Pediatric Surgery Quality Collaborative

July 18th 2022

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Children's Memorial Hermann Hospital


GETTING OLDER IS
JUST ONE BODY PART
AFTER ANOTHER
SAYING, 'HA HA, YOU
THINK THAT'S BAD?
WATCH THIS.'


TOM'S SHELL
Self Serve
Cash or Credit
Regular
ARM 9
Plus
LEG 9
Premium
First 9 Born

Gas Prices

Thanks to Lurie Children's

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Agenda

- **State of the Collaborative**
- **Retreat summary**
- **Current status with the ACS**
- **Implementing Texting as Part of Your 30-day Follow-up Strategy**
  - Ms. Lori Montgomery, Cook Children's
  - Ms. Susan Quigley, Boston Children's
- **Project 2 –**
  - Derek Wakeman/**Tamar Levene**
- **Data Download Automation in NSQIP**
  - Mr. Steve Merzlak, IQVIA
- **Project 3 –** Shawn Rangel - Awaiting data
- **Projects 4 –**
  - Antibiotics and Complex Appendicitis – **Eric Grethel**/Monica Lopez
  - Opioid Stewardship – **Steve Shew**
  - Colorectal SSI - TBD

PSQC Overview

The PSQC is a partnership of Children's hospitals and the American College of Surgeons who share the mission of delivering high quality, cost effective, patient-centered surgical care.

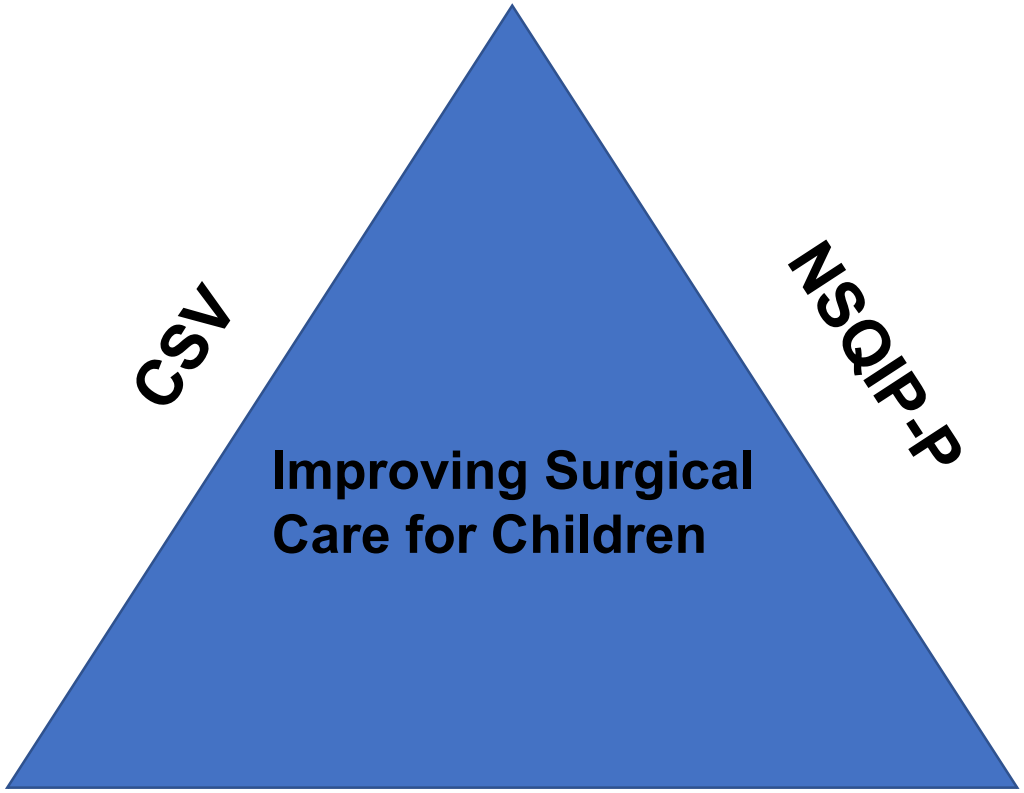
PSQC Overview

- Collaborative of NSQIP-P hospitals
- 85 Members with signed DUA
- All but one of the CSV Level 1 hospitals
- National in scope by design

PSQC Member Hospitals

July 2022

The Triad of Surgical Quality Improvement



Planning Retreat – September 2021


PLANNING
Much Work Remains to be Done before We Can Announce
Our Total Failure to Make Any Progress.

Planning Retreat – September 2021

Nobody got Covid (from that meeting)

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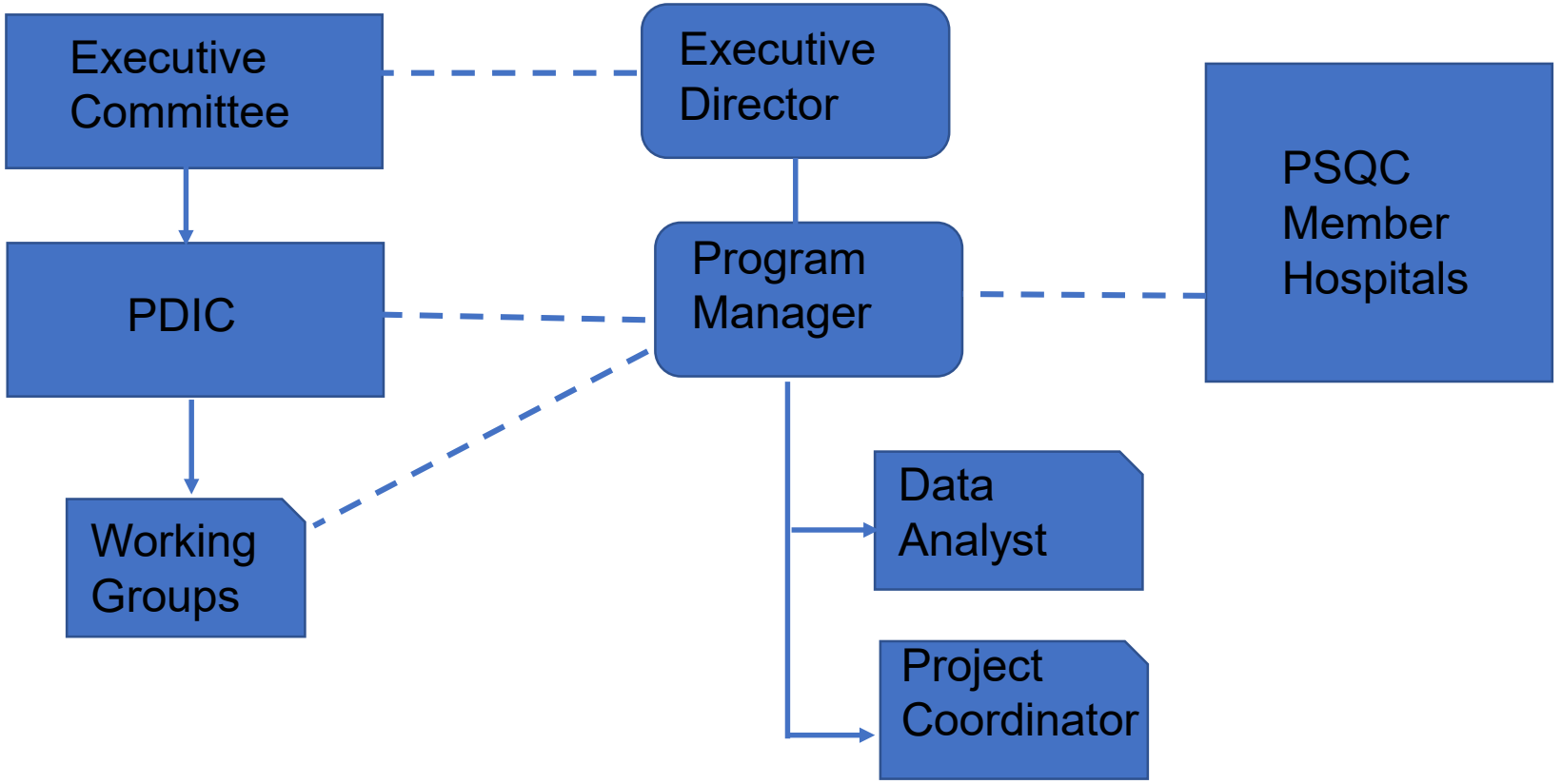
Planning Retreat – September 2021

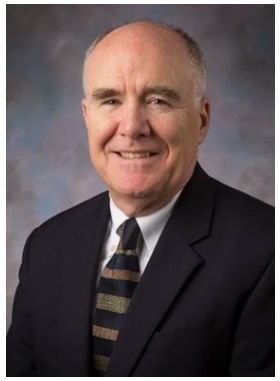
- **Structure**

PSQC Structure



Executive Committee

Specific Alignment with Organizations













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Planning Retreat – September 2021

- Structure
- **Future projects**

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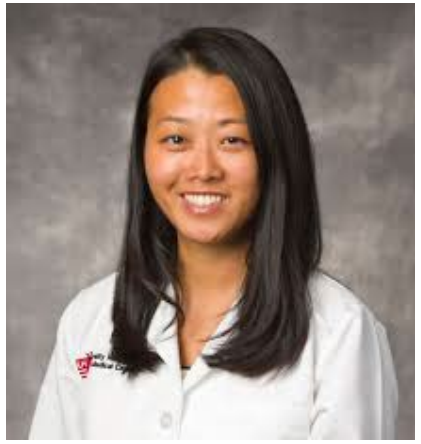
Project Development and Implementation Committee (PDIC)

Dr. Mehul Raval, MD, MS, FAAP, FACS
Anne and Robert H. Lurie Children's Hospital

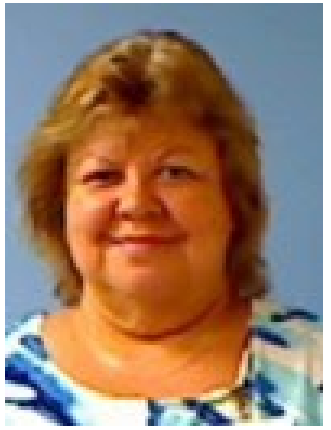
PDIC









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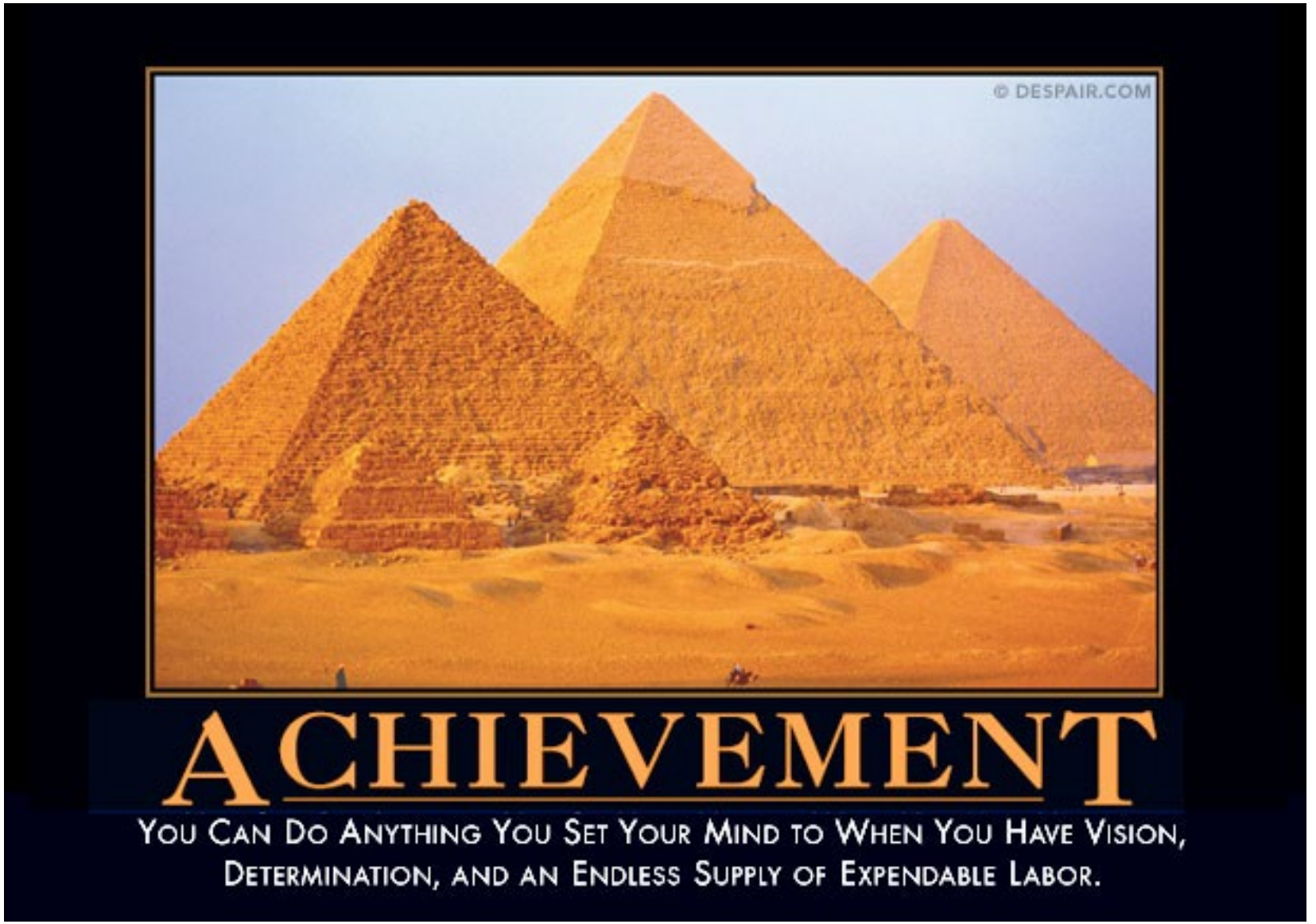
Working Groups (Can expand)

- Project # 1 – Mehul Raval
- Project # 2 – Derek Wakeman/Tamar Levene
- Project # 3 – Shawn Rangel
- Project(s) # 4 – Just Starting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ACHIEVEMENT
YOU CAN DO ANYTHING YOU SET YOUR MIND TO WHEN YOU HAVE VISION, DETERMINATION, AND AN ENDLESS SUPPLY OF EXPENDABLE LABOR.

