

## Exposing Nursing Students to Rural Healthcare Practice: Creating a Rural Simulation Experience

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### Abstract

**Background:** Continued nursing shortages in rural areas have prompted the call for nursing education programs to prepare nursing students for rural practice. Including curricular content on rural health issues and placing students in rural health care facilities are methods used by some institutions. An additional strategy for preparation of students for rural practice is simulation.

**Method:** This project involved the use of simulated health care facilities in rural communities, incorporating rural concepts into rural simulation scenarios and developing a twenty-two member family tree of rural residents for use in the simulation scenarios. Nursing students participate in rural simulation scenarios throughout the curriculum in lecture and lab settings.

**Conclusions:** Using simulation with rural health experiences provides nursing students the opportunity to experience caring for patients from rural areas while increasing their understanding of health care issues, challenges associated with rural health care and opportunities for rural practice.

**Keywords:** Simulation, Rural, Scenarios, Nursing Education

### **Exposing Nursing Students to Rural Healthcare Practice: Creating a Rural Simulation Experience**

In recent publications, promising reports indicate that the Registered Nursing (RN) workforce is experiencing significant increases in the numbers of new graduates. The Bureau of Labor Statistics Employment Projections 2010-2020 (2012) indicates that the number of employed nurses will increase 26% from 2.74 million in 2010 to 3.45 million in 2020. Despite reports that the numbers of RNs are increasing, Fahs (2012) urges caution for rural health care facilities that traditionally have experienced greater shortages than their urban counterparts. It is imperative that rural health care facilities continue to maintain recruitment efforts to ensure there are adequate numbers of RNs to meet current and future needs of rural communities.

Despite the increased numbers of RNs in the workforce in recent years, much of the literature indicates that rural healthcare facilities continue to face challenges recruiting and retaining qualified RNs and other health care professionals (Bushy & Leipert, 2005; Bushy, 2006; Roberge, 2009; Schmitz, Claiborne, & Rouhana, 2012). Several potential solutions have been proposed to address issues of recruitment and retention in rural areas.

Researchers exploring the role of nursing education in preparing students for rural practice have identified several conclusions based on survey data from faculty and administrators of baccalaureate nursing programs (Straub & Frels, 1992). Among their recommendations was the need to recognize “rural” as a specialty and that nursing programs should include specific

content on rural nursing. Additionally, it was recommended that collaborative education and internship programs be developed between rural health care facilities and nursing education programs.

Later studies have supported these early findings. One predominant theme arising from the literature is the importance of having curricular content on rural health care and providing educational experiences in rural health facilities (Devine, 2006; Strasser & Neusy, 2010). Coyle and Narsavage (2012) studied the effects of a rural clinical rotation on nursing students and found that the rural experience had a positive influence on interest in rural health and working in a rural area.

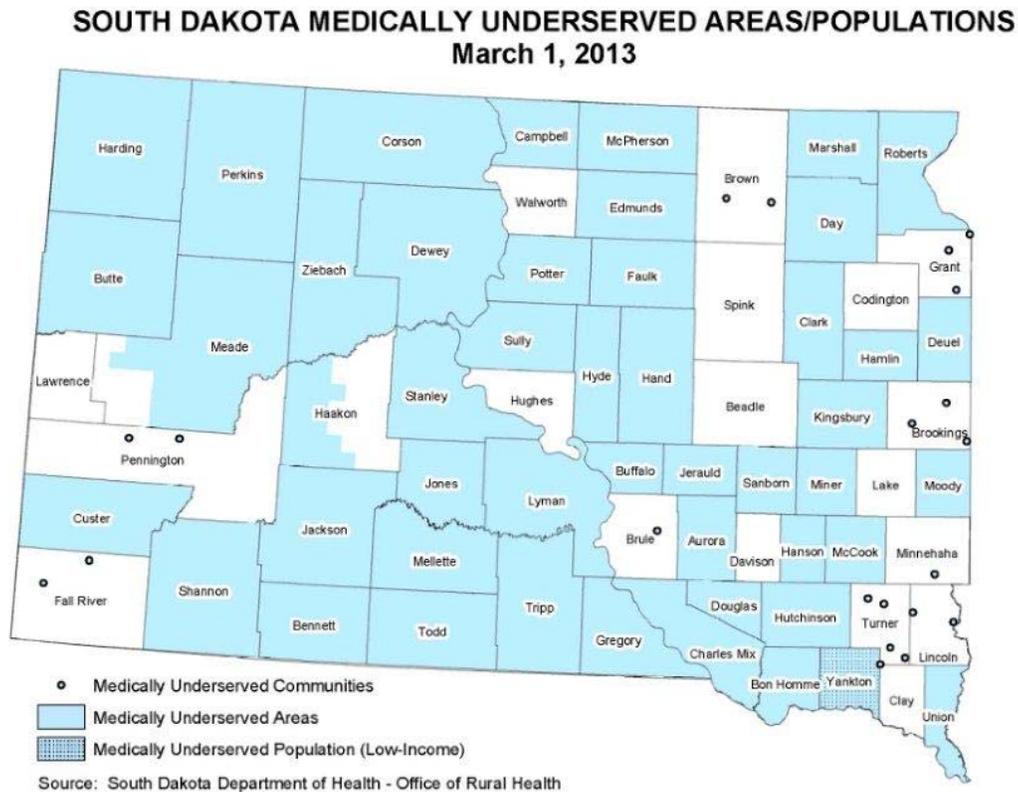
A survey of rural hospital nurse managers identified several benefits to a rural clinical experience. Benefits included the exposure to a variety of patient situations, exposure to different departments and interdisciplinary practice, and increased understanding of the nurse generalist role. Respondents also indicated that exposing nursing students to rural practice was an effective recruitment tool as several former students were now employed by those rural facilities (Hendrickx, Mennenga, & Johansen, 2013).

