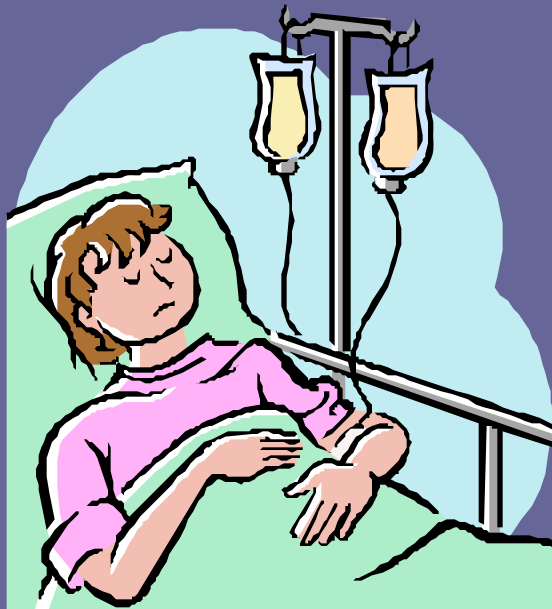


# Pediatric IV Infiltrates: Using the Benchmarks to get to Zero



# Background

- Fairview Hospital is a 400 bed community hospital on the west side of Cleveland, Ohio and is a part of the Cleveland Clinic Health System.
- Pediatrics is a 24 bed community based medical surgical unit. Primary diagnoses includes, but are not limited to respiratory conditions, management of dehydration, fever in newborns, postoperative care of surgical patients and the treatment and management of viral or bacterial processes. Patient age ranges from newborn through 20 years of age.
- The unit staff consists of 19 RNs (4 of which are professional Certified Pediatric Nurses), 1 LPN, 2 Patient Care Assistants, 1 Secretary and 7 Child Life Specialists.



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# Introduction

- Intravenous (IV) needle placement in hospitalized children is a common procedure. Not only are there inherent risks of IV infiltration and medication extravasation affecting patient safety, but parents and children exhibit a great amount of anxiety related to the IV placement and stability during the child's stay. Utilizing the Infusion Nurses Society (INS) evidence-based guidelines and standards our organization has had two consecutive years of zero IV infiltrate prevalence according to NDNQI data definitions.

# Methodology

- Quarterly prevalence studies done per NDNQI guidelines are completed randomly each quarter by the nursing quality department of our organization. Data collected is entered into the NDNQI database for benchmarking. Ongoing evaluation of outcome data and sharing it with staff and celebrating the high quality outcomes keeps the momentum and sustains success.

## Methodology cont.

- Implementation of the INS guidelines are the key to success for zero IV infiltrates. The guidelines employed by our facility are:
- Topical anesthetic use every time an IV is started to ensure proper placement and minimize trauma
- Use of the smallest-sized and shortest-length catheter possible.
- After age 10, no lower extremity sites are utilized. The rate of phlebitis becomes similar to the adult.
- Scalp sites are rarely used, they are more difficult to stabilize and infiltrate easily.

- Sites are taped and secured using opsite dressing on insertion site to allow for ease in visibility and assessment



All sites are checked hourly and prn by the RN and documentation is completed

# Nursing Documentation

Doc Flowsheet

File

Add Row

Add Group

Cascade

Add Col

Insert Col

Device

Flowsheet: I/O

I/O

ORAL

IV

OR / PACU / ICU I...

TPN/PPN

URINE

BOWEL MOVEME...

EMESIS

OR / PACU / ICU ...

IVPB

IV Flushes

IV Site Check (Peds)

D5 0.45%NS w/20KCL

Iron dextran

OR

PACU (ASC/Regional Hospitals

ICU

TPN

PPN

Lipids

Void (ml)

Foley (ml)

Urine Incontinence/Not Saved

Other

0600

IV

90

OR / PACU / I

TPN/PPN

URINE

Value

Comment

Time Taken

Tirr

Additional Info for IV-IV Site Check (Peds)

IV Site Check (Peds)

Value Range for Row

Back

Next

Clear

Grade 0 (Infiltration)

Grade 1 (Infiltration)

Grade 2 (Infiltration)

Grade 3 (Infiltration)

Grade 4 (Infiltration)

Grade 0 (Phlebitis)

Grade 1 (Phlebitis)

Grade 2 (Phlebitis)

Grade 3 (Phlebitis)

Grade 4 (Phlebitis)

Back

Next

Clear

Row Description

INS PHLEBITIS SCALE

Grade 0 = No Symptoms

Grade 1 = Erythema at access site VW or VWO pain.

Grade 2 = Pain at access site with erythema and/or edema

Grade 3 = Pain at access site with erythema and/or edema, streak formation, palpable venous cord

Grade 4 = Pain at access site with erythema and/or edema, streak formation, palpable venous cord >1 inch in length, purulent drainage

INS INFILTRATION SCALE

Grade 0 = No Symptoms

Grade 1 = Skin blanched, edema < 1 inch in any direction, cool to touch

Grade 2 = Skin blanched, edema 1-6 inches in any direction, cool to touch, VW or VWO pain.

