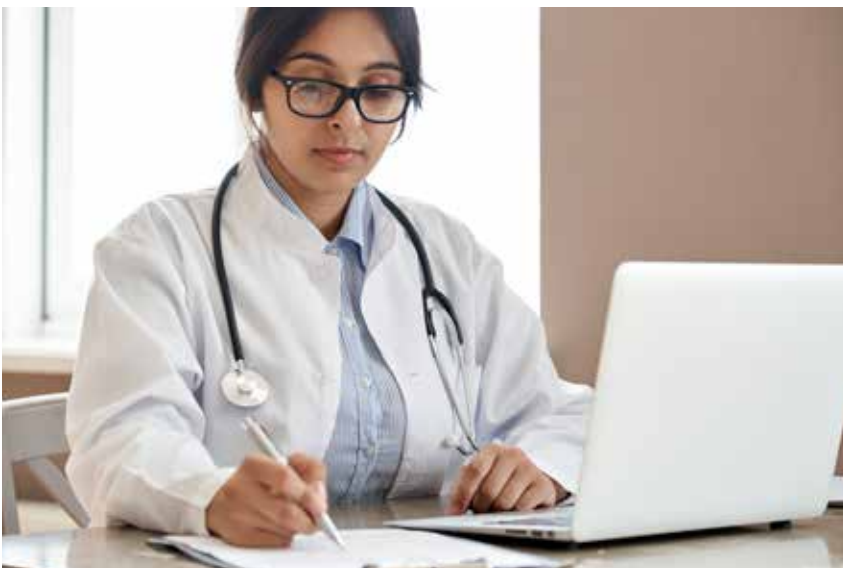


# Primary care refresher: Design and implementation of a virtual procedural skills training

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Continuing education is imperative for nurse practitioners (NPs) who want to sustain and refine procedural skills. Many primary care NPs encounter challenges when attempting to attend face-to-face workshops due to limited staffing coverage and expensive travel arrangements. Virtual skills training workshops provide them with the ability to attend and maintain skills necessary to provide quality care. Furthermore, the virtual format is becoming more popular and provides a means to expand to a larger group of NPs.

**KEY WORDS:** virtual trainings, procedural skills, continuing education, primary care



**P**rocedural skills are a vital component of a primary care provider's clinical practice, especially those in rural and underserved areas where referral services are limited. Minimally invasive office procedures, such as incision and drainage of an abscess and suturing of a laceration, can be routinely performed by nurse practitioners (NPs) in primary care settings. Until recently, most procedural skills trainings have been provided in a face-to-face format, which is considered the "gold standard" for educating healthcare professionals.<sup>1</sup> Virtual workshops, however, are increasingly becoming a popular venue for continuing education (CE) opportunities to maintain and expand skills for routine in-office procedures.

This article describes a virtual training workshop for primary care providers, specifically NPs, to practice and refine the required steps for performing incision and drainage of a skin abscess, suturing of a laceration using simulation models, incision and drainage of a paronychia and subungual hematoma, as well as a musculoskeletal examination. Workshop and simulation preparation, along with the steps required to implement

a virtual training on procedural skills, are described in detail.

## Background

Obtaining CE credit through a face-to-face format can be difficult for healthcare providers, particularly those in rural, underserved areas. Rural providers are often reluctant to leave their practice area to attend CE courses for an extended time due to small staff and the high cost of workshops and travel arrangements. Other options for CE have included online courses and self-directed learning (SDL). Although many rural primary care providers use the internet for CE, common complaints about this format include lack of interaction between the participants and the facilitator and limited opportunities for questions.<sup>2</sup> In one study that explored the experiences of rural providers and their use of SDL, participants reported utilizing SDL out of convenience, but they preferred live interaction. Recommendations based on this study were to consider the use of technology, including mobile devices, to enhance the experiences by offering live interaction and point-of-care learning.<sup>3</sup>

Distance-accessible education has become a standard of practice for higher education including NP programs. A challenge in these programs has been teaching and validating procedural skill competency through a virtual format. In one study, midwifery students uploaded a video demonstration of clinical skills for instructor feedback but reported that the activity was cumbersome and lacked immediate, real-time feedback.<sup>4</sup>

Live virtual procedural skills training offerings provide specific benefits to learners, including widespread access in convenient settings, personalized instruction, and regularly updated content.<sup>1</sup> Additionally, virtual

