



## Original research

# Nursing students' perceptions of a clinical learning assessment activity: 'Linking the puzzle pieces of theory to practice'

Leeanne Pront\*, Liz McNeill

College of Nursing and Health Sciences, Flinders University, GPO Box 2100, 5001, Adelaide, SA, Australia



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## ABSTRACT

The nursing profession struggles with providing a bridge to close the theory to practice gap for students. Students are expected to graduate with competencies that promote their safe and comprehensive nursing care provision in accordance with professional standards. This paper reports on students' a simulated clinical educational intervention embedded into a second-year nursing student clinical topic offering experiential learning opportunities for a large cohort. Feedback was analysed using Braun and Clarke's (2006) thematic qualitative process to investigate student-learning experiences and present student perceptions of this experience. Three key themes were identified: support *promoted learning*, *focus on the bigger picture* and *practice clarifies puzzle pieces*. Students perceived the simulated clinical experience as beneficial to their confidence, learning and ability to develop their professional practice. Promotion of learning outcomes facilitated by the structured, supportive and educational approach was important for students. Nurse educators have a responsibility to develop learning experiences that enable student's ability to link theory to practice in context. Ongoing exploration and evaluation of this intervention is required however, such an approach appears to support student's knowledge development for transference across situations and within large student cohorts.

## 1. Introduction

Illuminating a pathway for students to link seemingly isolated pieces of information together to inform health care provision is an ongoing challenge for educators. In health education, this is compounded by the fact that no two patients are the same, presentations for the same disease can vary and each patient interaction is unique. Consequently, nursing education focuses on the principles of practice aimed at building transferable knowledge for application to any setting or situation. Students often focus on the situation, the context, or the task and recognition of the principles and subsequent transferable knowledge is not always evident to them. A prime example within nursing literature is the continued discourse regarding linking theory to practice, or the theory to practice gap (Kavanagh and Szveda, 2017).

Today's health industry increasingly requires nursing graduates to be confident, willing, and competent to make informed decisions for provision of safe, quality health care to patients (Forber et al., 2015). Brown and Crookes (2016) identified the top 25 'necessary' skills for Australian graduate nurses, as deemed by 495 nurses in roles such as academics/educators, clinicians and Directors/Assistant Directors of Nursing. The top five 'necessary' skills included communication and documentation; privacy and dignity; efficient and effective

communication; professional nursing behaviours and medication and intravenous products. To achieve such skills and qualities, students must be exposed to experiential learning opportunities to draw upon and reflect, fostering understanding and ongoing development of complex schema (Mezirow, 1991).

Nursing students traditionally learn clinical skills in isolation with application of skills occurring in the clinical environment during placement experiences however, the environment itself may influence student learning (Kilminster and Jolly, 2000). Replicating clinical experiences in a simulated environment is difficult, expensive and resource hungry, particularly when educational providers are challenged with staff shortages, financial constraints and increasing student numbers (Wall et al., 2014). Regardless of the constraints, nurse educators strive to offer authentic learning experiences. Simulation offers a contextual environment within the educational setting offering significance and relevance of the expected knowledge and learning (INACSL, 2016; Jeffries, 2005; Sittner et al., 2015).

This paper reports on student perceptions following a simulated experience. Students stated this experience provided an authentic learning opportunity that benefited their clinical confidence and ability to apply knowledge to practice.

\* Corresponding author.

E-mail addresses: [leeanne.pront@flinders.edu.au](mailto:leeanne.pront@flinders.edu.au) (L. Pront), [liz.mcneill@flinders.edu.au](mailto:liz.mcneill@flinders.edu.au) (L. McNeill).

## 2. Background

The demand for nursing student placements is an increasing challenge for Australian education providers and clinical venues (Hegenbarth et al., 2015; Lamont et al., 2015). The influences are multifaceted and include industry constraints, cost, staff workload, increasing patient acuity, increasing student numbers, student satisfaction and staff willingness to support students (Hegenbarth et al., 2015; Lamont et al., 2015; Materne et al., 2017). The outcome of these constraints for many students means they do not engage in an acute clinical placement until late in their second or early third year of study and thus, many feel underprepared. The authors intent is not to devalue any students' placement, rather identify an alternative innovation to promote student preparedness prior to entering an acute clinical placement experience.

