



GARDNER-WEBB UNIVERSITY  
HUNT SCHOOL *of* NURSING

Simulation-Based Education for the Administration of  
Chemotherapy and Biotherapy for New Graduate  
Oncology Nurses

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# Project Team & Site Acknowledgement

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Practice  
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**Carolinas  
Simulation  
Center**

Site  
Partnership



# Problem Identification

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2014

- Prior to 2014 the ONS/ONCC Chemo Bio Certificate Course was a 2-day in-person class. In 2014, this course transitioned to an online-only learning platform.

2015 - 2016

- Transition to Practice (TTP) New Graduate Nurse Residency Program was established

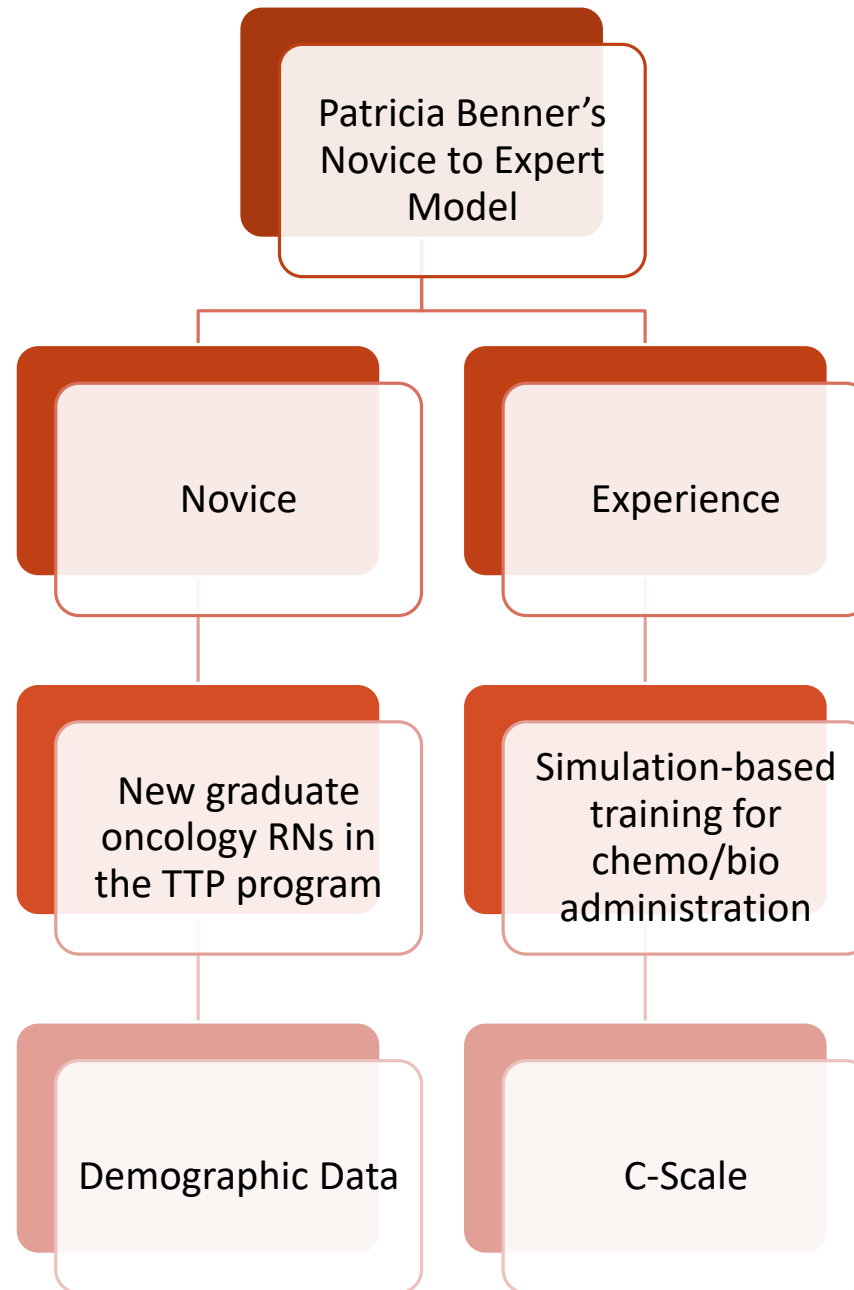
2017 - 2018

- In 2017, an oncology-specific TTP Program was developed.
- New graduate oncology RNs are required to obtain their ONS Provider Card during the first 14-weeks of hire

2019

- Survey results from 2017 & 2018 oncology TTP RNs revealed approximately **50%** did not feel prepared to administer chemo/bio by only completing the online course

*“New graduate oncology nurses are not prepared to confidently administer chemotherapy and biotherapy upon completion of the online-only courses.”*



“Simulation is the imitation or representation of one act or system by another” (Society for Simulation in Healthcare, 2019, para. 1).

Simulation Provides learners with the opportunity to practice clinical skills in a realistic environment that may then be transferred to actual patient care, promoting positive patient outcomes (Ross & Burrell, 2018).

## Literature Review



Simulation technologies allow for the recreation of rare or inexperienced events.

The overarching goal of all simulation activities is to increase the safety, effectiveness & efficiency of healthcare.

# Best Practice Selection

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- Per the Institute of Medicine (IOM), simulation education may enhance clinical skills & promote confidence (2011).
- Simulation has the potential to increase patient safety by decreasing errors & improving patient outcomes (Qayumi et al., 2014).
- Simulation-based education has been proven to increase the overall confidence of RNs administering chemotherapy & biotherapy (Crannell, 2012; Linnard-Palmer, 2012).
- Chemotherapy has been identified as a high-alert medication by the Institute for Safe Medication Practices due to the significant risk for patient harm if an error occurs (2018).

