

Improving PICC Care in the Pediatric Patient

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Background

Pediatric patients have distinct needs based on their age/developmental stage as well as multiple other disease-related considerations. Tailoring PICC care to address these complex needs requires attention to both age-appropriate strategies and innovative solutions for challenging issues. The PICC RNs at BCH have embarked on a multifaceted strategy to improve the care of the pediatric patient with a PICC line in place; focusing on several interventions and supplies to address the complex issues of allergy/ altered skin integrity as well as catheter securement.

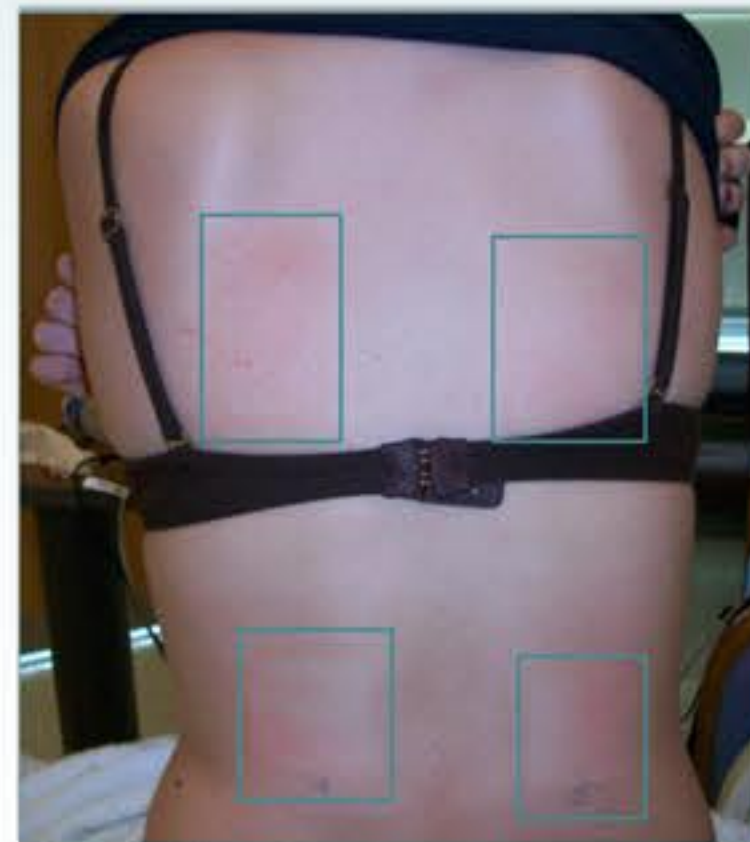
Methods

Alternate products used to address skin and dressing issues include:

- Skin Cleansing
 - betadine, full strength or diluted with sterile saline
- Dressing Materials
 - hydrophilic polymer/potassium ferrate powder
 - non-adhering soft silicone pad
 - silver impregnated soft silicone foam
 - thin all-in-one foam
- Catheter Securement
 - subcutaneous catheter securement device



Patient with Paraneoplastic Pemphigus & Castleman's Disease. Alternate dressing materials and suturing to maintain PICC stabilization



Cystic Fibrosis patient undergoing patch testing

Interventions

In the past year, we have cared for several patients who have presented with skin issues or developed skin irritation/allergic reactions to our standard dressing products. Many of these patients have an underlying diagnosis that impacts the immune system; Cystic Fibrosis, Chron's, Colitis, and Esophageal Atresia patients who are dependent on parenteral nutrition are the diagnoses representing the majority of patients with these issues.

A strategy that has significantly improved the care of these patients is to perform patch skin testing using our typical dressing and skin prep products prior to PICC placement. This testing is performed in collaboration with our Skin Care Nurse Specialist and Dermatology NPs.

Several alternate dressing materials are in use to address allergy issues and to maintain dressing integrity on non-intact skin.

