FACTORS PREDICTING NURSES’ PERCEPTION OF THEIR PRACTICE ENVIRONMENT AND SAFETY CULTURE IN RURAL HOSPITALS

Marilyn Meyer Bratt, PhD, RN
Associate Professor Marquette University
Sigma Theta Tau Building Bridges Conference
May 12, 2017
There are no relevant financial relationships related to this presentation/program.

• There is no sponsorship/commercial support of this presentation/program.
• The content being presented will be fair, well-balanced and evidence-based.
• Learners must have signed the attendance roster at registration this morning and will need to complete the on-line evaluation after the conference to successfully complete this program and receive the contact hours certificate.
Research Team

Marquette University
- Marilyn Bratt, PhD, RN
  Associate Professor
  SOAR-RN Project Director/PI
- Sandi Van Den Heuvel, MSN, RN
  SOAR-RN Program Coordinator
- Heather Felzer, MSN, RN
  Research Assistant
- Holly Felzer, MSN, RN
  Research Assistant

Virginia Commonwealth University
- Marianne Baernholdt, PhD, RN, FAAN
  Professor/ Co-PI
  Director Langston Center for Quality, Safety, and Innovation
- Leroy Thacker, PhD
  Associate Professor, Biostatistician
- R.K. Elswick, Ph.D., NREMT-B
  Professor, Biostatistician
Challenges for New Rural Nurses

- Isolated
- Limited access to professional development and interaction
- Lower compensation and more limited benefits
- Lack of preparation for unique features of rural nursing practice and generalist role
- Desire to seek specialty roles and high acuity settings
Challenges in Recruitment and Retention

- Rural practice settings turnover rates reported as high as 65%
- Recruitment of new nurses to rural areas reported to take 60% longer than for urban setting
- Nurse residency programs provide a solution
Approach

- HRSA grant 2011-2015 ($1,000,000)
- Sustaining Onboarding And Retention of Rural Nurses (SOAR-RN)
- Rural health care partners
  - Ministry Health Care (Ascension): 10 community and critical access hospitals
  - Illinois Critical Access Hospital Network: 20 critical access hospitals
SOAR-RN Project Purpose

- Deliver an evidence-based nurse residency program for rural NLRNs
- Build rural nurses practice competency
- Enhance NLRNs transition to practice
- Create cultures of safety and positive work environments → quality care & nurse retention
SOAR-RN Program

- Nurse residency program specific to needs of rural NLRNs
  - Preceptor training
  - Structured monthly educational sessions/rural nursing curriculum
  - Developmental support for educators and nurse managers
SOAR-RN Nurse Residency Curriculum Model

Transition to Nursing Practice

Outcome
- Demonstrate effective clinical judgment to manage changing conditions of rural patients across the age continuum
- Apply evidence based principles to enhance rural healthcare delivery that maintains or promotes health of patients
- Exhibit professional Nursing role behaviors with in the content of rural care
- Engage in a clinical leadership role to maximize rural patient outcome

Derivation of Theoretical Basis:

Dr. Angie Bushy
Dr. Helen Lee
Dr. Clarann Weinert
Dr. Charlene Winters
Dr. Kathleen Long
Purpose/Study Aim

- What factors predict rural nurses’ perceptions of the practice environment & safety culture?
- What are the relationships among hospital and nurse characteristics, nurses’ perceptions of the practice environment, patient safety culture, safety outcomes, and hospital participation in SOAR-RN?
Background

- Research on impact of nurse residency programs on organizational outcomes is limited; particularly in rural hospitals
- Limited research on rural nurses perceptions of their hospital practice environment and quality of care
Theoretical Linkages

SOAR-RN Program

Nursing Practice Environment

Safety Culture

Quality of Care
Overarching Framework: Donabedian 1980

Structure
- Hospital Characteristics
  - Size & Type
- Nurse Characteristics
  - Age, Education, Unit, Tenure

Process
- Nurse Residency Program Participation
  - Length
  - # of NR
  - # of Preceptors

Outcomes
- Patient Safety Culture
- Practice Environment
Sample and Setting

- Sample: n = 1313 rural nurses
  - 94% Female; 97% Caucasian
  - 57% ADN; 31% BSN; 8% Diploma
  - 32% 0-5 years; >20 years 32%
  - 73% staff nurses; 27% Non-Staff Nurses (CNS, Educators, Charge Nurse, Manager)

