Redesigning the Baccalaureate Curriculum to Address Population Health Using Simulation


Rutgers, The State University of New Jersey

National League for Nursing / Sigma Theta Tau International Nursing Education Research Conference, Washington, DC
Friday, April 20, 2018
Acknowledgments

• **Sponsors**
  – Robert Wood Johnson Foundation
  – New Jersey Nursing Initiative

• **External Evaluator**
  – Lori A. Escallier, PhD, RN, CPNP-PC, FAAN
    Dean & Professor, SUNY Downstate College of Nursing

• **Rutgers School of Nursing**
  – Students, Faculty, Staff & Administrators
Rutgers School of Nursing
Core Project & Research Team

• Principal Investigator
  – Ann Marie Mauro, PhD, RN, CNL, CNE, FAAN
    Assistant Dean, Professor, & Director
    Center for Educational Research & Innovation

• Co-Principal Investigator
  – Debora Tracey, DNP, RN, CNE
    Assistant Professor & Director, Center for Clinical Learning

• Community Partner
  – Bonnie Geissler, MS, RN
    Interim CNO, Clara Mass Medical Center & VP
    Perioperative & Emergency Services RWJBarnabas Health

• Research Assistants
  – Angelica Bravo, MPH, MSW
  – Claire Byrne, MSN, RN, NE-BC
Faculty Curriculum Expert Teams

Adult Case Team: Delores Baxter

- Coordinator
  - Maria LoGrippo, PhD, RN, MSN

- Members
  - Diane Brienza-Arcilla, DNP, RN
  - Suzanne Shugg, DNP, APN, CLS
  - Mona Williams-Gregory, DNP, ACNP-BC

Pediatric Case Team: Francisco “Cecco” Lopez

- Coordinator
  - Sharon Anderson, DNP, NNP-BC, APNG

- Members
  - Diane Gillooly, DNP, RN-BC, APN
  - Frances Munet-Vilaro, PhD, RN
Background

- Aging population with complex needs
- Improved population health outcomes required (IHI, 2017)
- Need to redesign BS curricula (AACN, 2008; Benner et al, 2010; Cronenwett et al, 2007; IOM 2010; IPEC, 2016)
- Simulation & readiness for practice (Hayden et al., 2014)
- Integrative teaching & learning methods (Ezeonwu et al., 2014; Randolph et al., 2016; Simpson & Richards, 2015)
- Lack of research regarding effective strategies
Simulation Innovation Project

Purpose

• Use simulation to redesign the BS curriculum to address population health

Theoretical Framework

• NLN Jeffries Simulation Theory (Jeffries, 2016)
Specific Aims

• Improve population health
  – Culturally competent care
  – Address social determinants & health disparities

• Advance behavioral changes in self-management
  – Chronic illnesses

• Facilitate transitions in care across settings
  – Hospital, home, & community

• Promote a culture of health
  – Health promotion, disease prevention, & community resources

• Collect & interpret meaningful use data
  – Recognize care gaps

• Utilize EHR to document & reassess
  – Quality, safety, & evidence based best practices
Project Description: Active Learning

In Class Discussion

• Pre-Assignment (1-2 hrs)
  – Patient video vignette
  – Student guide

• In Class Discussion & Debriefing (75-90 mins)
  – Faculty guide

On Site Clinical Simulation

• Pre-Assignment (1-2 hrs)
  – Student guide

• Pre-briefing (1 hr)
• Simulation (2 hrs)
• Debriefing (1 hr)
  – Faculty guide
Project Description: Adult Case – Delores Baxter

Adult I

• Video Vignette
  – Emergency dept to 24 hr observation unit
  – Acute HF exacerbation

• High Fidelity Simulation
  – 24 hr observation unit to home
  – Discharge teaching & follow up

Adult II

• Video Vignette
  – Community APRN Clinic
  – Post discharge follow up
  – Community resources