*Simulation-based education had not been previously used for hands-on chemotherapy & biotherapy administration training in the oncology TTP Program.*

# Project Goal & Objectives

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To increase the confidence of new graduate oncology RNs surrounding the administration of chemotherapy & biotherapy; thus, increasing their preparedness to perform such skills correctly in the clinical setting.



Implement simulation-based education for the administration of chemotherapy & biotherapy during 9-month residency period.

Increase preparedness of new graduate oncology RNs related to chemotherapy & biotherapy administration via hands-on simulation training.

Develop a simulation scenario focusing on the safe & proper administration of chemotherapy & biotherapy

# Project Design

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- Oncology patients + family members/caregivers
- Project team members
- Oncology RNs throughout Atrium Health & Levine Cancer Institute (LCI) + corresponding managers and clinical supervisors
- Payer sources

Stakeholders



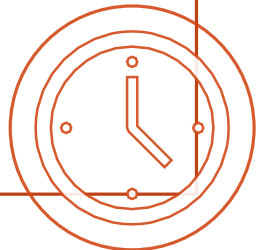
New graduate oncology  
RNs hired by Atrium  
Health & LCI

Population



9-month RN residency  
program with 14-week  
preceptorship

Timeline





# Project Design

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## 2-Phase Intervention

- Successful completion of online course offered by the ONS that prepares RNs to be a “Chemotherapy Immunotherapy Provider”
- Simulation session focused on administration of chemotherapy & biotherapy



## Implementation

- 30 oncology TTP RNs, divided into 4 groups
- Four Simulation Sessions (each 4 hours in length) held during Month of October 2019



## Evaluation Tool

- Dr. Susan Grundy’s original Confidence Scale (C-Scale) was utilized for data collection
- Participants completed the C-Scale survey pre-simulation & post-simulation

# Simulation Sessions

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- Informed Consent & Pre-Simulation C-Scale survey
- Pre-Brief
- Simulation Scenario (with high-fidelity mannequin)
- Debrief
- Post-Simulation C-Scale survey

# Outcomes

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## C-Scale

Code: Pre-Survey

**Directions:** Circle the number which best describes how you perceive your current ability to administer chemotherapy and/or biotherapy for adult oncology patients. (NOTE: Make sure that the circle encloses just ONE number.)