Planning Retreat – September 2021

- Structure
- Future projects
- **Monthly SCR forum/Webinar**

Planning Retreat – September 2021

- Structure
- Future projects
- Monthly SCR forum/Webinar
- **Matchmaker**

Call for all Problems

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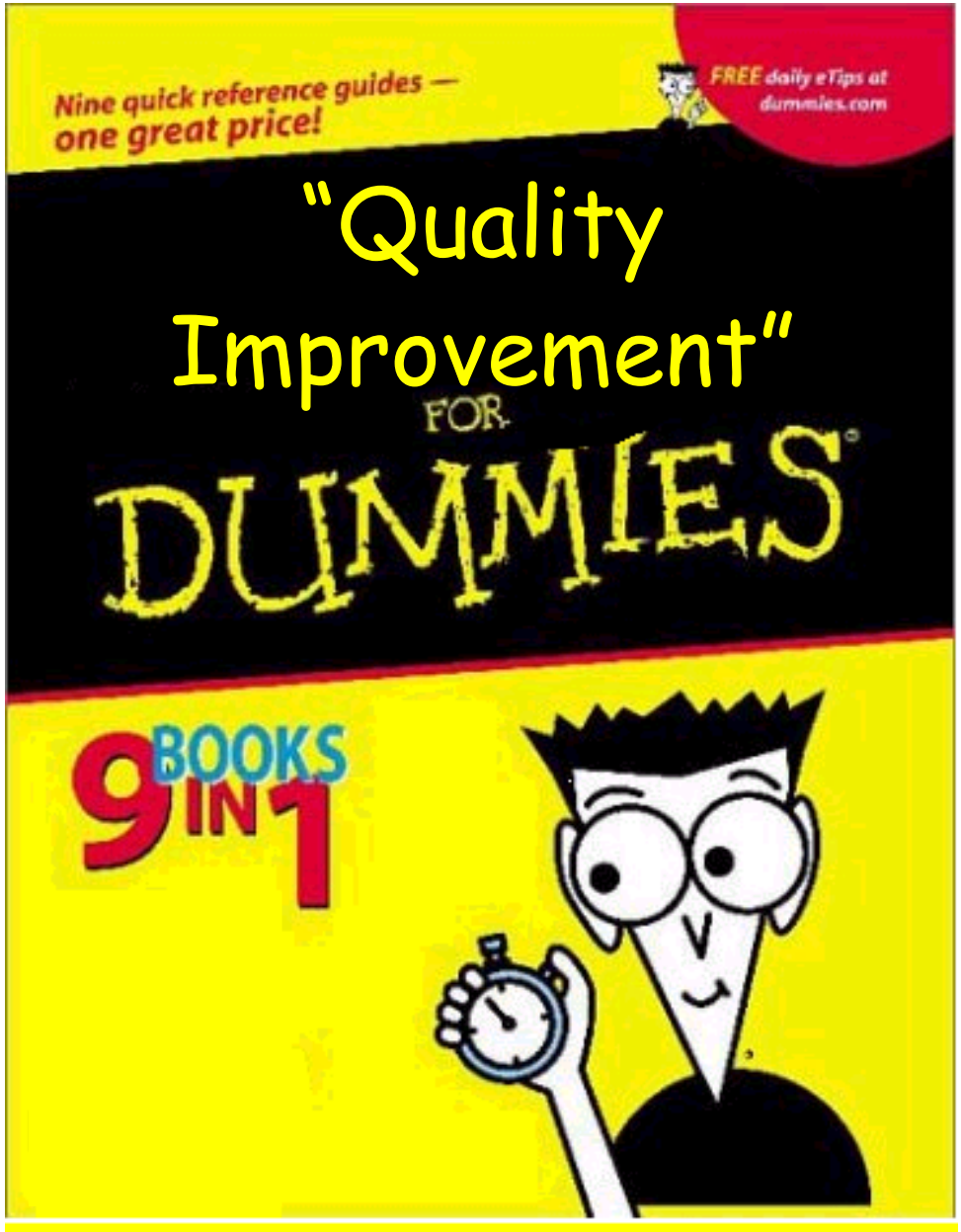
PS
QC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"Quality Improvement"
FOR
DUMMIES
9 BOOKS IN 1

IMPLEMENTING TEXT MESSAGING FOR 30 DAY FOLLOW UP

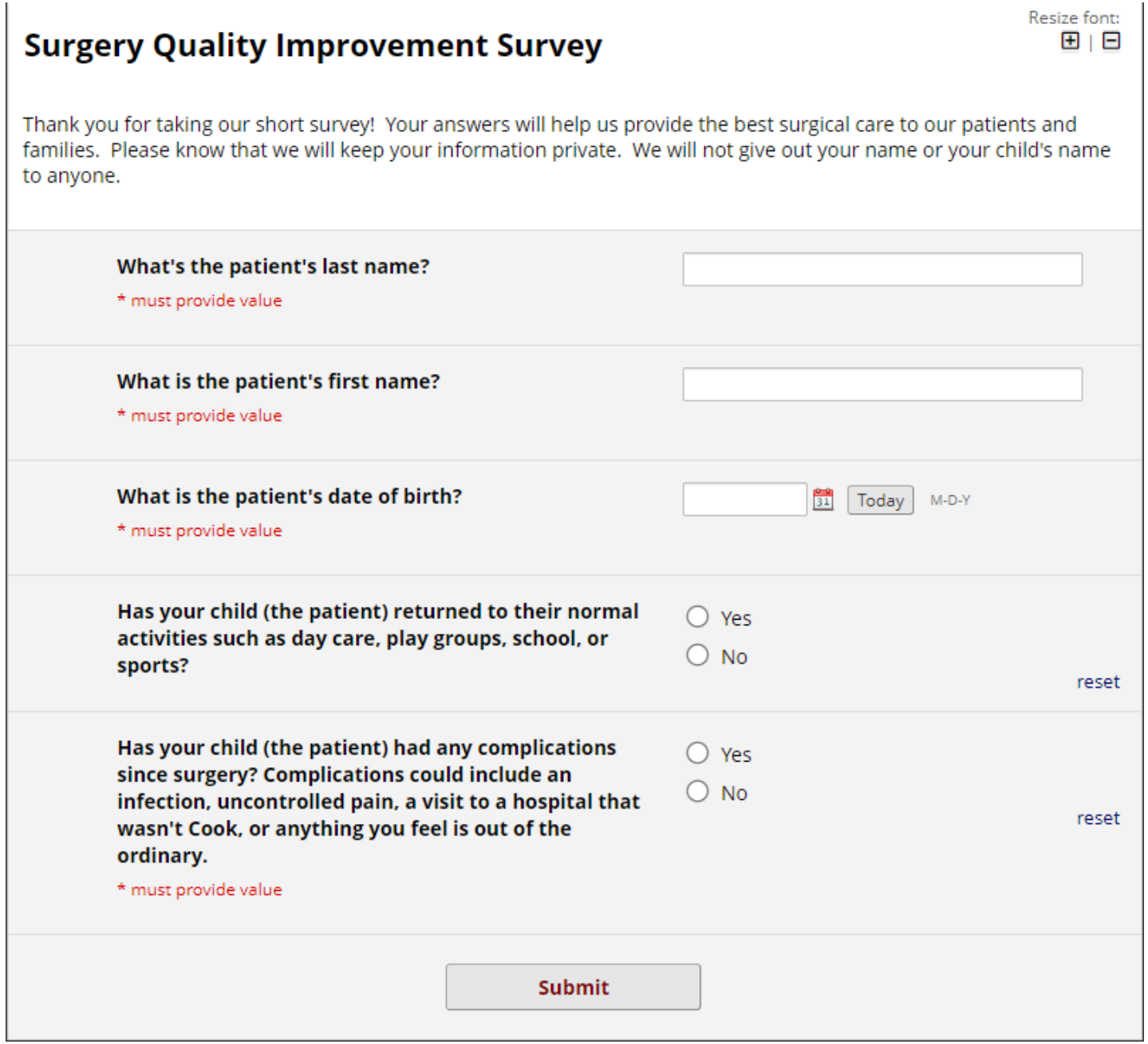
Lori Montgomery, BSN, RN

Cook Children's Medical Center

Fort Worth, Texas

PROCESS

- Generate call list from NSQIP database
- Specific format for excel file
- Uploaded to Surgery Survey folder
- Text sent out by PatientEXP
- Results sent back via email from REDCap



Surgery Quality Improvement Survey

Resize font:

Thank you for taking our short survey! Your answers will help us provide the best surgical care to our patients and families. Please know that we will keep your information private. We will not give out your name or your child's name to anyone.

What's the patient's last name?
* must provide value

What is the patient's first name?
* must provide value

What is the patient's date of birth?
* must provide value

Today M-D-Y

Has your child (the patient) returned to their normal activities such as day care, play groups, school, or sports?

Yes
No
reset

Has your child (the patient) had any complications since surgery? Complications could include an infection, uncontrolled pain, a visit to a hospital that wasn't Cook, or anything you feel is out of the ordinary.
* must provide value

Yes
No
reset

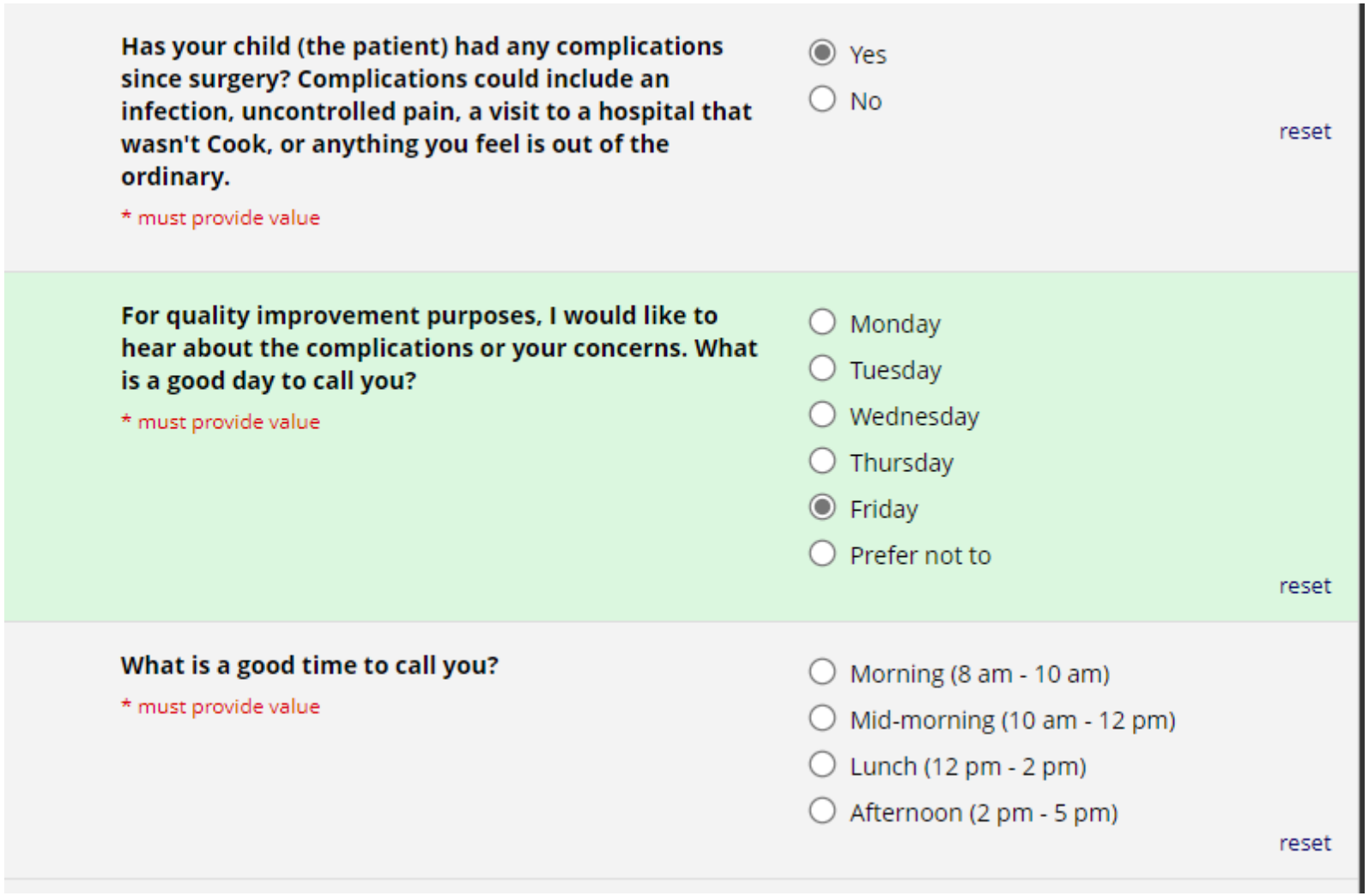
Submit

SURVEY

Parents receive link to REDCap survey via text

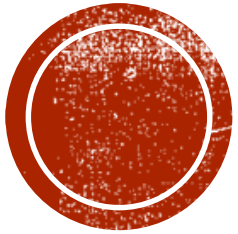
Simple message -Hi, this is Lori from the Quality Department at Cook Children's Medical Center. I am following up to see how your child is doing since the recent surgery. Please click the link to complete a short survey

Worked with legal to ensure HIPPA compliant



SURVEY

If yes is selected for complication further information is requested for date and time I can call for further information



QUESTIONS

Texting as a Tool for 30-Day Follow-up

The use of texting and email for 30-day follow-up for improved efficiency and response

Susan Quigley RN, BSN, Senior Surgical Clinical Reviewer

Boston Children's Hospital

Boston Children's Hospital

Where the world comes for answers

Contact Information

Please feel free to contact me at the following:

Susan.Quigley@childrens.Harvard.edu

Thank you!

