A WHOLE NEW WORLD

Advances in Pediatric Vascular Access

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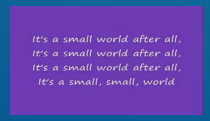
Rochester, New York



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/oc

Outpatient Treatment Center- 4,504 annual Visits
Pediatric Emergency Room- 31,500 annual visits

MAGNET RECOGNIZED
AMERICAN NURSES CREDENTIALING CENTER

U.S. News & World Report Rankings

Golisano Children's Hospital Earns Recognition

BEST CHILDREN'S HOSPITALS U.S.News NEONATOLOGY 2017-18

BEST CHILDREN'S HOSPITALS U.S.News NEUROLOGY & NEUROSURGERY 2017-18

BEST CHILDREN'S HOSPITALS U.S.News NEPHROLOGY 2017-18

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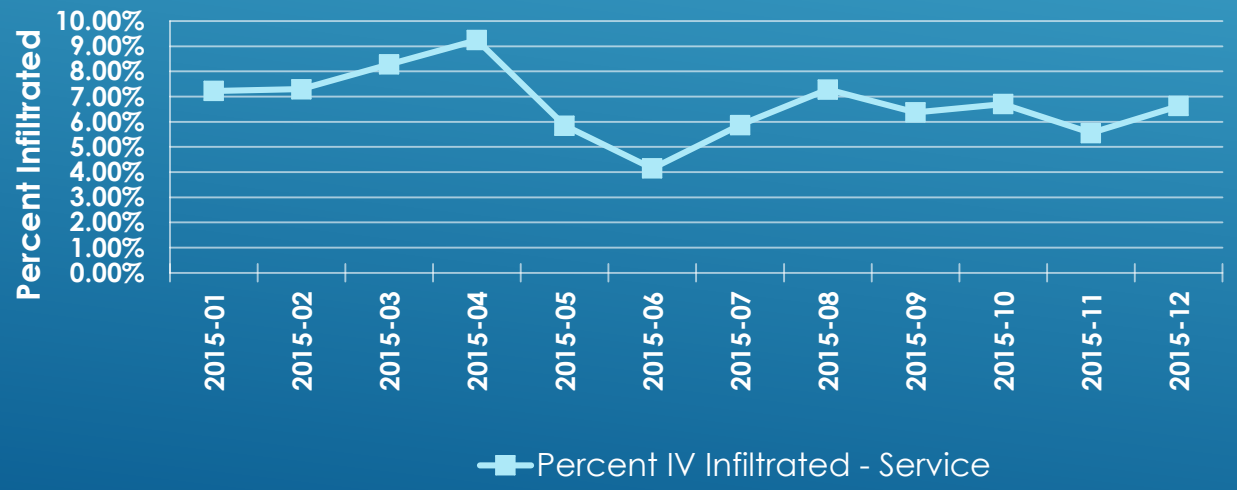
The Beginning: In the year 2015 anecdotal reports of serious infiltration events

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**

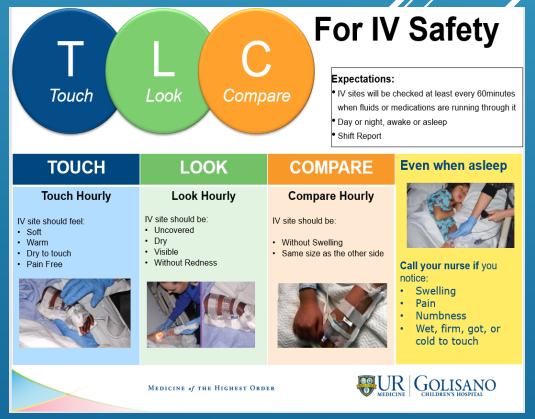
February : **RED ALERT** Notification of our PIVIE Trend and education issued to all pediatric nursing. Collaboration with Vascular Access Service from Cincinnati Children's Hospital.

