ICEOS 2019

Quality, Safety, Value in My Early Onset Scoliosis Practice

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Disclosures

- Consultant – Biogen, Inc.

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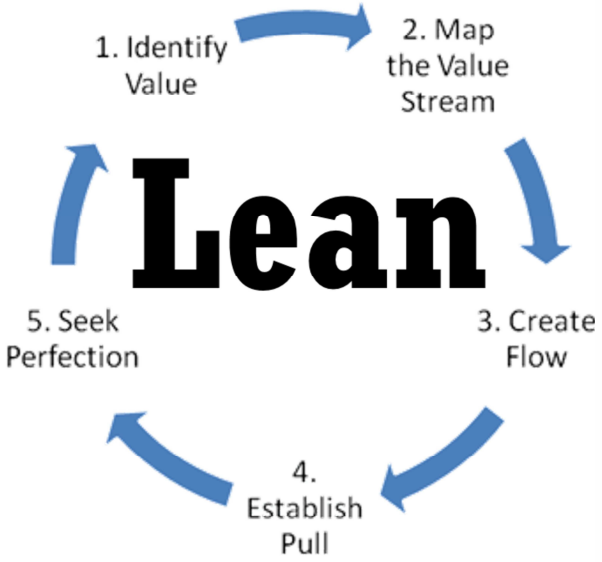
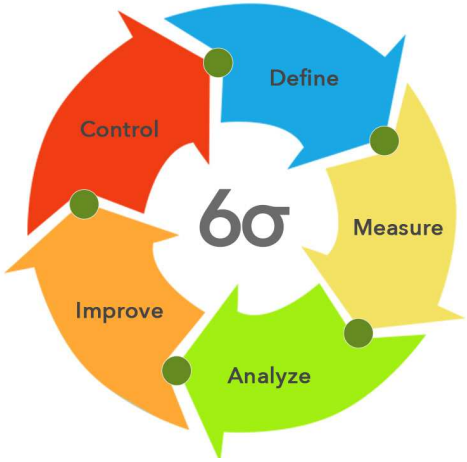
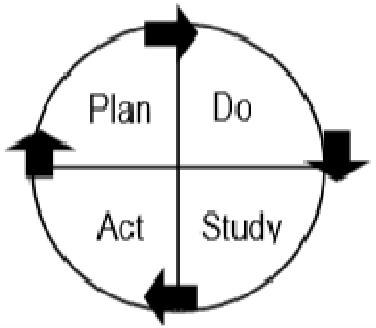
Definition

- QI is the framework to systematically improve care.
- Processes have characteristics that can be measured, analyzed, improved, and controlled.







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How is QI different than research?

	Measurement for Research	Measurement for Learning and Process Improvement
Purpose	To discover new knowledge	To bring new knowledge into daily practice
Tests	One large blind test	Many sequential, observable tests
Biases	Control for as many biases as possible	Stabilize the biases from test to test
Data	Gather as much data as possible, just in case	Gather just enough data to learn and complete another cycle
Duration	Can take long periods of time to obtain results	Small tests of significant changes accelerate the rate of improvement

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Some Challenges for Research

“it takes 17 years, on average,

…for 14 % of research

…to translate into practice”

Evaline A. Alessandrini, MD, MSCE

Balas EA. Pediatr Ann. 1998; 27:581–4.

Courtesy of Jim McCarthy, MD

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Frustrations

- Buy-in from Ancillary services – Nutrition, PT, anesthesia
- Turn Over Time
- Pulmonology Collaboration- PFTs
- Kid with exposed hardware for past 3 weeks
- Lost to follow-up/ not lengthened
- Remembering What I Told Parents About the Plan
- Casting- Reinventing the Wheel Every Time

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Spine Surgeon's Definition

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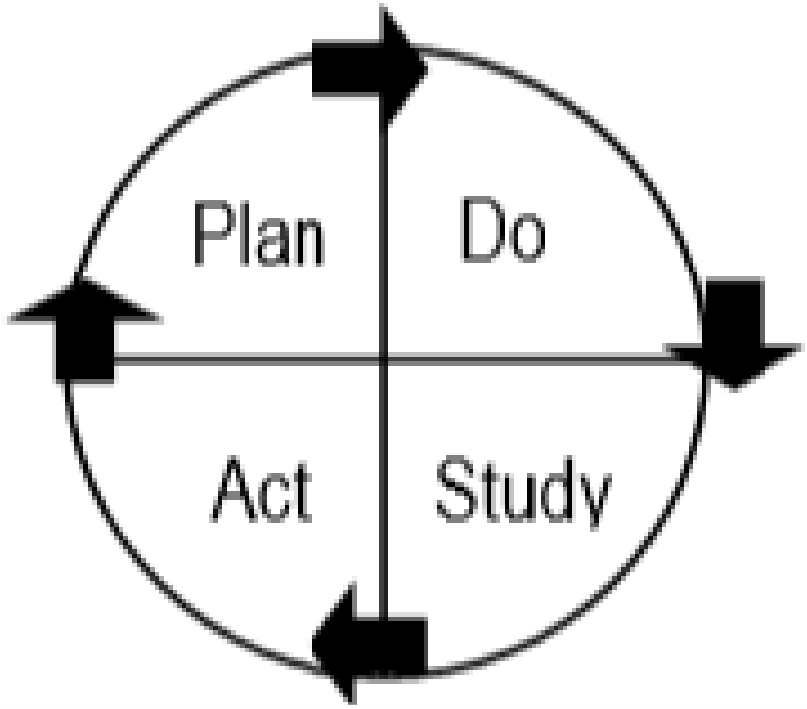
What It looks like

- Usually target one issue
- Can be quantified
- Can be altered
- Has real metrics for change
- Can be tracked longitudinally



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Trust The Process

- **I Decide Which Problem to Fix**
  - Make things better for patients or for me
- **A Squadron of Middle Managers with laptops and Clip Boards**
  - One of them can get you data!
- **Meeting-palooza**