I have no conflicts of interest or financial disclosures.

Where the world comes for answers

To my colleagues at Boston Children's Hospital:
Kerry McCaffrey, RN
Crystal Stroh, RN
Kristina Taylor, RN
Elisia Willette, RN
Dr. Shawn Rangel
Mariam Irshad and her IT team
and
The team from Phillips/Medumo:
Corey Dolan
Megan Kim
And the whole support team

Boston Children's Hospital

Where the world comes for answers

How did we get here?

- Poor response to letters
- Phone calls to parents not often answered; messages not returned
- Time consuming to keep calling; inefficient; increased stress due to effort expended on this part of abstraction
- **Led to </= 80% follow-up rate !!!!**

What were our options?

- Phone used for only that purpose – idea declined by hospital
- Boston Children's Portal – concern for not reaching every family
- EMR – nothing available for us from our current EMR
- Straight email – not allowed by hospital due to HIPAA
- After informal survey of SCRs, TEXTING –Yes!!
  - Thank you to all who responded to that survey
  - Many different options
  - So from here, we needed to find the right one for us

Where to begin??

At the start line, of course!

- Others in-house who used texting
- Any and all contacts within the hospital

Getting to the finish line!

Found a group within the hospital that worked with new IT projects

- Already had contract with Phillips/Medumo with other projects
- Facilitated contact, and remained for the duration of the texting platform creation with Phillips/Medumo
- Procured funding via grant as cost was $15,000 per year

Contract created

Legal reviewed and accepted – security approved already

Company built texting message based on our requirements

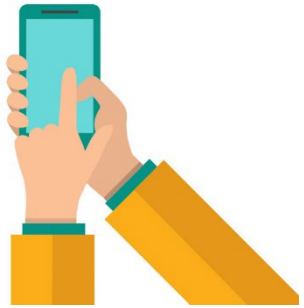
Many revisions to get it right

Tested using staff as "patient"

What message is being sent?

Text sent:

1. Who we are and why we are sending a text/email / NOT CLINICAL
2. Acknowledges that "your child" had surgery
3. Have there been any complications since your child has been in contact with BCH? Yes or No



Parent response:

1. Yes or No
2. Unsubscribe me
3. No response at all

If yes, send a text that says "we will call you".

If no, send a text that says "thank you for helping us".

If no response first time, send another the following week.

What's the Process?

Sending to Medumo

- After a cycle is complete, a report is created in REDCap* for those patients we want to have a text/email sent
- Every Wednesday AM we send that report to Medumo – takes about 5 minutes to set up and send

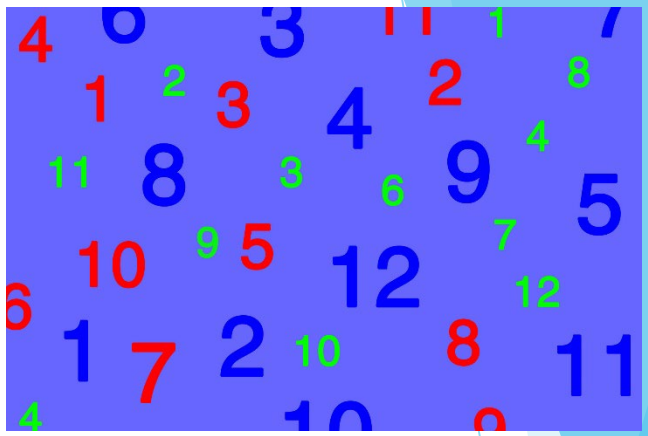
*REDCap is a database we use to communicate about cycle completion, occurrences, follow-up

Receiving from Medumo

- Every Friday AM we receive back a report that shows patient response
- All patients that don't respond the first week get sent a repeat text the next week again
- We document in the workstation all the responses or "no response"
- The time it takes varies depending on number we have sent out but average time for 6-8 patients is usually 30 minutes

Some number crunching……

-over the past year



*Out of 616 enrolled patients in the texting program
- 415 responded
  -400 responded that there was no post-op complication
  -15 responded that there was and when called back, none were classified as an occurrence by NSQIP standards

*Since we started the program in December 2020, the % follow-up has gone from barely squeaking by at 80% to consistently staying at 87- 88%

*Since starting the program, our time doing follow-up has gone from minimum 2-3 hours of follow-up to less than 1 hour doing follow-up

Issues

Not many!!!

- Building, legal, testing – takes time!

But since……

- Rare glitch technically
- Great support from the team; prompt response
- If non-English speaking person responds yes, how do we handle?
- Year change

Well, did it make a difference???

Things are changing all the time!

Many new opportunities for texting, you just have to look within your institution!!

Reducing postoperative CT imaging utilization in pediatric appendicitis

Tamar Levene, MD

Derek Wakeman, MD

July 18, 2022

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Workgroup Members

Mary Bolhuis, RN	SCR, Children's Wisconsin
John Chandler, MD	Surgeon, PrismaHealth
Cathy Ehster, RN	SCR, Children's Wisconsin
Cindy Gingalewski, MD	Surgeon, Randall Children's
Fabienne Gray, MD	Surgeon, New Orleans Children's
Peter Juviler, MD	PGY3, Golisano Children's
Tamar Levene, MD	Co-Lead, Surgeon, DiMaggio Children's
Derek Wakeman, MD	Co-Lead, Surgeon, Golisano Children's

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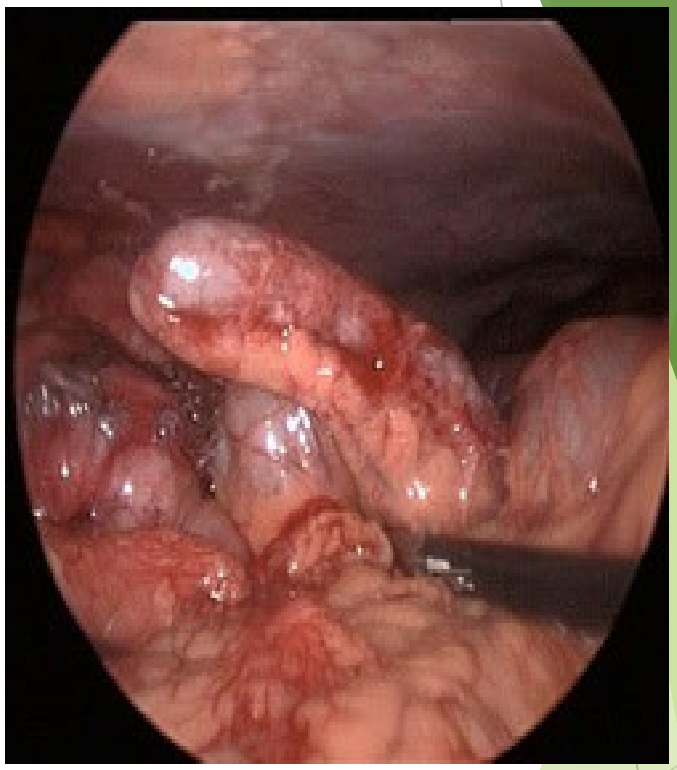
Rationale

- Appendicitis is a common surgical emergency
- Significant practice variability
- Computed tomography imaging frequently used
- Increased risk of radiation-associated malignancies
  - Hematologic malignancy risk highest in 0-15 yo



NEJM 2007;357(22):2277--8
Lancet 2012;380(9840):499–505
JAMA Surgery 2021;156(4):343--51

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Reduction of CT utilization for Pre-op Imaging of Pediatric Appendicitis

Implementation Guide

Aim Statement

By June 30, 2022, the aggregate CT utilization rate for the Collaborative will be reduced from 24.5% to 15%.

Balancing Measure

The negative appendectomy rate for the Collaborative will remain at or below 1.75%.

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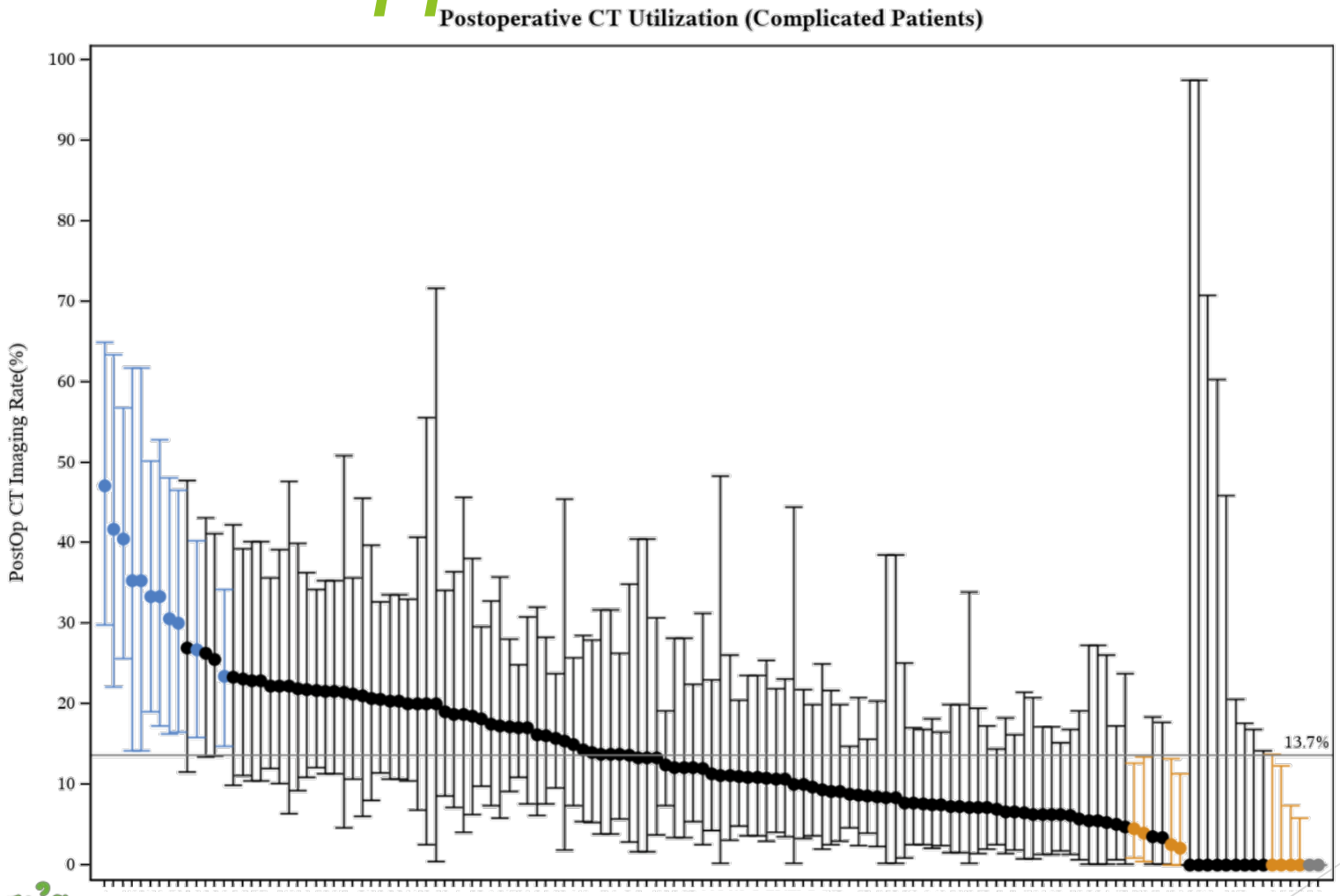
Variation in CT Utilization
Complicated Appendicitis



