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# Designing and implementing asynchronous online deliberate practice to develop interprofessional communication competency

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ABSTRACT

Communicating with healthcare providers is a core tenant in the Quality and Safety Education for Nurses and Institute of Medicine teamwork and collaboration competency but remains a major concern for pre-licensure nursing students and novice nurses. Pre-licensure nursing students rarely have opportunities to practice interprofessional communication skills with other healthcare providers even though lack of this skill competency may lead to patient harm. This article explores the feasibility of using story-guided online deliberate practice sessions as an educational strategy to improve students' interprofessional critical communication competency. The design and testing of asynchronous online deliberate practice session prototypes is described and the implementation and evaluation of two online deliberate practice sessions into a nursing course is reported. The online format provided students with convenient opportunities to develop competency in critical communication skills using SBAR in a safe environment. Results from the prototype testing and student evaluation indicated that students had an overall positive experience. The online deliberate practice sessions provided a low-cost, flexible practice experience to develop critical communication skills and were evaluated as highly satisfactory and easy to navigate. The optimal number of practice sessions needed to attain competency, retain skills, and impact patient outcomes require further longitudinal study.

## 1. Introduction

Interprofessional communication, especially nurse-to-physician communication, is a major concern for nursing students and new nursing graduates (Goode et al., 2013). The ramifications of poor communication are great; communication breakdowns among healthcare providers are a leading contributor to serious patient harm, especially in the occurrence of a patient critical incident (CRICO, 2015; The Joint Commission, 2017). Traditionally, nursing and medical students are educated in professional silos that have different foci in communication, yet nursing and medical graduates are expected to work as a team and communicate effectively upon entering the workforce (Flicek, 2012; Matzke et al., 2014). Competing priorities in teaching and learning essential hands-on technical skills coupled with limited practice opportunities contributes to a lack of competency in interprofessional communication in the healthcare professions. Nursing faculty members often prohibit students from reporting directly to physicians

due to safety concerns that students might not communicate effectively in critical clinical situations (Guhde, 2014). Students, on the other hand, sometimes shy away from speaking to other healthcare providers due to their lack of experience and perceived lower status in the healthcare team (Appelbaum et al., 2016).

The Quality and Safety Education for Nurses (QSEN) project built on the Institute of Medicine (2003) competencies to identify knowledge, skill, and attitude objectives for teamwork and collaboration competency (Cronenwett et al., 2007). Yet educators continue to seek evidence-based pedagogies to foster effective interprofessional communication skills (Interprofessional Education Collaborative Expert Panel, 2011).

Learners are able to gain some interprofessional patient critical incident (i.e., when there is a critical change in patients' health status that needs the immediate attention of another healthcare provider) communication experience without the risk of patient harm by participating in manikin-based simulation scenarios. Although these simulations

provide rich learning opportunities (Hayden et al., 2015), the resources (e.g., equipment, space, faculty time, and expertise) that are needed for such experience are costly. Depending on the class design, often only one learner per group is assigned the role of communicator in a given simulation experience. Thus, a virtual simulation-based learning experience may present a better alternative opportunity to address these challenges and allow learners to have multiple practice experiences using asynchronous online training.

Building on the emerging interest in deliberate practice, which is a framework for structuring focused practice experience to improve a targeted skill, a series of story-guided online deliberate practice sessions was developed as prototypes to test the feasibility of this educational strategy. The online deliberate practice sessions were designed to provide each learner with focused and structured practice opportunities to develop interprofessional critical incident communication competency in a safe (i.e., no risk of patient harm) and lower stress environment. Following feasibility testing, the online deliberate practice sessions were integrated into an academic course but could be adapted in other education/training settings. Audio stories were used to simulate a patient critical incident in which learners had to determine the key clinical information necessary to report to a healthcare provider using SBAR (Situation, Background, Assessment, Recommendation), an evidence-based standardized communication tool associated with improving team communication (De Meester et al., 2013; Institute for Healthcare Improvement, 2017). This article describes the design, prototype testing, implementation, and evaluation of the online deliberate practice sessions and explores the feasibility of using this innovative educational strategy to improve pre-licensure learners' critical communication competency.