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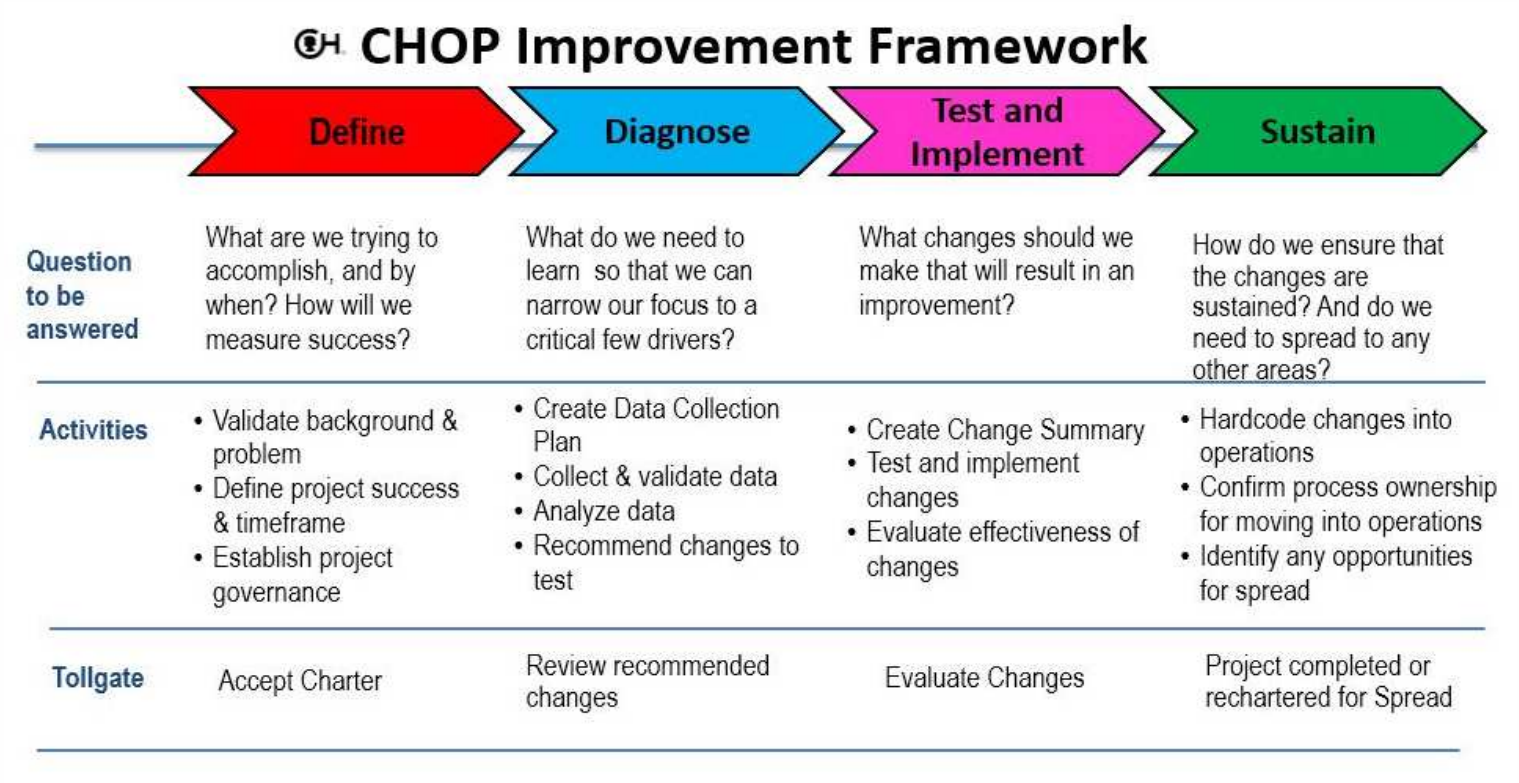
CHOP Improvement Framework



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My Problem – OR Efficiency

- OR won't let me book more than 3 lengthening surgeries in a day

- "Our metrics show that the cases may go longer than you think, Dr. Cahill"

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It's on!

What are we trying to accomplish?	
What is the problem to be addressed?	Patients with Thoracic Insufficiency Syndrome (TIS) have historically been treated with unilateral, or bilateral, VEPTR devices. Patient with TIS can have multiple medical comorbidities, and fall into one of four spinal classification categories: Neuromuscular, Congenital, Syndromic, and Idiopathic. One to three VEPTR Expansions are typically done in an OR day. The In Room to In Room time for sequential VEPTR expansions, as marked in OpTime and recorded in EPIC, can vary widely by spinal classification category, but also varies within each category as well. The goal of this project would be to reduce variability during the periop process for CTIS expansion procedures.
What are the expected outcomes?	• Increase the average number of expansions performed per day to 4 • Reduce variability of procedure scheduling • Standardize Anesthesia protocols • Develop VEPTR surgery classification system

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Team Roles and Goals

Improvement Advisor:

- Project facilitator who coaches the team in effectively using the CHOP Improvement Framework to define and meet project goals

Data Analyst:

- The data analyst partners with the QI team and Improvement Advisor to identify the necessary and available data in order to understand the problem or improvement idea.