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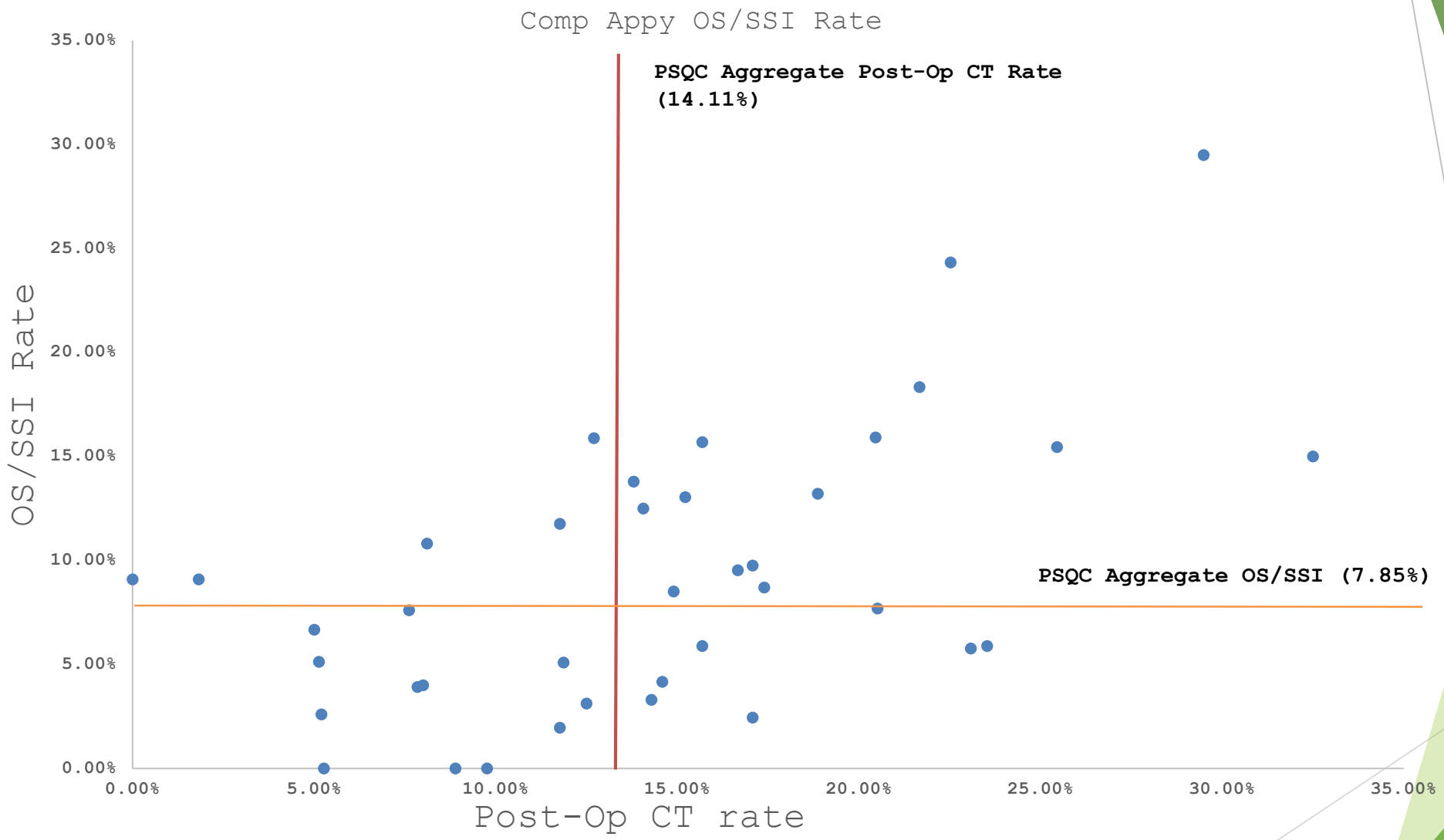
Postoperative Imaging Utilization

- Clinical Pathways
- Infection Rates
- Institutional US availability/quality
- Institutional MRI availability/quality
- Postop imaging selection criteria

OS/SSI Rate vs. Postop CT Rate



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Project 2 Methodology

- Qualitative methods
  - Semi-structured interviews
  - Low and high outlier performance vs. all centers
  - Shared learning
    - Best practices, culture change, sustainability of implementation strategies
- Postop imaging utilization scorecards
- Implementation of specific QI initiatives

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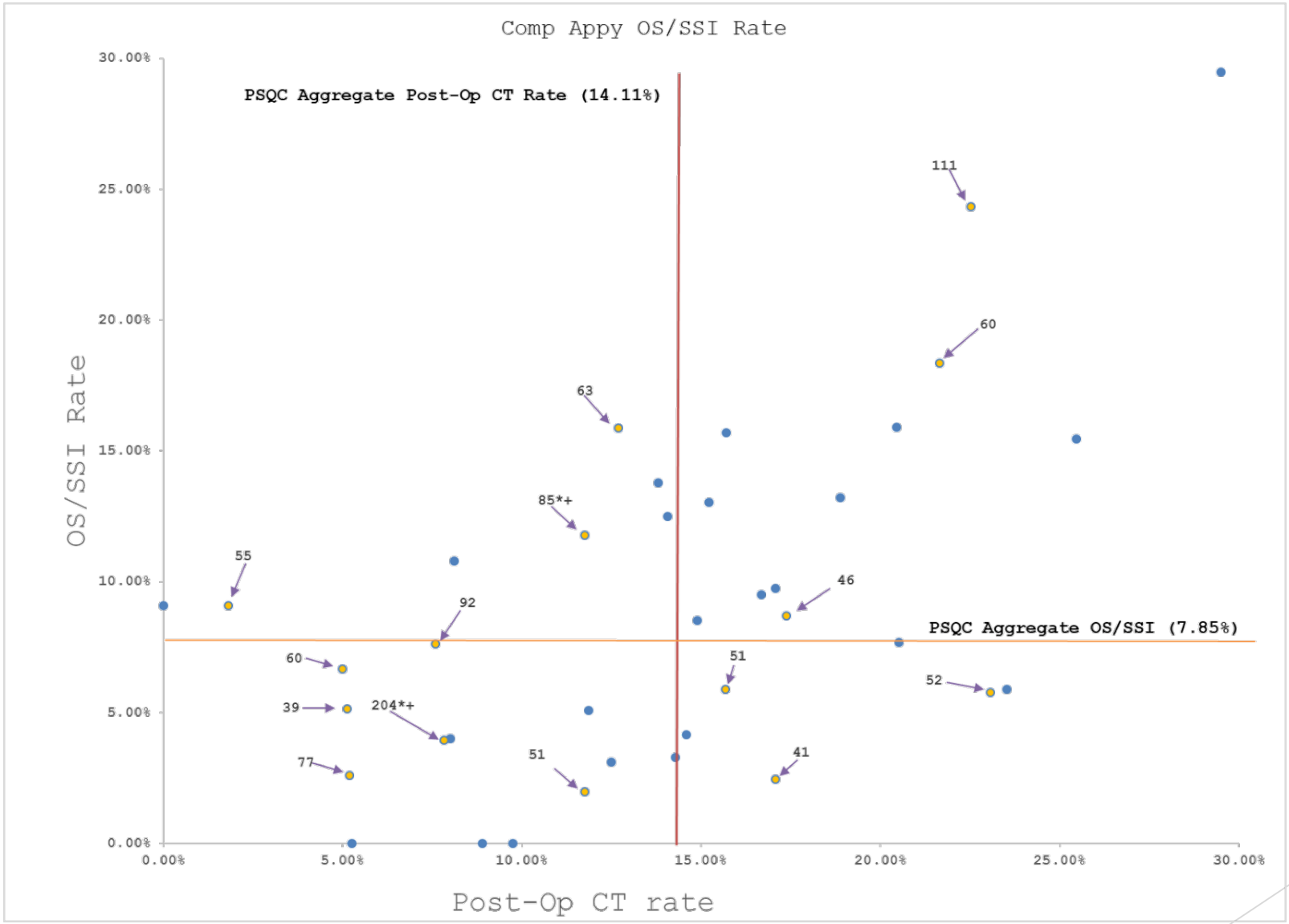

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Project Timeline

Tmeline for 2nd PSQC Project Targeted Appy Post-Op CT Utilization														
		CY2022												
Task	15-Jun	30-Jun	15-Jul	30-Jul	15-Aug	30-Aug	15-Sep	30-Sep	15-Oct	30-Oct	15-Nov	30-Nov	15-Dec	30-Dec
Draft Interview Guide	→													
Review interview guide/finalize		→												
Request permission to unmask sites for interviews				→	→									
Identify interviewees at each site			→	→	→									
Set-up interviews						→	→							
PSQC SAR released				✶										
Conduct interviews									→	→	→	→		
Analyze transcripts									→	→	→	→	→	→
Identify best practices										→	→	→	→	→

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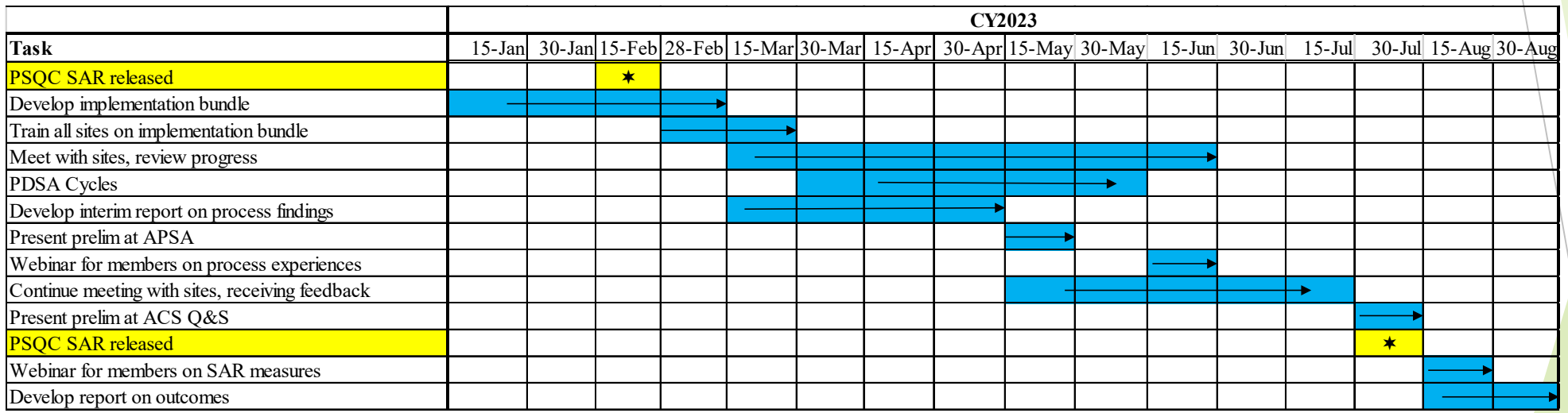
Project Timeline-2023



	CY2023															
Task	15-Jan	30-Jan	15-Feb	28-Feb	15-Mar	30-Mar	15-Apr	30-Apr	15-May	30-May	15-Jun	30-Jun	15-Jul	30-Jul	15-Aug	30-Aug
PSQC SAR released			✶													
Develop implementation bundle																
Train all sites on implementation bundle																
Meet with sites, review progress																
PDSA Cycles																
Develop interim report on process findings																
Present prelim at APSA																
Webinar for members on process experiences																
Continue meeting with sites, receiving feedback																
Present prelim at ACS Q&S																
PSQC SAR released														✶		
Webinar for members on SAR measures																
Develop report on outcomes																

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Next Steps

- Conduct interviews
- Qualitative analysis
- Identify best practices
- Develop implementation guide
- Share with collaborative

Questions?

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NSQIP DATA AUTOMATION

Steve Merzlak Sr. Business Systems Analyst

Agenda

+ Automation Experience
+ Benefits of Automation
+ SCR Experience
+ What is Data Automation
+ Journey to Automation
+ Demo

Automation Experience

- Over 25 years working with NSQIP
- Chief Engineer for the original ACS NSQIP structure and website
- Architect of the original data automation tools
- Principal support person contact for NSQIP automation
  - 566 Adult sites
  - 94 Pediatric sites
  - 81 Bariatric sites

Benefits of Automation

- Efficiency
- Accuracy
- Time Saver
  - Investigate
  - Use the data
- Improve Quality

The SCR Experience

ACS NSQIP PEDIATRIC

400+ Variables for Peds

8 day cycle

30 day Follow Up
Custom Variables???
90 days to lock

Demographic Information

Dates/Times

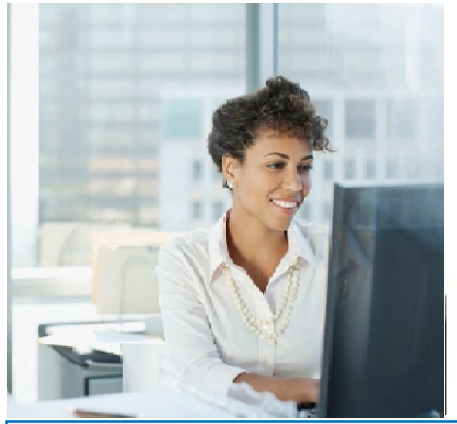
Labs

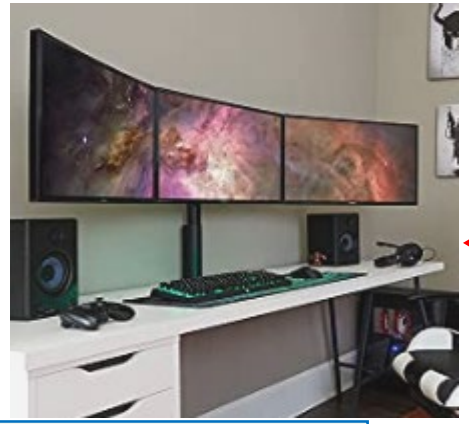
What is Data Automation?