Nursing education routinely employs a scaffolded approach for curricula design, where introduced information is continually built upon, across a program of study. From an adult learning perspective this is advantageous as the student's interpretation or schema is progressively constructed (Mezirow, 1991; Rumelhart, 1980; Vygotsky, 1978). Breaking down curricula further, the format within individual topics often focuses on specific concepts such as anatomy and physiology, clinical skills, pharmacology or pathophysiology as examples. Even in an integrated curriculum specifically designed to meld concepts together and aid the student's capacity to link or make connections between crucial elements (Hartzler and Metcalf, 2000), this outcome does not appear transparent for all students. The student's ability to make connections between individual pieces of information is generated through prior experience, understanding of information and ability to recognise links. From an experiential learning perspective, prior exposure provides a reference point from which the student can build or add understanding (Kolb, 1984). We sought to design a topic that facilitated this educational methodology by offering students an initial simulated acute nursing experience.

This manuscript reports on the students learning experience of an educational intervention, initially developed by the authors to teach and assess student competency at a second semester, second-year nursing level. The premise was to provide a variety of simulated authentic learning experiences, which for many students would offer their first contextual acute nursing experience. This approach was aimed at guiding student learning to support the development of schema and promote linking of information to facilitate the transfer of knowledge across contexts. The overarching learning outcome of this second-year clinical topic focused on provision of appropriate nursing management derived from the data gathered through comprehensive assessment. To aid in reduction of cognitive load (Sweller, 1994), specific aspects of the nursing role were identified for laboratory sessions – Primary (co-ordinator of activities), Documentation (documentation of activities), Treatment (performs nursing tasks) and Observer (provides feedback to group). The roles enabled individual students to focus on a specific aspect of the broader activity and through rotation of roles, gain experience in all aspects to develop a comprehensive understanding.

This second semester clinical topics enrolments ranges between 500 and 700 students per year. During the topic, each class (n = 30) participated in tutorials (n = 8) to explore the theoretical content. These were followed by clinical laboratory sessions (n = 8) to practice the clinical skills and supported by educators asking guiding questions to establish rationales, relevance of activities and reaffirm understanding. Students participated in these clinical laboratory activities in designated learning teams (max of n = 5/team) and collaboratively worked together to explore and deliver nursing care in both the clinical laboratory and intensive sessions.

## 3. Aim

The aim of this manuscript is to report student perceptions and

experiences following a simulated clinical assessment activity of a large nursing student cohort.

## 4. Methods

Data was elicited from one, second year cohort of nursing students (n = 546) who on conclusion of the topic activity, completed feedback forms (n = 478, 88% participation rate). This data was collated as part of the routine topic activity evaluation for quality control and as such, ethical approval was not required (National Health and Medical Research Council, 2014 p.3). Whilst the intent of this feedback was for continual topic evaluation and improvement, the responses were considered valuable to share with other nurse educators managing large student cohorts. Ethical principles were maintained throughout this process where participation was anonymous, voluntary and collected after students were aware of their assessment results.

The consolidative learning activity and assessment was the *clinical intensive* - two, six-hour days where students were required to apply the knowledge gained during prior tutorial and laboratory sessions. Student learning groups were reshuffled to teams of three members and roles reduced to only include Primary, Documentation and Treatment. Whilst we acknowledge the significance of the observer role to student learning, for this assessment activity teams were reduced to three to ensure consistency and equity in engagement and marking. Participation in the clinical intensive was a topic required activity and upon successful completion provided a pre-requisite to undertake the topics clinical placement experience.

The clinical intensive involved care of one patient across a surgical admission presented to students in a series of 12 × 50-min stations, the outline of these stations and associated expectations are presented in Table 1. The stations were designed to longitudinally represent a patient's surgical trajectory and highlight the relevant nursing care provided at points such as pre-admission, post anaesthesia care unit, post-operative care, discharge and re-presentation. Whilst each team started at a different station or point in the patient's journey each moved to the next sequential station over the two-day program. The format of these days included an initial pre-brief, where clarification of student instructions and expectations along with any questions or concerns were addressed. Students in their teams then participated in a series of six stations per day, where instructions at each station focused on a specific point in the patient's trajectory. Each station had prescribed probing questions that students explored as a team and educators supported student activity through guidance and ongoing progressive feedback. The ratio of students to educators (who were also assessors) was 36:7,