In a study by Daniels, VanLeit, Skipper, Sanders, and Rhyne (2007), several factors important in rural recruitment were identified. In addition to the importance of a rural background and a desire to return to a rural community, rural training programs or practicum experiences were identified as influential factors for rural recruitment efforts.

### **Statement of the Problem**

South Dakota is primarily a rural state, spanning over 75,000 square miles with only three cities having populations over 25,000. Fifty-four of the sixty-six counties are considered frontier with fewer than seven people per square mile. While 86.2% of the state's residents are non-

Hispanic white, 8.9% are American Indian and 3.1% are Hispanic (United States Census Bureau, 2012). Rural and frontier areas of the state have fewer options for health care services and are medically underserved. See Figure 1.



*Figure 1: South Dakota Medically Underserved Areas*

While some nursing students at South Dakota State University have rural backgrounds and plan to practice in rural health care environments upon graduation, others have had limited exposure to rural health. Rural hospital administrators have indicated that educating prospective nurses about rural health care issues is one of the most critical needs rural facilities have (Hendrickx et al., 2013). An understanding of rural health issues and development of the skills necessary to work in rural health care systems that are increasingly technology based are core

components of preparing pre-licensure students for practice in rural settings. Some nursing education programs do use rural health care facilities for clinical placement, but there may not be adequate numbers of rural sites for all students to get rural health care experience.

### **Purpose**

In order to address the education needs in rural underserved areas of South Dakota, the College of Nursing at South Dakota State University (SDSU) implemented the “Simulation Informatics Technology Enhancement” (SITE) program for pre-licensure baccalaureate students. The objectives for this project included preparation of nursing students to practice in rural health care environments through expanded use of human patient simulation. Simulation scenarios and activities that mimic the types of patients, rural environments, issues rural dwellers face, and facilities typical of the Midwest were developed and incorporated into the undergraduate curriculum.

### **Creation of Rural Towns and Healthcare Facilities**

To represent realistic rural community characteristics and health care facilities serving a rural population, the town of Prairie View was created. Prairie View is a rural community with a population of 2,000 people. The name Prairie View describes the region’s geographic makeup.

Prairie View Clinic is one of the health care facilities used for simulation scenarios and case studies. It is a clinic staffed with four primary care providers: two physicians, one family nurse practitioner, and one physician assistant. Prairie View Community Hospital is attached to Prairie View Clinic and Nursing Home. The hospital has 20 patient beds and is equipped with telehealth and telemedicine specifically for consultation, emergency care, and intensive care services. Outreach physicians travel to Prairie View a few days each month for patient consults, clinic appointments and to perform select surgical procedures at Prairie View Community

Hospital. The hospital does not offer obstetric services. The local volunteer fire department provides the Prairie View ambulance services.

The fictitious Dakota Health System is a hospital located in Dakota City, which is two hours away from Prairie View and is a 310 bed Level 2 Trauma Center. Dakota Health System is incorporated into unfolding simulation scenarios that may include transport of critical patients from Prairie View Community Hospital or patients needing specialty services not offered by Prairie View Clinic or Community Hospital. Dakota Health System provides the telehealth and telemedicine services to Prairie View Community Hospital.