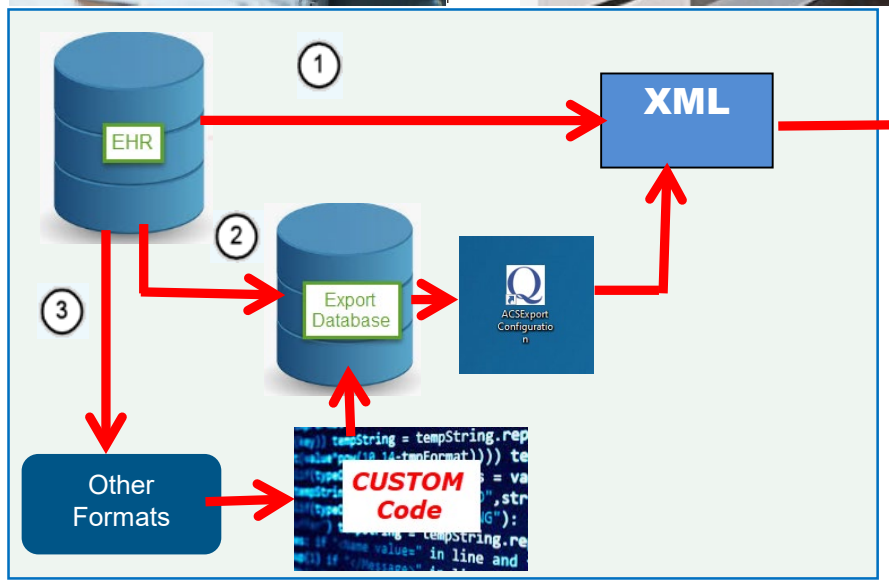
- Data automation is the process of
  - extracting
  - formatting
  - and securely transmitting data to the ACS NSQIP database.

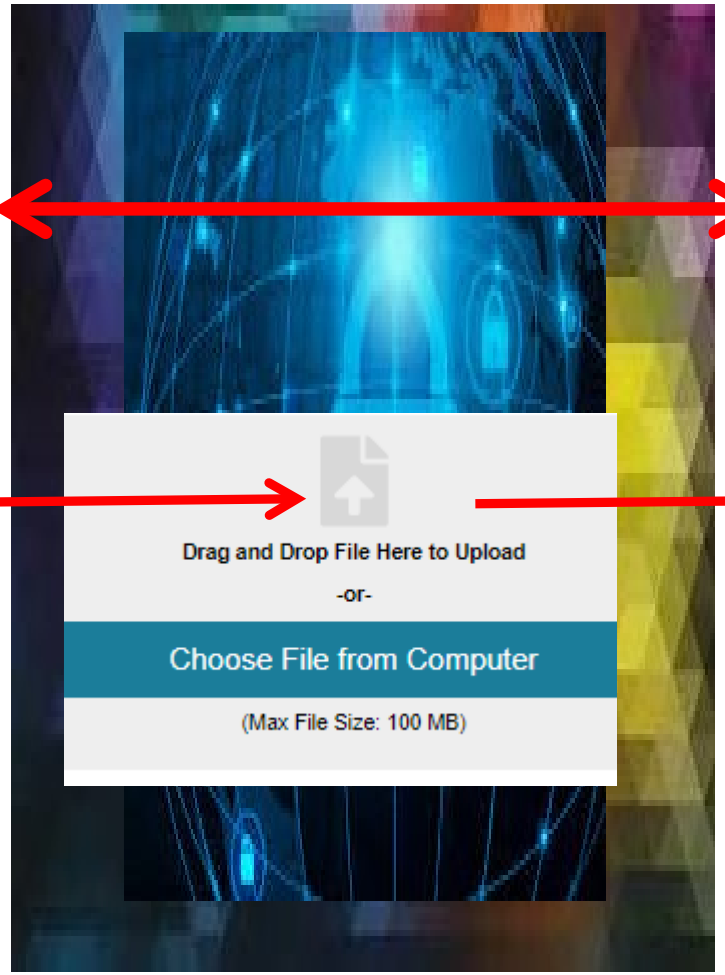
- Available for
  - Adult sites and Adult Epic sites
  - Pediatric sites
  - Bariatric sites

The SCR Experience







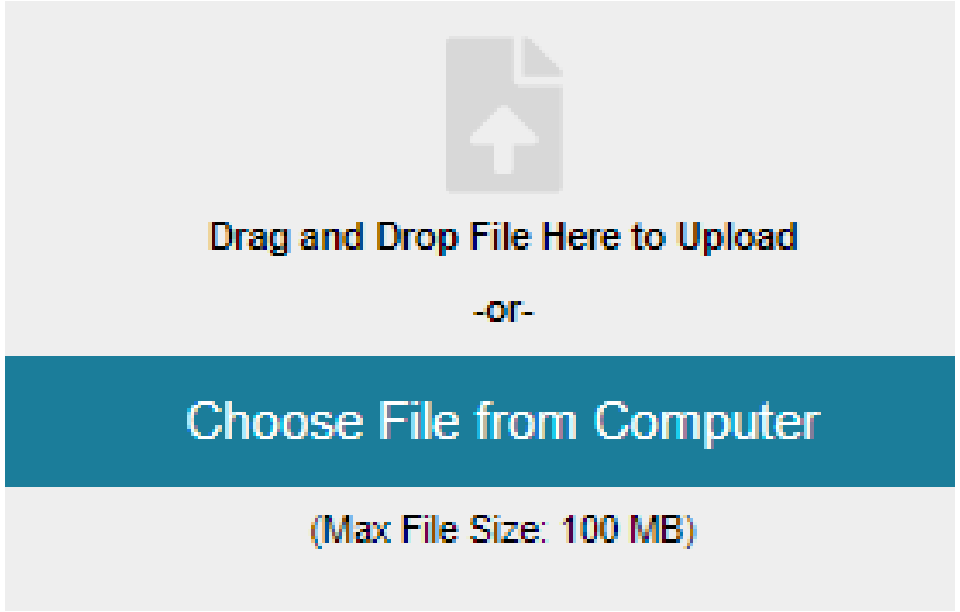


ACS NSQIP PEDIATRIC

Formatting Data – Option 1 Direct to XML

1

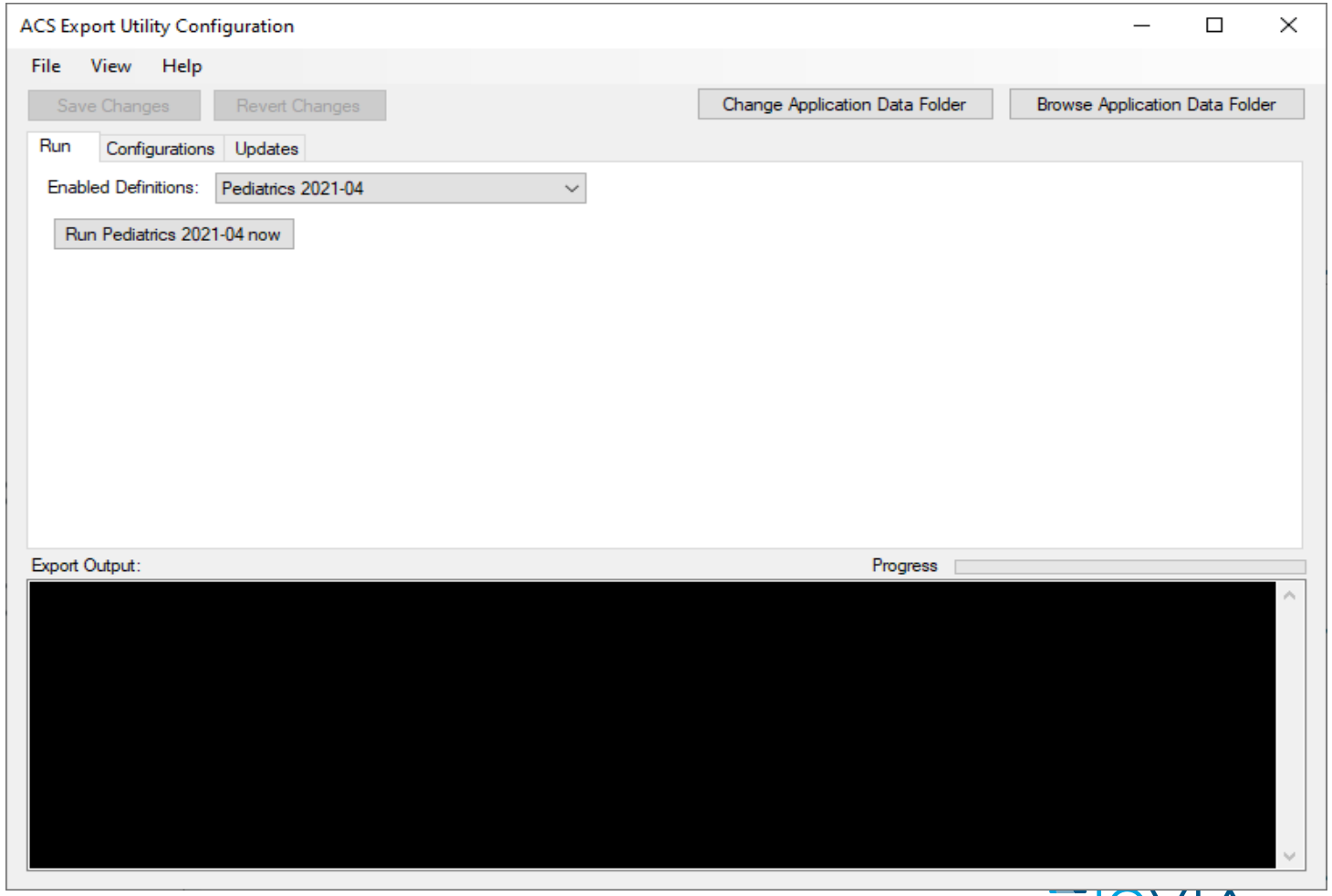
- Hardest for IT
- Easiest for SCR
- Need to Preselect Cases
- One Step
  - Drag and Drop



Formatting Data – Option 2 Export Database

2

- Lack XML Expertise
- Data from Multiple Sources
- Ability to use Export Database to Select Cases
- Two Steps
  - ACS Export
  - Drag and Drop



Formatting Data – Option 3 Custom Code

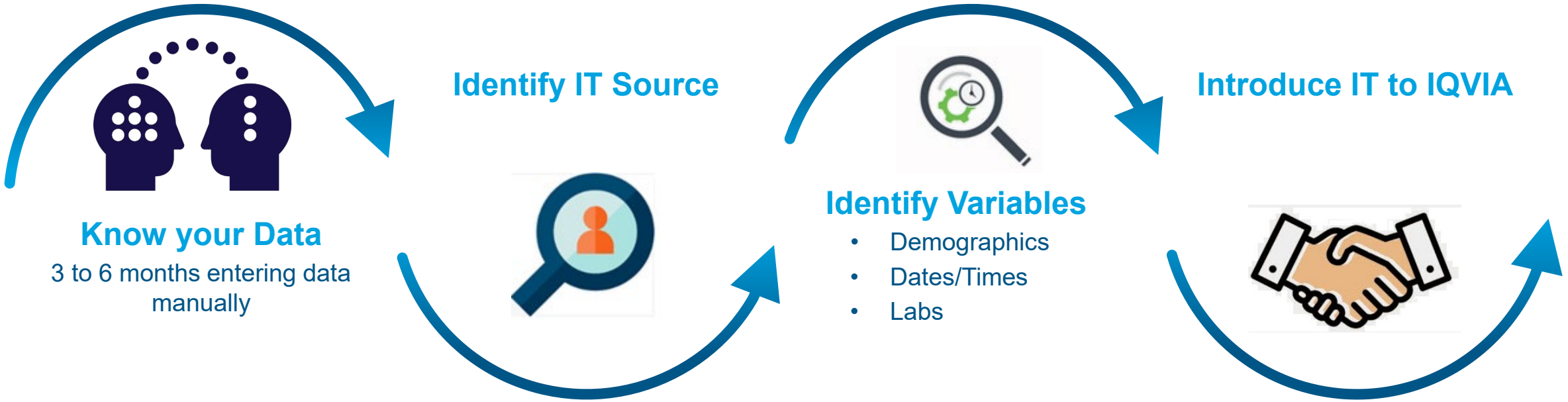
3

- CSV
- Excel
- Easiest for IT
- Hardest for SCR
- Three Steps
  - Import File to Export Database
  - ACS Export
  - Drag and Drop

Formatting Data – Summary

Option	Drag and Drop	Effort for IT	Effort for SCR	Case Selection	Uses ACS Export
1 XML	Yes	Difficult	Mid	Need to preselect cases.	No
2 Export Database	Yes	Mid	Mid	Can use export database to select cases	Yes or No
3 Custom Code	Yes	Easy	Mid	Can use Excel file to select cases	Yes