A few aims:

- Help organize multidisciplinary QI team
- Assist in scoping project
- Assist in choosing and achieving outcomes
- Set up control process for sustaining improvement

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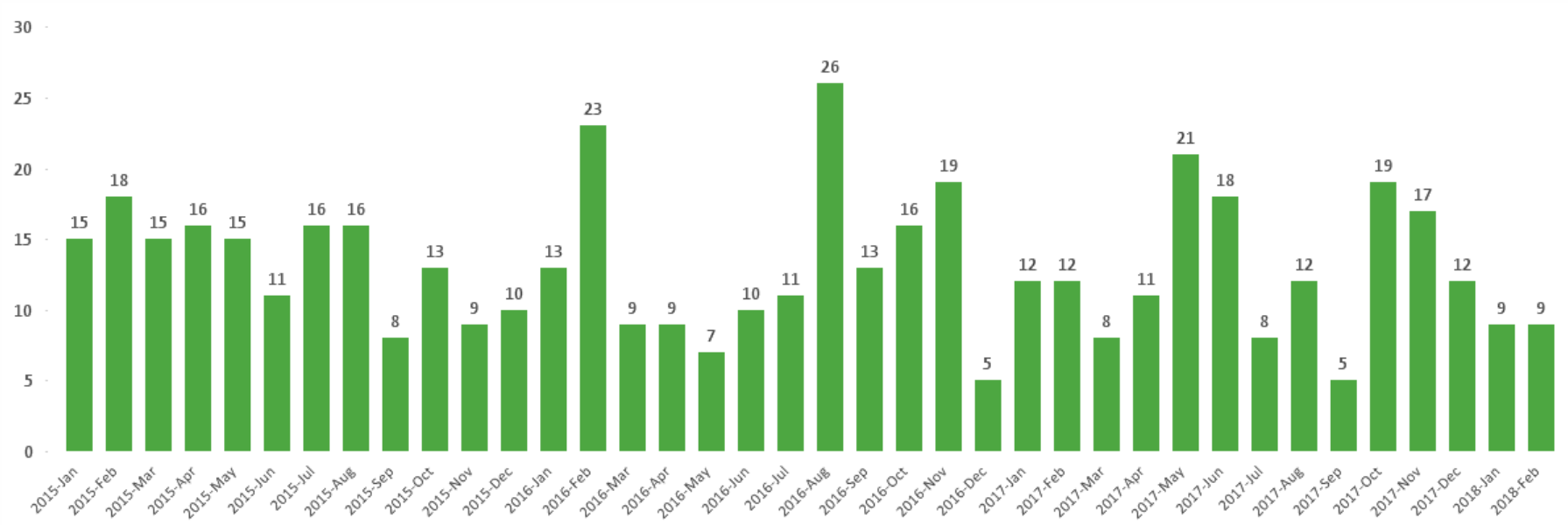
Big Data

- Average about 13 expansion only surgeries a month



Data From Jan 2015 to 2018

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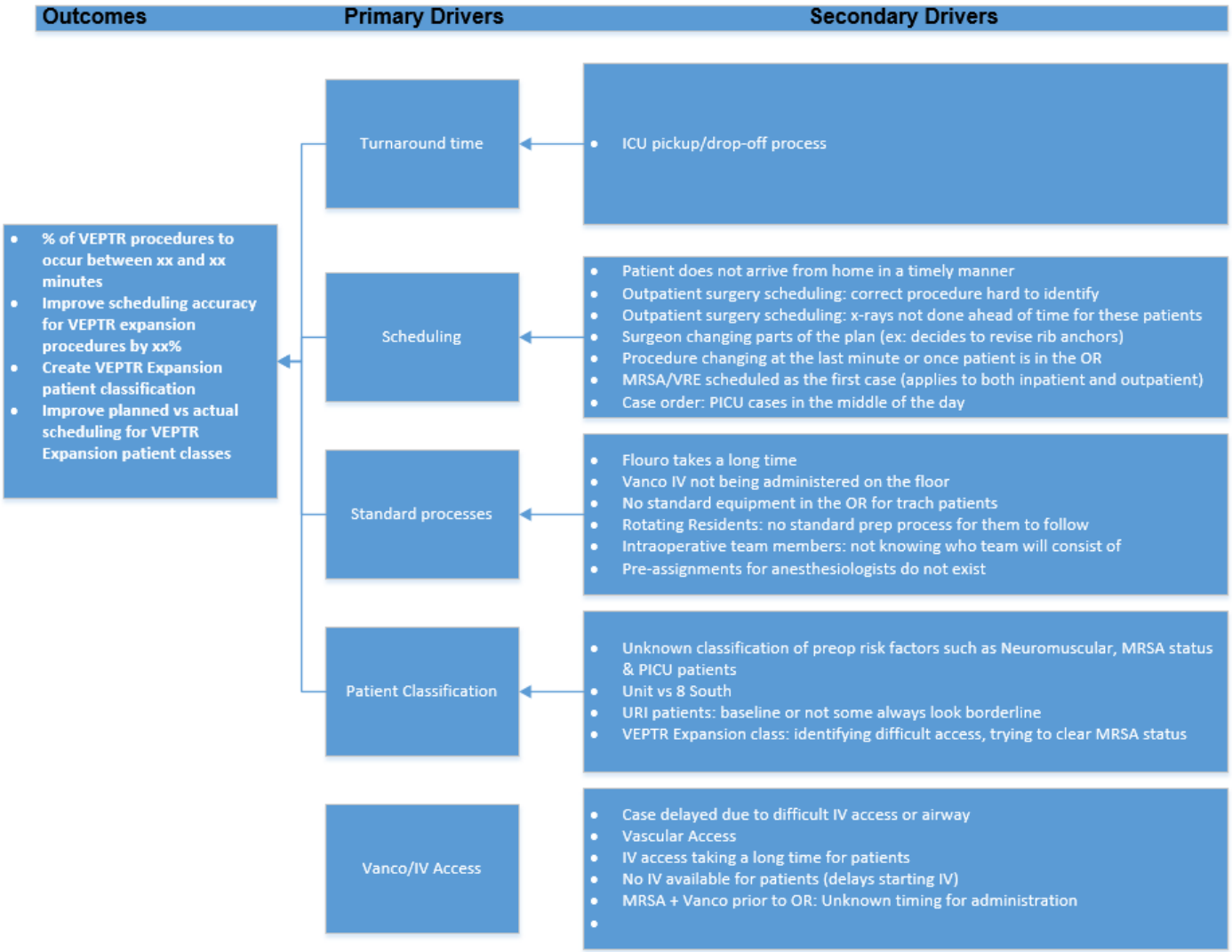
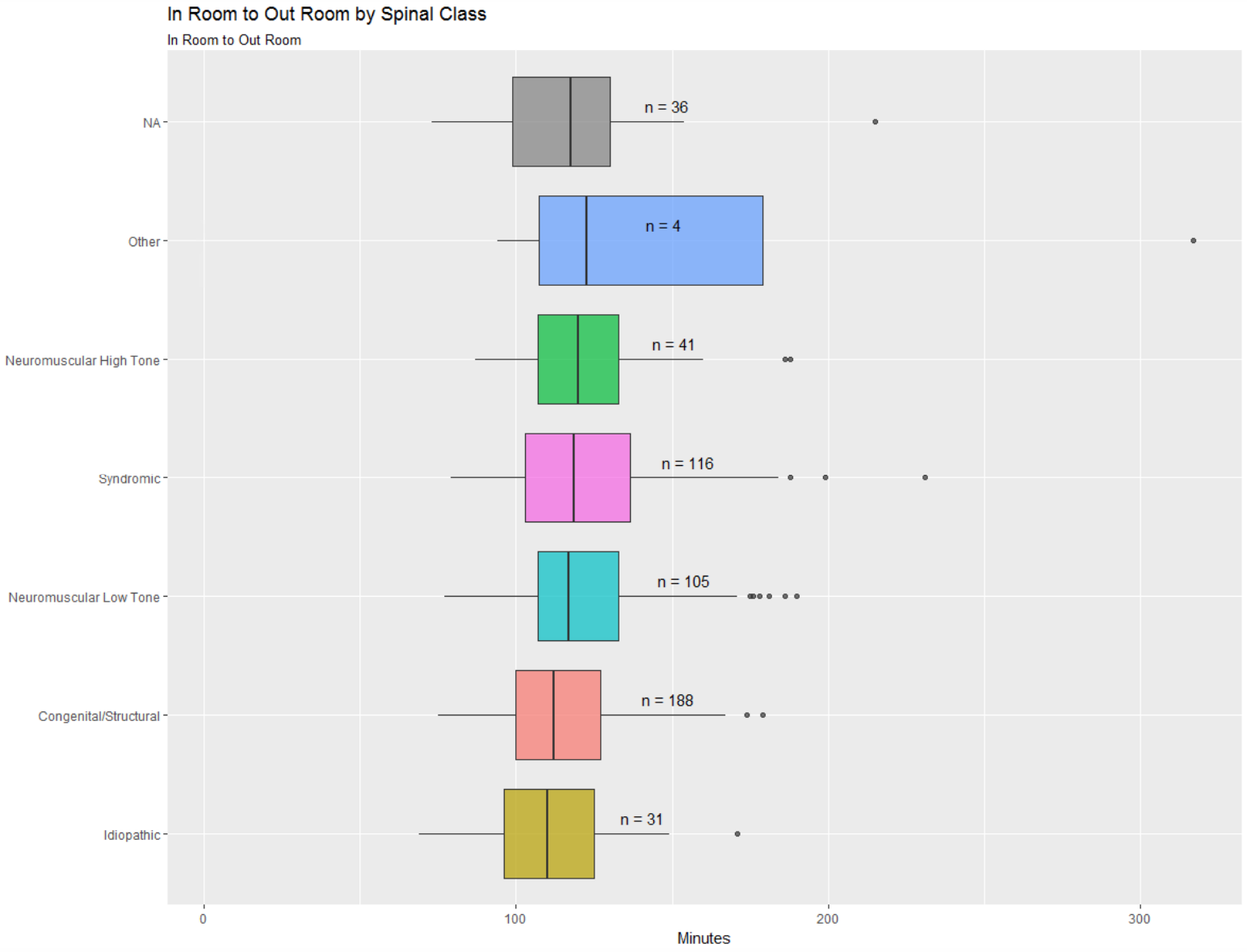