## 2. Conceptual model and theoretical framework

### 2.1. Deliberate practice: a conceptual model for skills development

In studying the training process of expert musicians and chess players, Ericsson et al. (1993) noticed a common skills development process: These experts are motivated learners who engage in conscious practice that is enhanced by feedback from coaches and spend time in self-reflection to adjust their practice goal. Ericsson et al. (1993) coined the term 'deliberate practice' to describe the repetition of these processes to achieve a higher level of skill performance and found that deliberate practice plays a key role in the development of a targeted skill and ultimately attain expert performance. Although deliberate practice is effective, the process of consciously and continuously pushing oneself to improve a skill level may not always be enjoyable, yet progress is visible (Ericsson et al., 1993).

The online deliberate practice sessions for this feasibility study were designed according to the elements of deliberate practice: 1) a motivated learner who 2) engages in a well-defined practice goal at an appropriate difficulty level, 3) receives immediate feedback, 4) spends sufficient time in self-reflection to reset practice goals, and 5) has the opportunity to repeat practice with the adjusted goal (Ericsson, 2008).

### 2.2. Mastery learning: an outcome-based theoretical framework for learning

In educational research, the concept of deliberate practice has been intertwined with the theoretical framework of mastery learning, which is an outcome-based educational framework (Gonzalez and Kardong-Edgren, 2017; McGaghie et al., 2011). Beginning with an end goal in mind, mastery learning provides a stepwise progression for learners to achieve a desired outcome (learning unit level competency); each learner must reach a preset mastery standard in one learning unit before advancing to the next unit (Block, 1971). In mastery learning, the teacher sets a mastery level that all learners are to accomplish, and in this way is consistent with helping learners with competency development. To achieve the target level, the teacher must consider differences

in the learners' baseline knowledge and/or performance and allow the resources and practice time needed to guide them to reach the master standard goal (Block, 1971).

Mastery learning, combined with deliberate practice, provides an outcome-based approach that is especially important in health professions education where a learners' outcome directly impacts the care he/she provides to patients. Nursing program outcome objectives may set a level of competency for students to achieve critical skills prior to graduation. However, most schools of nursing apply a traditional learning model where the teacher provides standardized instruction and resources to all learners regardless of their learning needs. This approach may leave some learners either struggling to meet the desired learning outcome or disengaged because they have already mastered the materials or attained competency (Block, 1971).

## 3. Methods

### 3.1. Design of online deliberate practice session prototypes

Applying the conceptual model of deliberate practice and mastery learning, five stand-alone asynchronous online deliberate practice sessions were developed as prototypes to provide students opportunities to practice verbally communicating a patient critical incident using SBAR. Senior pre-licensure nursing students from a research university in Southeast United States were recruited to test the prototypes and provide learner feedback using a focus group. The feasibility of integrating the sessions into the nursing curriculum was also explored by implementing two online deliberate practice sessions into an online summer course. Results from the feasibility testing presented in this article guided development of a larger pilot experimental study to explore the impact of regular and repetitive online deliberate practice opportunities on achieving a preset passing score in critical communication competency using SBAR. This larger project will be reported in a separate paper.

### 3.1.1. Structure of deliberate practice sessions

The online deliberate practice sessions were built in a web-based course management system used by many higher education institutions where students have familiar access. Fig. 1 provides an illustration of the structure and steps of an online deliberate practice session. The structure of each online deliberate practice session reflects the essential elements of deliberate practice whereby learners 1) listen to a clinical story, 2) construct and record a verbal SBAR report to a healthcare provider, 3) complete a self-assessment checklist to assess their own performance, 4) answer four self-reflective questions, and 5) record a refined SBAR report. At the end of each deliberate practice session, learners listened to an example of a complete SBAR report that had been recorded by an expert clinician. Each deliberate practice session had a time limit of 45 minutes, although learners could move at a faster pace.

### 3.1.2. Using clinical stories to facilitate low-fidelity simulation-based learning environment

For this study, professionally recorded audio clinical stories were selected from an online library of story simulations available through subscription services provided by StoryCare®, Efform, LLC. These stories were collected from real clinical scenarios and were recorded by a single narrator and dramatized with background sound effects. The selection criteria were that the stories must 1) include a nurse's role and 2) involve a patient critical incident that required communication with another provider. The stories were chosen to simulate patient critical incident scenarios for the online deliberate practice sessions.