Journey to Automation



Know your Data

3 to 6 months entering data manually

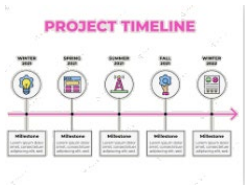
Identify IT Source

Identify Variables

- Demographics
- Dates/Times
- Labs

Introduce IT to IQVIA

Journey to Automation



Timeline

It can take 1 - 3 man months

SCR and IT Work Together

Keep IQVIA Involved

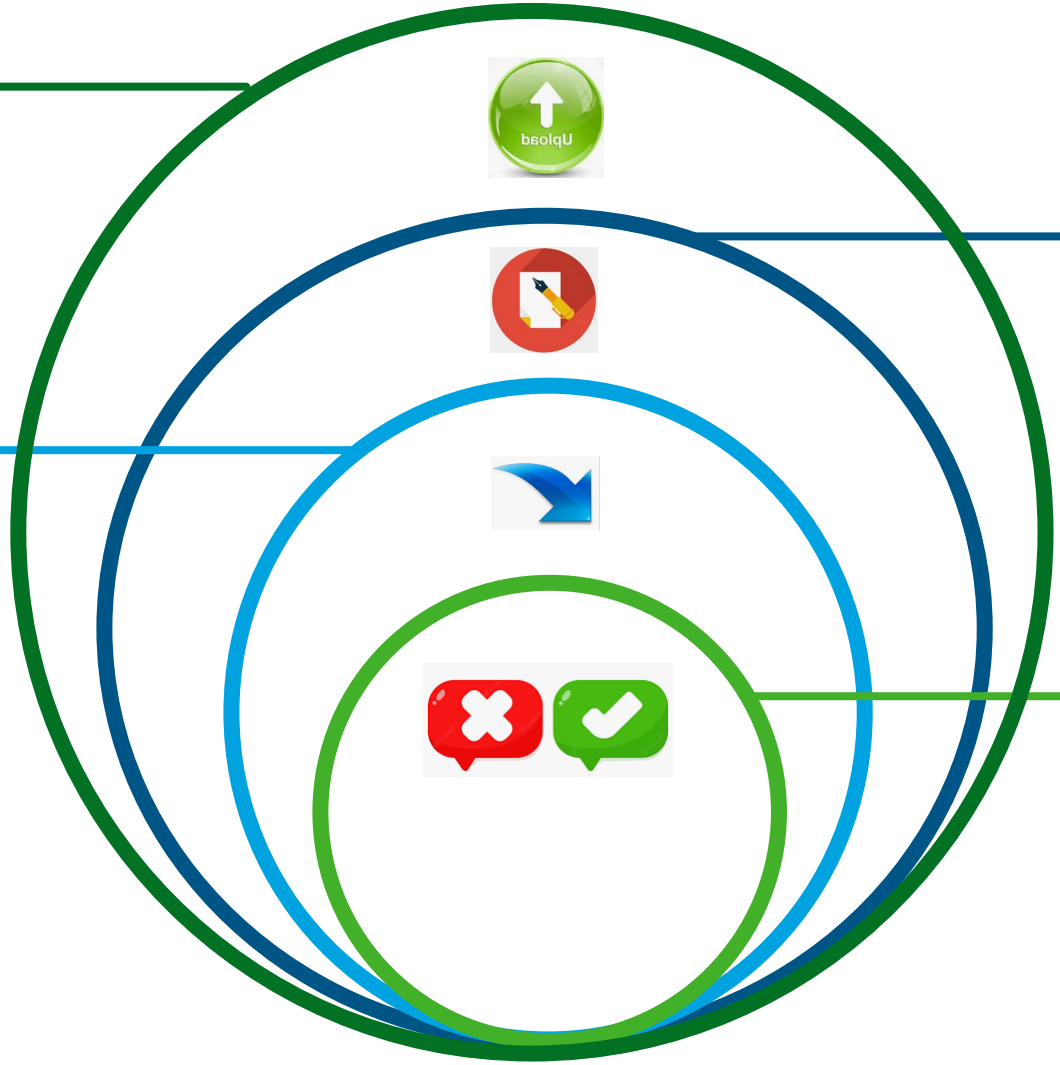
Upload Process with Custom Access Database

Upload to NSQIP

- Log into Registry
- Select your XML file
- Upload File

Import into MS Access

- Open Access database
- Select your excel file
- Press the update button



Create XML File

- Open ACS Export
- Click the run button
- Verify number of cases

Select your Cases

- Excel file created by IT
- Ordered by operation date and time
- Only keep the cases you want to upload

Benefits

- Efficiency
- Accuracy
- Time Saver
  - Investigate
  - Use the data
- Improve Quality

Demo

Stanford Children's Health | Lucile Packard Children's Hospital Stanford

PSQC Opioid NSQIP Project

Stephen B. Shew, MD

July 18, 2022

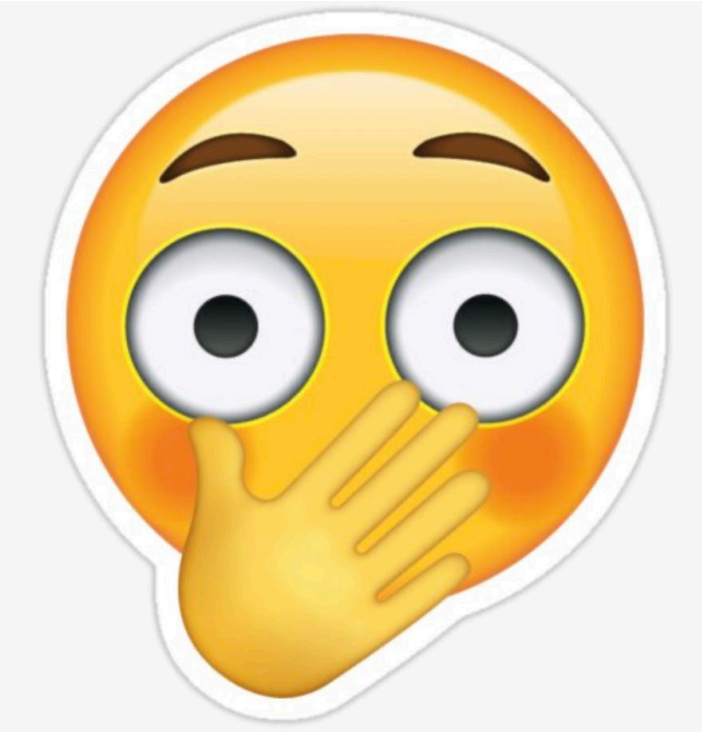
Stanford | MEDICINE

Disclosures

- No financial disclosures

Disclosures

- ***Significant contributor to opioid prescriptions in Calif since early 2000s***



Background

- Opioid Rx has been existing standard for postop analgesia
- American Pain Society 1996: *"Pain as 5th Vital sign"*
- Biased provider perceptions and variability in prescribing
- Poor provider to patient/parent opioid education
- Under-recognized misuse of opioid prescriptions
- Current opioid epidemic estimated costs by CDC:
  - >600,000 deaths
  - $92 billion dollars

Opioid Prescription Misuse

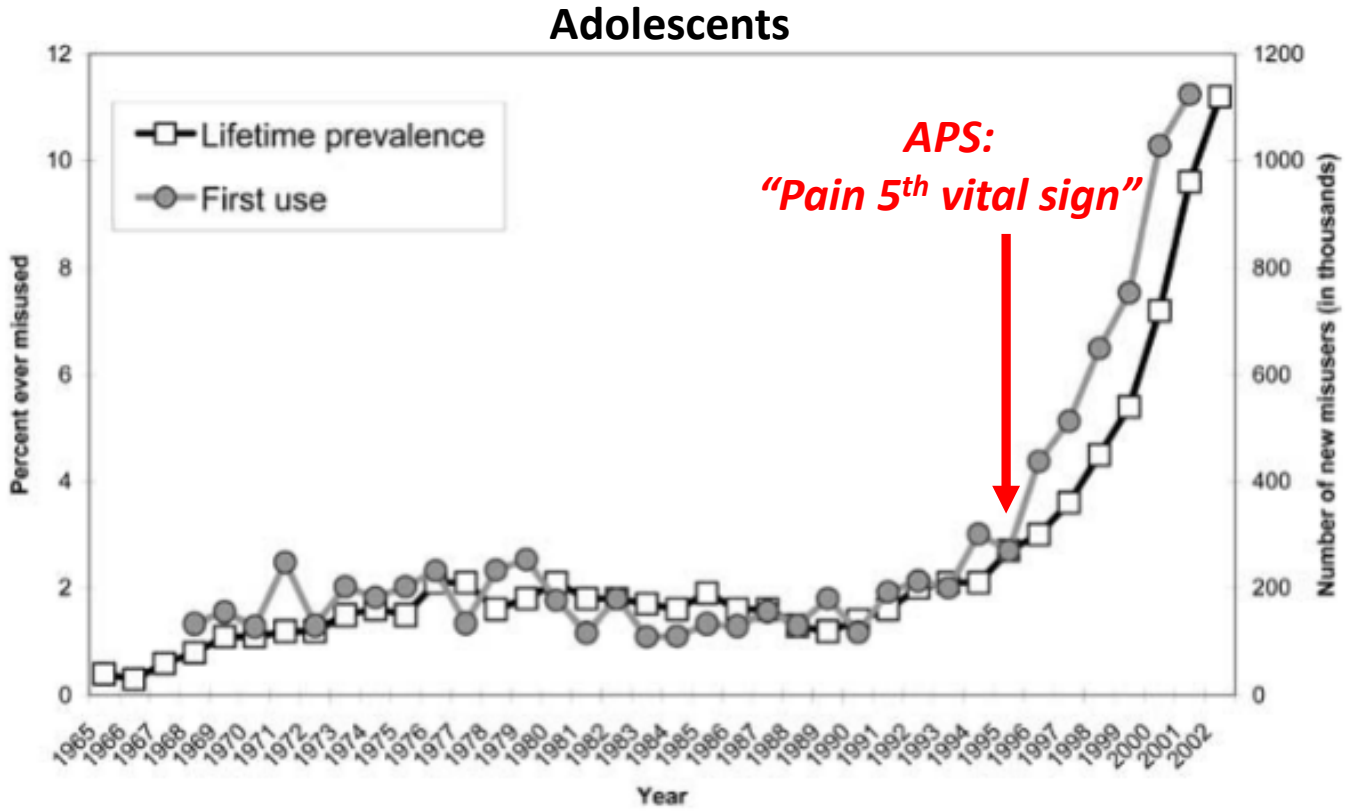
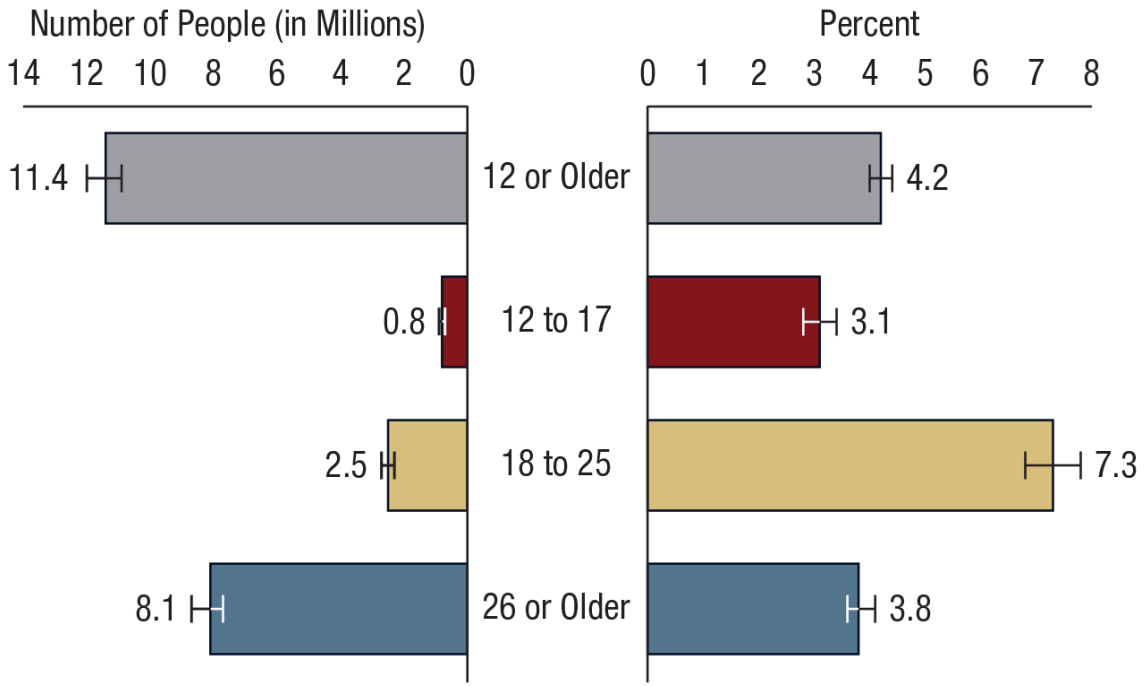
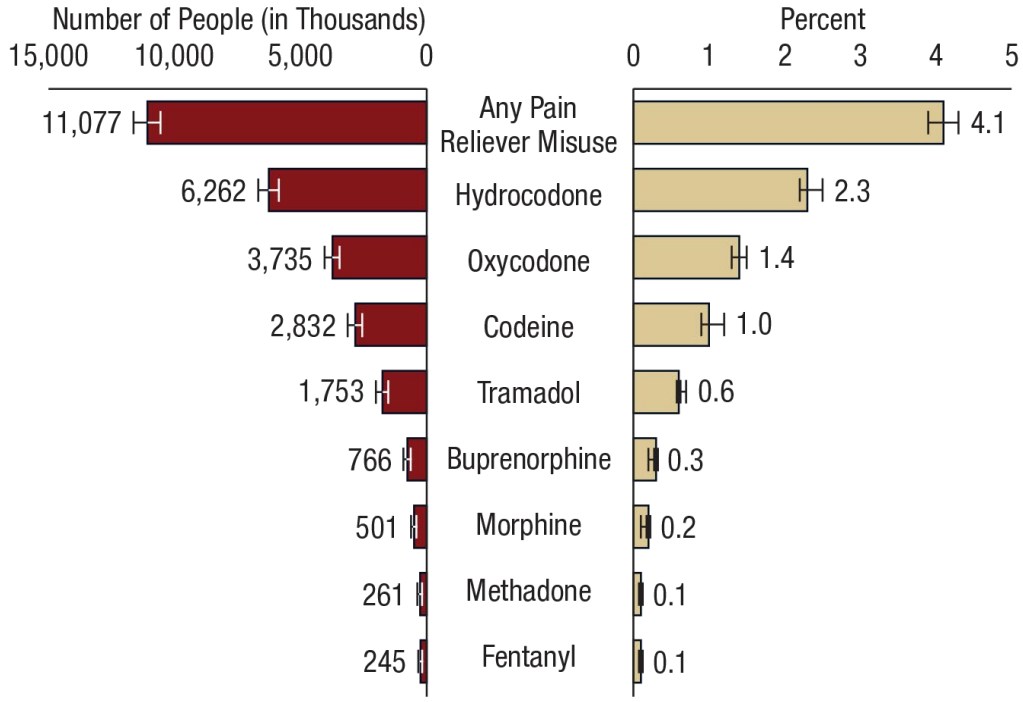