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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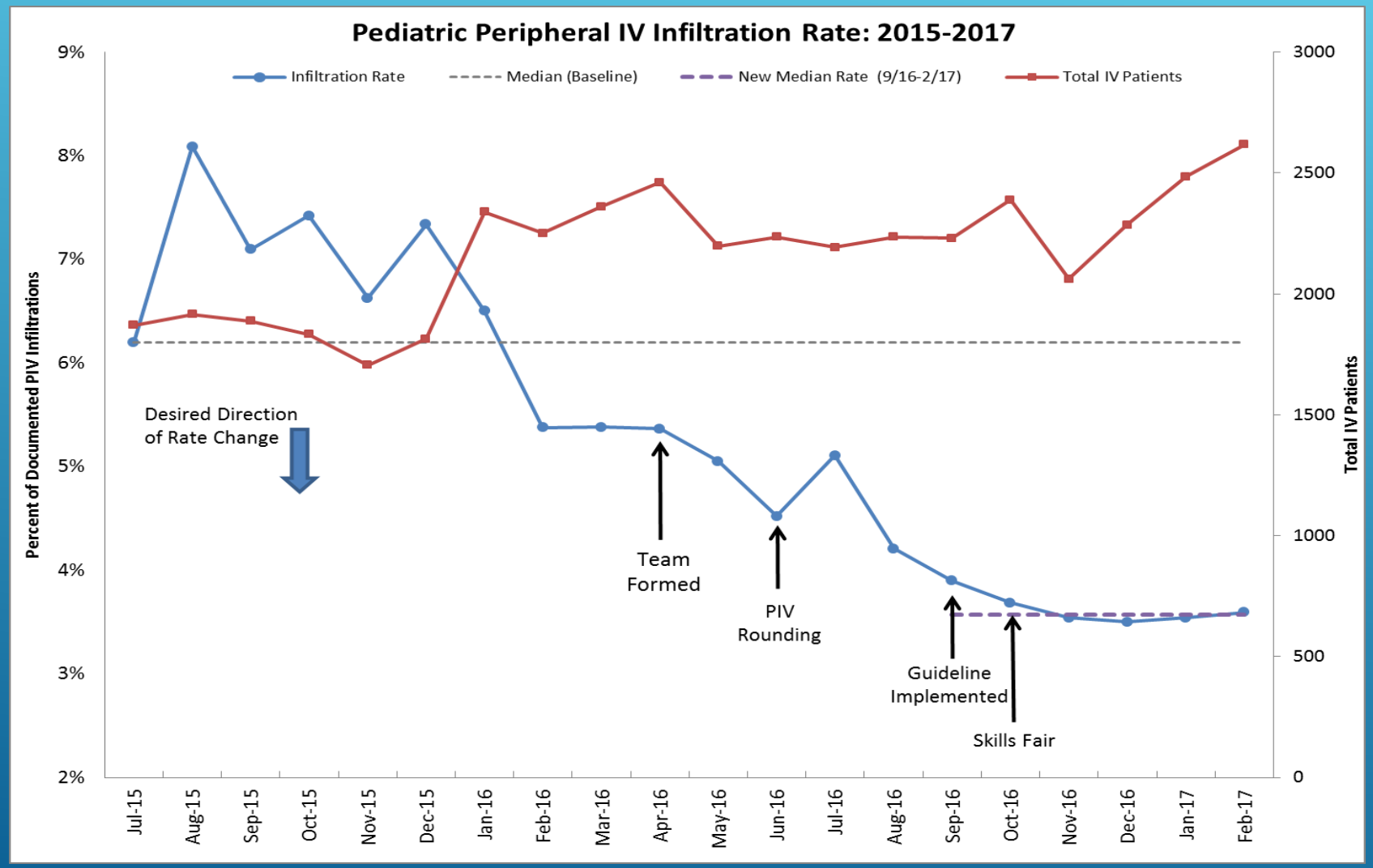

PIVIE Rate Decreased from 7.34% December 2015 to 2.88% in January 2017

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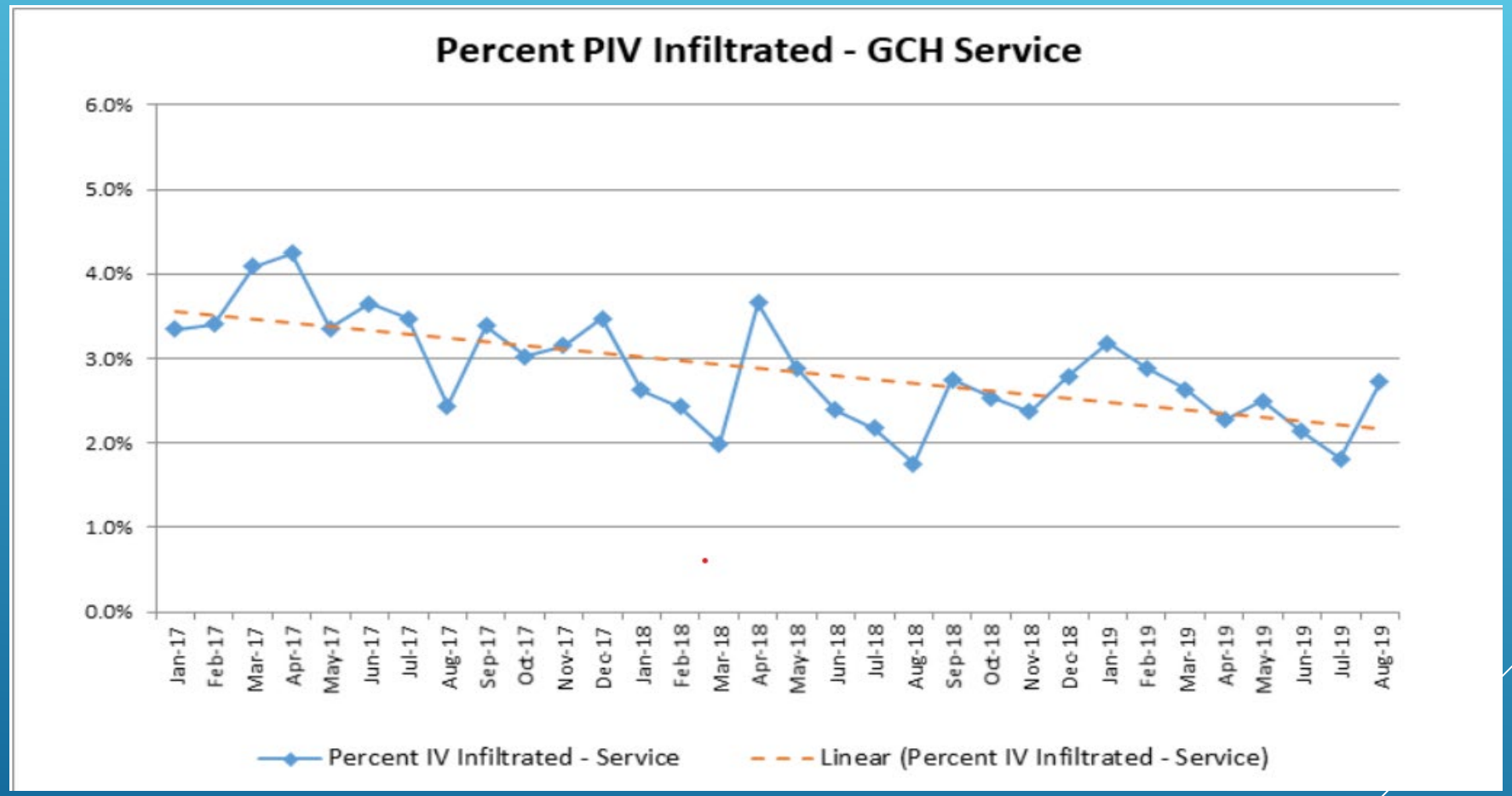