### **Rural Patient Profiles**

With collaboration from a team of content experts and nursing faculty members at SDSU, a five generation fictional family, the Jacksons, was created. The Jackson family tree is comprised of 22 unique family members. A profile was developed for each member of the Jackson family. Each profile includes: name, age, ethnicity, medical problems, occupation, hobbies, lifestyle choices, living arrangements, and religion. Each family member is characterized by a photograph, and pictures of the family members' homes are also used as visual aids for students. Locating appropriate photographs for each family member was a challenge. Copyright issues, cost, and realistic physical appearance matching individual profiles were all considered when choosing the photographs. A sample of patient profiles is detailed in Table 1.

Family members' ages range across the lifespan from five days old to 95 years old. Based on the ethnic distribution of the rural state, non-Hispanic, Native American, and Hispanic ethnicity are represented within the Jackson family. Special cultural considerations and beliefs specific to the non-Hispanic, Native American, and Hispanic backgrounds are woven within the simulation scenarios and case studies.

Table 1

*Samples of Rural Simulation Family Profiles*

Fictional Family Member	Health History	Home Environment
George Jackson <ul style="list-style-type: none"> <li>• 67 years old, married (wife Pauline)</li> <li>• Caucasian</li> <li>• Enjoys hunting, fishing</li> <li>• Active rancher</li> <li>• Smoker</li> <li>• Lutheran faith</li> </ul>	Hip fracture from fall off horse, COPD, coronary artery disease, history of basal cell skin cancer	Lives on original family homestead 15 miles from town of Prairie View with retired parents (aged 86 & 95) next door
Bonnie Jackson <ul style="list-style-type: none"> <li>• 41 years old, daughter-in-law of George</li> <li>• Caucasian</li> <li>• Employed as nursing assistant in long term care setting; husband farming</li> <li>• Married to John Jackson</li> <li>• Lutheran faith</li> </ul>	Cerebral vascular accident (CVA), history of atrial fibrillation, hysterectomy	Lives in two-story farmhouse in the country, approximately 10 miles from in-laws
Jennifer Rabbit Tail <ul style="list-style-type: none"> <li>• 22 years old, Native American, niece of Bonnie Jackson</li> <li>• Single mother of 5 day old female</li> <li>• College student on government assistance programs: Medicaid, WIC, SNAP.</li> </ul>	Gravida 1, Para 1; Infant son with hyperbilirubinemia	Lives in one bedroom income-based housing unit in town of Dakota City two hours away from parents; baby's father unknown
David Conn <ul style="list-style-type: none"> <li>• 38 years old,</li> <li>• Caucasian</li> <li>• Catholic faith, non-practicing</li> <li>• Unemployed, picks up odd jobs as available</li> <li>• Ex-military, served in Iraq as IED specialist</li> </ul>	Alcohol dependence and suicidal ideation related PTSD	Homeless

**Use of Patient Profiles in the Curriculum**

The Jackson family members have been incorporated into existing simulation scenarios, skills lab, and classroom case studies and profiles have been developed to allow for growth and

adaptation. As new scenarios or case studies are written, the family profiles continue to be revised with minor changes to meet individual course or clinical needs.

One or more of the Jackson family members are utilized in every simulation experience at South Dakota State University. The starting point for integrating Jackson family members into simulation scenarios, skills lab, and classroom case studies is based on the developed health history for each of the family members. For example, Jackson family member George Jackson is used within many of the medical-surgical nursing courses because of his history of hip fracture, chronic obstructive pulmonary disease, coronary artery disease, and basal cell skin cancer.

For a simulation related to surgical care, Gladys Conn (David Conn's mother) is hospitalized following knee replacement surgery. She has symptoms of a wound infection which students should recognize during their assessment. A compounding problem is that her surgeon is an outreach surgeon who is not housed in the rural hospital but provides surgery on a scheduled basis. Post-operative questions and follow-up can be done through phone calls or telemedicine technology.

Another example is Jackson family member David Conn who is primarily integrated within the mental health nursing course due to his history of alcohol dependence and suicidal ideation related to posttraumatic stress disorder. The simulation involving Mr. Conn focuses on therapeutic communication in the mental health setting.

The rural environment, patient profiles, and concepts are developed within the case study. When a Jackson family member is being used in simulation, these rural concepts are either provided to the students in written or oral form prior to the activity. Students work through the simulation exercise and during the debriefing address issues related to rural health. One question used during simulation debriefing has been, "After an experience such as this, what unique

aspects of rural health care such as environment, access to care, technology, communication, culture, and nursing practice can you identify?”

For skills lab, the Jackson family members are used as patients within the electronic medical record and for various skill check offs. In the classroom, faculty members integrate the Jackson family members into course case studies and assignments. For example, in the lecture on care of a patient with a cerebral vascular accident (CVA), Bonnie Jackson is presented. Students relate her history of atrial fibrillation to the CVA and develop a plan of care for this type of patient. For discharge planning, students develop a plan for the patient’s physical therapy needs, while considering the travel distance to therapy sessions, alternative transportation when her husband is busy with harvest, possibilities for follow-up visits using telemedicine technology and adjusting the two-story farm house environment to accommodate her mobility needs.