• High Fidelity Simulation
  – Outpatient cardiac catheterization unit to home
  – Discharge teaching & follow up
Project Description: Adult Case – Delores Baxter

Community

• Video Vignette
  – First home visit
  – Post outpatient cardiac catheterization follow up
  – Community resources

• High Fidelity Simulation
  – First palliative care visit
  – Health teaching & follow up
  – Community resources
Project Description: Pediatric Case – Cecco Lopez

**Pediatrics**

- **Video Vignette**
  - School nurse to EMS
  - Acute asthma to status asthmaticus

- **High Fidelity Simulation**
  - Emergency department to home
  - Discharge teaching & follow up
  - Community resources

**Community**

- **Video Vignette**
  - First home visit
  - Home scan for asthma triggers

- **High Fidelity Simulation**
  - Second home visit
  - Health teaching & asthma management plan
  - Community resources
Method

• IRB exempt

• Pre-test / post-test, descriptive study

• Pre-test / post-test surveys (10 mins each)
  – Inventory for Assessing the Process of Cultural Competence Among Health Professionals – Student Version (IAPCC-SV) (Campinha-Bacote, 2007)

• Student & faculty evaluation surveys (5-10 mins)
  – In class activity & debriefing discussion
  – High fidelity simulation debriefing
Student Demographics (N = 585)

Ethnicity/Race
- White
- Asian
- African American
- Hispanic/Latino
- Other

Gender Identity
- Female
- Male
- Trans Female
- GenNonConform

Age
- Range: 20 to 56 yrs
- Mean: 26.1 yrs
<table>
<thead>
<tr>
<th>Courses</th>
<th>Newark</th>
<th>New Brunswick</th>
<th>Blackwood</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult II</td>
<td>126 (38%)</td>
<td>96 (29%)</td>
<td>42 (13%)</td>
<td>263 (78%)</td>
</tr>
<tr>
<td>Generic</td>
<td>51 (15%)</td>
<td>68 (20%)</td>
<td>-</td>
<td>119 (35%)</td>
</tr>
<tr>
<td>2 + 2</td>
<td>-</td>
<td>-</td>
<td>42 (13%)</td>
<td>42 (13%)</td>
</tr>
<tr>
<td>Second Degree</td>
<td>74 (22%)</td>
<td>28 (8%)</td>
<td>-</td>
<td>102 (30%)</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>67 (20%)</td>
<td>27 (8%)</td>
<td>-</td>
<td>94 (28%)</td>
</tr>
<tr>
<td>Second Degree</td>
<td>67 (20%)</td>
<td>27 (8%)</td>
<td>-</td>
<td>94 (28%)</td>
</tr>
<tr>
<td>Community</td>
<td>39 (12%)</td>
<td>28 (8%)</td>
<td>-</td>
<td>67 (20%)</td>
</tr>
<tr>
<td>Second Degree</td>
<td>39 (12%)</td>
<td>28 (8%)</td>
<td>-</td>
<td>67 (20%)</td>
</tr>
</tbody>
</table>
# Table 2. Students Spring 2017 (N = 511)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Newark</th>
<th>New Brunswick</th>
<th>Blackwood</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult I</td>
<td>86 (17%)</td>
<td>95 (18%)</td>
<td>56 (11%)</td>
<td>239 (46%)</td>
</tr>
<tr>
<td>Generic</td>
<td>42 (8%)</td>
<td>55 (11%)</td>
<td>-</td>
<td>97 (19%)</td>
</tr>
<tr>
<td>2 + 2</td>
<td>-</td>
<td>-</td>
<td>56 (11%)</td>
<td>56 (11%)</td>
</tr>
<tr>
<td>Second Degree</td>
<td>46 (9%)</td>
<td>40 (8%)</td>
<td>-</td>
<td>86 (17%)</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>56 (11%)</td>
<td>56 (11%)</td>
<td>51 (10%)</td>
<td>163 (32%)</td>
</tr>
<tr>
<td>Generic</td>
<td>44 (9%)</td>
<td>56 (11%)</td>
<td>-</td>
<td>100 (19%)</td>
</tr>
<tr>
<td>2 + 2</td>
<td>-</td>
<td>-</td>
<td>51 (10%)</td>
<td>51 (10%)</td>
</tr>
<tr>
<td>Second Degree</td>
<td>12 (2%)</td>
<td>-</td>
<td>-</td>
<td>12 (2%)</td>
</tr>
<tr>
<td>Community</td>
<td>119 (23%)</td>
<td>95 (18%)</td>
<td>42 (8%)</td>
<td>256 (50%)</td>
</tr>
<tr>
<td>Generic</td>
<td>52 (10%)</td>
<td>67 (13%)</td>
<td>-</td>
<td>119 (23%)</td>
</tr>
<tr>
<td>2 + 2</td>
<td>-</td>
<td>-</td>
<td>42 (8%)</td>
<td>42 (8%)</td>
</tr>
<tr>
<td>Second Degree</td>
<td>67 (13%)</td>
<td>28 (5%)</td>
<td>-</td>
<td>95 (18%)</td>
</tr>
</tbody>
</table>
Population Health Outcomes