Using stories as a healthcare educational strategy can help learners integrate the context of a clinical situation in a relational way that also requires them to respond by applying the clinical knowledge learned (Billings, 2016; Tagliareni and Forneris, 2017). Listening to stories, as
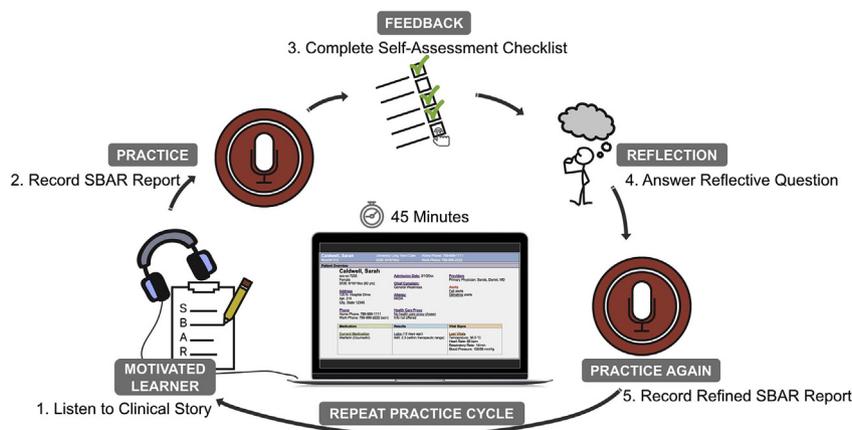
**Fig. 1.** Structure of the online deliberate practice session.

opposed to reading a clinical case presented strictly with objective clinical values, encourages learners to think critically in a comprehensive way. It allows the learner to immerse themselves in the storyline and more readily identify with the role of the nurse. Stories also reveal the complexity of the clinical context so that learners must practice sorting through information and interactions to determine cues, patterns, patient assessment information, and other relevant threads in order to make clinically relevant decisions about a critical incident (Billings, 2016; Tagliareni and Forneris, 2017). The nature of stories can guide learners to link actions with consequences as the stories unfold (Sherwood et al., 2016, June 25). Furthermore, because audio stories do not offer visual cues, their usage decreases the introduction of preconceived assumptions or biases such as a character's appearance. For these reasons, audio stories presented a unique way to introduce clinical scenarios in an online simulation-based learning environment.

Five stories that met the criteria were selected, and each was used to guide a stand-alone deliberate practice session as prototypes to provide learners a variety of clinical scenarios for practice. All five stories required a critical communication with another healthcare provider, but varied by setting (e.g., acute care, long-term care, maternity), patient incident type (e.g., unfamiliar medication order, suspected abuse, critical lab values), and clinical complexity (ranging from simple inquiry to reporting a serious adverse event).

### 3.1.3. Using a checklist as self-performance assessment

The self-assessment checklist used in the online deliberate practice sessions was a simplified version of the ISBAR Interprofessional communication Rubric (IICR) developed by Foronda et al. (2015). Permission to use the tool was obtained from the authors. Foronda et al. (2015) added an 'I' for 'identification' to 'SBAR' in the rubric that measures participants' performance when using SBAR to report a critical incident to another healthcare provider. 'Identification' (identifying self) is a piece of information that is included under 'situation' in the original SBAR. However, to acknowledge that the action of self-identification is indispensable in clinical communication, especially in conversations that are not face-to-face, Foronda et al. (2015) added 'I' to the rubric to emphasize its importance when evaluating learners' SBAR performance. The learners who participated in this study continued to use the original SBAR acronym with the understanding that the 'I' (identifying self) would be included in the 'S' (situation) portion when the IICR was used for students' self-assessment.

The IICR is comprised of five categories (I-S-B-A-R), each of which is explicated with three items (15 items in total) to assess the completeness of an SBAR report given in the healthcare setting (Foronda et al., 2015). The rubric has the inter-rater reliability (IRR) ($r_s$) of 0.79 and content validity index of 0.92 (Foronda et al., 2015). Table 1 presents the simplified 5-category, 15-item IICR in a checklist form.

