

# Identification of Staff RN's Ability to Assess Community-Acquired Pressure Ulcers Among Ethnically Diverse Patients: Hispanics and African Americans Utilizing Simulation

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## Abstract:

**1. Purpose, aims, hypotheses or research questions**

Are RNs able to identify community-acquired pressure ulcers among ethnically diverse patient populations: Hispanics and African-Americans utilizing simulation?

**2. Background and significance**

Regulatory agencies such as the Department of Health and Human Services are required to be notified when a patient exhibits a Stage III pressure ulcer. If a nurse does not identify a community-acquired pressure ulcer upon admission, then it will be considered a hospital-acquired pressure ulcer, and the hospital will have to manage and treat this pressure ulcer as if it occurred in the hospital. It is in the best interest of hospitals to train RN staff to completely assess skin integrity to prevent a community-acquired pressure ulcer from turning into a hospital-acquired pressure ulcer for the health of the patient and subsequently reduce financial cost burden to the hospital.

There are few research studies on ethnically diverse patients with pressure ulcers. Upon reviewing the few articles that focus on pressure ulcers and ethnically diverse patients, most of those articles focus on prevention by using the Braden Scale as a risk indicator. There are no articles that discuss actual identification or lack of pressure ulcer detection on ethnically diverse patient populations.

**3. Methods (design, sample characteristics, measures or instruments, procedures for data collection and data analysis)**

Prior to implementing the study, a pilot group tested the methods which were used, and changes were made accordingly. A randomized, controlled, crossover trial was conducted with a convenience sample of 72 staff RNs from Patient Care Services (Maternal Child, Med /Surg, Telemetry, Stepdown, ICU and ED).

Admission assessments were performed on simulated patients with dark pigmented skin and bony prominences while examining under medical assistive devices. Study subjects were randomly assigned to either the control or

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## Abstract (continued):

intervention group. The morning group was given two scenarios in which the RN was to perform an initial admission assessment without prompts to focus on skin assessment utilizing Hispanic and African-American mannequins as a baseline. Each mannequin, Hispanic and African-American, demonstrated the same pressure ulcer location, number and level of breakdown. After the first scenario was completed, targeted skin integrity education was presented, including deconditioning and assessing two Caucasian simulated models: pelvis and foot with pressure ulcers. Group 2 Post Intervention Group identified the number of pressure ulcers on a Caucasian simulation buttock and foot prior to participating in the two scenarios described above.

### **4. Data findings, results and conclusions**

There were no differences between Hispanic and African-American assessments of pressure ulcers. A slight improvement was noted between the morning session and the afternoon session. The skin integrity education supported the RNs' ability to conduct a more thorough assessment of pressure ulcers during the afternoon session.

### **5. Implications for practice and further study**

This small study demonstrated further research is needed into additional education in assessing ethnically diverse patients and in-hospital devices that can contribute to pressure ulcers. The post test should have been conducted within four to six weeks post intervention to determine a difference between the baseline and post test. Skin beneath devices must be assessed with education and training provided initially upon hire and annually thereafter. Homogenous populations may need additional training on ethnic skin.

### **6. Acknowledgement**

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Jean Hively, Bic Diep, Carol Bautista (Not  
pictured: Elizabeth Scruth, Gail DePinna)*

## Introduction

The aim of this study is to determine whether registered nurses (RNs) are able to identify community-acquired pressure ulcers (CAPUs) on patients with dark pigmented skin on admission to the hospital. The research question asked: Are RNs able to identify community-acquired pressure ulcers among ethnically diverse patient populations: Hispanics and African-Americans utilizing simulation?

### Background and significance

In the United States, regulatory agencies such as the Department of Health and Human Services are required to be notified when a patient exhibits a hospital-acquired pressure ulcer (HAPU) stage III or greater. If nurses do not identify a CAPU upon admission, then it will be considered a hospital-acquired pressure ulcer with the hospital being responsible to manage and treat this pressure ulcer without reimbursement. In addition, many health insurers and Medicare are no longer paying for hospital-acquired pressure ulcers. "The new rule will result in hospitals seeing substantial reductions in payment for the care of individual patients with preventable complications" (Rosenthal, 2007, 1573). It is estimated that 2.5 million patients are treated for pressure ulcers in an acute facility with an estimated cost of \$11 billion per year (O'Neil, 2004). Regulatory agencies

such as the Department of Health and Human Services are required to be notified when a patient exhibits a hospital-acquired Stage III pressure ulcer or greater. It is in the best interest of hospitals to train RN staff to completely assess skin integrity upon admission to identify a CAPU from turning into a HAPU for the health of the patient and subsequently reduce financial cost burden to the hospital (Lapsley, 1996).