Fig. 1. Historical trends in lifetime prevalence (left scale) and incidence (right scale) of prescription opioid misuse among youth. 1965–2002.

Sung HE et al. J Adolesc Health 2005

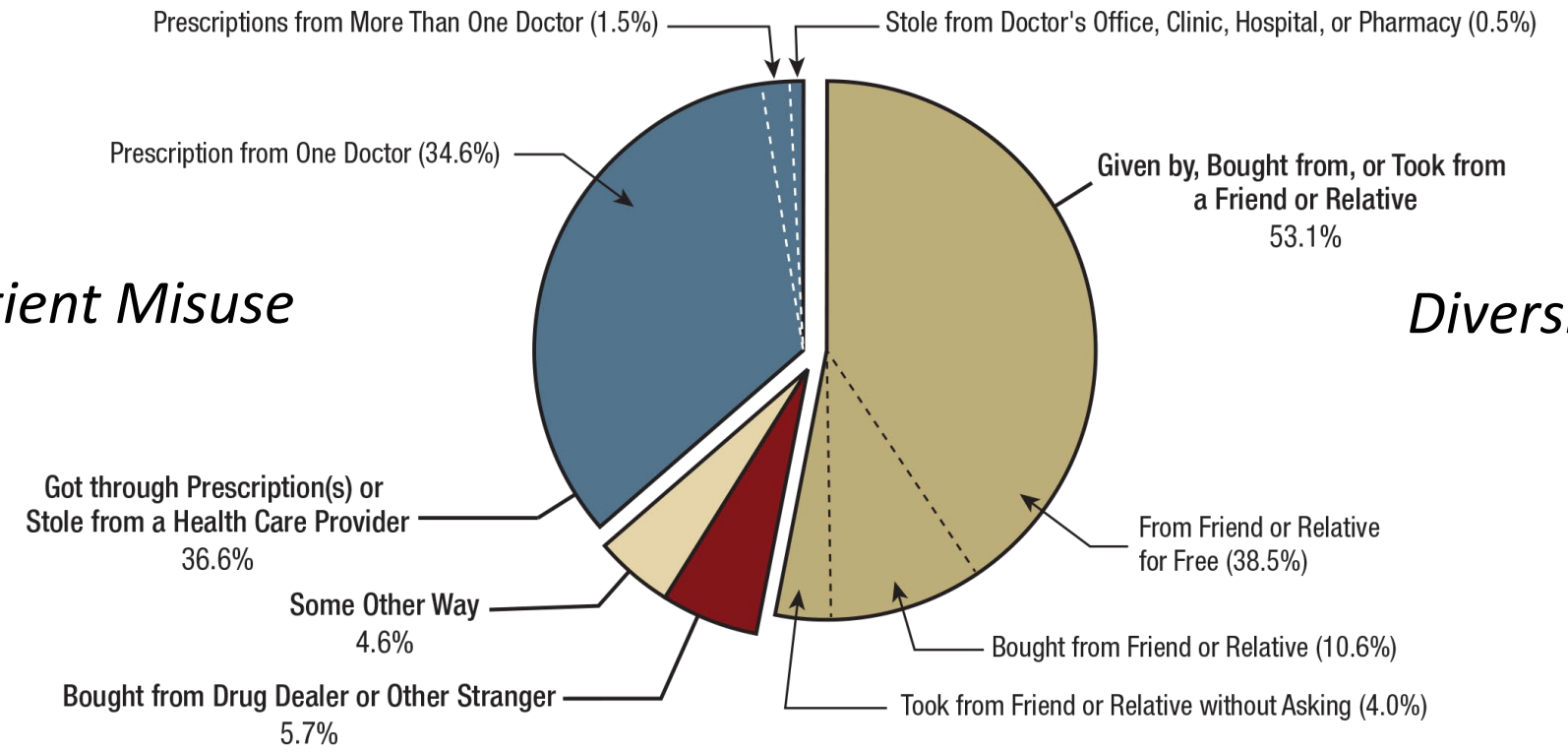
Opioid Prescription Misuse





from SAMHSU – Substance Abuse and Mental Health Services Admin, based on 2017 NSDUH survey

Opioid Prescription Misuse



from SAMHSU – Substance Abuse and Mental Health Services Admin, based on 2017 NSDUH survey

Opioid Rx – Variation for Appy

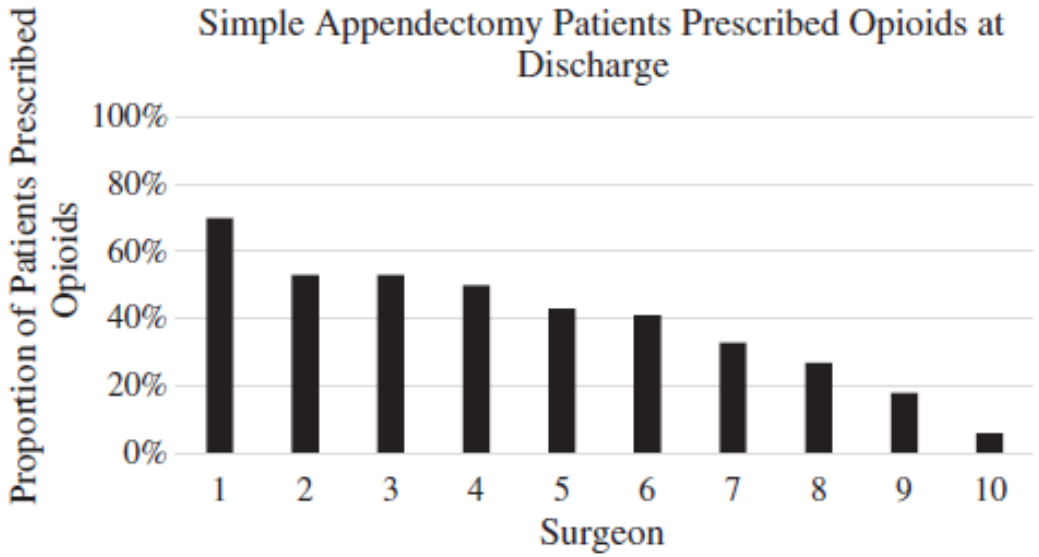


Fig. 2. Proportion of patients receiving opioid prescriptions at discharge after appendectomy for simple appendicitis by surgeon.

Table 3
Postdischarge outcomes in simple appendicitis patients who did not receive opioids compared to those who did receive opioids. ED = emergency department.

	No Opioids Received	Received Opioids	p-value
n (%)	139 (37.5)	232 (62.5)	
ED visit	6 (4.3)	31 (13.4)	0.005
ED chief complaint abdominal pain	3 (50)	22 (70.0)	<0.001
Readmission	3 (2.2)	12 (5.2)	0.15
Constipation	0 (0)	9 (3.9)	0.02
Constipation requiring readmission	0 (0)	4 (2.1)	0.11

Tsao et al. JPS 2018

Common Opioid Stewardship Goals

- Decrease or eliminate postop opioid prescriptions
  - Limit opioid prescription dose number and refill
  - Minimize prescription variation by use of guidelines
  - Avoid inappropriate prescribing (eg., codeine, Tramadol)
- Maximize local / regional anesthesia modalities
  - Pre-incision blockade
- Maximize appropriate NSAID use
  - Preemptive analgesia admin
  - Postop routine RTC NSAID use
  - Multi-modality non-opioid meds w- alternate dose timing

Opioid Rx QI – Ped Surgery

- Stanford Ped Surgery Opioid Prescription QI in 2018
  - Universal surgeon consensus in division (rare)
  - Inspired by principles from the *'mother of opioid stewardship'*
  - **Goal:** Eliminate ***all*** opioid postop discharge prescriptions
    - *Exceptions:* Nuss procedure, Bariatric procedures, some trauma
      - Multi-modality meds and anesthesia
      - Limit dose prescriptions
  - Maximize local / regional anesthesia modalities
  - Standard alternating Tylenol / Ibuprofen

Western Pediatric Surgery
RESEARCH CONSORTIUM

Multi-Institutional Quality Improvement Project to Minimize Opioid Prescribing in Children after Appendectomy Using NSQIP-Pediatric

Lorraine I Kelley-Quon, MD, MSHS, FACS, FAAP, Shadassa Ourshalimian, MPH, Justin Lee, MD, FACS, Katie W Russell, MD, FACS, Karen Kling, MD, FACS, Stephen B Shew, MD, FACS, Claudia Mueller, PhD, MD, FACS, Aaron R Jensen, MD, MED, MS, FACS, Lan Vu, MD, FACS, Benjamin Padilla, MD, FACS, Daniel Ostlie, MD, FACS, Caitlin Smith, MD, FACS, Thomas Inge, MD, FACS, Jonathan Roach, MD, FACS, Romeo Ignacio, MD, FACS, Katrine Lofberg, MD, FACS, Stephanie Radu, MCR, Autumn Rohan, BS, Kasper S Wang, MD, FACS

J Am Coll Surg 2022 Mar 1;234(3):290-298.
PMID: 35213491

JACS

Western Pediatric Surgery RESEARCH CONSORTIUM

The WPSRC is a multi-institutional surgical collaborative committed to advancing the care of infants and children through contemporary evidence-based research.

