroring reality. ‘On-stage’ facilitators provide subtle in-scenario debriefing and scenarios incorporate discussions from previous scenarios. Implications of this safe learning environment for education and practice are discussed. Outcomes include students’ ability to crystallise their understanding from PBL. Formal testing, using Objective Structured Clinical Examinations and Objective Structured Clinical Assessments, demonstrates synthesis of knowledge into practice. Evaluation from students is positive.

Keywords
Advanced nurse practitioners, advanced nursing practice, education, high-fidelity simulation, problem-based learning, students

Although it is recognised in the UK that the advanced nurse practitioner (ANP) is a separate role from the nurse specialist, differentiating between the two remains difficult because of regulatory and practice barriers (Ormond-Walshe and Newham 2001, Eve 2005). This poses significant challenges for educators. ANPs in tertiary care (complex, highly specialised consultant-led health care) are a response to a need for care delivery to patients with specialist requirements. The evolution of the ANP role predated the response of educational institutions to provide appropriate preparation for practitioners in tertiary care (Keane and Richmond 1993).

The Royal Marsden School offers courses on cancer care, nationally in the UK and internationally, and delivers two master’s (MSc level) modules in advanced practice with the patient with cancer (Box 1, page 18). Teaching is delivered by an ANP in primary care (community-based general practice) and a cancer nurse practitioner/educator (hospital-based specialist practice). The pooled experience of generalist and specialist educators broadens the educational experience in advanced practice. Combining backgrounds in cancer nurse education and community advanced nursing practice offers enhanced practice-based learning for students. This collaboration acknowledges the specialised cancer background and the wider knowledge base required for the advanced practice role.

Case-study approach
Problem-based learning (PBL) using a case-study approach is the educational strategy used across
both modules (Box 2). High-fidelity simulation scenarios complete the second module allowing demonstration of assessment skills and clinical reasoning. Critical thinking is enhanced throughout by the use of mind maps, which draw out all possible diagnoses for a given set of symptoms. Student partnerships allow space for questioning and verbalisation of critical thinking. Distler (2007) suggests that having a nurse educator with experience and knowledge in the use of PBL is paramount for success. Certainly, applying these principles of how adults learn leads to a student-centred approach, however, educators need to be experienced in PBL techniques for this to be an effective teaching method (Profetto-McGrath 2005). Throughout both modules the concept of safe clinical practice is interwoven with students’ learning to extend their practice in their competency and as part of a multidisciplinary team (Nursing and Midwifery Council 2008).

Jarvis (2001) argues that learning is a fundamental of life and therefore part of the ongoing social situation. This is reflected in the ever-evolving context of health care. Students develop clinical reasoning skills through critical thinking. They make the difficult transition from registered nurse to advanced practice nurse, resulting in improved clinical competence (Distler 2007). Throughout these two modules students explore the context of their clinical practice and the concept of advanced practice skills, allowing them to develop as specialist ANPs in cancer.

**Deconstruction, enhancement and assimilation**

Students’ inherent specialist knowledge is challenged by exposing them to the generalist context of health care through critical thinking. This process is accomplished by deconstructing their practice through challenging their accepted norms. Further deconstruction of students’ skill set occurs by challenging them to solve clinical-based problems in the safety of a group environment supported by facilitators as expert practitioners. This reflects Wenger-Trayner’s (2006) concept of the social nature of learning and the development of a learning community. The process is enhanced by active participation of educators in collaborative inquiry-based discussion (Wenger-Trayner 2006, Distler 2007). The primary care ANP provides the general knowledge and experience to balance out students’ specialist knowledge. However, for the learning experience to be meaningful and legitimate, it must emulate the expert academic and professional skills central to students’ communities of practice (Wenger *et al* 2002). The cancer nurse practitioner/educator supports students to develop into ANPs who practise in a tertiary setting by enabling them to meet the specialised healthcare needs of patients with

---

**Box 1 MSc advanced practice in cancer care**

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Using physical assessment and clinical reasoning to assess cancer patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary: advanced assessment using history taking and physical examination skills, evaluation of investigations and discussion of management.</td>
<td></td>
</tr>
<tr>
<td>Educational approaches: problem-based learning (PBL) in groups following a case-study approach. Group learning around history taking and physical examination incorporating anatomy lab visits to visualise anatomy relating to the case in a cadaver.</td>
<td></td>
</tr>
<tr>
<td>Assessment: Objective Structured Clinical Examination. Written assignment using a clinical decision-making tool to evaluate a patient history. Portfolio incorporating clinical hours and evaluation from clinical mentor.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th>Advanced practice with the acute complex cancer patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary: emphasis on advanced practice with critical thinking and clinical reasoning to assess and manage patients with cancer.</td>
<td></td>
</tr>
<tr>
<td>Educational approaches: PBL in groups following a case-study approach. Clinical reasoning and management are challenged by visiting lecturers from other professions. Student partnerships. High-fidelity simulation exploring complex scenarios.</td>
<td></td>
</tr>
<tr>
<td>Assessment: Objective Structured Clinical Assessment. Written assignment critically exploring how current clinical role demonstrates advanced practice. Portfolio including clinical hours and evaluation from mentor.</td>
<td></td>
</tr>
</tbody>
</table>
complex conditions such as cancer (Keane and Richmond 1993). Assimilation of this learning occurs through the use of case studies in a structured systematic approach allowing students to develop their clinical reasoning incorporating an advanced practice skill set.

