PREPARING PRIMARY CARE NURSE PRACTITIONER STUDENTS FOR ABSCESS INCISION AND DRAINAGE SKILL THROUGH CLINICAL SIMULATION

Dr. Bola Fadipe DNP, APN, FNP-C
**Disclosure**

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<tr>
<th>Author’s Name</th>
<th>Bola Fadipe</th>
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Outcomes

Upon completion of this presentation, the learner will be able to:

- Relate common work procedures performed by nurse practitioners that are not learned in their graduate program.
- Identify how simulation education can foster clinical skill learning for the nurse practitioner student.
- Describe how nurse practitioner students can gain knowledge, preparation, and confidence on the incision and drainage skill through an evidence-based simulation workshop.
- Understand the analysis of outcome measures based on data collection tools.
- Examine how preparing nurse practitioner students for incision and drainage skill can impact practice, policy, economics, and stakeholders.
The purpose of this study was to assess whether primary care nurse practitioner (NP) students can achieve a basic competency level on an abscess incision and drainage (I&D) procedure through simulation-based learning.
Background & Significance

Development and Expectations of NP roles since 1930s

- Health history taking & Documentation (EMR)
- Physical examination
- Diagnostic studies
- Treatments & Prescribing
- Interdisciplinary collaboration
- Education & Counseling
- Well Visits & Screening
- Clinical procedures

(Lausten, 2013)
Literature

Clinical Procedures

- Suturing
- Cerumen removal
- Foreign body removal
- Splinting
- Abscess incision and drainage (I&D)
- (Covington, Erwin, & Seller, 1992; Wilson, Farrel, & Bove, 1994; Shea & Selfridge-Thomas, 1997; Lausten, 2013)

- I&D: Fourth most used clinical procedure
- 71.6% of the total (N=437) NPs surveyed had performed abscess I&D.
- Only 19.2% of those NPs learned it in their program.
- Not widely taught in NP programs (Lausten, 2013).
Simulation for Solution

- Simulation bridges the gap between what is learned in the classroom and the skills performed on a live patient (Wunder et al., 2015).
- Simulate clinical experiences not otherwise encountered frequently but are critical to practice (Overstreet, 2008).

- Enhances the learning strategies for health care professional students (Harder, 2010; Wunder et al., 2015).
- Perform summative assessments of the students’ clinical skills (Wunder et al., 2015).
The aims of the project was for primary care NP students to achieve a basic competency level on an abscess I&D procedure through simulation-based learning.

PICO: Can a simulation based curriculum be utilized to provide NP students the clinical competence in advanced skills of incision and drainage of an abscess?
Study Objectives

To develop an evidence-based simulation on an abscess I&D procedure.

To implement the evidence-based simulation I&D simulation workshop for NP students.

To evaluate students’ perceptions and attitudes on I&D by use of a demographic questionnaire and debrief.

To evaluate knowledge and competence of clinical performance by use of a 1) pre-test and post-test 2) competency skill tool.
Framework: Dreyfus Skill Acquisition

**Expert**
1. Transcends reliance on rules, guidelines, and maxims
2. Intuitive grasp of situations based on deep understanding
3. Has a vision of what is possible
4. Uses an analytical approach in new situations

**Proficient**
1. Holistic view of situation
2. Prioritizes importance of aspects
3. Perceives deviations from the normal pattern
4. Employs maxims for guidance, with meanings that adapt to the situation at hand

**Competent**
1. Coping with crowdedness (multiple activities, accumulation of information)
2. Some perception of actions in relation to goals
3. Deliberate planning
4. Formulates routines

**Advanced Beginner**
1. Limited situational perception
2. All aspects of work treated separately with equal importance

**Novice**
1. Rigid adherence to taught rules or plans
2. No exercise of discretionary judgment
Methodology

- IRB was obtained from the University
- Nurse practitioner students in the (Pediatric, Family, Emergency, Adult-Geriatric) who at least started clinical were recruited from the same nursing program.
- The recruitment poster was shared with the students through their faculty
- Respondents who were interested, registered and signed the informed consent securely via email at no cost or compensation.
- 12 NP students attended the simulation workshop and the results were analyzed for measures of statistical significance.
- Study Budget: $200.00
Outcome Measures