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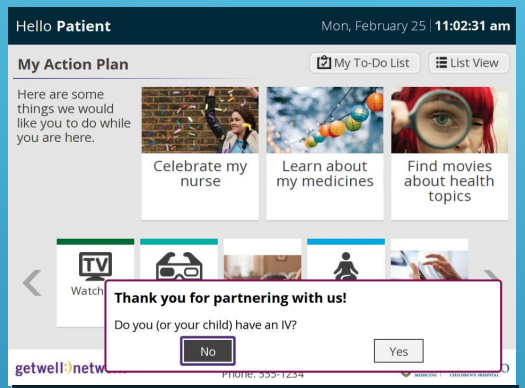
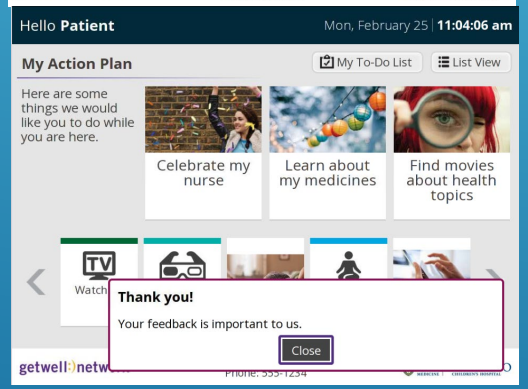
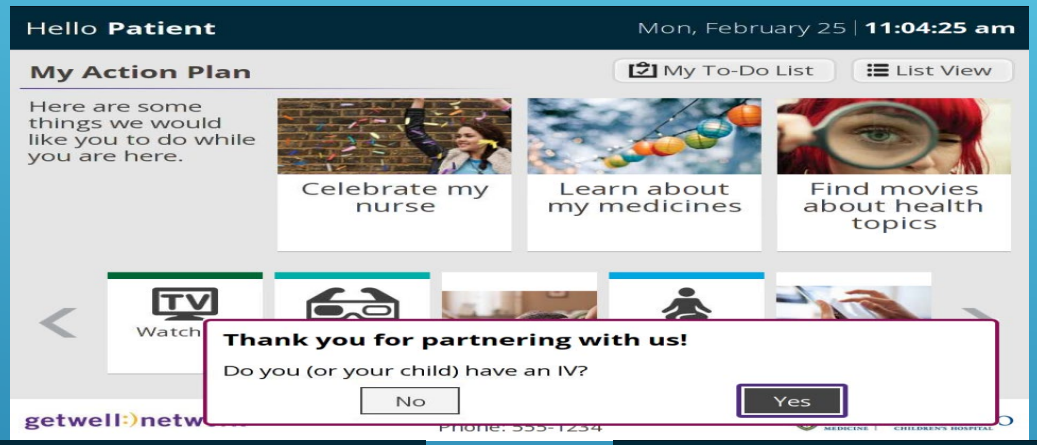
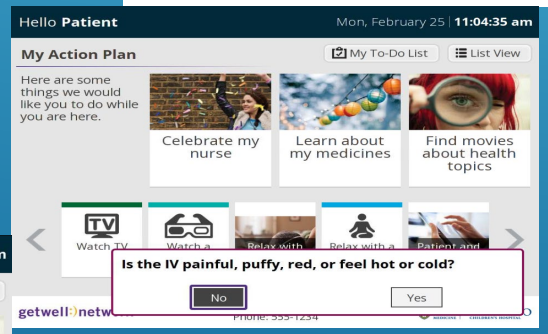
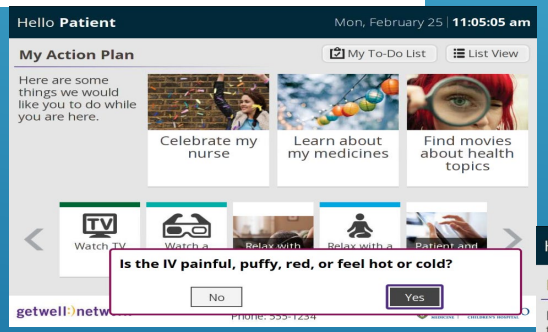
Engagement of Patient and Family-
Use of Our Getwell Network