Throughout deconstruction of students’ clinical reasoning and thinking processes they are supported through facilitation rather than taught in a didactic fashion. By acknowledging their specialist clinical knowledge and expertise, a safe and open dialogue is enhanced reducing the perception of imbalance in the learning environment. The facilitators use these student-centred strategies to encourage active participation (Wenger-Trayner 2006), but it is acknowledged that this type of teaching is an intense experience because of the level of intellectual exchange that takes place (Distler 2007).

**Strategies**

**Problem-based learning** Enhancement of critical thinking is achieved through student partnerships and mind mapping in the structure of PBL. PBL is a case-study approach developed from Wood’s (2003) work, which involves the following steps:

- Clarify.
- List.
- Analyse.
- Organise.
- Share.
- Private study.
- Solve.

The integration of PBL and high-fidelity simulation encourages the development of a wider clinical knowledge base and fosters decision making (Box 2).

Adult learning is enhanced by balancing group learning with individual responsibility. The techniques practised promote the development of lifelong critical thinking. The first case is initially facilitated by the nurse educators, but students increasingly lead each case, building group ownership and motivation to learn. A wide-based approach allows the development of a range of differential diagnoses and the use of mind maps forces students to think outside their cancer knowledge. This is referred to as ‘reasoning-in-transition’ (Benner et al 1999, Davies and Hughes 2002). Students reason about the changes in a situation enhancing and assimilating their clinical judgement skills. This is achieved through the development of clinical decision making and clinical understanding supported by a systematic approach to patient assessment.

### Box 2 Problem-based learning

**Seven stages:**

- **Clarify terms and concepts:** use group knowledge to build definitions, look at external sources if there is need for further clarification.
- **Define and list the problems,** for example, cough, shortness of breath, fever.
- **Analyse the problem** – form a mind map (paper or smart board). All ideas welcomed. Students take turns to lead group enhancing ownership. Draw on expertise across group. As facilitators we ensure learning is achieved, assist with group dynamics and correct any inaccuracies.
- **Organise explanations to form a tentative solution** – work through mind map systematically forming links and relationships between concepts.
- **Share out learning objectives** – personal learning objectives: unfamiliar conditions relating to the case, however use group expertise; group learning objectives: anatomy lab, assessment skills (history taking and physical assessment), physiology.
- **Private study** – synthesize information and produce summary for other group members.
- **Solve the case** – pooling knowledge and expertise with information gained from the history and examination of ‘the patient’ and choice of investigations. Use of critical thinking and clinical reasoning to accept or refute differential diagnoses.

(Wood 2003)

**High-fidelity simulation**

The second module on advanced practice with the acute-complex cancer patient culminates in the use of high-fidelity simulation. This involves the use of a manikin that can simulate breathing, consciousness, eyelid movements and vocal interaction. Heart rate, electrocardiogram recordings and blood pressure measurements can be altered from the control room according to the development of the scenario. The students work in pairs, with one acting as the ANP student and the other the expert mentor. These roles facilitate articulation of critical thinking and extension of clinical decision-making skills (Beauchesne and Douglas 2011). The scenarios for the simulation incorporate the aims and objectives of the module, with reference to national and local guidelines (Wiseman and Horton 2011). Each scenario includes clinical and social background, role descriptions, presenting problems, learning objectives, investigation results and clinical progression. The scenarios allow the development of increasing complexity; for example, the first case concerns maintaining a patient’s airway, the second managing bleeding and the third identifying chemical imbalance.

The scenario is played via an audiovisual link to the rest of the students observing in the seminar room. Each student pair participates in a 15-minute scenario with a 30-minute debriefing. In practice the students find the session more tiring than they anticipate. Before the experience the students expect to find the simulation day...
scary, challenging and interesting. In reality, as well as finding it scary and challenging, they also find that the process prompts reflective thinking. Evaluation post-simulation indicates that they feel more confident and competent in the assessment and decision-making process for patients who present with acute and complex cancer scenarios. Students also acknowledge recognising the need to ask for help as they explore the challenges of communication in a stressful situation. The cases seem real to the students, particularly as the manikin 'loses consciousness' in one scenario. ‘On-stage’ facilitation, with a facilitator playing one of the roles in the scenario, provides subtle in-scenario debriefing. The clinical condition of the manikin is adapted according to student responses, mirroring reality.

