

Decreasing the Incidence of Peripheral IV Infiltration in Pediatric Patients due to Dislodgement/Infiltration/Phlebitis (D/I/P)

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INTRODUCTION

The insertion of a peripheral IV (PIV) can be a traumatic event for a child and family. Their small veins and limited access sites make placement of a PIV challenging for even the most experienced Pediatric Nurse caring for sick, dehydrated children. It is imperative that once a PIV has been established that it is secured to maintain patency, as well as protect it from accidental dislodgement, infiltration, or phlebitis. It is not uncommon for pediatric patients to lose their PIV's and require multiple PIV restarts prior to discharge. Using the appropriate PIV securement device and technique plays a key role in decreasing the incidence of PIV restarts due to dislodgements, infection/infiltration, or pain/phlebitis (D/I/P).

The purpose of this study was to determine if the use of the Bard StatLock® Select Pediatric Stabilization Device would decrease the incidence of PIV's lost due to D/I/P.

Background/Literature Review

The standard practice for securing Pediatric PIV's typically included the use of a number of different devices including; tape, transparent dressing, stabilization boards, IV houses, and gauze. The use and overuse of these items to secure the PIV can result in a number of D/I/P complications, as well as present a challenge for the pediatric nurse trying to monitor the site closely for signs and symptoms of D/I/P (Trotter, 2006).



An infiltrated PIV may result in:

- Repeated PIV attempts to restart the IV
- Further trauma and pain to the pediatric patient & family
- Patient/family dissatisfaction in care
- Overall increase cost for nursing resources and supplies associated with PIV restarts
- Delay in treatment with potential increase in length of stay and increased hospitalization costs
- Potential tissue damage to the affected area
- Increase liability to the organization associated with the tissue damage.

(Rosenthal, 2005; Alexander et al., 2010; Amjad et al., 2011).

METHODOLOGY

Research Question:

Does the use of the Bard StatLock® Select Pediatric Stabilization Device decrease the incidence of PIV's lost to Dislodgement, Infiltration/Infection, or Phlebitis/Pain (D/I/P)

Design:

During May through July 2014, all patients admitted to the Pediatric Inpatient Unit who required placement of a PIV by the Pediatric Nurses will be secured with the use of Tegaderm and tape (Control Group).

Ave cost~ \$7.17 (incl. IV start kit, IV cath, Maxiplus extension piece, 10 ml NS flush, tape, arm board)



August and September 2014, all patients admitted to Pediatric Unit will utilize the Bard StatLock® Select Pediatric Stabilization Device (Bard item IV0506 @ \$4.83/piece) and Tegaderm to secure all PIV's placed by the Pediatric Nurses (Study Group).

Average cost ~ \$9.77 (incl. IV start kit, IV cath, StatLock® w/ext. piece, 10 ml NS flush, tape, IV board if needed)

Data collection tool was designed to document the following:

- Pt. label for FIN #, Age/Sex
- Whether Tegaderm/tape vs. Statlock® device was used
- # of PIV's discontinued intact and not requiring any restarts
- Number of PIV's lost to D/I/P
- Area for comments, including reason for restarts

2014 Pediatric Courage Project Data Collection Tool

MRN	Age	Sex	Tape	# of PIV's	Reason for restart
111111	1:1	F	1	1	Dislodgement
111112	1:2	M	1	1	Infiltration
111113	1:3	F	1	1	Phlebitis
111114	1:4	M	1	1	Pain
111115	1:5	F	1	1	Dislodgement
111116	1:6	M	1	1	Infiltration
111117	1:7	F	1	1	Phlebitis
111118	1:8	M	1	1	Pain
111119	1:9	F	1	1	Dislodgement
111120	1:10	M	1	1	Infiltration

Setting: A 9 bed Pediatric Unit located in a small Midwestern Community Hospital, and a member of Trinity Health of Livonia, MI.

Participants: Included all pediatric patients admitted to Pediatric Unit between the ages of newborn to 18 years who required placement of a PIV.

Control Group average age = 5.75 years
Study Group average age = 7.43 years

Sample size:

Control group (Tegaderm & tape only) N = 27
Study group (Tegaderm & StatLock®) N = 21

Exclusion Criteria Included:

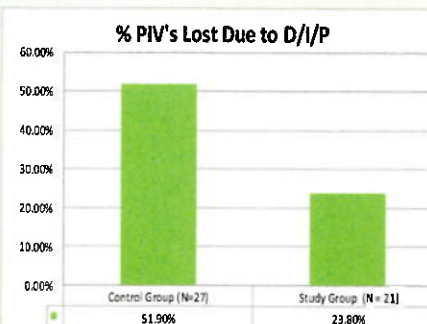
Any patient admitted to Pediatric Unit with an IV placed in ED or Ambulatory Surgery prior to admission to PEDS.

Any patient who deliberately removed their PIV

RESULTS

Control Group: Of the 27 PIV patients with Tegaderm and Tape only, 14 of them lost their IV's due to D/I/P for a total of 51.9%.

Study Group: Of the 21 PIV patients with Tegaderm and StatLock® Device, 5 were lost due to D/I/P for a total of 23.8%



Setting the alpha = 0.05 and with a CI of 0.95, we found that the use of the StatLock® helped to prevent the loss of a PIV due to D/I/P. (Binomial test of independent proportions = 1.97084, p = 0.049, N = 21, 27; Fisher's Exact p = 0.046, N = 21, 27). The project demonstrated a moderately strong relationship between the use of StatLocks® and PIV loss prevention (Phi = -0.2845).

The primary limitation of the study was the small sample size for the control and study group.

CONCLUSIONS

Consistent with the Mercy Model of Caring, Pediatric Nurses strive to provide holistic, atraumatic patient/family centric care that minimizes the physiological and psychological stressors (pain and fear) associated with common interventions, such as IV placement. Frequent PIV restarts due to D/I/P may have a significant negative impact on a child's overall hospitalization, including; increase pain/discomfort associated with multiple IV restarts, parental anxiety/dissatisfaction with care, and delay in treatment plan due to loss of IV access. The results of this project support the use of the StatLock® device to help decrease the incidence of PIV restarts due to D/I/P, potentially decreasing further traumatization for the child and family associated with the restarts. The practice change also supports the organizational goals for overall effective pain management and patient/family satisfaction. The results provide the team with further opportunity to compare potential cost savings of supplies and nursing resources using the StatLock® vs. cost of PIV restarts, as well as overall patient/family satisfaction with care. The study also provides the department the opportunity to explore the feasibility of using a standardized stabilization device in the NICU environment to decrease PIV restarts with neonates.

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For further information

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