**Table 1**  
Clinical Intensive station overview.

Station	Expectations
1. Admission of surgical patient	Assessment at stations focused on included:
2. Pre-operative preparation	● Develops therapeutic/professional relationships
3. Indwelling catheter insertion	● Communicates effectively with patient, team, staff, educators
4. Post Anesthetic Care Unit management of patient	● Accurate and comprehensive patient assessment
5. Return to ward - management	● Documentation of data/activity
6. Return to ward (high technology simulation)	● Analysis of data – recognition of altered/deteriorating status
7. Medication calculation assessment	● Planning of care - critical thinking/problem solving
8. Post-operative nausea and vomiting - management	● Safe provision of appropriate nursing skills – aseptic techniques; medication administration; vital signs;
9. Volume assessment	● Patient education
10. Patient assessment	● Promotion of self and patient safety
11. Discharge planning	● Rationale for decision making/actions/plan
12. Outpatient review	

with one educator acting as a 'float'. On conclusion of each day, a class debrief provided the opportunity for students to explore experiences, achievements and points of confusion.

During the clinical intensive students practiced within the scope of a second-year nursing student and were supported by the Registered Nurse (RN) educators to fulfil activities such as medication administration supervision. Whilst students participated and were encouraged to work together as a nursing team, assessment was as individuals, functioning within a team. Comprehensive educator packages and briefings on the underlying philosophy of the clinical intensive including, assessment of competence, criteria of participation, and guiding learning experiences were provided to educators. A comprehensive marking rubric was developed and available to students prior to this activity which outlined student expectations. The intensive sessions were a replication and compilation of activities students had previously engaged in during their clinical laboratory sessions.

Students were assessed at a second-year level in aspects of professional practice, critical thinking and analysis, provision and coordination of care, and collaborative and therapeutic practice as per the Australian National Standards (Nursing and Midwifery Board of Australia NMBA, 2016). Assessment occurred along with provision of support, guidance and feedback during and on completion of each station. Following completion of this two-day assessment students were requested to complete a feedback form which enabled them to reflect on their experience by identifying learning experiences, take home messages and suggest improvements to the experience. Students were encouraged to be as honest as possible, participation was anonymous, and students were free to complete all or none of the feedback as they desired.

The questions on the feedback form included:

- As a result, of this intensive what have you identified as areas for improvement in your own nursing practice?
- How did the identified roles assist you in comprehensively providing care during each of the stations?
- What was your most valuable experience during this clinical intensive?
- What is your take home message from your intensive experience?
- What aspects of the intensive would you like to see improved?

Student responses were collated and thematically analysed using Braun and Clarke's (2006) systematic six step process. This process includes: 1. Familiarisation with data; 2. Generating initial codes; 3. Searching for themes; 4. Reviewing themes; 5. Defining and naming themes and 6. Production of the report (Braun and Clarke, 2006). Data analysis by the principle author was discussed iteratively with the co-author until agreement was reached.

## 5. Results

The analysis presented three key themes: support *promoted learning*; *focus on the bigger picture* and *practice clarifies puzzle pieces*. These themes are presented using the student's own words, offering the reader a clear descriptor of student perceptions to minimise interpretive bias.

### 5.1. Support promoted learning

Participation in the intensive activity provided students the opportunity to 'apply skills to situations and having rationale questions posed to focus more on why the task is necessary rather than just how it is done' (188). This was reiterated with the expectation to function as a nurse whilst being supported by educators and afforded the time and opportunity to process information by '... being put in a more real-life situation where we are able to think practically and test our skills whilst being given time to think critically ...' (182). Employment of this approach enabled students to undertake similar nursing skills across a variety of

stations which allowed for 'continuous improvement with every skill' (3).

Students reported that they felt '... able to safely test myself with how much knowledge and skills I have' (205) particularly as they felt they were 'working in a safe learning environment and be able to ask questions' (306). The mechanism to promote students questioning was facilitated by the educators through 'being able to ask tutors questions and have support from other students which helps the experience be more enjoyable' (303). 'The prompting from the tutors and the additional information they can provide eg: in a real situation, their experiences' (440) was viewed as a mechanism to promote learning and afforded an opportunity for 'self-evaluation; knowing strengths and weaknesses and getting help on how to improve that' (326). This approach was considered positively by students in that 'having the staff members there quizzing us, helping unlock knowledge in our brains is invaluable it instils so much confidence' (120).