Outcomes
Primary Drivers
Secondary Drivers
% of VEPTR procedures to occur between xx and xx minutes
Improve scheduling accuracy for VEPTR expansion procedures by xx%
Create VEPTR Expansion patient classification
Improve planned vs actual scheduling for VEPTR Expansion patient classes
Turnaround time
ICU pickup/drop-off process
Scheduling
Patient does not arrive from home in a timely manner
Outpatient surgery scheduling: correct procedure hard to identify
Outpatient surgery scheduling: x-rays not done ahead of time for these patients
Surgeon changing parts of the plan (ex: decides to revise rib anchors)
Procedure changing at the last minute or once patient is in the OR
MRSA/VRE scheduled as the first case (applies to both inpatient and outpatient)
Case order: PICU cases in the middle of the day
Standard processes
Flouro takes a long time
Vanco IV not being administered on the floor
No standard equipment in the OR for trach patients
Rotating Residents: no standard prep process for them to follow
Intraoperative team members: not knowing who team will consist of
Pre-assignments for anesthesiologists do not exist
Patient Classification
Unknown classification of preop risk factors such as Neuromuscular, MRSA status & PICU patients
Unit vs 8 South
URI patients: baseline or not some always look borderline
VEPTR Expansion class: identifying difficult access, trying to clear MRSA status
Vanco/IV Access
Case delayed due to difficult IV access or airway
Vascular Access
IV access taking a long time for patients
No IV available for patients (delays starting IV)
MRSA + Vanco prior to OR: Unknown timing for administration



