A WHOLE NEW WORLD

Advances in Pediatric Vascular Access

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1. Disclosure of Relevant Financial Relationships
   I have no financial relationships to disclose.

2. Disclosure of Off-Label and/or investigative Uses
   I will not discuss off label use and/or investigational use in my presentation.
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Located in Upstate New York

148 Beds

Level IV NICU- 68 beds YTD occupancy 106%

PICU- 12 beds

PCCU- 16 beds (ECMO)

General Care Beds- 52 (ortho, eating disorders, medicine, burn, epilepsy, surgical, hem/onc)

Outpatient Treatment Center- 4,504 annual Visits

Pediatric Emergency Room- 31,500 annual visits
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The Beginning: In the year 2015 anecdotal reports of serious infiltration events

**January 2016** - Peripheral IV Infiltration and Extravasation was recognized as our #1 Hospital Acquired Condition

**Percent IV Infiltrated - Pediatric Service 2015**

Includes ICU's, Gen Care, Peds ED, Surgery Suite
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▶ Now What Do We Do? 2016 Is The Year of Change

**February:** RED ALERT Notification of our PIVIE Trend and education issued to all pediatric nursing. Collaboration with Vascular Access Service from Cincinnati Children’s Hospital.

**April:** PIVIE workgroup formed consisting of Vascular Access Specialist, QI Coordinator, Pediatric Pharmacist and bedside nursing representatives. Epic build begun.

**June:** Unit based champions identified and rounding occurred weekly.

**August:** Trainer to Trainer model initiated on the new Pediatric specific infiltration and extravasation assessment tool. Epic build and testing completed. Online nursing education released on the identification, treatment, documentation and prevention of infiltrations and extravasations.

“TLC for IV Safety” posters distributed to nursing units.

**September:** PIVIE Prevention and Treatment Guideline Released
Real time education with infiltration events by Vascular Access Specialist.
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PIVIE Rate Decreased from 7.34% December 2015 to 2.88% in January 2017
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Engagement of Patient and Family-
Use of Our Getwell Network
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IV Prompt 1

Thank you for partnering with us! Do you (or your child) have an IV?

Visibility Rate

89%
114 patients saw the prompt out of a possible 128

Response Rate

58%
66 patients responded out of a possible 114

Patient Responses
This prompt appeared 378 times and got a total of 109 patient interactions.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>45</td>
<td>64</td>
<td>270</td>
</tr>
</tbody>
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### IV Prompt 2

#### Is the IV painful, puffy, red, or feel hot or cold?

<table>
<thead>
<tr>
<th>Visibility Rate</th>
<th>Response Rate</th>
</tr>
</thead>
</table>
| **25%**  
32 patients saw the prompt out of a possible 128 | **100%**  
32 patients responded out of a possible 32 |

#### Patient Responses

*This prompt appeared 45 times and got a total of 45 patient interactions.*

- **IV Thank You 1**: 42 responses
- **IV Thank You 2**: 3 responses
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Your feedback is important to us!

Visibility Rate

52%
66 patients saw the prompt out of a possible 128

Response Rate

91%
60 patients responded out of a possible 66

Patient Responses
This prompt appeared 106 times and got a total of 99 patient interactions.
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A nurse will be in shortly to check the IV.

Visibility Rate

2%
2 patients saw the prompt out of a possible 128

Response Rate

100%
2 patients responded out of a possible 2

Patient Responses
This prompt appeared 3 times and got a total of 3 patient interactions.
Central Line Associated Blood Stream Infections Rate
University of Rochester Medical Center - Golisano Children’s Hospital

VAT fully staffed 5/2018

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What Has Made The Difference?

BEDSIDE STAFF OWNERSHIP!!

• Maintenance Bundle Compliance- Tracer Audits
• Real Time Education
• Line Change Carts
• Environmental Care
• Hygiene (CHG bathing, NICU bathing protocol) and Daily Linen Change
• Bed and Room Change at 30 days
• Terminal Cleaning
• Parent and Patient Engagement
• Closed Blood Sampling Collection System

*** Senior Leadership Support***
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Celebrating Success!!!!!
Hematology/Oncology
CLABSI Free
2 Years… 1000 days… 3 Years

STILL CLABSI FREE
Clinical Advancements

Pain Management: Needless syringe use since 2011 service wide

Education: Vascular Access Retreat- annual, Pediatric Nurse Shadow Experience, New Hire Nursing Orientation

Documentation: Development of a Standardized Pediatric Central Line Insertion Note.

Competency: Development of a standardized evidence based education and documentation for Radial Arterial Puncture. (NICU Transport, VAT, CRN, Pediatric Transport, Respiratory Therapy)
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DIVA: Difficult IV Access

Most DIVA studies have been done in an emergency room setting.

To date this is the first time the DIVA assessment tool is being studied on an inpatient unit.
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DIVA: Difficult IV Access

DIVA Scoring

- 0: 38%
- 1 to 5: 39%
- 5 to 9: 14%
- 10 or more: 9%
ECG Tip Confirmation Technology

Accepted practice for PICC tip confirmation in Adults

Trial- Initiated January 2018 using Bard Sherlock and ECG technology

- January – Six Upper Extremity PICC lines inserted using the technology and correlating chest xray done. All radiology readings confirmed Cavoatrial tip placement

- February – Thirteen (13) Upper Extremity PICC lines inserted with 12/13 correlating chest xrays with radiology readings of “lower SVC/CAJ” ( 1 equipment issue chest xray done)

- March – Policy changed to include the use of ECG tip confirmation technology for PICC tip confirmation in the pediatric population

First Children’s Hospital to incorporate this technology
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Changes In Clinical Practice- February 18, 2019

Subcutaneous Securement Device Placement Pilot

25 PICC lines size 3Fr and 4Fr
EVALUATION PARAMETERS

- 25 SecurAcath Devices placed and surveyed between 2/18 and 4/5
- 32 Care & Maintenance Dressing changes surveyed
- 15 Device Removals surveyed
- Comparison to Statlock (96%) and Griplok (4%)
- All device placements were on PICCs (96%) and Midlines (4%)
OUTCOMES SUMMARY

- 25 Completed Placement Surveys
- 14 complete data set for dwell time calculation
- Dwell Time = 10.5 days;
- Reduced adhesive securement use on average by 3 per patient
  - Assuming 5 day dressing change is typical
  - Cost savings estimate = $6.00\textsuperscript{1} \times 3 = $18.00 in material in material per patient
  - Annualized material cost savings = $18.00 \times 500 \text{ PICCs/year} = $9,000.00
  - Pre-evaluation dislodgement rate of replacement = 20%
  - Cost of repeat procedure = $500-1500\textsuperscript{2}
  - Total savings = procedure cost x annual procedures x dislodgement occurrence +
    (Annualized Material Cost Savings – cost of SecurAcath)
    
    \[
    (1000 \times (500\times0.20)) + ($9000 - $12,500) = $96,500.00 \text{ Annualized Estimated Cost Savings}
    \]

1. Lowest known cost provided by 3 different accounts, for the purchase of a single statlock device. Institutional specific costs may vary affecting the presented calculations.
2. Based on available cost of procedures in literature. References available upon request.
3. Low end of procedure cost range for conservative estimation. If this is higher overall cost savings is also higher.
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New and Exciting Things Are Happening Soon

• IRB in process – ECG technology in the Neonatal Population
• Development of the Vascular Access team as a Consulting Service
  • Development and Introduction of an Access Algorithm
  • Increasing the number of “Tools” for our toolbox.
    • Evaluating IV House “Ultra Splints”