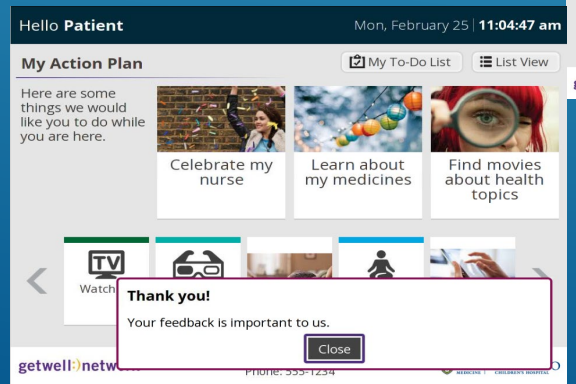


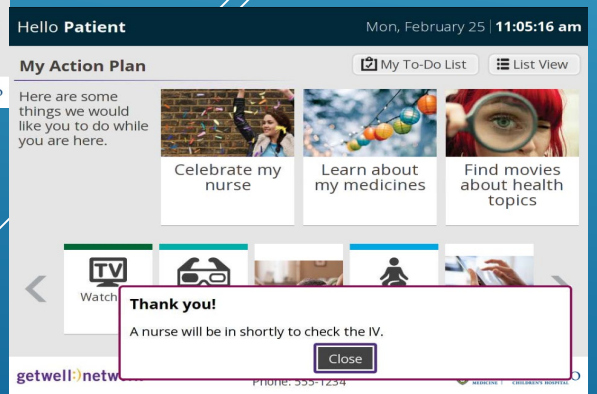












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IV Prompt 1

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

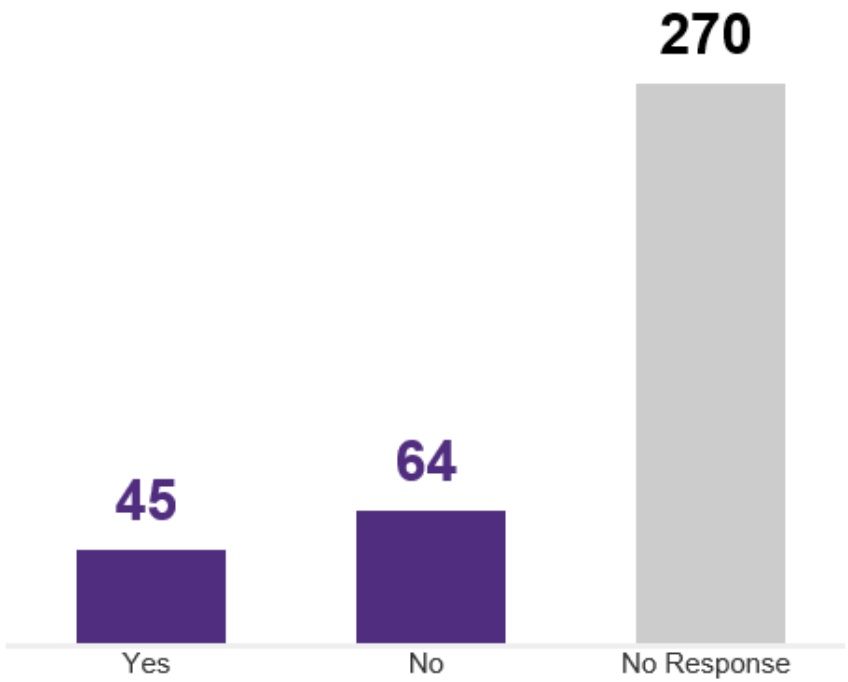
Response Rate

58%

66 patients responded out of a possible 114

Patient Responses

This prompt appeared 379 times and got a total of 109 patient interactions.



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IV Prompt 2

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

Visibility Rate

25%

32 patients saw the prompt out of a possible 128

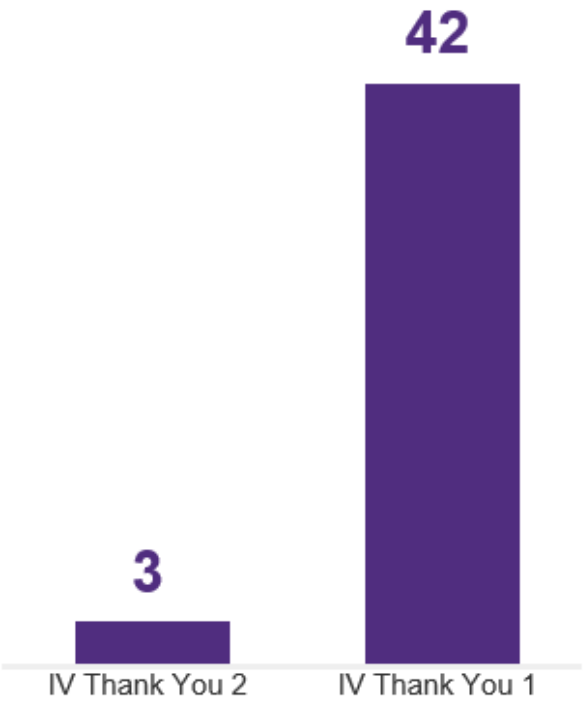
Response Rate

100%

32 patients responded out of a possible 32

Patient Responses

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



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IV Thank You 1

Your feedback is important to us!