The identified roles (Primary, Documentation and Treatment) and ability to work collaboratively in a team were viewed by students as supportive for learning; 'we had one main area to focus on, so my brain was a little less scattered. But it was good to have the team to back us up, if we missed anything as we all had a turn at each' (76). The roles allowed students to be 'challenged with unfamiliar situations and unknown concepts' (430) and promoted their engagement despite their confidence to do so, as 'I couldn't 'avoid' any roles/duties that intimidate me/I'm not sure about' (5). 'The roles challenged my way of thinking and analysing things' (167) and 'I feel by having specific roles it gave us a chance to assess each other and give helpful information from [an] outside perspective' (70). However, for some an unfamiliar team challenged them in unexpected ways such as 'I found the roles to be challenging as the other team members talked over the top of team mates and did not listen or respect the other roles' (478).

### 5.2. Focus on the bigger picture

For many students the clinical intensive experience offered an opportunity to apply the knowledge they had learnt throughout their nursing program and to 'work like a nurse and look after a patient's whole journey from admission to outpatient's review' (332). Many focused on the opportunity to practice specific tasks such as 'working with the medications as if we were in an acute setting ...' (139). Interestingly, some students identified unexpected learning outcomes such as 'learning patience and performing tasks under pressure ...' (272) or self-identifying their individual learning needs to achieve expected outcomes, for example '... that I need more and more practice. Reading from book, imagining it doing, is a lot different from actually doing it' (48). It is suggested that the clinical intensive experience afforded an opportunity for students to contextualise application of their knowledge in that '... staff helped delve and deepen anatomy, physiology, and pathophysiology knowledge at every station' (120).

While, the clinical intensive experience was designed to promote student's reflective process on providing patient care, it also promoted self-identified gaps in both knowledge and practice. These identified areas for improvement are exemplified by the following statements: 'I think I need to work more on doing patient assessments' (12); 'finding a systematic approach to fully assessing a patient' (54) along with reference to specific skill development such as: 'IDC, sterile field, complete patient assessment' (206).

### 5.3. Practice clarifies puzzle pieces

Throughout the clinical intensive experience 'every station gave me more understanding and more practice to gain my skill performance' (222). With each station, students focused on the targeted activity and began to contextualise how these individual puzzle pieces were situated in the provision of comprehensive nursing care eg: '... Really good experience of a 'real' situation where we had to put all aspects (assessment, calculations, talking to the patient, documentation etc) together in a holistic treatment' (270). Students were guided through 'linking physical symptoms to

pathophysiology ... ' (68) to promote a more comprehensive view to 'understand what deterioration in the patient means in relation to changes in their obs [observations]' (177). Student reflections highlighted the need to view patient data comprehensively prior to decision-making as demonstrated by 'I was able to identify some gaps which I could not pick up during workshops. Some examples are looking more into patient notes, checking notes before interventions as a lot of info is there' (467) and 'critical thinking in situations where patients are deteriorating; analysing patient data and planning action' (344). These comments suggest the initial transition from a skill or task approach to a more comprehensive informed perspective of care.

Confidence building was a common sub-theme although one student did report the intensive 'less [ened their] confidence' (374), unfortunately this statement was not expanded upon. Confidence statements by students about themselves as individuals, within a team or in their ability to perform nursing care were expressed as: 'instilled more confidence in my learning and how much I do already know. Great to start connecting the dots from all topics from the last year and a half' (76); 'gaining confidence in myself with what I know' (266); 'My group lacked confidence and skills, and constantly looked to me for direction' (377). It could be suggested that the experience promoted confidence by allowing students to look broader than the skill or task they were performing e.g.: 'it really helped with the 'how' you will work as a different level and way you work as a nurse' (102). Providing an opportunity for professional growth through understanding roles and expectations was expressed as 'knowing how to be a leader in different situations, working [as] a team with different personalities' (80) and 'being professional; aware of the scope of practice as a student RN' (90).