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venues save learners time and money because traveling and overnight stays are not required to participate. Using technology to provide live virtual demonstration and practice time allows for immediate, real-time feedback. This format has the potential to provide a new approach to teach and validate procedural skills for NP students in distance-accessible programs. Virtual procedural skills workshops have been incorporated into NP conferences that have converted from face to face to a virtual format during the Covid-19 pandemic. Virtual conferences are conducive to reaching a broader audience, less expensive, and more convenient.<sup>5</sup> Based on limited current literature focused on this topic, virtual venues are as effective as alternative methods for providing procedural skills training.<sup>1</sup>

## Purpose

The authors' institution, UAB School of Nursing (UAB SON), is located in a southern state that is primarily designated as rural with numerous medically underserved areas. It strives to bridge primary care health professional shortage gaps by increasing the number of NPs educated to care for rural and underserved populations. Through a

partnership with the Daniel Foundation of Alabama, the UAB SON developed the Graduate Nursing Primary Care Scholars Initiative to provide additional training for primary care NP students planning to care for rural communities. Even though the initial pilot funding for this initiative has ended, it continues as a sustainable program thanks to the UAB SON's commitment to this important work.

This project was implemented to address the need for NPs in clinical practice to enhance and maintain their procedural skillset and earn CE units (CEUs). The purpose of this project was to design, implement, and evaluate a virtual procedural skills workshop.

## Methods

### Participants and setting

The project team included four NP faculty members with experience in pediatrics, women's health, family practice, and acute care/surgery. The team had experience conducting this workshop in a live face-to-face setting in the school of nursing simulation and skills lab the previous year and was also well versed in providing education via a virtual format.

Potential participants included students in primary care NP pro-

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grams (women's health, pediatrics, family) and any NPs in practice with an interest in primary care procedure skills. The participants were recruited from an existing mini-conference database managed by the project team's institution as well as promotional flyers distributed on social media. The setting for the participants was wherever they had access to a computer with a camera including offices where they practiced and their homes.

## Developing the training day

The project team reviewed evaluations from the previous year's face-to-face workshop to determine procedures to include in the virtual format. Most responses on the evaluations noted that participants were interested in repeating the same skills each year to continue to refine their skills. These skills included basic suturing, incision and drainage of skin abscess, paronychia, and subungual hematoma, tick removal, review of musculoskeletal assessment, and basic gynecologic procedures (ie, pelvic examination, bimanual examination, and screening for vaginal infections).

There was much discussion on the price of the workshop considering items for each skill would need to be mailed directly to the participant's home as opposed to being reusable items at the project team's skills cen-

ter. A cost analysis was performed to assess the price of each item needed for each skill as well as the cost of shipping. Reductions in cost were established due to the nonuse of the facility for a live event, no food, and no parking fees. The final registration fee was set at \$175.00 as opposed to the \$250.00 face-to-face fee. The project team's nursing competency suite (ie, skills lab) purchased the items needed for each skill from various retailers and used the previously established conference account. The project team collaborated with faculty and staff within the nursing competency suite to package and ship a skills kit to each registered participant 2 weeks before the virtual workshop. Items were shipped in a priority mail, bubble-lined envelope. The skills kit included needle holders, pickup-designed forceps, four suture thread packs, hemostat, suture pad with precut wounds, scalpel, simulated pus pocket, simulated fingers for the paronychia and hematoma skills, and a plastic speculum. The workshop was approved for 4.2 CEUs by the state board of nursing.

The first step of this innovative process was instructing the participants on each component of this unique learning approach. Registered participants received an email 2 weeks prior to the virtual training detailing the contents of the skills kit they would receive by mail and instructions on how to preserve the

simulated items. Participants were asked to use a device with a camera and microphone and be situated in an area with good lighting for the live training.

## The live training day

On the training day, participants logged in using the previously emailed Zoom link and the project team briefly introduced themselves. The following provides an exemplar of the format for each skill by detailing the basic suturing session.

The first 30 minutes were spent viewing a live demonstration of basic suturing performed by one member of the project team. The team member used a laptop placed on several books to achieve a closer view of the working field for each skill. The use of a laptop allowed for adjustment of the built-in camera to increase visibility for the participants. The suture board and suture thread were placed on a blue towel with bright overhead lighting to achieve a clear picture.

The techniques included use of basic instruments, performing a simple interrupted suture, and instrument tying. The project team member turned on the camera and instructed participants to turn off their cameras. The project team member angled the computer screen down toward the suture board so that participants could see hand movements, the suture board, and the suture. While performing the techniques, the project team member verbalized the steps to reinforce the concepts.