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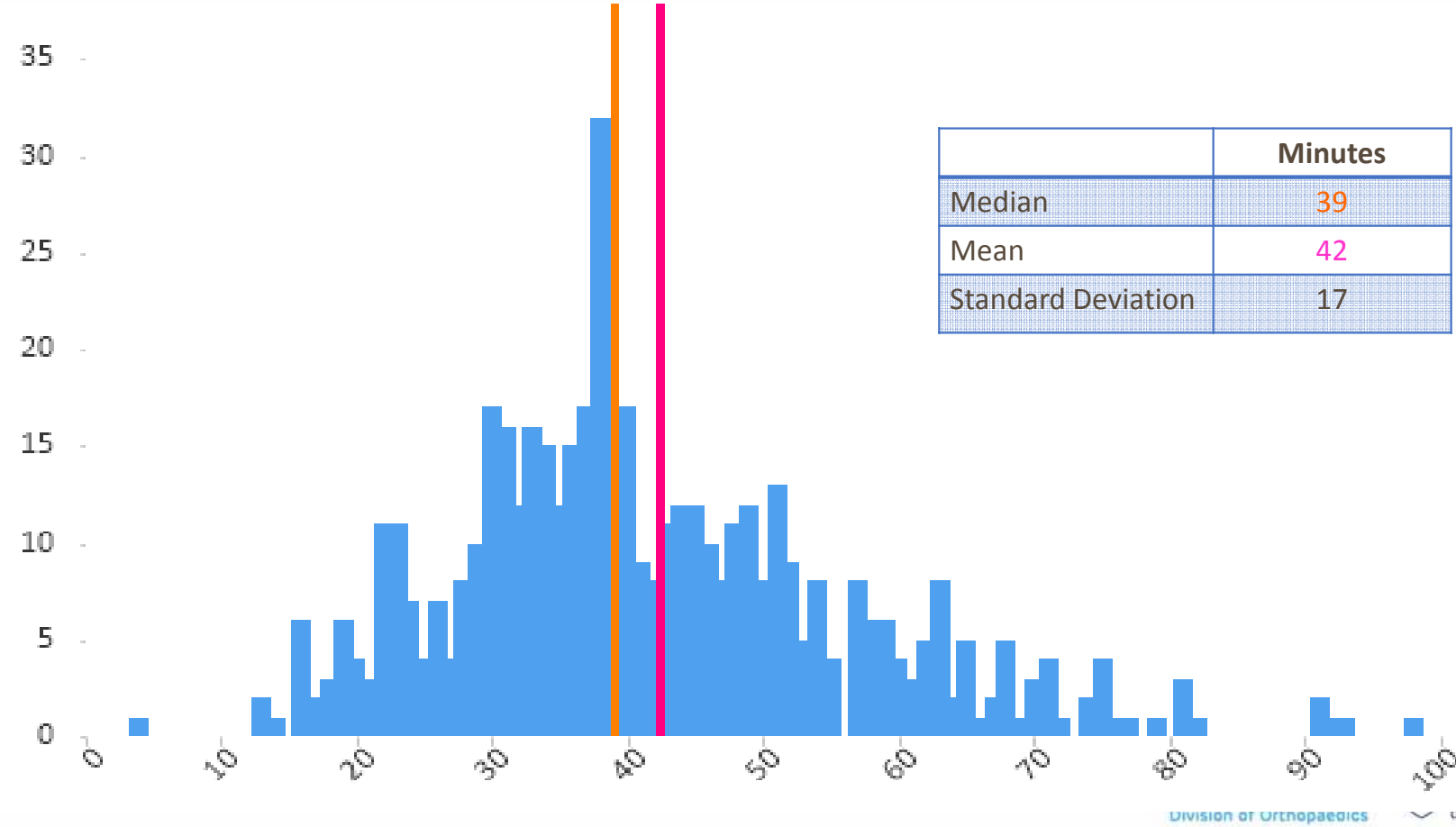
Proc Start to Proc Close



	Minutes
Median	39
Mean	42
Standard Deviation	17

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In Room to Anesthesia Ready

	Minutes
Median	18
Mean	21
Standard Deviation	11

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OR Efficiency Interventions

- **Two distinct VEPTR expansion slots**
  - **syndromic/neuromuscular**
  - **idiopathic/congenital**
- **Anesthesia & Ortho: standardization of processes**
  - Standardized protocols by type of case (syndromic/neuromuscular)
    - Trach vs non trach
    - Setup/positioning
    - For patients admitted same day/patients admitted day before
- **Schedule**
  - Specific VEPTR expansion days
  - IV Vanco scheduled as first or last case
  - Inpatient surgeries scheduled as first case

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Doesn't Have to Be So Formalized

- Desire for Process Improvement
- Implementation of Standardization
- Useful for issues that don't leave Ortho

The Clipboard Team
Not Needed

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Standardized Documentation

- **Decided to streamline the notes among TIS providers**
  - Facilitate modularity among APPs and scribes
  - Ensure good data capture
    - Clinical care/surveillance
    - Research