It is essential that students feel well supported throughout this process including the debriefing aspect (Jeffries 2005). Three facilitators bring varied approaches to the debriefing sessions: academic, clinical and facilitative. According to Fanning and Gaba (2007), this debriefing is critical to learning with facilitation varying from high to low level and from free to structured. There is evidence that more learning occurs using a structured debriefing after the simulation session (Van Heukelom et al 2010). A critical part of the process is for an expert debriefer to appraise clinical skills, for example, a consultant anaesthetist exploring a structured approach to patient assessment and handover.

The small group of students completing this module deem the structured debriefing after the simulated scenario to be helpful. Although advantages of high-fidelity simulation are the provision of a safe learning environment, challenges are faced in 'suspension of disbelief' (Jeffries 2005) and navigating group dynamics in the debriefing.

Experience gained from these two modules indicates that group learning is an effective way to enhance the learning experience. Throughout the modules a safe, secure and honest learning environment is promoted, which encourages students to be engaged and prepared to risk exposing gaps in their knowledge. The discussion has a positive effect on learning by providing an atmosphere that allows students to share their expertise without feeling like they are boasting, encouraging the use of the ‘group brain’ (Konopasek et al 2014). Severson et al (2014) found that collaboration and teamwork are fostered as well as communication skills (Severson et al 2014).

One of the students commented that the PBL was helpful as it ‘directed the group to work as a team, share knowledge and experience, and problem solve together’ (Unpublished evaluation). It also highlighted ‘gaps in knowledge’ that the facilitators could explore. In turn, nurse educators acknowledge their own gaps in knowledge benefiting from students’ expertise in their particular specialties and modelling safe clinical practice and lifelong learning. Clinical judgement and decision making, core functions of the ANP, help develop students’ autonomy and professional accountability in their practice (Carnwell and Daly 2003, Furlong and Smith 2005).

Evaluation

Learning outcomes are evaluated in several ways. Students’ ability to crystallise their understanding from PBL is partly assessed during the high-fidelity simulations. Formal testing, using Objective Structured Clinical Examinations (demonstration of single components of history and physical examination) and Objective Structured Clinical Assessments (demonstration of safe clinical practice and clinical reasoning during two full case studies carried out in exam conditions), shows synthesis of knowledge into practice and allows objective measurement of a systematic approach to patient assessment and management. In addition, students produce written assignments, displaying academic critical thinking, and feedback from practice via work-based portfolios with mentor evaluation.

A central skill of ANPs is reported to be expert coaching and mentoring (Link 2009). Although this skill can be acquired by nurses throughout their career, it is intentionally developed in the two modules to reflect the experience and knowledge of an ANP. In the second module the students alternate playing the role of student and mentor allowing questioning, reflection and articulation of critical thinking. Additionally, students from
the second module are involved in demonstrating physical assessment skills to those undertaking the first module. One student commented: ‘After completing the physical assessment module I have helped out with teaching on subsequent modules, this has benefited me as first it gave me confidence in teaching on the subject. Second, it was revision for me each time I was involved. It also enabled me to support the students; as I had recently completed the module I could give tips on study and revision’ (Unpublished evaluation).

Verbal and written evaluation from students for both modules is positive (Box 3). Further comments from a student (Unpublished evaluation): ‘When we started in March I felt physically sick and wanted to run out of the room (fight or flight... I was definitely flight!). I found myself yesterday having a conversation with a (senior doctor) regarding someone’s presenting symptoms and discussing the cranial nerve III deficit and what it means and I felt comfortable and knowledgeable which was great!’

Conclusion
Advanced nursing practice requires a particular type of advanced knowledge, one that is identified as ‘knowing-in-practice’, enabling changes and transformations to address issues that are considered to be significant, valuable and worthwhile (Reason and Bradbury 2001). Through the creation of a learning community based on the theory of adult learning and active participation, students broaden their skills in patient assessment and critical thinking. Students also develop clinical reasoning and clear communication skills in the wider multidisciplinary team, enhancing safe practice. In addition, they must demonstrate confidence in using a systematic approach to patient assessment and management.

Passion for instilling high standards in advanced nursing is reflected in educators’ high expectations, which in turn act as a self-fulfilling prophecy, empowering and motivating students to expand their competencies and achieve greater learning in a safe environment. Problem solving through the use of case studies and simulation promotes collaborative learning and nurse educators as facilitators provide an environment in which everyone works together, thus mimicking reality (Jeffries 2005). This thorough and systematic approach allows students to transcend specialist limitations and enables safe generalist practice in the advanced specialist role.

This innovative approach to educating specialist cancer nurses in advanced practice can be expanded to other nursing specialties and other areas of advanced clinical practice.

References


Conflict of interest
None declared