1. I am certain that my performance is correct:

1

2

3

4

5

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not at all certain

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certain for only a  
few steps

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fairly certain for a  
good number of  
steps

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certain for almost  
all steps

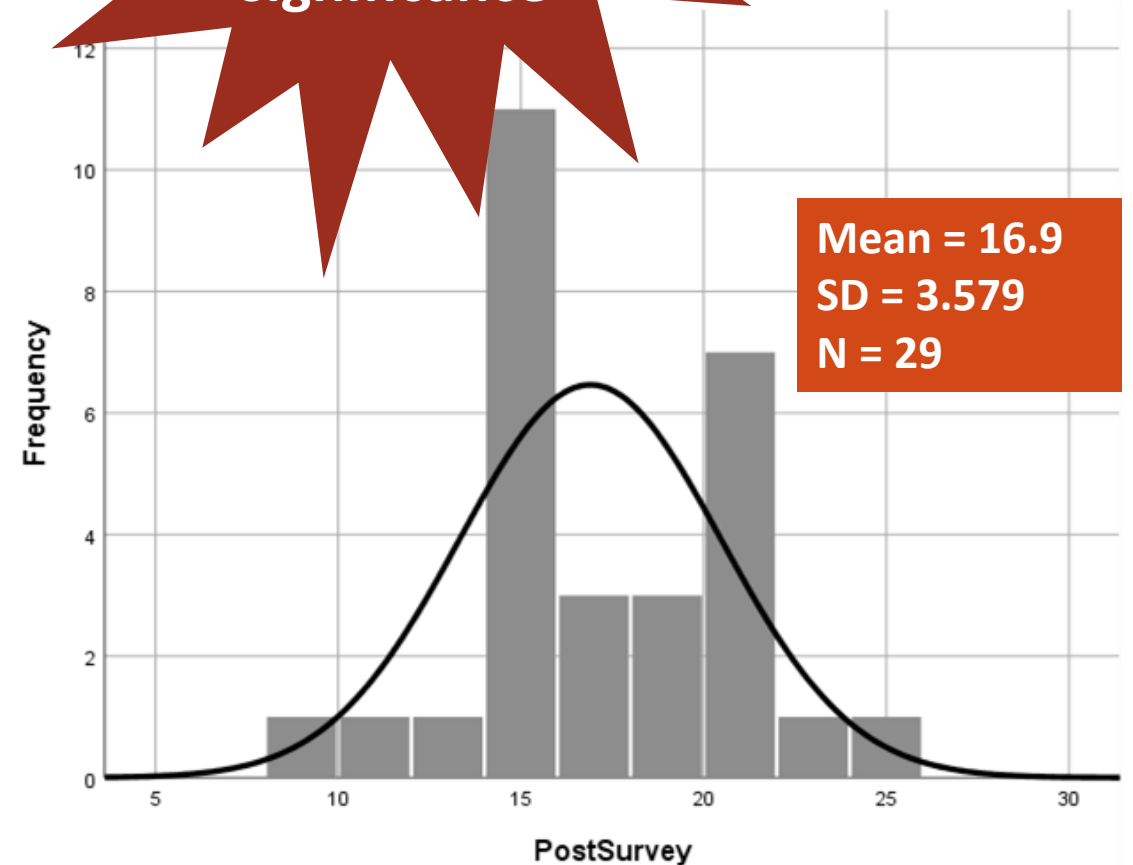
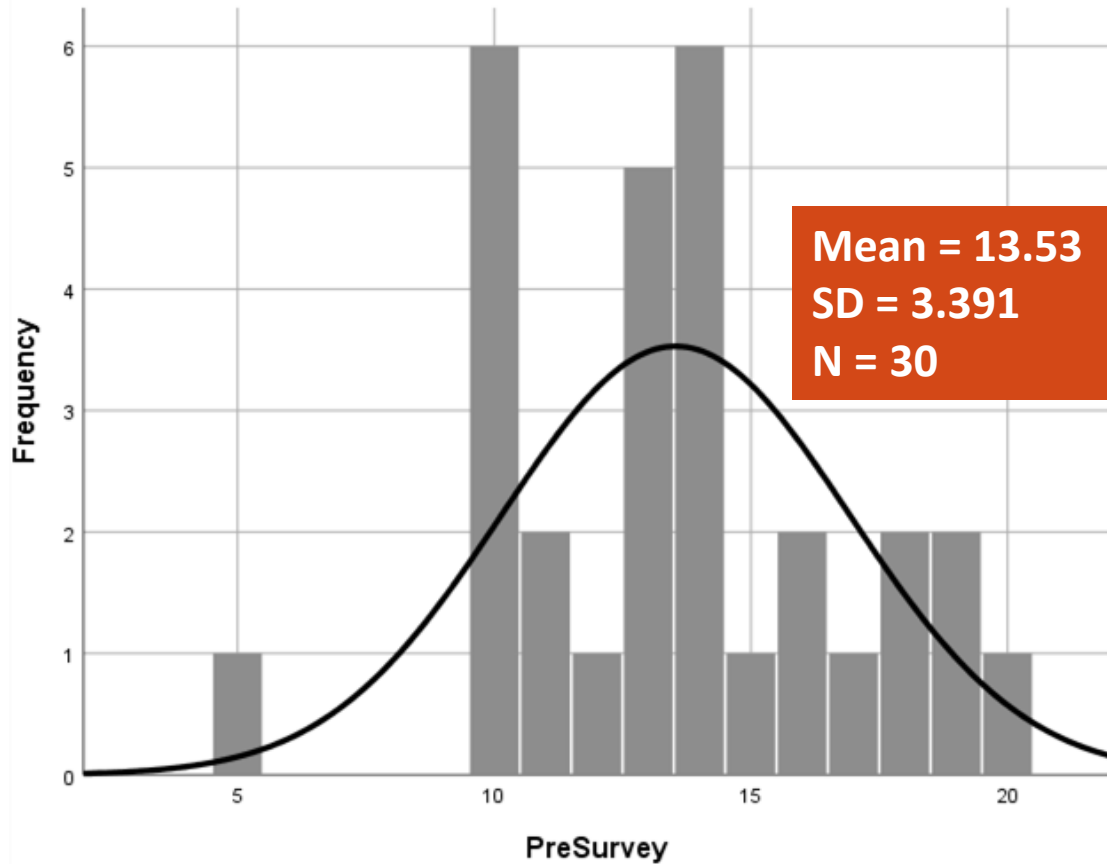
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absolutely certain  
for all steps

- 30 RNs completed the pre-survey
- 29 RNs completed the post-survey
- Response Rate = 98%

# Statistically significant increase in confidence

**p = .002 at  
.05 level of  
significance**



# Unintended Outcomes

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- Revealed opportunities for standardization
- Collaboration between inpatient and outpatient oncology RNs
- Accreditation “superstar”
- Clinic RNs to begin attending simulation sessions



# Conclusion

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- Simulation provides a safe environment for new graduate oncology RNs to practice administering chemotherapy & biotherapy.
- Simulation-based education, in conjunction with the Fundamentals of Chemotherapy Immunotherapy Administration course or the ONS/ONCC Chemotherapy Immunotherapy Certificate Course, increases new graduate oncology RNs' confidence in administering chemotherapy & biotherapy.
- New graduate oncology RNs have varying levels of self-perceived confidence surrounding chemotherapy & biotherapy administration.





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