Visibility Rate

52%

66 patients saw the prompt out of a possible 128

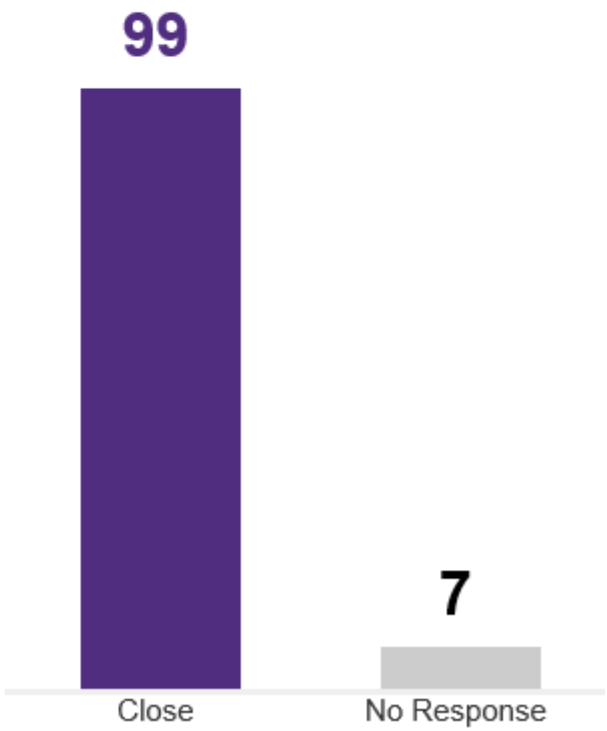
Response Rate

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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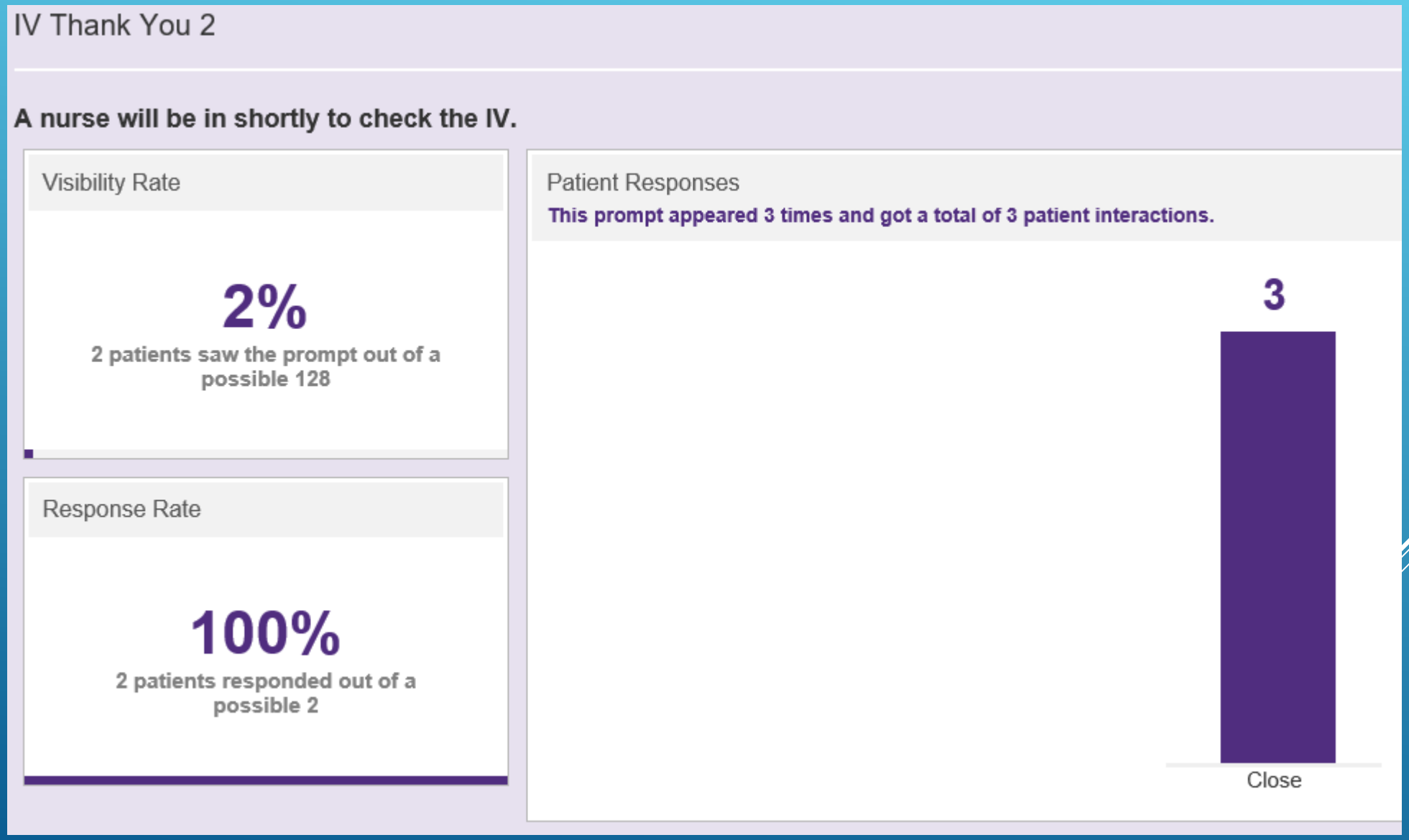

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CLABSI

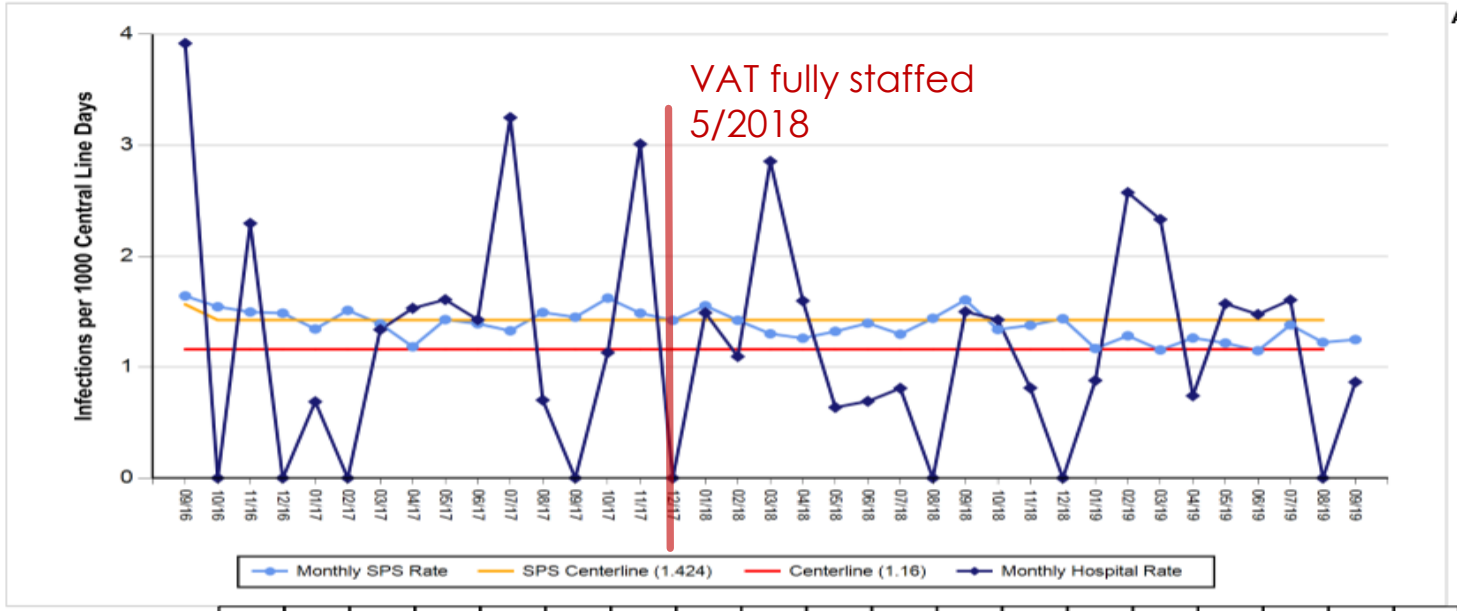
10/16/2019 7:21:23 AM

Children's Hospitals' Solutions for Patient Safety
Every patient. Every day.