Students identified key 'take home' messages from this experience, which reiterated the valuable professional development for these future clinicians in an ever-changing nursing landscape. The confidence to own their decision-making was expressed in statements such as 'don't be scared to ask questions' (20 & 22) and '... an unasked question is a dangerous one' (23). Enabling and empowering them to recognise 'it's okay to stop and think' (25) and be critical about their practice provision by 'having more confidence to speak up about what I am thinking the problem is ... ' (50). This acknowledges that '... it's okay not to know, but it's not okay to sit back and coast in ignorance' (76). Recognition that being a nurse required 'teamwork, confidence, critical thinking about big picture ... ' (4), and at times is 'challeng[ing] with unfamiliar situations and unknown concepts' (430) was highlighted. Whilst some students presented the notion that 'nursing is confronting and difficult' (144) others also reiterated that the focus of the nurse is to 'always equip yourself with knowledge on what you do for safe and quality care of patients' (428).

## 6. Discussion

Current demands on the nursing profession means that today's nursing student is required to transition quickly from novice to an effective and efficient RN able to minimise risk to themselves, patients and venues (Haddad et al., 2017). Such a transition requires growth from prior experiences, developing means for application and adaptability of knowledge enabling transference across a myriad of situations (Eva et al., 2012). During their educational programs, each student experiences different placement opportunities (Hegenbarth et al., 2015; Lamont et al., 2015; Materne et al., 2017), venues and educational institutions, with educators unable to guarantee specific experiences offered to students, especially in larger cohorts. Nurse educators are challenged with accessible and effective contextual learning experiences for students and are constantly exploring new approaches (Forber et al., 2015). Strategies to promote application and transference of knowledge requires increased experiential opportunities through supportive approaches (Sivertsen et al., 2016; Walker et al., 2016), authenticity and the expectation of active participation from the student (Dwyer et al., 2015). Furthermore, the learning experience and environment should be 'safe' to allow students to learn from mistakes

without harm to self or others (Cant et al., 2015; Jeffries, 2005). The learning experience should provide opportunities to initiate or build upon schema from which students can draw upon in the future (Mezirow, 1991; Rumelhart, 1980; Vygotsky, 1978). The clinical intensive as described in this paper, is one example that offers students an authentic simulated experiential learning opportunity to guide schema development, build understanding and meaning that is transferable across situations.

Provision of a safe and supported environment is conducive for learning particularly in the novice professional (Brown and Crookes, 2016). The guiding and supportive approach to learning and assessment employed by educators needs to promote student outcomes (Walker et al., 2016). Students undertaking the clinical intensive were 'enabled to understand what we were [sic] required to do to help facilitate a good environment' (261) and this was fostered through 'having support whilst still remaining independent' (263). The educational approach, design and authenticity of the clinical intensive experience fostered an environment where students were able to ask questions and felt safe to explore their understanding with both peers and educators. This student-centred approach was achieved through the contextualisation of activities, abilities and encouragement to work in teams with clear activity statements and outcomes. The structure resulted in student engagement that promoted their ability to focus on activities at hand, recognise own learning needs, and identify areas for development and growth (Chong et al., 2016).

The supportive approach and ability to provide care in a team was significant in reducing the students extraneous cognitive load and promoted the ability to build upon knowledge for future retrieval (Sweller, 1994). Such an approach '... help[ed] me to understand what we are going to do and we get more confidence when we working on team' (4) and by 'getting immediate feedback ... allowed me to understand what I was doing wrong or how I could improve' (228). The opportunity to immediately apply feedback meant students were able to practice differing approaches to their provision of nursing care and build upon their emerging critical thinking capacity.

The facilitative approach meant students found 'the intensives more educational than the tutorials and laboratory's each week. This has improved my confidence. The thing that helped the most is that the tutors were approachable' (139). Facilitating and guiding student's recognition of how individual pieces of information 'fit' together during management of a patient was beneficial to their learning, 'I've learnt more in intensives than in actual class workshops' (93). Students valued the supportive approach with 17.78% directly referring to this in feedback responses. While students identified the intensive was more beneficial than other topic activities, it could be argued that it was during this activity that they developed an ability to begin linking theory to practice. Knowing isolated pieces of information is beneficial when focusing on one task, however applying this knowledge into a broader concept for comprehensive care is challenging and influenced by a variety of factors (Eva et al., 1998; Levett-Jones, 2013).