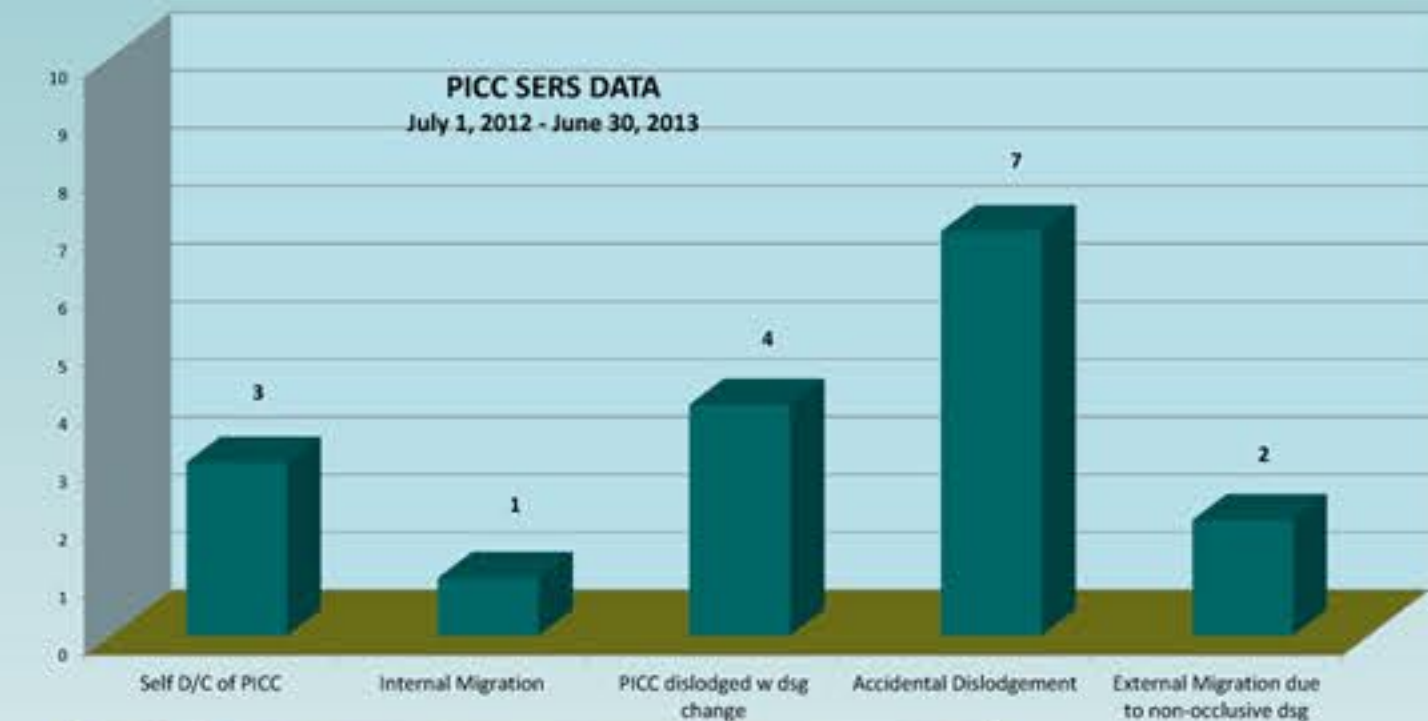
We have identified issues with catheter securement and have reports of 17 PICCs that had tip location compromised due to a variety of issues including complete inadvertent removal of the catheter prior to the completion of therapy (see graph). A trial was completed using a subcutaneous catheter securement device.

Discussion

Skin patch testing has improved PICC care by identifying allergens prior to PICC placement. Alternate dressing products have resulted in the ability to maintain PICCs in patients who would have previously experienced challenges due to altered skin integrity.

A total of 42 patients had the subcutaneous catheter securement device applied upon PICC insertion. There were no incidences of catheter migration during the trial. It is also notable that there were no complications noted with any of the 42 PICC lines and that all lines were removed for completion of therapy, or remain in use.

PICC Events related to Securement



PICC stabilized with subcutaneous securement device, hydrophilic polymer/potassium ferrate powder and bordered transparent dressing

Conclusion

Further research is needed to determine optimal protocols and materials used to care for pediatric patients with altered skin integrity around the insertion site and dressing area.

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