Central Line Associated Blood Stream Infections Rate

University of Rochester Medical Center - Golisano Children's Hospital

Desired Direction of Change



	10/17	11/17	12/17	01/18	02/18	03/18	04/18	05/18	06/18	07/18	08/18	09/18	10/18	11/18	12/18	01/19	02/19	03/19	04/19	05/19	06/19	07/19	08/19	09/19
# of CLABSI Events	2	5	0	2	1	3	2	1	1	1	0	2	2	1	0	1	3	3	1	2	2	2	0	1
Central Line Days	1768	1661	1404	1343	913	1051	1252	1570	1445	1236	1410	1334	1402	1231	1250	1137	1166	1287	1348	1273	1356	1246	1184	1156
Monthly Hospital Rate	1.131	3.010	0.000	1.489	1.095	2.854	1.597	0.637	0.692	0.809	0.000	1.499	1.427	0.812	0.000	0.880	2.573	2.331	0.742	1.571	1.475	1.605	0.000	0.865

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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

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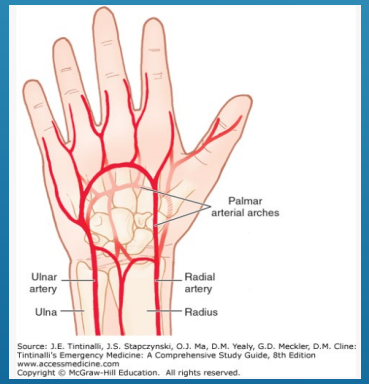
Clinical Advancements

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

CH8 South – Difficult Intravenous Access (DIVA) Project

Luke Angell, Cheri Gillette, Rebecca Kanaley, Matt Messinger

MAGNET RECOGNIZED

Background

- The DIVA tool was developed to assist nurses in identifying and predicting what patients might be challenging to obtain a peripheral IV
- The tool has multiple factors that have been suggested would be helpful in assessing the difficulty of IV placement. **These factors include:**
  - **Vein visibility**
  - **Vein palpable**
  - **NICU History**
  - **Skin Shade**

Purpose

You Spoke, We Listened!

Based on your feedback and reported RL events on multiple IV attempts, we are exploring using this tool for our pediatric patients. We want to know if the tool is valid for our patient population.

Our goal is to develop a PIV placement algorithm to decrease the number attempts to obtain successful PIV access and help determine when to call the VAT Team.

When?

- Data will be obtained from:

7/2/2018 to 10/31/2018

Who?

- Any child who needs a PIV placed in a non-emergent setting

Goal = 200 patients

Pediatric Difficult IV Access (DIVA) Collection Sheet

patient sticker

Nurse Initiating Placing IV*: _____ Date of PIV Placement: _____

*(First time completing DIV, please see Matt Messinger or page the VAT

1. Vein Visible w/tourniquet	YES	NO
2. Vein Palpable w/Tourniquet	YES	NO
3. Skin shade	Light	Dark
4. Prematurity (<38 weeks)	YES	NO
5. NICU stay	YES	NO
6. Gestational Age at birth	____	weeks
7. PIV success on first attempt by primary RN	YES	NO
8. Number of total attempts at PIV by primary RN	____	attempts
9. Intervention used by primary RN	Warm pack	Transilum.	U/S	Vein finder	None	Other:
10. Did a second RN/specialty staff member place the PIV? (if no, go to question 24)	YES	NO
11. Role of Specialty Staff who placed PIV successfully	RN	CRN	Transport RN	MD	APP	VAT Team	Other:
12. Number of total attempts at PIV by specialty staff	____	attempts
13. Intervention used by specialty staff	Warm pack	Transilum.	U/S	Vein finder	None	Other:
14. LMX or Lidocaine / tip Used	LMX	/tip	None				
15. Child Life Specialist Used	YES	NO					

16. Comments (Accurate? Difficult to use?)_____

Process

Every nurse on 8South will be voluntarily asked to collect information on their patients before obtaining PIV access using a DIVA Collection Sheet. Nurses only need to complete the front page.

1. Take DIVA Collection Sheet from the medication room.
2. Place patient sticker on DIVA Collection Sheet.
3. Compare patient skin shade to Fitzpatrick Skin Shade chart.
4. Obtain NICU history and weeks gestation from chart/family.
5. Place tourniquet; determine vein visibility and palpability.
6. Document if PIV was obtained on first attempt, the total number of attempts needed (by all staff), and other interventions used.
7. Place completed DIVA Collection sheets in the "DIVA" folder in the 8South Conference Room.