Following the demonstration, participants turned on their cameras and for 30 minutes practiced the basic suturing techniques while all four project team members provided real-time verbal feedback. During this time, participants had the option to request repeat demonstrations of the skill. When a participant had a specific question or needed more



assistance, a team member watched the participant performing the skill and gave individual feedback.

The last 10 minutes of the virtual training session were devoted to a question-and-answer session during which the project team addressed questions regarding appropriate suture and needle choice, best closure technique for certain types of lacerations, and follow-up care. The same format was repeated for the additional skills listed on the agenda. The project team provided contact information to the participants for them to use if they had questions regarding the procedure after the training day.

## Outcomes

A total of 21 participants registered for the workshop, but only 19 participants attended and completed the post-workshop evaluation. Participants were from various states including Alabama, California, Florida, Georgia, Mississippi, Missouri, Tennessee, and Oregon. Ten of the participants were from a rural area, as evidenced by the zip codes listed with their address. The team did not collect information on whether the participant was a student or a practicing NP. On review of the

associated emails, it was noted that 10 participants had email addresses from the team's university indicating they were likely students or recent graduates.

A state board of nursing approved CEU evaluation form also approved by the CEU provider at the institution was used to assess the virtual workshop and project team. The evaluation was a Likert-type scale that assessed attainment of outlined objectives and included a comment area that asked suggestions for improvement, topics for future events, and general comments. The Likert scale ranked questions as: not at all, slightly, somewhat, for the most part, and very much so.

All participants (N = 19) marked very much so and for the most part when asked if the teaching methods and learning aids were effective as well as if the course "met my objectives." When asked if "My knowledge of the topic increased after the activity," all participants marked very much so, which was the highest ranking. Participants suggested decreasing the price for future virtual events, breaking into smaller groups, and adding a prerecorded video for the musculoskeletal session. Specific comments included: "disappointed it

had to be virtual but surprisingly very good and informative," "format excellent, very interesting, very engaging," and "loved having skills kits mailed to us."

## Limitations

Registration was limited to 30 participants to effectively manage the training. Therefore, the sample size was small and the virtual workshop was only held once. Marketing through an established database and social media were effective, but those strategies potentially only reached those who had attended previous conferences held by the project team's organization.

One challenge on the training day was having multiple participants practicing the skill all at once after the initial demonstration. Even though there were four project team members, it was difficult to pay close attention to each participant unless they specifically requested assistance with performing the skill. Assigning a small group of participants to each team member and using breakout rooms could enhance more individualized attention when needed.

An additional limitation was the lack of evaluation methods utilized. The team now realizes that the use

of a pre- and post-test design would have yielded greater insight into the effectiveness of the training.

### **Implications for NPs in primary care practice**

Women's health, pediatric, and family NPs are among those in primary care settings that can incorporate in-office procedures such as those included in this virtual skills workshop to improve quality of care in the services they provide. This is especially important in rural and underserved areas where referring to another provider or setting is not always timely or convenient for the patient.

Often, NPs in rural areas do not have the opportunity to perform certain skills on a regular basis yet want to be able to offer the service. New NPs who had procedural skills training as a student may not have had actual opportunities to practice these skills while in fast-paced clinical settings.<sup>6</sup> Access to up-to-date refresher courses on skills is a benefit to all NPs in practice.

According to the United States Census Bureau–2017 Report, over 60 million people live in an area defined as rural.<sup>7</sup> The National Rural Health Association (NRHA) reports that over 28 million women live in rural areas.<sup>8</sup> These numbers support the need for access to not only primary care services for all populations but also CE for providers in these rural areas. CE opportunities can be provided through technology such as telehealth as recommended by the NRHA and telecommunications software such as Zoom.<sup>8</sup>

Overall, there are limited procedural training workshops available for NPs with a desire to refine and expand procedural skills within their practice. Virtual workshops can provide a valuable means to teach procedural skills and to help increase

provider competence through providing a controlled and risk-free environment to practice.<sup>6</sup>

The project team has plans to continue offering this virtual training as well as a face-to-face option as an annual event. As such, the virtual training can be tailored to meet specific needs for use in graduate nursing education and CE training events for students and NPs in practice near and far. More research would be valuable to validate the effectiveness of assessing skills competency through virtual procedural skills training. ■

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