A students confidence in their ability to know and deliver safe and competent nursing care is directly related to the experiences from which they can draw upon (Ortiz, 2016). The clinical intensive experience offered an opportunity to practice acute nursing skills, in the context of providing comprehensive patient care. The transition from a skill to the broader patient view was promoted through reflective thinking on practice and facilitated by probing questioning by educators. Prompted to revisit information pieces and identification of how they fit into the broader puzzle of patient care, students gained confidence in their knowledge and ability (28.87% of students identified confidence in feedback responses). The development of understanding led to clarification of rationales and encouraged adaptability so that students could recognise cues, which redefined schema into a more comprehensive and informed way (Derry, 1996). The clinical intensive experience offered students a learning opportunity that supported embedding of knowledge into long-term memory for future use, promoting

**Table 2**

Comparison between student responses and the ranked list of 'necessary' clinical skills (Brown and Crookes, 2016; Brown et al., 2011).

Top 10 ranked student responses (n)	Brown and Crookes equivalent ranking
1 Communication 29% (138)	1 Communication and documentation. 99.0%
2 Critical (thinking and analysis) 26% (125)	15 Critical analysis and reflective thinking. 93.9%
3 Safety x 25% (117)	12 Preventing risk and promoting safety – duty of care. 95.7%
4 Teamwork 21% (100)	6 Teamwork and multidisciplinary team working. 98.0%
5 Documentation x 20% (95)	1 Communication and documentation. 99.0%
6 Assessment 15% (73)	8 Personal care – ability to assess, plan, implement and evaluate care of clients across a range of settings using a holistic, comprehensive nursing model. 97.6%
7 Management 9% (41)	13 Clinical monitoring and management - Use of assessment tools. 95.5%
8 Medications 8% (40)	5 Medications and IV products. 98.2%
9 IV specifically 6% (28)	5 Medications and IV products. 98.2%
10 Professional (knowledge and practice) 5% (26)	4 Professional nursing behaviours - includes collaborative approaches to care. 98.4%

their ability to maintain their own and others safety.

## 7. Limitations

Large cohorts present differing logistical issues to ensure equity and student satisfaction levels than smaller cohorts. The focus of this paper has been on positive student responses from the intensive experience however, it should be noted that for some students the clinical intensive experience was very challenging with key concerns identified as: *the stations were too long, too short; not enough staff to support learning; less challenging questions; more challenging questions; differing educators presented differing approaches to the same skill; roles made it confusing for me; feedback not constructive; educators not sensitive enough; more breaks; marking/grading within a team* – each of these responses were offered in the context of providing areas that students would like to see improved.

Many of the presented student concerns have been explored with improvements implemented in subsequent cohorts however, these needed to be presented here to ensure that it was evident not all students found this experience helpful. Furthermore, it should be noted these responses are from one topic, in one-year level, in one university so while the concepts may be transferrable, the outcome may not be generalisable.

## 8. Implications for practice

Nurse educators seek to provide learning experiences for their students aimed at developing the required knowledge and competencies that allow delivery of safe and appropriate nursing care. A direct comparison to Brown and Crookes (2016) 'necessary' skills for Australian graduate nurses, and the sub-themes offered by the student's free text responses in this study is presented in Table 2. Of most interest is the fact that students themselves in this second-year topic are already recognising the significance of many of these important skills that go beyond the 'task orientated' focus, such as communication (29%), documentation (20%), teamwork (21%), safety (25%), critical thinking (26%) and assessment (15%). It would be foolish of us to suggest this learning experience alone has guided this recognition. However, it could be argued through engagement and opportunity to practice in context, with supportive guidance to apply their knowledge this experience has provided a further opportunity to assist in student professional development and recognition.

## 9. Conclusion & recommendations

The nursing profession is a dynamic and everchanging environment, where each patient and situation is different. Nursing educators are tasked with the responsibility to provide learning opportunities which promote the student's ability to develop transferable skills. Utilisation of team approaches through a supportive yet probing learning experience embedded in an authentic and non-threatening environment,

reduce cognitive load and promotes learning across a large cohort. Educators should continue to carefully plan learning experiences to optimise opportunities and guide students to assist with linking theory to practice, thus embedding the relevance. The findings of this activity identified that this supportive learning experience assists students to link the 'puzzle pieces' together and is another approach to bridging the theory to practice gap. Further research into the long-term transference capacity of this cohort as related to this experience is required however, this initial evaluation is promising.

## Conflicts of interest

None.

## Ethical approval details

Not applicable.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.nepr.2019.03.008>.

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