A Collaborative Partnership to Improve Nursing Assessment of Skin Integrity and Reduce Pressure Ulcers

Deborah K. Charnley, PhD, RN
University of South Carolina Upstate

Spartanburg, South Carolina
Mary Black School of Nursing
Pressure Ulcers

• In the US more than one million people develop pressure ulcers each year
• Pressure ulcers lead to increased morbidity and mortality
• Hospital acquired pressure ulcers are those identified 24 or more hours after a hospital admission

(Jackson, 2011)
• In the United States, 503,300 hospitalized patients were discharged with a diagnosis of pressure ulcer (HCUP Facts and Figures, 2006).

• This number represented a 78.9% increase from 1993 when there were approximately 281,300 cases (Russo, Steiner, & Spector, 2008).
Pressure Ulcers - LOS
National Statistics (H-CUP)

• The average length of stay for patients with pressure ulcers was 14.1 days compared to 5.0 days without a pressure ulcer (Russo et al, 2008).
Pressure Ulcers - Cost
National Statistics (H-CUP)

• Hospital costs associated with a pressure ulcer diagnosis in 2006 were $11 billion (Russo et al, 2008).

• Cost for treating a stage 2 pressure ulcer is $7000 minimum (AHRQ Innovations Exchange, 2010).

• Cost for treating a stage 3 pressure ulcer can cost up to $15,000 (AHRQ Innovations Exchange, 2010).
Related Primary Diagnoses

The most common primary diagnoses (when pressure ulcer was noted as secondary diagnosis) were:

- septicemia (16.1%)
- pneumonia (6.3%)
- urinary tract infection (5.6%)
- respiratory failure (4.3%)
- aspiration pneumonitis (3.7%)

(Russo et al, 2008)
Related Secondary Diagnoses

The most common secondary diagnoses (when pressure ulcer was noted as the primary diagnosis) were:

- anemia (31.2%)
- urinary tract infections (30.5%)
- paralysis (29.2%)
- fluid and electrolyte disorders (26.1%)
- nutritional deficiencies (23.4%)
- diabetes (20.6%)
- dementia (20.4%)

(Russo et al, 2008)
Pressure Ulcers
National Statistics (IPUP)

• A national prevalence of 11.7% of patients were admitted with a diagnosis of pressure ulcer

• A national incidence of 4.8% of patients acquired a pressure ulcer during their hospitalization

(Hill-Rom, IPUP, 2010)
Prevalence

- **Prevalence** relates to the numbers of *existing* pressure ulcers.
- Point prevalence indicates the proportion of a defined set of people who have a pressure ulcer at a particular moment in time.

Point Prevalence ($\times 100\%) = \frac{\text{# of pts with pressure ulcer at a point in time}}{\text{Total # of patients in population studied at a point in time}}$

(Defloor et al, 2005)
Incidence

- Incidence relates to the rates of development of new pressure ulcers.
- Cumulative incidence indicates the proportion of the population studied that develops a new pressure ulcer over a specified time period (usually weeks or months, rather than years).

Cumulative Incidence (X 100 %) =

\[
\frac{\text{# of pts developing a pressure ulcer during a specified time period}}{\text{total # of patients in population studied over a specified time period}}
\]

(Bonita et al, 2006)
Pressure Ulcers
Hospital Statistics (IPUP)

• A prevalence of 9.1% (11.7% nationally) of patients were admitted with a diagnosis of pressure ulcer
• An incidence of 2.5% (4.8% nationally) of patients acquired a pressure ulcer during their hospitalization

(Hill-Rom, IPUP results, 2010)
Study Purpose

• The purpose of the study was to determine the effects of a comprehensive simulation-based education program on clinical outcomes of hospitalized acute care patients.
Study Team

The interdisciplinary team established to develop and implement the study included:

- **Deb Charnley, PhD, RN (Co-PI)**
  Assistant Professor, Mary Black School of Nursing
- **Evelyn Lollis, MSN, RN (Co-PI)**
  Director, Medical-Surgical Units (SRMC)
- **Renee Dean, MSN, RN**
  Director, Critical Care Units (SRMC)
- **Betty Warlick, MSN, RN**
  Corporate Education & Research (SRHS)
- **Kim Saunders, MSN, RN**
  Wound Center (SRMC)

With input from the departments of Risk Management, Quality, Administration and Medical Staff Services.
Study Objectives

1. Examine the current status of client skin integrity in the acute care setting of a metropolitan hospital in South Carolina.