**Table 1**
Categories and items from the ISBAR interprofesssional communication rubric.

| Category | Item |
|---|---|
| Identification | ☐ Name |
| | ☐ Position |
| | ☐ Where he/she is calling from |
| Situation | ☐ Patient by name and age |
| | ☐ Diagnosis or chief complaint |
| | ☐ Reason for the call/problem |
| Background | ☐ Admission date |
| | ☐ Relevant past medical history |
| | ☐ Recent interventions for the patient |
| Assessment | ☐ Vital signs |
| | ☐ Level of consciousness/behavior |
| | ☐ Relevant assessment data |
| Recommendation | ☐ Suggest potential reason for condition or suggest intervention |
| | ☐ Explains urgency of actions |
| | ☐ Repeats back all orders; clarifying if needed |

The categories and items of the IICR were developed by Foronda et al. (2015).

### 3.1.4. Validating content for online deliberate practice sessions

The audio stories were the main source of patient information that was provided to learners in this study. Supplemental information, such as vital signs, test results, current medications, etc., were added in written form to ensure that the learners had the information they needed to construct a realistic and informative report. The story content and supplemental patient information were reviewed and revised by practicing clinicians (two medical doctors, one nurse practitioner, and two registered nurses) according to specialty area to assure content validity.

## 4. Results: testing, implementation, and evaluation

### 4.1. Testing of online deliberate practice session prototypes

Upon IRB approval, a study was conducted to test the five prototypes of story-guided online deliberate practice session and to explore learner acceptability. A class of 167 senior pre-licensure nursing students received recruitment emails asking for voluntary participants to complete two deliberate practice sessions over a two-week period with a small incentive. Subsequently, the participants were invited to attend a one-hour focus group to provide feedback about their overall impressions, acceptability of the deliberate practice sessions, challenges regarding completing the practice sessions and ways to improve the deliberate practice sessions.

*4.1.1. Online deliberate practice session prototypes test results*

To test the educational strategy, seven senior pre-licensure nursing students consented to participate in testing the online deliberate practice sessions. This allowed each of the five online deliberate practice sessions to be tested by at least two students.

Upon completion of the online sessions, five of the seven students attended the focus group discussion which was audio-recorded and transcribed verbatim.

Thematic analysis was used to identify, analyze, and interpret the focus group transcriptions (Braun and Clarke, 2006). The transcriptions were shared among authors, the themes were initially identified by the first author then were approved by all authors after a group discussion. Four common themes were identified, each mentioned by at least 3 participants:

*4.1.1.1. Theme 1: current lack of opportunities to practice interprofessional critical communication skills.* Participants collectively expressed that they have limited opportunities to practice interprofessional communication skills and that they had never reported a critical incident prior to doing so in this study. Participants commented:

*"Even in clinicals we don't really get to practice SBAR … you don't really get to do [report a patient critical incident] until you are in practice and you are on your own."*

*"I have done a little bit of calling report to other floors in clinicals but it's always [when] the patient is stable."*

*4.1.1.2. Theme 2: difference between knowing and being able to do.* By having to give a verbal report, participants found that presenting a comprehensive report was more difficult than they had anticipated. One participant stated that part of the learning experience would have been lost if he/she had not verbalized the report:

*"When you have to practice it [using SBAR], you realize it's not flowing like I [you] thought it would."*

*"They give you a lot of information and you don't actually need to tell the person all that information."*

*4.1.1.3. Theme 3: desire to practice interprofessional communication skills early in the program.* Participants reported that a common concern for new graduates is apprehension over presenting a report to a healthcare provider of another profession. Participants stated that students would benefit from practicing this skill even before their first clinical rotation:

*"We know what SBAR stands for, but when we are put on the spot we may not be comfortable … that's a shortcoming for most new grads … Being able to practice that early on in your nursing school career would really benefit."*

Another participant further commented:

*"I think it could be added to our clinical competencies … because we have other skills like Foley catheter [insertion] and I think this [critical incident reporting] is just as important a skill to be on that list."*

*4.1.1.4. Theme 4: realness of the experience is important.* Participants thought that the audio stories provided valuable reality, but that real-world experience was more highly valued:

*"You can go as far as having a skill test on it because I feel like it is that important … These recordings are really good but then it's different when you're in person doing it."*

Overall, participant feedback indicated a high level of acceptance and value in using online deliberate practice sessions to develop the skills necessary to report a patient critical incident in a safe, low-risk environment without competing with current class time. Participants

described the online deliberate practice sessions as well-formatted and reported that the sessions provided valuable practice opportunities to improve their critical incident reporting skills. Participants further described the online deliberate practice sessions as time-efficient and recommended offering them to all nursing students. To improve the deliberate practice sessions, participants suggested offering a recording tutorial and formatting the supplemental information as an electronic chart-like patient profile to provide more realism. Although learners did not report technical difficulties during the two-week study period, one participant's verbal reports did not record.