It is critical to assess any patient carefully and examine skin for any breakdown and lesions at the front end. However, it is more important to critically assess ethnically diverse patients since the skin pigment is varied and may obscure the nurse's initial assessment of skin breakdown. Additionally, pressure ulcers have been found beneath devices and nurses need to remove them and inspect those vulnerable areas.

In the literature there are numerous articles on skin and pressure ulcers. However, there are few research studies on ethnically diverse patients with pressure ulcers. One study focused on the occurrence of pressure ulcers among Hispanics (Gerardo, 2009), while another study examined risk factors of pressure ulcers among African-Americans (Fogerty, 2009). However, most articles focus on prevention by using the Braden Scale as a risk indicator. There are no articles that discuss the actual assessment or identification of pressure ulcers on ethnically diverse patient populations.



*Simulated wound on a mannequin with Hispanic skin tone.*



*Simulated pressure ulcer on a mannequin with African-American skin tone.*

This study will focus on targeted education by using medical simulation training. Medical simulation training is a leading-edge teaching methodology for adult learners to acquire and refresh their knowledge and skills through hands-on application in a “no harm” environment. This teaching methodology has been introduced to Kaiser Permanente San Jose staff nurses over the last two years to improve: (a) cognitive, (b) technical, and (c) behavioral skills at the bedside. High-fidelity human simulators are capable of mimicking real life patients.

Scenarios will capture “real world” medical situations, thus creating “reality without risk” to actual patients. The human simulators serve as “patients” coming in from a skilled nursing facility with pneumonia or another complex condition with equipment, such as: (a) oxygen, (b) tracheostomies, (c) splints, (d) anti-embolic hose, and (e) eye glasses as distractors for skin assessment. Many bony prominences featured pressure ulcers, as well as under devices.

### Method

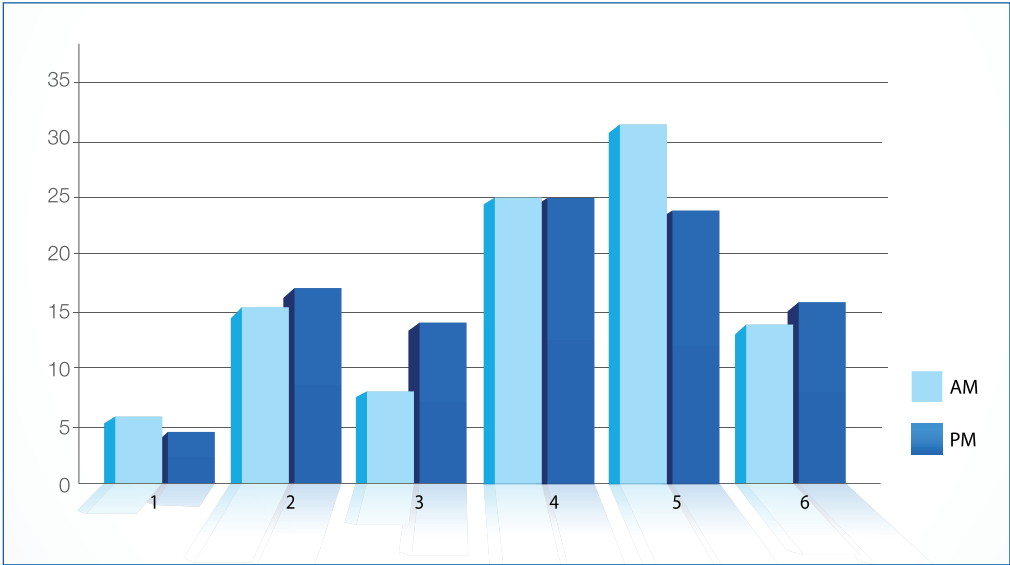
The targeted education component addresses assessments of two human simulators (one Hispanic, one African-American) for an initial hospital assessment from a skilled nursing facility. Staff nurses will undergo two customized simulated scenarios to assess skin integrity of ethnically

diverse patients to determine whether or not there is a difference in nursing assessment of various skin tones. Utilizing simulation methodology, nurses will be facilitated and debriefed by nurse educators who have been trained as simulation experts. The training venue was the Center for Innovative Medical Simulation (CIMS), which is located on the campus of San Jose City College and operates as a high-fidelity community-based simulation center where ethnically diverse simulators are available to the community as a resource for training.