2. Determine the strengths, shortcomings and opportunities associated with current skin care educational strategies for registered nurses and nurse extenders.
3. Develop and implement a comprehensive, simulation-based skin care education program for registered nurses and nurse extenders.
Study Objectives (continued)

4. Demonstrate improvement in clinical outcomes after implementation of the education program as determined by:

- an increase in early detection of skin care alterations on admission
- a reduction in the development of hospital acquired skin alterations
- healing of existing pressure ulcers as evidenced by no infection and decreasing wound dimensions from point of detection
Methodology & Plan

• A quasi-experimental design utilizing 2 acute care hospital experimental units and 2 (similar) control units.
• Patient care outcomes will serve as dependent variables
• Education of RN’s and nurse extenders education will serve as the independent variable
Experimental Group

• Two acute care hospital units where registered nurses and nurse extenders receive comprehensive training in a simulation-based skin assessment and care education program
Control Group

- Two similar acute care hospital units where registered nurses and nurse extenders will not receive such instruction.
Clinical skin care outcomes of patients admitted to the (2) experimental units (where RN’s and nurse extenders received comprehensive, simulation-based instruction on skin assessment and care) will be significantly better than clinical skin care outcomes of patients admitted to the (2) control units (where RN’s and nurse extenders did not receive such instruction).
Educational Plan

• Approximately 91 staff members on the (2) experimental units will require education (65 RN’s and 26 nurse extenders).

• Over a 6 week period, the RN’s will receive 4 hours of education and the nurse extenders will receive 2 hours for a total of 312 educational hours.

• In addition, clinical rounds on each unit will be conducted 3 times per week on the day and night shift and involve both RN and nurse extender participation.
Educational Plan for the RN’s

• Education for the RN’s will be provided in 2 hour sessions.
• The first 2 hour session will provide theory and evidence associated with pressure ulcers.
• The last 2 hour session will involve clinical practice scenarios utilizing simulation.
Educational Plan for the nurse extenders

• Education for the nurse extenders will be provided in 1 hour sessions.
• The first 1 hour session will review patients vulnerable to pressure ulcer development and care required by these patients.
• The second hour session will involve clinical patient scenarios in a simulated setting.
## Outcome Measures

<table>
<thead>
<tr>
<th>Measures of Outcomes</th>
<th>IPUP 2010 Benchmark</th>
<th>Historical &amp; Pre-Education Data</th>
<th>Study Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence of pressure ulcer detection on admission</td>
<td>9.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incidence of hospital acquired pressure ulcers</td>
<td>2.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healing of existing pressure ulcers from point of detection to discharge</td>
<td>benchmark data related to infections</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>benchmark data related to wound healing (change of wound length, width and depth from detection to discharge)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Outcome Measures

<table>
<thead>
<tr>
<th>Measures of Outcomes</th>
<th>Historical &amp; Pre-Education Data</th>
<th>Study Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment of skin parameters noted in EMR</td>
<td>benchmark data pending</td>
<td></td>
</tr>
<tr>
<td>Assessment of staff learning</td>
<td>pre-assessment</td>
<td>90%</td>
</tr>
<tr>
<td>LOS of patients with pressure ulcer as a primary diagnoses</td>
<td>benchmark data pending</td>
<td></td>
</tr>
<tr>
<td>LOS of patients with pressure ulcer as secondary diagnoses</td>
<td>benchmark data pending</td>
<td></td>
</tr>
<tr>
<td>Cost associated with patients with pressure ulcer as primary diagnoses</td>
<td>benchmark data pending</td>
<td></td>
</tr>
<tr>
<td>Cost associated with patients with pressure ulcer as secondary diagnoses</td>
<td>benchmark data pending</td>
<td></td>
</tr>
</tbody>
</table>

LOS = Length of Stay
Study Progress

• Control and experimental units identified
• Measures of success outlined
• Detailed education plan under development
• Grant application underway
• Hospital benchmark data scheduled to be collected in late Summer 2011
• Projected time for implementation of educational plan - Fall 2011
• Post - implementation pressure ulcer data to be collected beginning in January 2012
References


Questions & Comments