Although the sample size was small, participants affirmed the need to have deliberate practice opportunities and reported that students are motivated to improve their interprofessional critical communication skills.

*4.2. Implementation of two online deliberate practice sessions into an online summer course*

Following the successful testing of the online deliberate practice session prototypes, two online deliberate practice sessions were selected to be included in a ten-week online summer course as non-graded, but required, course assignments. Students enrolled in the course (n = 81) were required to complete one session at the beginning and one at the end of the summer term.

*4.3. Evaluation of learner experience with online deliberate practice sessions*

An online evaluation survey was sent to all students enrolled in the target course after the summer session ended and students' grades had been submitted to the University. Students' responses were anonymous. The survey assessed the learners' overall satisfaction with the deliberate practice sessions, their perception of the sessions' helpfulness, and challenges they encountered. Learners also were invited to provide feedback to improve the deliberate practice sessions.

Forty-six students completed the evaluation survey (56.8% response rate). Table 2 illustrates the participants' characteristics.

Second degree refers to students who have already had a bachelor's degree in another field before entering into the nursing program.

*4.3.1. Learner satisfaction*

In general, 93.5% (n = 43 out of 46) of participants were satisfied with their experience in completing the online deliberate practice sessions (54.4% very satisfied; 39.1% somewhat satisfied). Most participants (93.3%; n = 42 of 45) also expressed satisfaction regarding the ease of navigation through the sessions and the clarity of the instructions; and 84.4% (n = 38 of 45) were satisfied with the 45-min time limit. Furthermore, 86.7% (n = 39 of 45) recommended keeping the

**Table 2**
Evaluation survey participant characteristics.

| | Total (n = 46) |
|---|---|
| *Age (years)* | |
| Mean (SD) | 23.5 (4.3) |
| Range | 20–40 |
| *Gender* | |
| Female | 40 (87.0%) |
| Others | 6 (13.0%) |
| *Second degree* | |
| Yes | 15 (32.6%) |
| No | 31 (67.4%) |
| *Work history in healthcare* | |
| Yes | 19 (41.3%) |
| No | 27 (58.7%) |
| *Have taken online course* | |
| Yes | 39 (84.7%) |
| No | 7 (15.2%) |

**Table 3**
Summary of participant evaluation on components of the online deliberate practice session.

| | Not Helpful/Only A Little Helpful n (%) | Very Helpful/Somewhat Helpful n (%) | Response Rate n (% of n = 46) |
|---|---|---|---|
| General experience in completing online deliberate practice sessions | 3 (6.5%) | 43 (93.5%) | 46 (100.0%) |
| *Components of deliberate practice session:* | | | |
| 1. The session is online | 2 (4.3%) | 44 (95.7%) | 46 (100.0%) |
| 2. The story provided | 1 (2.2%) | 44 (97.8%) | 45 (97.8%) |
| 3. Having to actually record the verbal report | 4 (8.7%) | 42 (91.3%) | 46 (100.0%) |
| 4. The checklist | 4 (8.7%) | 42 (91.3%) | 46 (100.0%) |
| 5. The reflective questions | 10 (21.7%) | 36 (78.3%) | 46 (100.0%) |
| 6. The opportunity to re-record the verbal report | 4 (8.7%) | 42 (91.3%) | 46 (100.0%) |
| 7. The example SBAR report provided | 2 (4.4%) | 43 (95.6%) | 45 (97.8%) |

deliberate practice sessions as a course assignment, and 73.9% (n = 34 of 45) indicated they probably would complete it even if the sessions were optional.

### 4.3.2. Helpfulness of the online deliberate practice sessions

All participants (100.0%) agreed that the sessions prepared them to use SBAR to report a critical patient incident, and the majority (91.3%; n = 42 of 46) of learners also agreed that the sessions prepared them to communicate better interprofessionally (45.7% strongly agree; 45.7% somewhat agree). All but one participant perceived improvement in SBAR reporting skills. With regard to the helpfulness of specific components of the deliberate practice session, the top three components rated as 'very helpful' were: 1) having to record a verbal report (84.8%; n = 39 of 46); 2) receiving immediate feedback after completing the checklist and listening to the example SBAR report (76.1%; n = 35 of 46); and 3) accessing the sessions online (73.9%; n = 34 of 46). A summary of participants' evaluation on the components of the deliberate practice sessions is presented in Table 3. All participants (100.0%) perceived the audio stories to be realistic and the majority (93.3%; n = 42 out of 45) found them helpful in establishing a context for how situations develop in clinical settings.