- 18-item Questionnaire
  - Demographic & Academic Background
  - Attitudes/Perception on knowledge and performance of I&D
- 9-item Pretest & Posttest
  - Subject’s baseline clinical knowledge on skin infection and I&D
  - Improvement of clinical knowledge after the simulation I&D workshop
    - (Wathen, 2014). University of Texas Health Science Center San Antonio
- 16-item Competence Skill Checklist Tool
  - Subjects’ clinical competence at end of the simulated I&D workshop
- 5-item Debrief
  - Attitudes/perception of I&D knowledge/skill after workshop.
18-Item Questionnaire

- Gender/Age
- Nurse Years #/Education
- NP Track/Completed clinical rotation
- Were you taught or will learn I&D at any point in NP program? Type of training?
- How many I&D observed/performed during clinical?
- How confident on knowledge/skills of abscess skin infections and I&D?
- How prepared do you feel on performing I&D?
- How important is learning skills in NP program? Before performing skill on the job?
Select the following skin conditions that require (I&D) in an outpatient setting. (Select all that apply).

Choose a characteristic of an abscess or cyst that would indicate use of an I&D procedure.

What instrument is commonly used to incise an abscess that is 2.5 cm in diameter?

Which complication is a common risk associated with an abscess I&D procedure?

Which of the following supplies from the list below are needed for an I&D of abscess

Review and prioritize the steps to perform an I&D of an abscess.
Abscess Incision & Drainage Sim
Summary Findings

• Questionnaire:
  • Demo: All females, average age of 36, 75% bachelors degree
  • Attitude: All subjects thought it was important to learn advance skills before performing it on the job. 75% Primary Care 25% ED

• Pretest-Posttest: I&D simulation-based learning workshop employed as an intervention, was able to help subjects achieve the required basic level of competence.

• Competence Skill Tool: All subjects competently performed the I&D skill based on simulation training.

• Debrief: All subjects felt more confident on their knowledge and performance of the I&D skill
Results: Perceptions

I&D Knowledge

- Confident: 8.3%
- Not at all confident: 33.3%
- A little confident: 58.3%

I&D Performance

- Confident: 8.3%
- Not at all confident: 50.0%
- A little confident: 41.7%

I&D Preparation

- Not at all prepared: 66.7%
- A little prepared: 33.3%
- Confident: 8.3%
Results: Statistical Tests

Non-Parametric Test: Wilcoxon Signed Rank Test

Mean post-test scores (M=9) > Mean pretest scores (M=5)

(Z=-3.078, p<.002). This improvement in scores was statistically significant (<.05).

Non-Parametric Test: McNemar Test

Item-by-item comparison between the pretest and posttest Questions 1 (.016), 3 (.002), and 4 (.016) were statistically significant, p<05

Vital for healthcare safety and quality for patients who present with a cutaneous abscess.
Results: Descriptive Analysis

16-Item Skill Tool Test

Series 1
## Discussion

### Weakness
- Difficult to predict weakness before implementation of pilot study.
- No pediatric track students

### Limitation
- Small sample size
- Pre-test skill tool test not included
  - 3month Post-test

### Strength
- Control intellectual difference
- Different tracks ➔ Same setting, instructor, instructional methods, and I&D techniques
Discussion & Recommendations

- The study objectives were met based upon the effectiveness of the I&D workshop.

- Study outcomes supported the literature research studies of Cook et al., (2011); Durham et al. (2015); Lausten (2013); Wathen (2014); and Wunder et al., (2014).

- Workshop instituted in NP programs and expanded on with additional commonly practiced skills performed by primary care NPs in outpatient settings.

- Test the long-term retention of the knowledge and skills gained through the simulation program.

- Involvement of multiple NP programs with a larger sample size.
Implications

**Economic**
Inexpensive
Tuition
Billing and Coding
Experienced hire/contractor

**NP students**
Development of I&D skill via simulation before graduating.
Critical thinking and application
Increase chances of hire

**Policy**
NP Program Policy
National Organization of Nurse Practitioner Faculties (practice core competency)

**Health care and safety**
Prevention of harmful practice and medical errors
Quality assurance
Prevention of harm to NPs
Conclusion

- Progression of healthcare and need to meet patient/population healthcare needs.
- Increasing expectations on scope of NP clinical practice.
- Important for NP to feel prepared and competent > Autonomy.
- NPs provide better quality care.
- Clinical advancement is needed for clinical skills.
- Timing is essential for better clinical preparation.
- I&D simulation program was effective.
- More simulation evidence—based education research needed.
- Strengthen APN curriculum and clinical standards to put forth best NPs.
- Lead NP profession and practice.
References


Questions?