- **1 QI officer assembled notes**

- **2 meetings with surgeons to decide on parameters to capture**

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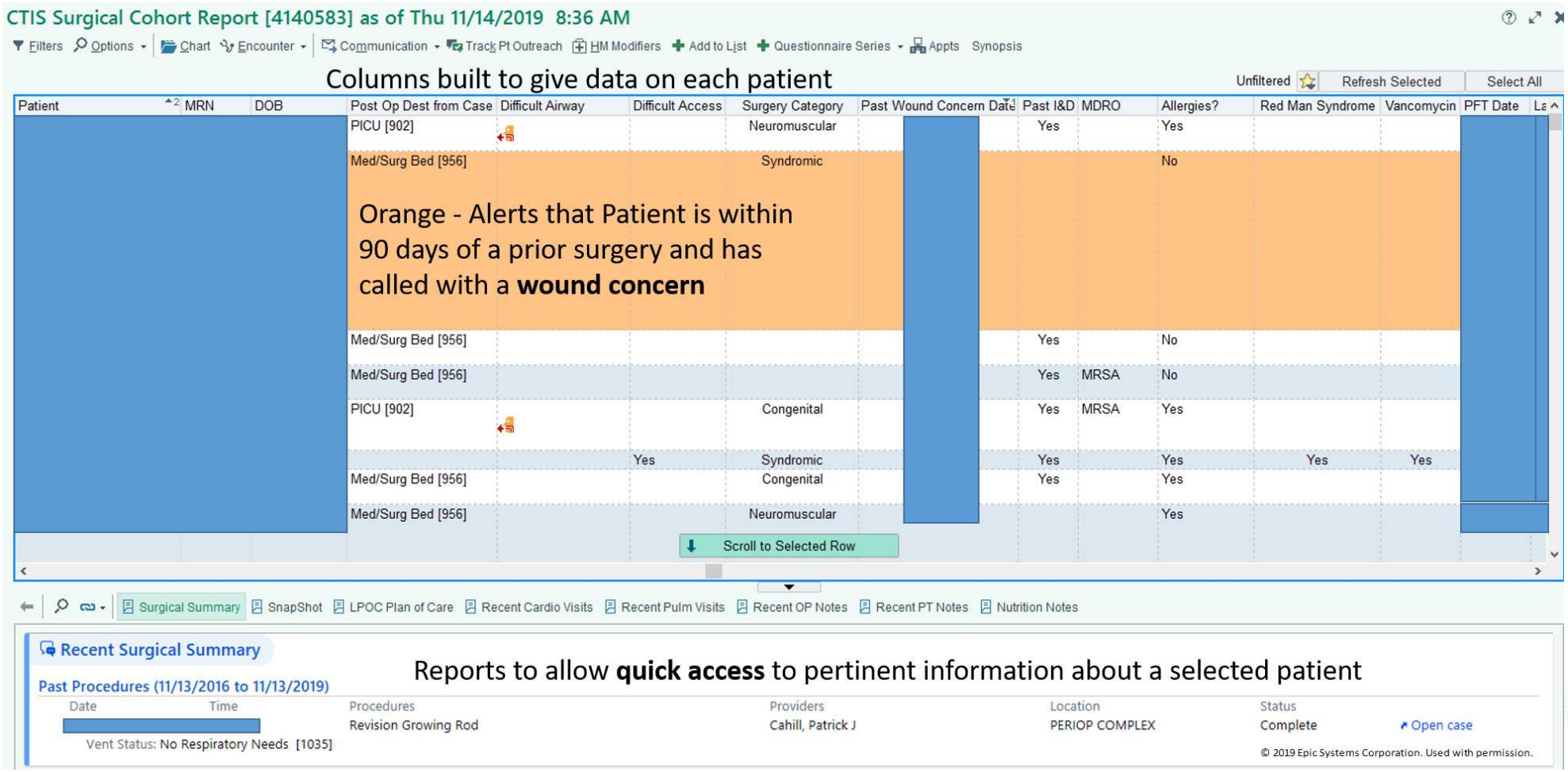
Using the EHR to Improve Care, Monitor, and Manage Patients Before and After Surgery



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Team Communication

CTIS Report – 11/12/2019

Today's Surgeries									
Name:	**MRN:**	**Surgery Date:**	**Surgeon:**	**Surgery:**	**Previous infections/wounds:**	**Comments:**	**Preop Antibiotics:**	**Dispo postop:**	**Neuromonitoring**
[redacted]		11/12/2019	Cahill	**Removal of magec rods, conversion to psf**	**none**		none	4 E/S	yes

Inpatient									
Name:	**MRN:**	**Admission date:**	**Admission reason:**	**Surgeon:**	**Surgery Date:**	**Surgery:**	**Comments:**	**Last seen:**	**Room:**
[redacted]		11/02/2019	wound	Anari	11/08/2019	Left veptr removal, right veptr revision		11/12/2019	7WM61-1
[redacted]		11/11/2019	Post-op	Flynn	11/11/2019	b/l growing rod expansion		11/11/2019	4S14-1

Inpatient CTIS consults							
Name:	**MRN:**	**Date of consult:**	**Reason for admission:**	**Surgeon:**	**Last seen:**	**Plan:**	**Room:**
[redacted]		11/8/2019	omphalocele	cahill		Mri entire spine	7W48-1

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Team Communication

Upcoming surgeries							
Name:	MRN:	Surgery Date:	Surgeon:	Surgery:	Comments:	Last appointment:	Dispo postop:
		11/14/2019	Cahill	Insertion of b/l magec rods with veptr hooks, pelvic attachments		10/30/2019	PICU
		11/14/2019	Cahill	Right pelvic hook revision		09/11/2019	PICU
		11/15/2019	Anari	Bilateral rib to pelvis veptr expansion		11/11/2019	4 E/S

Wound Watch									
Name:	MRN:	Last Surgery:	Date of concern:	Surgeon:	Incision:	Symptoms:	Last photo obtained:	Last contact with family:	Plan:
	55206647	10/1/2019	10/23/2019	Cahill	2a,2b	Right incision still not closed	11/08/2019	11/08/2019	Cover with mepilex, offload, to schedule I and d and closure with plastics

CTIS referrals									
Name:	MRN:	Surgeon:	Diagnosis:	Location:	Age:	Respiratory status:	Admission date:	Surgery date:	Plan:

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Wound Surveillance Project: Goals

- Consistent way of communicating a VEPTR patient's incision sites across the organization

- Standardize documentation using a CTIS **Incision Site Schematic** for all skin & wound issues possibly related to a VEPTR procedure

- Improve **Parental Involvement** in Post-op Care

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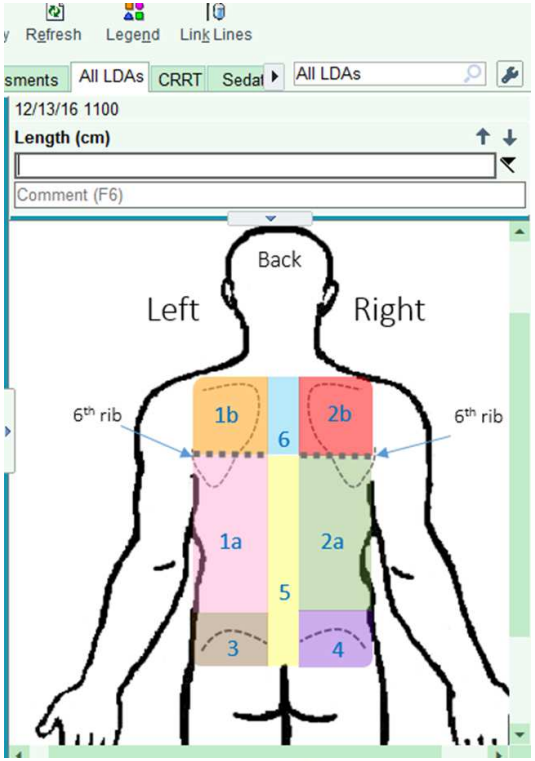
VETPR LDA created in flowsheet