During this study, we examined the nurses’ ability to assess two patients head to toe focusing on actual pressure ulcers by using Kaiser Permanente’s downtime initial paper assessment documentation form to determine if there was a difference between the number of pressure ulcers identified by nurses between a Hispanic and an African-American patient. Nurses were not to stage the pressure ulcers, rather identify the number and location. Both simulated patients had the exact same number, location, and type of pressure ulcer for each session of training. After each scenario was completed, the team of participants reviewed their video for debriefing.

Prior to conducting this study, approval from the Institutional Review Board was obtained. For recruitment, a flyer was

**Comparison of Morning (AM) and Afternoon (PM)  
Sessions Using Frequency in Percentile and Numbers**



distributed to invite subjects to participate and offered eight hours of continuing education. The method was a randomized, cross over trial. A convenience sample of 72 registered nurses participated in this study, each for eight hours, totaling 576 hours. Informed consent was obtained; the documents were coded to protect the identity of the participants.

Before the study occurred, the nurses conducted a thorough inspection of the mannequins (pre-scenario, pre-application of pressure ulcers) to become familiarized. For the pretest, each nurse performed an admission assessment on one simulated patient with dark pigmented skin with pressure ulcers on bony prominences and devices. Following the first scenario, education consisted of: (a) identification of pressure ulcers through staging; (b) deconditioning; (c) examining of devices from head to toe; (d) inspection of pressure ulcer models (buttock and foot) and (e) a review of the SKIN bundle.

The SKIN bundle is a special intervention based on focused assessment which is performed by all nurses at Kaiser Permanente Northern California. SKIN is an acronym meaning the following: S - surface; K - keep turning; I - incontinence; and N - nutrition. The surface is observed and changes may be made based on patient needs. Keep

turning reminds the nurse to turn the patient at least every two hours. Incontinence is a prompt to toilet the patient. Nutrition is an alert for a dietary consult when appropriate.

Immediately following the education, the post test was given wherein both mannequins had new pressure ulcers. Each subject assessed the opposite mannequin. For data collection purposes, the frequency of the pressure ulcers was identified from the admission assessment document and placed on a spreadsheet identifying the pre and post test scores on each mannequin. This quantitative data was maintained in a locked file cabinet in an aggregate form to protect the privacy of each participant.

**Results**

For this study, a total of 72 RNs participated. On the first day of the study, a pilot was done to determine the effectiveness of the education. Two hospital nurses participated: one from labor and delivery and the other from the intensive care unit. The pre test (baseline assessment) was done followed by the treatment, and then the post test. For this pilot, there was no improvement from the pre and post test. The education was retooled to include a head-to-toe assessment with devices which have been known to contribute in the development of pressure ulcers. After this education was conducted, an improvement in scores was noted.

Paired T-Tests  
Comparison between Groups 1 and 2

AM and PM Assessments	0.6793
AM African American and PM Hispanic	0.7118
AM Hispanic and PM African American	0.8403

*P < or = to 0.05 indicates statistical significance.*

After the pilot, 70 hospital RNs participated in eight hours of simulation training in specialty areas from: (a) maternal child, (b) medical surgical, (c) telemetry, and (d) critical care units. The statistical method was paired t-tests. The paired t-test compared results from morning to afternoon and a comparison between Hispanic and African American mannequins. (See bar graph.) The number of pressure ulcers identified between the morning and afternoon sessions improved slightly, however, there were no differences between the Hispanic and African-American mannequins. (See table above.) A reason for not having any differences between the Hispanic and African-American mannequin is that Kaiser Permanente San Jose, California is rich in cultural diversity, and our nurse population mirrors our patient population. Additionally, the paired t-test indicated that these results were not statistically significant between comparisons.

Implications

There were several significant implications based on this study. It is important to provide education to all healthcare workers who provide patient care for examining diverse patient populations with medical devices. This education should be done initially as well as ongoing for all healthcare providers, such as: (a) respiratory therapists, (b) physical therapists, and (c) nursing assistants. Instead of conducting both the pre and post test together on the same day, a follow up study should be conducted between four and six weeks after the initial study. Results may show a difference by allowing the nurse time to assimilate the education with the post test. Within each specialty area, the sample size was small. Further research should be conducted in each

specialty focusing on the specific pressure ulcers that are unique to that area: (a) abdominal apron for laboring patients; (b) blanching in the coccyx area from immobility due to surgical procedures; and (c) nasal cannula use with neonates. Additional studies on the assessment of ethnic skin may need to be conducted in geographic areas with homogeneous patient populations focusing in on assessment of ethnic skin tones.

Acknowledgements

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