The Fitzpatrick Skin Shade Chart

UR MEDICINE | GOLISANO CHILDREN'S HOSPITAL

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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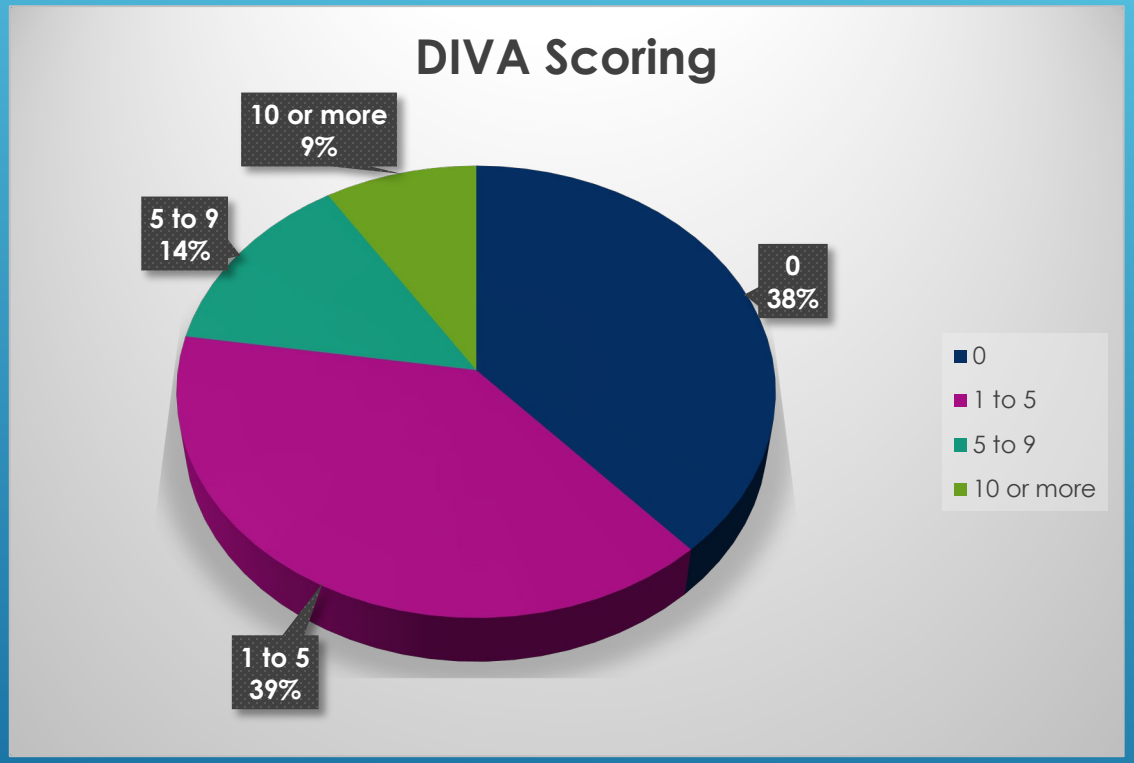
DIVA: Difficult IV Access



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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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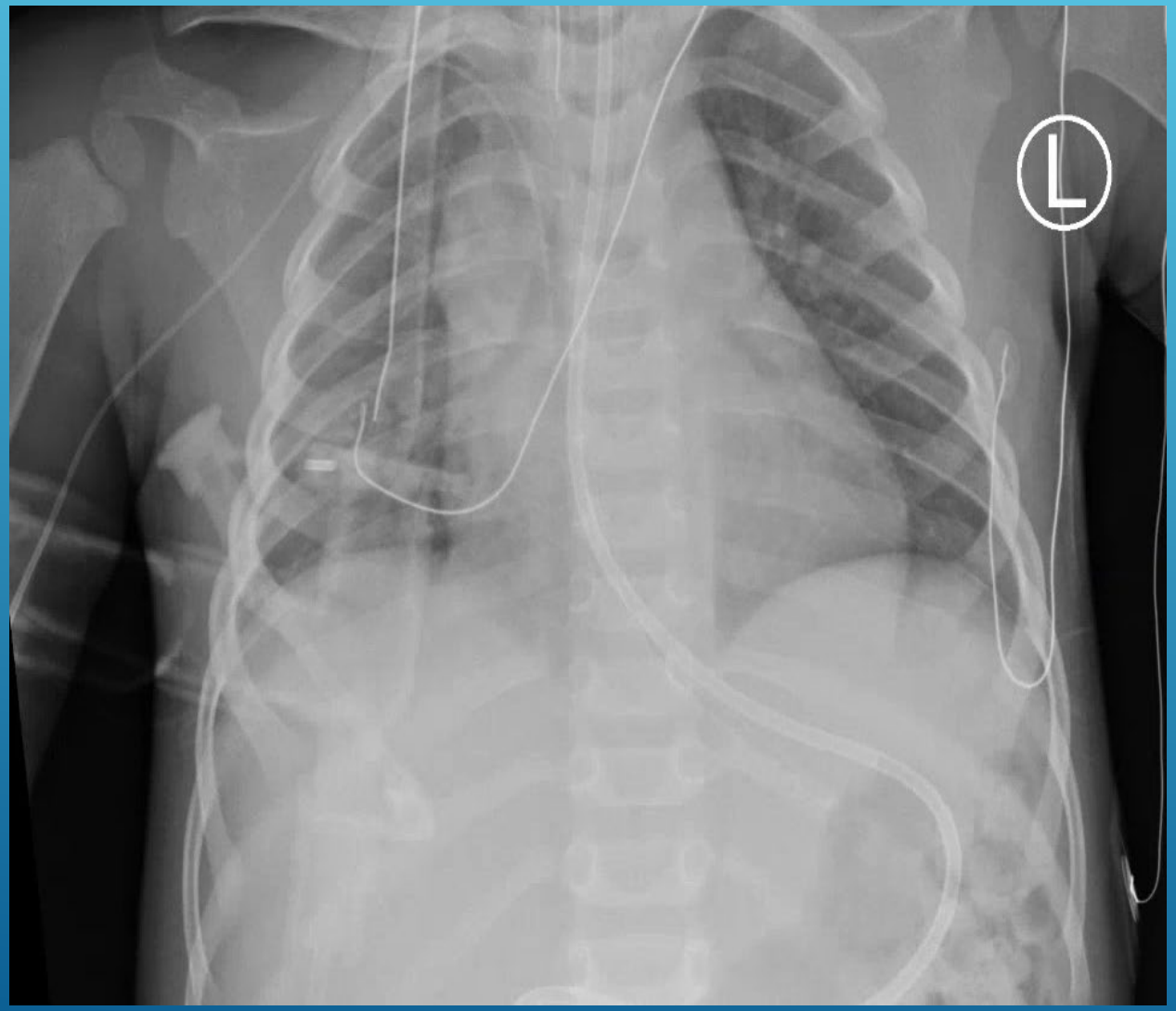