VEPTR Incision 12/13/16 1106 1a Back VEPTR		
VEPTR Incision Properties	Date First Assessed/Time First Assessed: 12/13/16	
Length (cm)		
Width (cm)		
Depth (cm)		
Wound Bed Assessment		
Site Assessment		
Incisional Care		
Packing		
Site Closure		
Dressing		
Dressing Changed		
Dressing Status		
Drainage Amount		
Cumulative Volume (mL)		
Drainage Amount (mL)		
Drainage Description		
Peri-wound Assessment		



Properties of surgical wound remain unchanged. Once the LDA is created, the nurse will have the ISS to the right of flowsheet for reference. (Can hide if they choose).

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VEPTR post-op PFE

Patient Family Education: VEPTR Care Post Surgery

Type of Surgery:

VEPTR Expansion VEPTR Revision VEPTR Insertion VEPTR Irrigation/ Debridement

When can I remove my child's dressing?

Your child will have 2 "dressings":

(1) Primary dressing: This is the dressing that is closest to the skin and directly over the surgical incision (s). This will usually be steri-strips (small clear-whitish band aids) or Prineo (long strip of mesh). These dressings will fall off on their own, usually in about 7-10 days after your child's surgery. If they have not fallen off by 2 weeks, it is ok to gently remove them.
(2) Secondary dressing: This is the cover dressing that sits over top of the primary dressing. This is often Mepilex Ag Border. This should be removed 7 days after your child's surgery.
(3) Children who are incontinent or wear diapers on a routine basis, should keep the lower back incisions covered until full healing has occurred. These dressings should be changed every 3 days and right away if the dressing becomes soiled or dirty.

REMOVE your child's Secondary or Cover dressing on: Date: _____

(4) Some children will go home with a Silver or While tank top. Change your child's tank top daily with a washed clean T-shirt

How to Care for the Spine Dressing:

(1) Always wash your hands before touching the incision(s)
(2) Gently remove the dressings.
(3) Always wash your hands after touching the incision(s)
(4) If applicable, re-apply new dressing.

It is not necessary to replace this dressing unless your child's incision is oozing or draining. If this is the case, you should replace this cover dressing with a clean dressing and contact our office for further directions

When can my child shower or take a bath?

Once the cover dressing is removed 7 days after your child's surgery, your child can shower with the water facing the front of their body. Soapy water can run over the incisions; gently pat dry after your child gets out of the shower. Do not submerge or soak the incision until 4 weeks after your child's surgery.

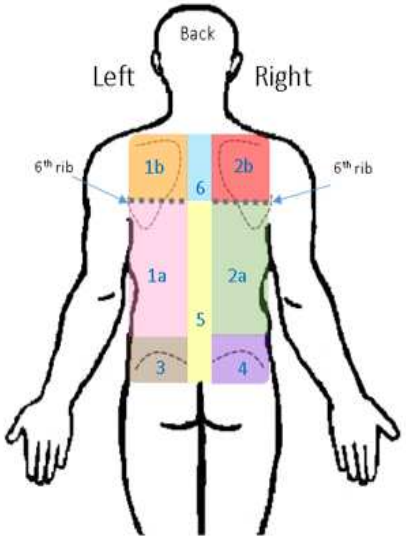
How do I care for my child's incision?

(1) Check the incisions daily. Once the original bandages are removed, look at the incisions daily. Call us for any of the following:

- An open wound
- Incision that is warm or hot to touch
- Drainage: foul-smelling, milky white, yellow, grey, green or brown in color
- Increased pain
- Swelling/hardening of the incision
- Redness or red streaks
- Fever greater than 101.3 F
- Energy: your child is sleeping more or less than usual, not feeling better each day

(2) Keep your child's bed linens clean. Wash linens often in HOT Water for the first 2 weeks.

Incision Site Schematic (ISS)



Date of Surgery: _____

Type of surgery:

- o VEPTR Expansion
- o VEPTR Revision
- o VEPTR Insertion
- o VEPTR Irrigation/Debridement

YOUR CHILD HAS THE FOLLOWING INCISIONS:

- o 1b-Orange
- o 2b-Red
- o 1a-Pink
- o 2a-Green
- o 3-Brown
- o 4-Purple
- o 5-Yellow
- o 6-Blue

If you have questions or concerns about your child's spinal incision (s) please call:

CTIS cell phone: 215-410-2086 (Monday through Friday 8am – 5pm)
215-590-1000 (Evenings, nights and weekends)

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Standardizing VEPTR Incision Site Documentation

Project Dates: October 2016- March 2017

Leads: Robert Campbell, MD and Diane Hartman, RN
IA/DA Team: Eileen Ware and Caroline Burlingame

