Impact of a Pressure Ulcer Prevention Program for Patients Admitted to the Intensive Care Unit

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Problem and Background

• There are 2.5 million patients treated for pressure ulcers (PUs) annually in acute-care facilities in the United States (Reddy, Gill, & Rochon, 2006). PUs are often indicative of a poor overall prognosis and may contribute to premature mortality.
• In October 2008, the Centers for Medicaid and Medicare Services (CMS) instituted a policy to withhold reimbursement to acute-care hospitals for the costs of treating hospital-acquired conditions such as PUs (Centers for Medicaid and Medicare Services, 2013).
• Critically ill patients are at increased risk for PUs, which increase patients’ morbidity and mortality (Stokowski & Funk, 2010). PUs also account for considerable direct and indirect costs in the health care economy (Elliott, McKinley, & Fox, 2008).
• The cost of treating a single full thickness PU is approximately $70,000, resulting in a cumulative cost of $1 billion annually in the United States (Reddy, Gill, & Rochon, 2006).
• In 2012, the study hospital noticed an upward trend in PUs including medical device related PUs caused by biphasic positive airways pressure (BIPAP) for patients in the intensive care unit (ICU).

Specific Aims/Research Question

This study aims to explore differences in quality and utilization outcomes prior to and following implementation of a pressure ulcer prevention program for patients admitted to the intensive care unit (ICU). The research question included:

• Is there a difference in quality outcomes (PU incidence and severity) and utilization outcomes (length of stay and cost) prior to and following implementation of a pressure ulcer prevention program for patients admitted to the ICU?

Significance

• PU prevention requires early identification of persons at risk and rapid implementation of prevention interventions (National Data Base of Nursing Quality Indicator, 2013).
• A pressure ulcer prevention program may control the incidence, severity, and total cost of pressure ulcers when all components are used consistently in the ICU environment.

Evaluation Strategy

• This was a descriptive study using secondary data analyses. The study took place in a 160-bed acute-care, not for profit hospital with a 16 bed ICU. Targeted subjects were medical records of patients 18 years or older, admitted to the ICU, with a Braden Score 18 or less, and PU not present on admission.
• The pressure ulcer prevention program was conducted January 2012 through March 2013. The program focused on prevention, skin assessment, documentation, interventions, alternative medical device equipment, and the implementation of four eyes (two people assessing).
• The program featured Instructor led in-services, computer based training, staff meetings, designated bulletin boards, hospital newsletters, and multidisciplinary rounds. Nurses, Nursing Care Partners, Respiratory Therapist and Physical Therapist attended.

Results

• Improvements in quality and utilization outcomes trends were noted following pressure ulcer prevention education. There was a 69% decrease in PUs post-education (n=4) versus pre-education (n=13). For patients with PUs, there was a 17% decrease in length of stay post-education (M=6.05, SD=8.025) versus pre-education (M=7.29, SD=8.983). Total cost post-education averaged $14,759 (SD=20919) compared to $16,160 (SD=19311) pre-education. Potential cost savings $1,400 per patient.
• Chi-square analysis of independence revealed differences in PU incidence ($\chi^2 = 1.035, p = .390$) and PU severity ($\chi^2 = 697, p = .404$) following program implementation were not significant.
• Mann-Whitney U tests indicated differences in mean length of stay ($Z = -.692, p = .475$) and cost ($Z = -.715, p = .475$) were not significant.

Conclusions and Implications

• This study addressed a major health crisis in the vulnerable acute-care ICU population with hospital-acquired PUs. Preliminary results support previous literature in that a pressure ulcer prevention program may control the incidence, severity, and total cost of pressure ulcers.
• Changes in staff knowledge, behavior and attitudes were also noted. Staff adhered to the policy by assessing skin on admission, reassessing skin, using 4 eyes, utilizing alternative medical device equipment, and improved documentation.
• This sample size was small (173). A larger sample may increase statistical power and more accurately reflect the impact of education on PU prevention.

References

• Elliott, R., McKinley, S., & Fox, V. (2008). Quality improvement program to reduce the prevalence of pressure ulcers in an intensive care unit. Pressure Ulcer Management, 17(4), 328-334

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