

Preventing pressure ulcers in pediatric patients

At one hospital, a multidisciplinary pressure-ulcer prevention program has reduced incidence by two-thirds.

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As wound care clinicians, we are trained—and expected—to help heal wounds in patients of any age and to achieve positive outcomes. Basic wound-healing principles apply to all patients, whatever their age or size. The specific anatomy and physiology of vulnerable pediatric patients, however, requires detailed

and prevalence in 2010. Data collected by the hospital's pressure-ulcer prevention specialists showed a high rate of pressure ulcers in the neonatal and pediatric intensive care units. At that time, the hospital lacked a specific pressure-ulcer prevention plan. When it joined the National Database of Nursing Quality Indicators®, leaders decided to create a time-specific measurable goal—to decrease pressure ulcers by 50% within 18 months of implementing a prevention program.

DCH recruited me as their skin-care and wound-prevention specialist to assist the wound care collaborative team in creating the prevention program. The core of the program is a multidisciplinary team approach. Team members include a nursing administrator, physician, certified wound ostomy nurse, wound-care certified nurses, nurse educators, skin-care champions, physical therapist, occupational therapist, dietitian, and representatives of the materials management, environmental services, and case management departments. Called the SKIN team (short for “Saving Kids’ Integument Now”), its motto is “Prevention is critical.” The team involves the patient’s family member or guardian in developing and implementing the plan of care. The pressure-ulcer prevention program includes a bundle of components that have reduced pressure ulcers in adult populations, along with

wound care. Unfortunately, little evidence-based research exists to support and direct the care of pediatric patients with pressure ulcers. This article describes efforts to reduce pressure ulcers in pediatric patients at Driscoll Children’s Hospital (DCH) in Corpus Christi, Texas.

Making a change

DCH began tracking pressure-ulcer inci-



recommendations from the pediatric sections of the 2014 guidelines of the National Pressure Ulcer Advisory Panel (NPUAP).

Assessment

As in adults, many factors contribute to skin breakdown and pressure ulcers in pediatric patients—duration and amount of pressure, friction, shear, moisture, perfusion, malnutrition, infection, anemia, and immobility. The 2014 NPUAP guidelines describe risk factors to assess for in pediatric patients. (See *Assessing risk in pediatric patients*.)

Management

The DCH pressure-ulcer prevention program addresses physician, staff nurse, and nurse-technician education; skin-care regimen; nutritional optimization; appropriate support surfaces and patient repositioning; moisture management; and guidelines for implementing care.

Education

Pressure-ulcer prevention education is a mandatory yearly competency for all nursing and clinical staff. Physicians also receive education on pressure-ulcer staging and proper documentation and coding of pressure ulcers. Quarterly skin-care fairs teach staff about skin- and wound-care products used at DCH, including product selection. Staff can view demonstrations on how to apply these products and learn how to document skin care in the electronic health record. Also, they can get troubleshooting tips on stoma care, gastrostomy-tube sites, and diaper care. Home health agencies are invited to attend the fairs as part of an outreach to promote continuity of care.

Skin-care regimen

DCH has standardized its skin-care line for use with patients ranging from the smallest, most fragile neonates in the neonatal intensive care unit to young

Assessing risk in pediatric patients

To evaluate pressure-ulcer risk in pediatric patients, guidelines from the National Pressure Ulcer Advisory Panel (NPUAP) recommend clinicians perform an age-appropriate assessment that includes:

- activity and mobility levels
- body mass index, birth weight, or both
- skin maturity
- ambient temperature and humidity
- nutritional indicators
- perfusion and oxygenation
- presence of an external device
- duration of hospital stay.

NPUAP also recommends assessing the patient's skin at least daily and after procedures for changes related to pressure, friction, shear, and moisture. Be sure to examine the skin under and around medical devices at least twice daily for signs of pressure injury.

adults. Product evaluation on our neonatal patients found no adverse reactions over thousands of applications. The skin-care products we use are made for sensitive skin and contain natural oils and botanicals that provide cleansing, nourishment, and moisture.

Optimizing nutrition

Patients at risk for pressure ulcers require adequate nutrition and hydration; the plan of care must address these needs. Nutritional supplements, including parenteral and enteral supplements, are used as needed to meet children's nutritional goals.

Appropriate support surfaces

As part of our pressure-ulcer prevention program, we assessed all mattresses and surfaces in warmers, isolettes, cribs, bassinets, and standard hospital beds. We found the mattresses in our pediatric intensive care unit (PICU) were years older than manufacturers' recommendations.

In light of the limited sizes available and minimal literature on neonatal and

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pediatric support surfaces, we asked a company to make prototypes for neonate and infant surfaces. Before finalizing our purchase decision, we conducted a small study to evaluate the pressure redistribution of support surfaces and outcomes by performing pressure mapping on multiple pressure-redistribution surfaces—standard foam, high-resiliency multilayered pressure redistribution foam, and viscoelastic multilayered pressure-redistribution foam. To determine the effectiveness of each surface, we used pressure mapping with an X3 sensor. A comparison of average pressures (mm Hg) found viscoelastic multilayered surfaces provided the greatest pressure redistribution and had lower average interface pressures.

Based on these results, we chose a true pressure-redistribution mattress for our special populations. All PICU mattresses have been upgraded to a non-powered pressure-redistribution mattress replacement system with self-adjusting technology. Remaining standard beds have been converted to an innovative mattress replacement system. Although the mattresses are made from the best performance materials, repositioning patients every 2 hours and as needed remains an important nursing intervention in preventing pressure ulcers.

Moisture management

DCH replaced cloth pads with disposable underpads manufactured with a new technology that keeps the patient dry by wicking away moisture. Barrier creams

are used for the diaper area to help protect skin integrity.

Getting results

Data show that since DCH implemented its pressure-ulcer prevention program, our pressure-ulcer incidence has fallen 66%. These results show pressure ulcers can be prevented by identifying patients at risk and implementing appropriate prevention strategies. At DCH, our ultimate goal is zero hospital-acquired pressure ulcers. ■

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