- Met across all activities & courses
- Students
  - 90% to 100% agreed/strongly agreed
- Faculty
  - 89% to 100% agreed/strongly agreed
    - 4 to 6 competencies met
  - 75% to 80% agreed/strongly agreed
    - Culturally competent care & connections to community resources for pediatric case
- No difference in population health competencies between classroom & simulation activities
Cultural Competence

- **IAPCC-SV Reliabilities**
  - Overall .93
  - Subscales .67 to .87

- **Cultural competence increased**
  - Fall 2016
    - Mean diff (SD) = 1.25 (7.62), $t$ ($df$) = 3.01 (335), $p = .003$
  - Spring 2017
    - Mean diff (SD) = 1.64 (8.11), $t$ ($df$) = 4.58 (510), $p = .000$

- **ANOVA**
  - No differences based on ethnicity, race, gender, or course
Student & Faculty Comment Themes

• **Population health learning outcomes achievement**
  – Disproportionate chronic illness rates among ethnic & racial groups
  – “Improve health outcomes” for chronic diseases “by providing culturally competent care” & discharge teaching for “optimum health at home”

• **Active/engaging collaborative learning experiences**
  – Enhanced knowledge & understanding

• **Skills gained**
  – Critical thinking, cultural competence, care across settings
  – Examined patient from “multiple angles” & learned the importance of “transitional care”

• **Faculty facilitator characteristics**
  – Knowledgeable
  – Engaging
  – Supportive of learning
  – Helpful feedback
Discussion: Successes

• Unfolding Adult & Pediatric Cases
  – Simulation videos (5)
  – High fidelity simulations (5)
  – Faculty & student guides (5)

• Methodology
  – High fidelity simulation
  – Project scope
  – Integrated in 4 core courses
  – Online surveys in class
  – Students engaged in active learning
  – Faculty engaged & supported

• Population Health Competencies
  – ↑ cultural competence
  – ↑ understanding
  – Care across continuum
  – Information flow across settings
  – Use of eEHR
  – Learned how teams works
  – Wanted deeper dive
Discussion: Successes

Benefits to Students

• Realistic
• eEHR integration
• Big data & population health focus
• True clinical record focused on care coordination

Benefits to Partner

• Better prepared future care providers
• Transition to practice enhanced by eEHR
• Future collaboration & projects
• Sense of accomplishment
Discussion: Challenges

Internal
- Communication!!!
- New pedagogy
- Scope of project
- Personnel resources
- Post merger issues

External
- Qualtrics survey software
- New email system
- Budgetary issues
Conclusions

• It takes more than a village!!!
• Simulation effective in enhancing population health competencies
• Importance of good communication
• Feedback & rapid cycle quality improvement
• Faculty development & ongoing support
• Value of community partnerships
• Future research on impact on patient outcomes
References


References


References