### **Rural Concepts**

In addition to developing the rural town, rural health care facilities, and Jackson family profiles, a significant emphasis was placed on rural concepts within every simulation scenario and case study for the Jackson family. When students receive the medical and social history of the patient, the rural concepts specific for the simulation scenario or case study are also shared. Six rural components were identified to help shape the rural context of each simulation scenario and case study. The six rural components are rural environment, rural health risk or issue, rural health care access, rural healthcare technology, rural nursing practice, and rural culture.

Key characteristics of each category were also identified. For example, within the rural environment component, distance to care, condition of roads and weather are distinctive physical features of living in a rural area and may affect a patient’s ability to obtain health care services. Specific rural health risks or issues may include farm injury, motor vehicle injury, sun exposure,

health literacy, substance use, and under insurance or lack of insurance. The rural health care access component is the availability of health care services and providers. Considerations for the rural health care technology component are utilization of telehealth and the overall lack of patient care technology in rural areas. Unique aspects of the rural nursing practice component are confidentiality challenges in a small town with respect to the Health Insurance Portability and Accountability Act (HIPAA), professional boundaries, lack of resources, and the expert generalist role needed to provide nursing care in a rural area. The rural culture component encompasses many common traits rural dwellers possess. These traits include delays in seeking treatment, social networks and connectedness, service orientation, enjoying work or productivity, lack of privacy and more traditional gender roles. Additional characteristics may include being stubborn, frugal, religious, resourceful and dedicated. The concept of insider and outsider differentiation in relation to health care providers is also addressed.

### **Discussion**

Participating in rural simulation activities introduces nursing students to a variety of rural health care situations. By using simulation, students can care for rural residents in various situations that incorporate rural concepts such as rural environment, rural health risk or issue, rural healthcare access, rural healthcare technology, rural nursing practice, and rural culture. Family profiles present opportunities to deal with patients and families who are isolated and live an extended distance from large medical centers, work in professions typical of rural environments, and exemplify rural culture. In the simulated rural clinic, hospital, or home care settings, students develop an understanding of the potential unavailability of advanced technology and lack of specialist practice; while gaining an appreciation for emerging technologies such as telehealth services and consultant visits via the electronic ICU or ER.

Perhaps one of the most significant experiences for nursing students is the opportunity to function as a nurse generalist and gain an appreciation for the diffuse role of the rural nurse. Students care for medical-surgical, pediatric, geriatric and obstetric patients in the acute care setting, the rural clinic setting and do simulated home visits. Patients with mental health issues are also incorporated into the scenarios.

While rural health care simulation experiences have provided a valuable learning opportunity for nursing students, expanding clinical rotations into rural health care settings is also planned. Currently sophomore nursing students in their first patient care rotations have been placed in rural hospitals. Several of the rural hospitals also have attached long term care facilities or home health departments that allow for additional patient care opportunities. Evaluation of these early clinical rotation experiences has shown benefits for not only the students, but also the facilities and patients. Students had exposure to a variety of patient care situations with multiple diagnoses, exposure to different departments throughout the organization, and had the opportunity to perform multiple skills (Hendrickx et al., 2013).

Challenges related to the use of rural facilities for clinical experiences include the traditionally lower daily census. A typical clinical group has eight students, which may be difficult when making patient care assignments if other experiences such as outpatient surgery or home care visits are not available. Using simulation can provide the types of experiences that may occur in rural settings for a large group of students at one time.

One recommendation when facing lower census is to take smaller clinical groups to rural facilities. This may not be feasible financially but a plausible solution has been to place senior students in rural facilities for preceptorship or internship experiences in a Rural Nurse Fellow program. Students are placed in rural clinical experiences with a practicing RN for their capstone

experience. These students not only gain an understanding of the generalist role but have the opportunity to increase their understanding of specific rural health care issues through journaling and discussion, while applying the content learned through simulation in actual clinical practice.

### **Conclusion**

Workforce issues continue to be a challenge for rural health care and ensuring that rural facilities have adequate numbers of qualified nurses is a priority. Equally important is the preparation of nurses for rural practice. Nursing education programs, particularly those serving rural areas, have the responsibility of developing appropriate content and clinical experiences to provide the educational experiences necessary for rural practice. Using simulation is an effective way to provide rural health care experiences for nursing students and increase the understanding of the uniqueness of rural nursing.

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