Grade 3 = Skin blanched (translucent), gross edema > 6 inches in any direction, cool to touch, mild to moderate pain, possible numbness per patient.

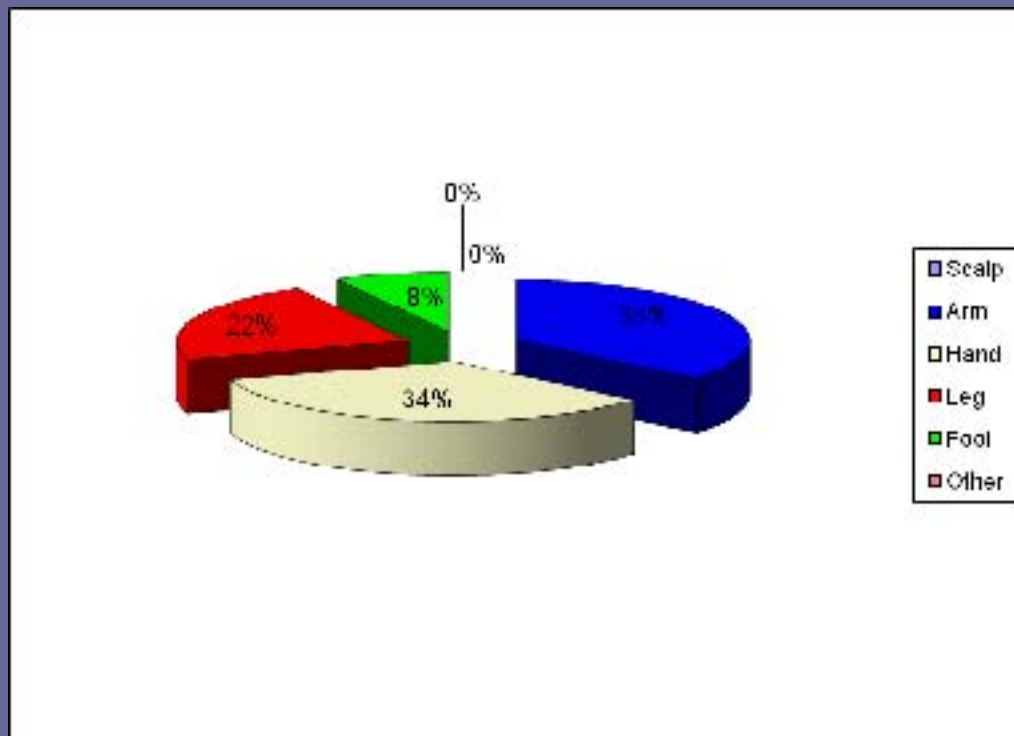
Grade 4 = Skin blanched (translucent), skin tight or leaking, skin discolored, bruised, swollen, gross edema > 6 inches in any direction, deep pitting edema, circulatory impairment, moderate - severe pain, infiltration of any amount of blood products, irritants or vesicants.



- Sites are flushed with 1-3cc of NS prior to starting any meds to ensure patency.
- Parents are educated on admission on what symptoms regarding the IV site would warrant immediate attention by the nursing staff.
- (INS, 2006)



# IV Site Distribution



# Outcome Data

Quarter	Fairview Preva- lence	N size	National Bench mark – teaching facility	National Bench mark, Bed size 400
2Q 2008	0.00	6	1.28	.62
3Q 2008	0.00	4	.77	.88
4Q 2008	0.00	3	.94	2.48
1Q 2009	0.00	7	1.13	2.49
2Q 2009	0.00	2	1.05	.42
3Q 2009	0.00	3	1.0	1.92
4Q 2009	0.00	4	1.18	2.39
1Q 2010	0.00	6	.64	.86
2Q 2010	0.00	5	1.00	1.51
3Q 2010	0.00	3	pending	pending

# Conclusion:

- Our low rate of IV infiltrates is the result of the nursing staff recognizing the inherent risks of IV therapy in children, as well as being diligent in their work performance. Pediatric nurses use their skills daily to perform assessments of IV sites, as most pediatric admissions involve the use of IV therapy throughout a child's hospitalization. Caring for IV lines is a basic principle in pediatric nursing and frequent documentation, along with adequate assessment skills is an acceptable practice.

- Fairview Hospital policy requires that pediatric nurses perform hourly IV site checks, along with IV fluid totals every 2 hours. Documentation is done by the RN, assessing the site for any signs of infiltration or phlebitis. It has always been our practice to check sites hourly, as well as to educate the parents on any early signs that may indicate infiltration. More frequent monitoring of IV sites may be needed in the case of a child whose site was difficult to establish. All infusions are monitored by use of an infusion pump.

- Fairview Hospital does an excellent job in maintaining and managing IV lines in children as evidenced by our prevalent studies and quarterly data. Providing high quality care to our patients assures patient safety and produces high quality outcomes



# References:

- Infusion Nurses Society (2006) Policies and Procedures for Infusion Nurses 3rd edition. \_pages230-262