- Setting: Midwestern rural hospitals
  - 13 CAH; 10 non-CAH
Methods

- Quasi-experimental longitudinal design
- Data collection: yearly x3
- Data collected via paper and electronically
  - Practice Environment Scale (PES)
  - Patient Safety Culture (PSC)
  - Hospital data: # RNs employed, # beds
  - Hospital participation in SOAR program
Practice Environment

- “Organizational characteristics of a work setting that facilitate or constrain professional nursing practice” (Lake, 2002)
- Organizational factors that influence the practice of nurses
Practice Environment Scale (PES-NWI)

- Derived by Lake (2002) from Nursing Work Index (Kramer & Hafner, 1989) resulting from initial magnet hospital (able to attract and retain nurses) research
- 31 items; five subscales
PES-NWI Subscales

- Nurse Participation in Hospital Affairs
- Nursing Foundations for Quality of Care
- Nurse Manager Ability, Leadership, and Support for Nurses
- Staffing and Resource Adequacy
- Collegial Nurse-Physician Relations

*Scoring scale: 1 - 4 (SD → SA)*
Safety Culture (AHRQ, 2016)

“The safety culture of an organization is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization’s health and safety management. Organizations with a positive safety culture are characterized by communications founded on mutual trust, by shared perceptions of the importance of safety, and by confidence in the efficacy of preventive measures.”

AHRQ Hospital Survey on Patient Safety Culture (PSC) (Sorra & Nieva, 2004)

- Focus on patient safety/error and event reporting
- 42 items grouped into 12 composite measures
- 2 safety questions: overall grade on patient safety (Excellent - Failing) and #event reports in past 12 months (none - 21 or more events)
- Demographic information: e.g. work area/unit, staff position, tenure in their work area/unit
Patient Safety Culture: 12 Composite Measures

- Supervisor/manager expectations & actions supporting safety
- Organizational learning/continuous improvement
- Teamwork within units
- Communication openness
- Overall perceptions of patient safety
- Frequency of events reporting

- Feedback about error
- Non-punitive response to errors
- Staffing
- Management support for patient safety
- Teamwork across units
- Handoffs and transitions

Scoring scale: 1-5 (SD → SA; Never → Always)
Influence of SOAR-RN Program

- Intensity/Participation Index Score
  - # of participants (NLRNs and Preceptors)
    - # of nurse employees/hospital

- Percentage score
  - 0 - 25% = 1
  - 26-50% = 2
  - 51-75% = 3
  - 76-100% = 4
Methods

- Linear mixed effects model used
- Differences across time and identification of key predictor variables
  - Perception of the practice environment
  - Perception of patient safety culture
Multi-level Modeling

- Examines changes in scores of the outcome variable (PES and PCS) based on various independent variables (e.g. education, years in practice)
- Used when participants are nested (situated) within a higher level of data → hospital
Data Analysis

- **Base model**
  - Effect of time and participation score
  - Random effects for Network, Hospital nested within Network; Nurses nested within Hospital

- **Next step: Covariates**
  - Education, years in practice, type of position
Results: PES Final Model

- Time ($F_{2,957} = 3.27, p = 0.04$); mean scores increased over time
- Position ($F_{1,1162} = 10.48, p < 0.01$); staff nurses had lowest scores
- Intensity ($F_{1,21} = 3.77, p < 0.07$); higher scores in hospitals with higher participation
- Intensity by Unit: ($F_{3,1541} = 4.27, p < 0.01$); higher scores in hospitals with higher participation and working in units other than typical hospital units
Results: PSC Final Model

- Time ($F_{2,903} = 3.86, p = 0.02$); mean scores increased over time
- Intensity ($F_{1,19} = 4.18, p = 0.05$); higher scores in hospitals with higher participation
- Unit ($F_{3,1533} = 5.18 (p < 0.01)$; higher if working on units other than typical hospital units
- Education: ($F_{3,1210} = 2.55, p = 0.05$); BSN nurses had higher mean scores
Summary

- Hospitals that were more invested throughout the SOAR-RN program had better scores on PES and PSC.
- Scores on the PES and PSC increased over time.
- Unit type appears to influence PES and PSC.
- Level of education appears to influence PSC.
- Type of position influences PES.
Conclusions

- Nurse residency programs can positively impact perceptions of hospital safety culture & work environment
- Nurse residency programs can be a critically important return on investment for rural hospitals
- Robust nurse residency programs can have pervasive organizational impact leading to quality care