### 4.3.3. Barriers in completing the online deliberate practice sessions

Technical difficulties were the major challenge reported; 40.0% of the participants reported experiencing technical difficulties, which included: pop-up recorder failure, internet browser incompatibility, and delay in voice file uploads. The time limit was another barrier. Seven (16.0%) participants wanted more time to complete each session; one indicated that the time limit made the experience stressful.

### 4.3.4. Recommendations for improvement

Participants were invited to provide suggestions to improve the online deliberate practice sessions. In addition to the need to resolve technical issues and allow more time to complete each session, participants indicated that providing more sessions with a wider variety of scenarios and, if possible, some real-life practice opportunities would be beneficial. Also, participants recommended holding a face-to-face session to debrief following the experience.

## 5. Discussion: limitation and key lessons learned

### 5.1. Challenges of using technology

Online deliberate practice sessions can offer a time-efficient and cost-effective approach to provide student nurses and new graduates opportunities to practice critical, often high-stakes, communication skills in a low-risk environment. Online deliberate practice sessions have the potential to fill a gap in skills development in the current nursing curriculum as the focus on interprofessional education and safety increases. Participant feedback indicates that this online low-

fidelity simulation-based learning experience is valuable. Although the online approach is convenient and highly satisfactory, close collaboration with information technology experts to resolve difficulties could avoid interruptions in the learning experience and avoid data loss in measuring performance.

### 5.2. Complexity of evaluating communication competency

Participants' SBAR reports were self-assessed using the simplified IICR checklist. In listening to the participants' SBAR reports, it became clear that an effective SBAR report comprises more than just including the information. Clinical relevancy, the order of the items in the report, and the length of the report are also key considerations. For instance, learners could give a lengthy report which covered all the critical information on the checklist yet included irrelevant and redundant information. In using story, it is important for educators to match the learner's current clinical knowledge and experience with the level of clinical judgement required to take action. The involvement of course instructors can best determine how to address these limitations in evaluating learner performance and provide specific feedback.

### 5.3. Importance of specific feedback and debriefing

During the online deliberate practice sessions, participants received immediate feedback by completing a simplified IICR checklist and listening to a complete SBAR report recorded by a clinical expert. The evaluation statistics indicate that participants liked this form of feedback and found it helpful, but individual feedback also was desired. The need for individual feedback poses a challenge for faculty members who have time constraints. In order for deliberate practice to be effective, learners need feedback to engage in mindful self-correction; therefore, paired peer feedback could be utilized. A face-to-face debriefing session also should be considered in the future to ensure the application of the International Nursing Association for Clinical Simulation and Learning (INACSL) Standards of Best Practice: Simulation[SM] (INACSL Standards Committee, 2016). More study is needed to examine the most effective and efficient method(s) for providing meaningful feedback and debriefing.

## 6. Conclusion

Pre-licensure nursing students lack sufficient practice opportunities to develop their interprofessional communication skills. Story-guided asynchronous online deliberate practice sessions provide an innovative approach to fill this educational gap and also could be used in transition-to-practice programs for new graduates. The initial implementation of deliberate practice sessions in a summer course indicates that deliberate practice sessions are well-received by learners. Overall, online deliberate practice is a highly satisfactory and cost-effective methodology that provides learners with opportunities to practice

critical communication skills in a low-risk environment. Furthermore, online deliberate practice is adaptable to other online educational platforms and presents opportunities for application to different institutions and settings. The technical, evaluation, and structural challenges can be addressed through careful planning. Additional longitudinal studies could also examine long term application of online deliberate practice skill development for communication as well as other competencies. Further research and educational adaptation are needed to facilitate the development of communication competency that have direct impacts on patient outcomes.

## Conflicts of interest

None.

## Ethical approval

This study was reviewed by the University of North Carolina at Chapel Hill Institutional Review Board (IRB) and found to be exempt.

## Role of the funding source

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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.2018.12.011.

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