

# Low Air Loss Support Surface Selection in the Neonatal and Pediatric Population

Jennifer Lynn Turner, MSN-Ed, APRN, FNP-BC, CWON; Cindy Demniak, MSN, RN, FNP-CNP  
West Virginia University Medicine Children's, Morgantown, W.Va.



## Background

More than 50 percent of pressure injuries (PIs) occurring in the pediatric and neonatal population are directly related to medical devices.<sup>1</sup> Skin integrity alteration in the pediatric population causes physical pain for the child, mental anguish for the parents, and increased cost to healthcare institutions.<sup>2</sup>

Identified recurrent pediatric impaired skin integrity at a Magnet-designated children's hospital became the focus for this guideline development initiative. In most healthcare institutions, pediatric treatment and prevention guidelines are adapted from adult practices.<sup>2</sup> These practices raise concern for the safety, cost-effectiveness, and clinical efficacy due to the anatomic and physiological differences between the two populations.<sup>2</sup>

## Method

Guideline development and implementation included:

1. Assessing the at-risk patient: Braden Q Score, Neonatal Skin Condition Score, and/or Neonatal Abstinence Syndrome (NAS) Score.
2. Determining support surface availability and choosing support surface functionality to provide microclimate management with pressure redistribution.
3. Other factors included: spinal stability, patient mobility, paralytics/vasopressors, and respiratory support.
4. Based on the assessment and patient weight, provider was guided to select the proper low air loss (LAL) support surface fitted for the appropriate crib, pediatric frame, or cardiac surgical platform.

## Conclusion

The LAL guideline provides early identification of the at-risk pediatric population. Early identification and surface initiation mitigates the causative factors.

## Results/Outcomes

Retrospective chart review for three patients with the use of LAL; in each of the cases the patient healing was evident within the first 10 days of use. After LAL was initiated, additional skin breakdown did not occur during the patients' hospitalization.

Before



After



### Patient 1

10-month-old male, lower occipital DTI found 9-days post op from neonatal positioning device.

**Treatment Plan:** Powered LAL on Pulsation mode, silver foam dressing, repositioning every two hours.

**Results:** 34-days post op, DTI resolved. Patient remained hospitalized another 117 days on same support surface without additional PI development.

Before



After



### Patient 2

4-month old female, severe perianal dermatitis.

**Treatment Plan:** Powered LAL on Static mode, Ph-neutral soap and saline, hydrophilic cream, repositioning every two hours.

**Results:** improved dermatitis, visible scarring remains. Patient remained hospitalized another 42 days on same support surface without additional moisture-related breakdown or PI development.

Before



After

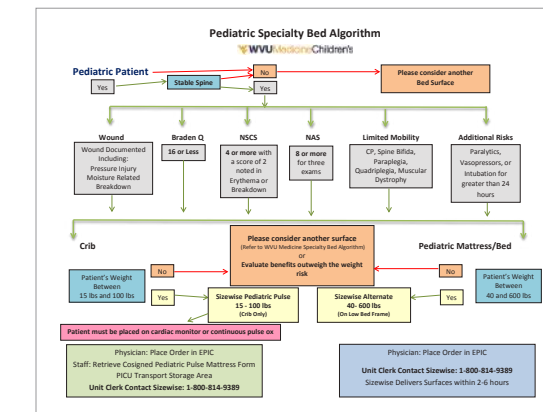


### Patient 3

3-week old female, history of NAS, MRSA colonization, and severe perianal dermatitis.

**Treatment Plan:** Powered LAL on Pulsation mode, Ph-neutral soap and saline, hydrophilic cream, repositioning every two hours.

**Results:** dermatitis resolved in eight days, infant sleeping better on LAL surface.



Scan with your phone's camera to access bed algorithm



## References

1. Baharestani M, and Ratliff C. (2007). Pressure ulcers in neonates and children: An NPUAP white paper. *Advances in Skin and Wound Care*, 20(4).
2. Curley M, Quigley S, and Noonan C. (2006). Skin integrity in hospitalized infants and children a prevalence survey. *Journal of Pediatric Nursing*, 21(6).

*The Institutional Review Board for Human Subjects Research at the West Virginia University protocol 15192944352 approved the study assuring that its design was in agreement with the Declaration of Helsinki and Ethical treatment of human subjects.*

## About the Author

### Jennifer Lynn Turner, MSN-Ed, APRN, FNP-BC, CWON

Jennifer is a Family Nurse Practitioner at Magnet®-recognized WVU Medicine, Morgantown, W.Va. She is currently providing care across the lifespan at a rural community practice clinic. Jennifer has been actively practicing wound care for the previous 10 years and obtained certification through the Wound, Ostomy and Continence Nursing Certification Board. [jenfowlern@yahoo.com](mailto:jenfowlern@yahoo.com)

### Cindy Demniak, MSN, RN, FNP-CNP

Cindy is a Family Nurse Practitioner with WVU Medicine, J.W. Ruby Memorial. In 2017, Cindy obtained her wound certification from the American Board of Wound Management. She is currently a member of the Heart and Vascular Institute Advanced Wound Team. Cindy serves on the Transition to Care Committee and an active member of the AANP, ABWM, AAWC, and Sigma Theta Tau.

*Named the Highest-Scoring Poster (Evidence-Based Practice) at the Symposium on Advanced Wound Care Fall Meeting (SAWC Fall), Las Vegas, Nev., 2019*