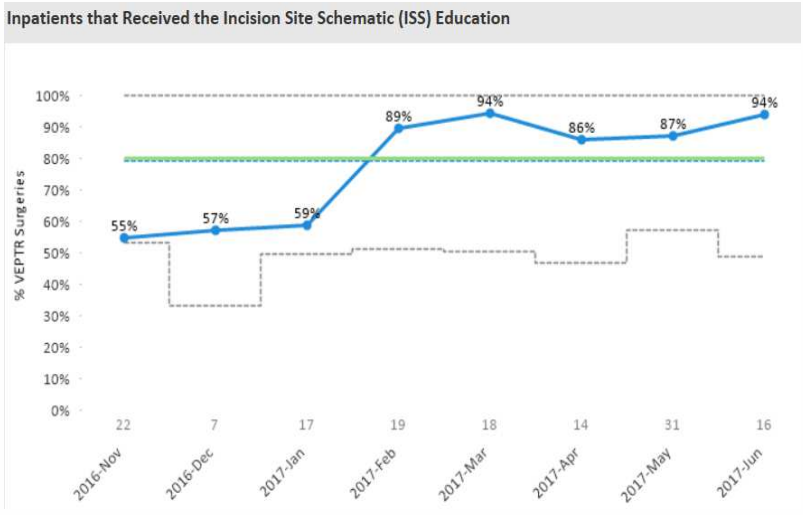
Aims: #1: *80% of VEPTR patient and caregivers will be educated by the Ortho NP team using the new PFE document inclusive of the Incision Site Schematic by February, 2017*

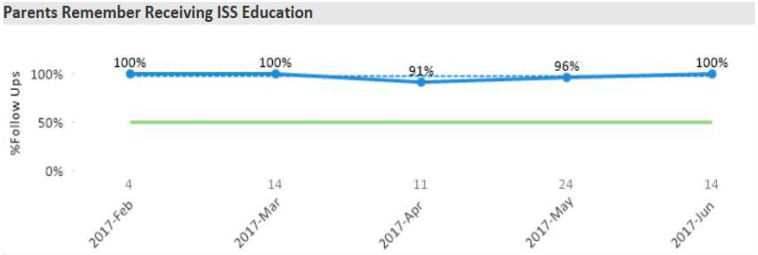
#2: *50% of VEPTR patients and families will recall PFE education and utilize the Incision Site Schematic (ISS) for concerns regarding wounds*

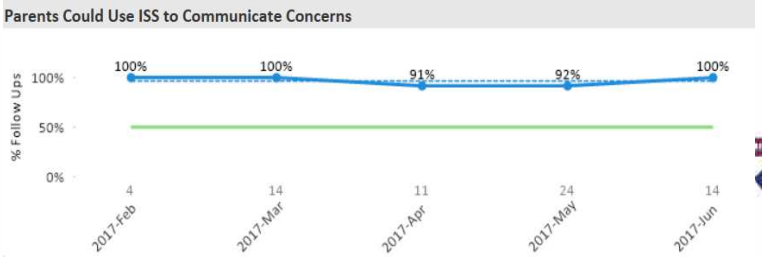
Was project aim achieved? Yes

Key Lesson Learned: Investing in the data infrastructure will give the team longevity;
Approval processes to create new tools can take some time (PFE, new VEPTR specific wound LDA)

Data:







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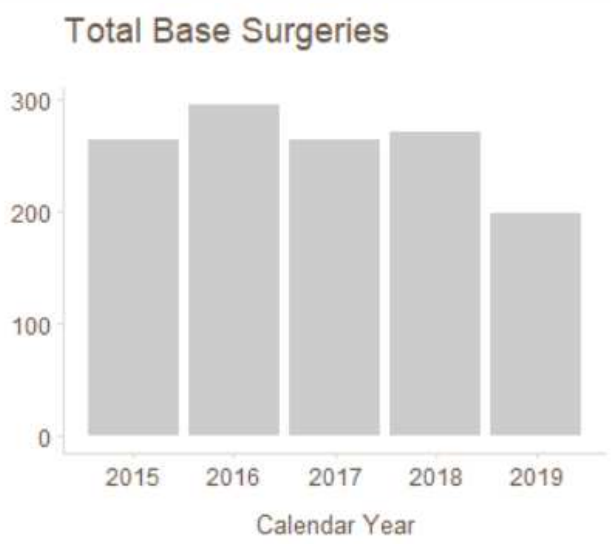
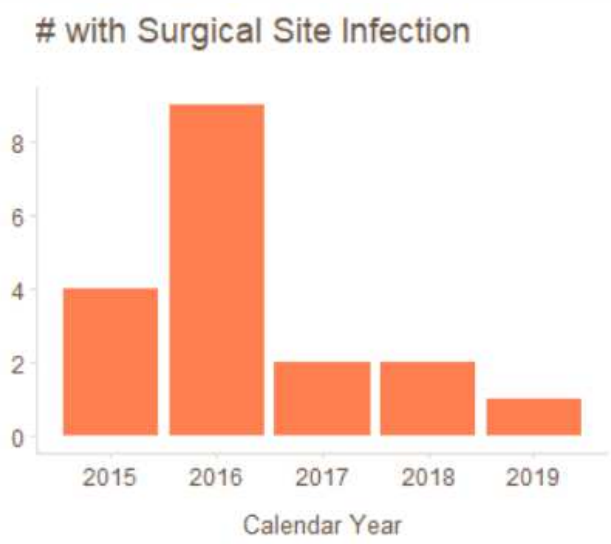
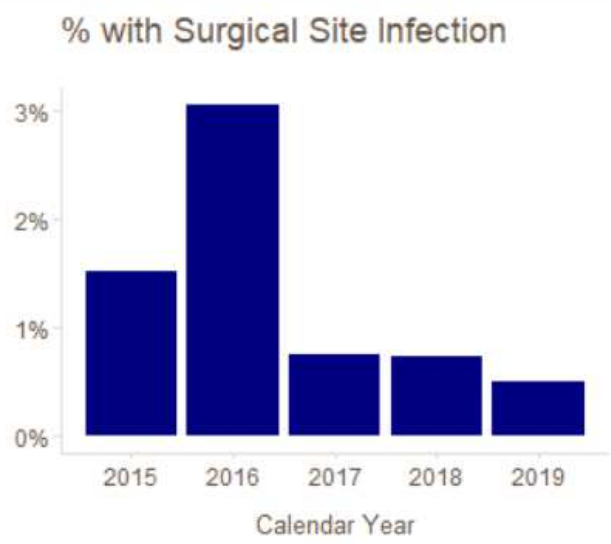
Surgical Site Infection Rates Went Down After QI Intervention (Q4 2016 project initiation)







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