Abstract
A 443-bed acute care facility desired to reduce nosocomial heel ulcers among patients in its three intensive care units (ICUs). In order to better understand trends, co-morbidities, and anatomical locations, the wound care nurse initiated monthly prevalence and incidence studies. These studies revealed an aggregate of 1.2 heel pressure ulcers per thousand patient days over the 12-month period from March, 2008, through February, 2009. In March, 2009, the wound care nurse implemented a multi-faceted intervention in each of the three ICUs. The intervention included development of evidence-based intervention criteria;1,2,9 posting the criteria in every room; extensive education of nursing staff; stocking heel friction devices on the unit; ongoing monthly measurement of prevalence and incidence; and active oversight by a committed wound-care professional.

During the 12-month period following the intervention, from March, 2009, through February, 2010, heel ulcers were reduced by 65%, to 0.43 per thousand patient day, saving the facility $44,000 annually in expected treatment costs.3,4

Of the five heel ulcers that presented in the 12-month period following institution of the intervention, two were among CABG patients that presented life-threatening complications. The other three occurred when the wound nurse was on leave. The implication is that continued success of an intervention—an even more rigorous, multi-faceted one—often requires the continued oversight of a committed wound-care professional. Clearly, even better staff education and accountability are desired, so that the process is not dependent upon the daily presence of a single individual.

During the most recent 12-month period, from March, 2010, through February, 2011, patients presented 0.24 heel ulcers per thousand patient days (an additional reduction of 44% over the prior year). This further reduction increased the total reduction in expected treatment costs to over $53,000 annually.4,5,6 The future study might include refinement of the intervention criteria, staff education, and organizational factors, with the goal of totally eliminating nosocomial heel ulcers.

Building Blocks of a Successful Intervention
After identifying a device with the potential to reduce nosocomial heel ulcers, a six-faceted intervention was developed and implemented.

1. Research was undertaken to develop evidence-based application guidelines to prevent heel ulcers (see “Evidence-Based Criteria” at right).
2. Posting these criteria in every room enables clinicians to be visually reminded of the criteria when attending to every ICU patient.
3. In-service training of all nursing staff, both initially and when new staff are hired or assigned to ICUs, ensures that all nurses are trained. Presenting the dire clinical and economic consequences of not following the criteria has helped to solid staff commitment (see “Cost Savings” at right).
4. Monthly monitoring and posting of heel ulcers rates helps ensure that prevention remains top of mind (see “Incidence” at right).
5. Oversight is key to ensure that staff understand and are following the intervention. This was especially important at the beginning. There is no substitute for walking around and observing.
6. Stocking devices on the unit was found to be a key to compliance during weekend shifts, when orthopedic support (responsible for administering the devices) is not present in the hospital.

Root Cause Analysis of Residual Events
The “PRIMOS” mnemonic may be helpful when planning the implementation of other interventions.

Evidence-based Criteria
Key Co-morbidities

Disease states:1,2,6,7 (1) CKD, PUD, (2) Hemiparesis,1,2,7 (3) malnutrition,1,2 (4) Bladder, Nutrition scores of 1 or 2

Predictors

• Total Braden Score of 1 or 2
• Braden Activity Score of 1 or 2
• Uncontrolled 1, (1) smoking, (2) alcohol, (3) pain
• Presence of one or more of the following conditions:1,7,8


References

Root Cause Analysis of Residual Events

No events caused by failure of intervention criteria

Root Cause

Lack of adequate data bases causes cost savings.

Future Study

Failure to re-assess when patient deteriorated rapidly

Compliance depends on regular oversight—declined on weekends.

Investigate impact of training, staffing, and organizational factors.

Evidence-based criteria—based on peer-reviewed research, internal studies, manufacturer documentation, and staffing plans— are now posted in every ICU room.

Evidence-based criteria—based on peer-reviewed research, internal studies, manufacturer documentation, and staffing plans— are now posted in every ICU room.

A Multi-Faceted Approach for Reducing Heel Pressure Ulcers
Beverly Morefield, RN, WCC, Phoebe Putney Memorial Hospital


Implementation of a multi-faceted intervention reduced the incidence of nosocomial heel ulcers by 80%…