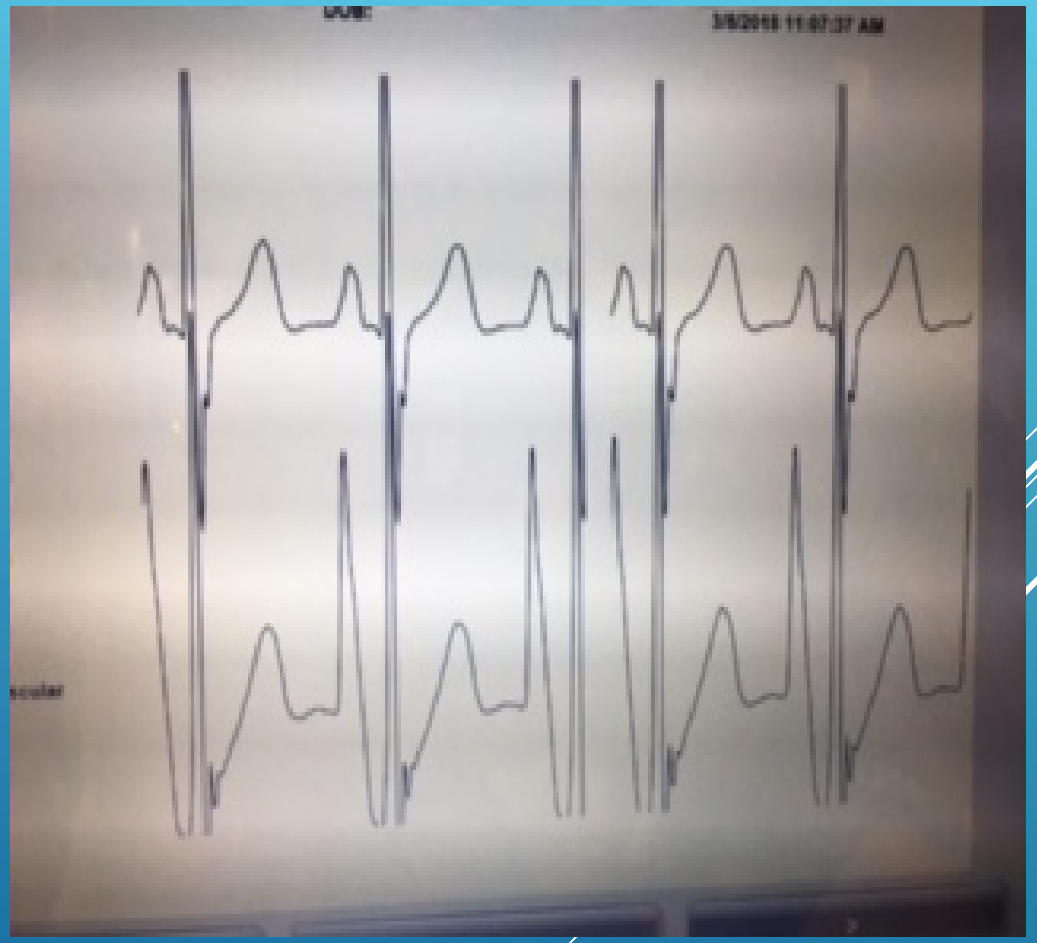

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Changes In Clinical Practice- February 18, 2019

Subcutaneous Securement Device Placement Pilot

25 PICC lines size 3Fr and 4Fr

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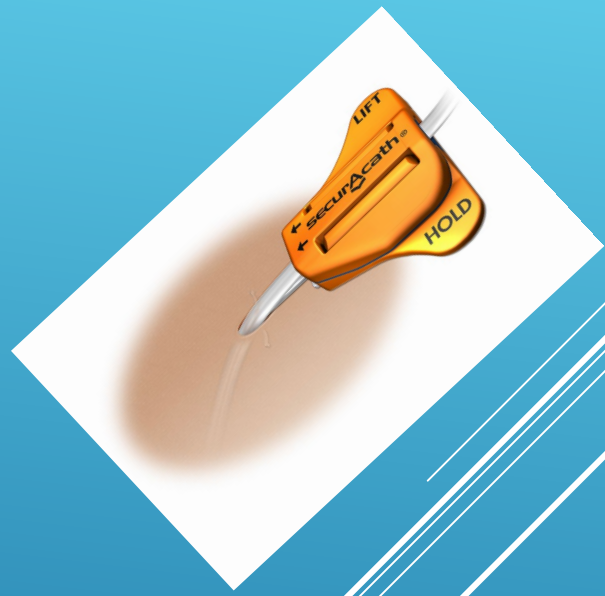
EVALUATION PARAMETERS



- 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%)

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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[1] x 3 = $18.00 in material in material per patient
  - Annualized material cost savings = $18.00 x 500 PICCs/year = $9,000.00
  - Pre-evaluation dislodgement rate of replacement = 20%
  - Cost of repeat procedure = $500-1500[2]
  - Total savings = procedure cost x annual procedures x dislodgement occurrence + (Annualized Material Cost Savings – cost of SecurAcath)
  - (1000 x (500*0.20)) + ($9000 – $12,500) = **$96,500.00 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"