Oregon Health & Science University
UCSF Benioff Children's Hospitals Oakland | San Francisco
Children's Hospital Colorado
Children's Hospital Los Angeles We Treat Kids Better
Rady Children's Hospital San Diego
Intermountain Primary Children's Hospital
Seattle Children's Hospital • Research • Foundation
Lucile Packard Children's Hospital Stanford
Phoenix Children's Hospital
children'shealth Children's Medical Center Dallas

Western Pediatric Surgery
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QI Goal:

Decrease opioid Rx at time of discharge for children undergoing laparoscopic appendectomy across WPSRC consortium sites

Western Pediatric Surgery
RESEARCH CONSORTIUM

Baseline Opioid Stewardship – WPSRC sites

- 5 of 10 centers had existing protocols for eliminating opioid Rx after laparoscopic appendectomy
- Significant variation at remaining sites

- WPSRC member consensus:
  - pediatric surgeons ***should*** be eliminating opioid Rx after lap appy
  - multi-site buy-in would be attainable

Western Pediatric Surgery RESEARCH CONSORTIUM

ACS NSQIP PEDIATRIC

Leveraging NSQIP-Peds for Multi-Institutional QI

- NSQIP platform customizable field inputs
- Opioid Rx variables at discharge (EMR) and SCR 30d follow-up
  - *Opioid type, dose, alternative source opioid Rx, persistent use at 30d*
  - *ER visit, Readmission (all-cause and cause)*
  - Likert 5-point satisfaction scale on 30d F-U (balancing measure)
- ***Strong* SCR engagement**, minimal work added
- ***Engagement elicited and project endorsed by parent representative***
  - Uniform discharge instructions – alternating Tylenol & Ibuprofen

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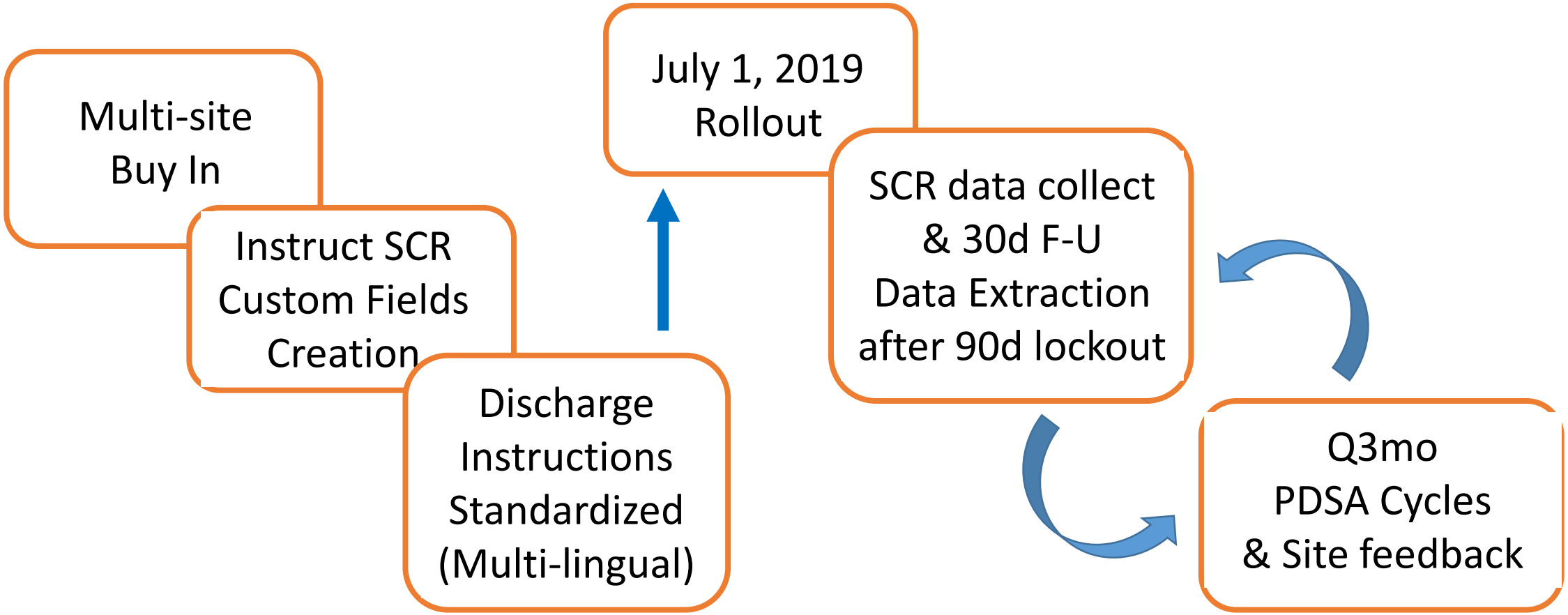
ACS NSQIP PEDIATRIC

QI Implementation Plan



Western Pediatric Surgery RESEARCH CONSORTIUM

ACS NSQIP PEDIATRIC

Demographics of NSQIP pts

Table 1. Cohort Demographics

Variable	Total, N = 1,524	Preintervention, n = 730	Postintervention, n = 794	p Value
Male sex, n (%)	891 (58.5)	435 (59.6)	456 (57.4)	0.393
Race, n (%)				0.694
American Indian or Alaska Native	16 (1.1)	9 (1.2)	7 (0.9)	
Asian	57 (3.7)	25 (3.4)	32 (4.0)	
Black or African American	27 (1.8)	11 (1.5)	16 (2.0)	
Multiracial	2 (0.1)	1 (0.1)	1 (0.1)	
Native Hawaiian or Pacific Islander	6 (0.4)	4 (0.6)	2 (0.3)	
Unknown	439 (28.8)	219 (30.0)	220 (27.7)	
White	977 (64.1)	461 (63.2)	516 (65.0)	
Hispanic ethnicity, n (%)				0.113
Yes	670 (44.0)	340 (46.6)	330 (41.6)	
No	789 (51.8)	363 (49.7)	426 (53.7)	
Unknown	65 (4.3)	27 (3.7)	38 (4.8)	
Insurance, n (%)				
Private	720 (47.2)	333 (45.6)	387 (48.7)	0.222
Public	764 (50.1)	366 (50.1)	398 (50.1)	0.997
Self-pay	14 (0.9)	8 (1.1)	6 (0.8)	0.487
Other	106 (7.0)	64 (8.8)	42 (5.3)	0.008
Complicated appendicitis, n (%)	463 (30.4)	230 (31.5)	233 (29.4)	0.359
Age at surgery, y, mean ± SD	10.6 (3.7)	10.4 (3.8)	10.7 (3.6)	0.044

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ACS NSQIP PEDIATRIC

Opioid Rx Run Chart by site

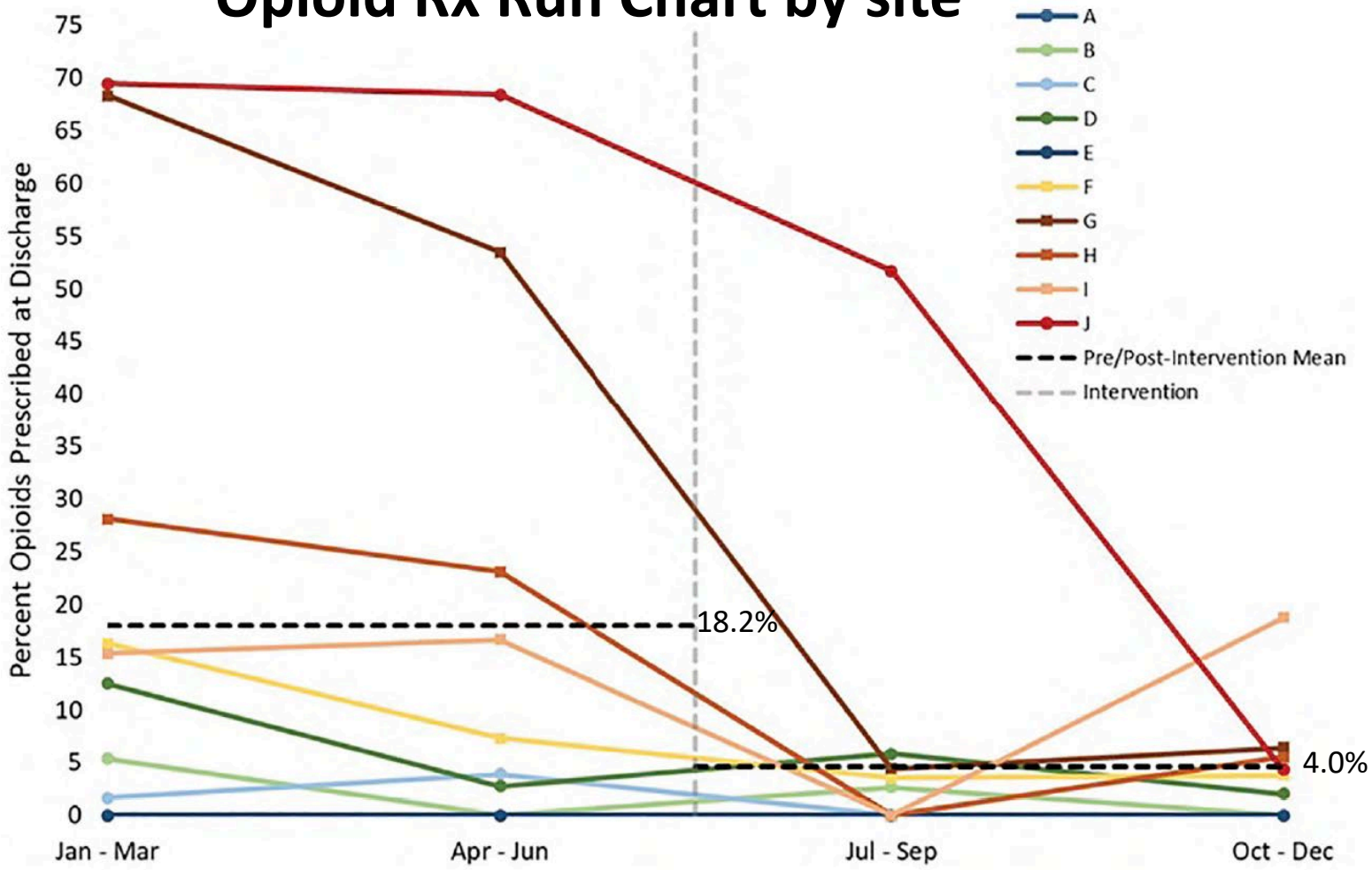

Figure 2. Run chart: percent of children receiving opioids at discharge by hospital (A–J) before and after the quality improvement intervention. No-Protocol Hospitals are highlighted in red/orange/yellow, Protocol Hospitals are highlighted in blue/green.

Outcomes based on type of appendicitis

Table 2. Overall Rate of Opioid Prescribing at Discharge and Balancing Measures

	Overall					
	Complicated appendicitis n = 463 (30.4%)			Uncomplicated appendicitis n = 1061 (69.6%)		
Variable	Preintervention, n = 230 (%)	Postintervention, n = 233 (%)	p Value	Preintervention, n = 500 (%)	Postintervention, n = 561 (%)	p Value
Discharged with opioid prescription, n (%)	19 (8.3)	5 (2.2)	0.003	114 (22.8)	27 (4.8)	<0.001
30-day ER visit, n (%)	23 (10.1)	35 (15.8)	0.0694	41 (8.4)	37 (7.3)	0.5181
Parent satisfaction score, mean ± SD	-	4.7±0.7	–	–	4.8±0.6	–

ER, emergency room.

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ACS NSQIP PEDIATRIC

Outcomes based on *pre-existing* hospital opioid-free Rx protocol

Table 3. Rate of Opioid Prescribing at Discharge and Balancing Measures for Complicated Appendicitis

	Complicated appendicitis N = 463 (30.4%)					
	Protocol hospital			No-protocol hospital		
Variable	Preintervention, n = 122	Postintervention, n = 145	p Value	Preintervention, n = 108	Postintervention, n = 88	p Value
Discharged with opioid prescription, n (%)	1 (0.8)	1 (0.7)	1.000	18 (16.7)	4 (4.6)	0.011
30-day ER visit, n (%)	12 (9.8)	26 (19.3)	0.034	11 (10.4)	9 (10.5)	0.984
Parent satisfaction score, mean ± SD	–	4.8±0.6	–	–	4.6 ±0.9	–

ER, emergency room.

Table 4. Rate of Opioid Prescribing at Discharge and Balancing Measures for Uncomplicated Appendicitis

	Uncomplicated appendicitis N = 1061 (69.6%)					
	Protocol hospitals			No-protocol hospitals		
Variable	Preintervention, n = 286	Postintervention, n = 330	p Value	Pre-intervention, n = 214	Post-intervention, n = 231	p Value
Discharged with opioid prescription, n (%)	10 (3.5)	3 (0.9)	0.045	104 (48.6)	24 (10.4)	<0.001
30-day ER visit, n (%)	25 (8.7)	18 (6.4)	0.294	16 (7.8)	19 (8.3)	0.851
Mean parent satisfaction score, mean ± SD	–	4.8±0.5	–	–	4.7 ±0.7	–

ER, emergency room.

PSQC Opioid QI Proposal

Can we extrapolate opioid stewardship QI to PSQC sites ???

PSQC Opioid QI Proposal

QI Goals:

- Assess current variation in opioid Rx patterns across all NSQIP pts from PSQC sites and specialties
- Establish guidelines and resources for opioid stewardship to distribute to PSQC sites
- ***Decrease opioid Rx by 50% of baseline across PSQC sites in 1yr***
- Eliminate inappropriate opioid type prescribing
- Maintain equivalent counter-balance measures
  - 30-d ER revisit, patient/parent satisfaction score

PSQC Opioid QI Proposal

Implementation Plan:

- Utilize NSQIP platform and SCR / Surg champion engagement
- New standard, required variables to be created in NSQIP platform:
  - Opioid prescription (Y/N) – [REQUIRED]
  - Opioid type (drop down selection) – [REQUIRED]
  - Doses prescribed – [OPTIONAL]
- NSQIP platform to assess PSQC site practice patterns in opioid Rx
- Custom variables to further characterize opioid Rx
- Quarterly to semi-annual reports of site comparison to PSQC

PSQC Opioid QI Proposal

Implementation Tools:

- Shared parental education handouts
- Education to SCRs for NSQIP custom variable creation and data abstraction
- PDSA cycles q3mo, site feedback reports from PSQC
- Opioid stewardship coaching to high outlier opioid Rx sites

PSQC Opioid QI Proposal

Immediate Next Steps:

- Formation of PSQC Opioid Stewardship working group
- Selection of pertinent process and outcome variables and counter-balance measures
- Potential barriers to address / solve:
  - NSQIP creation of new standard variables → at least 18-24 months before in standard NSQIP SAR
  - Site engagement / bandwidth for custom variables and data management
  - DUAs

PSQC Opioid QI Proposal

Questions ?

Interested in being involved ??!!

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ACS NSQIP PEDIATRIC

Antibiotic Duration in Complex Appendicitis

Erich Grethel, Monica Lopez

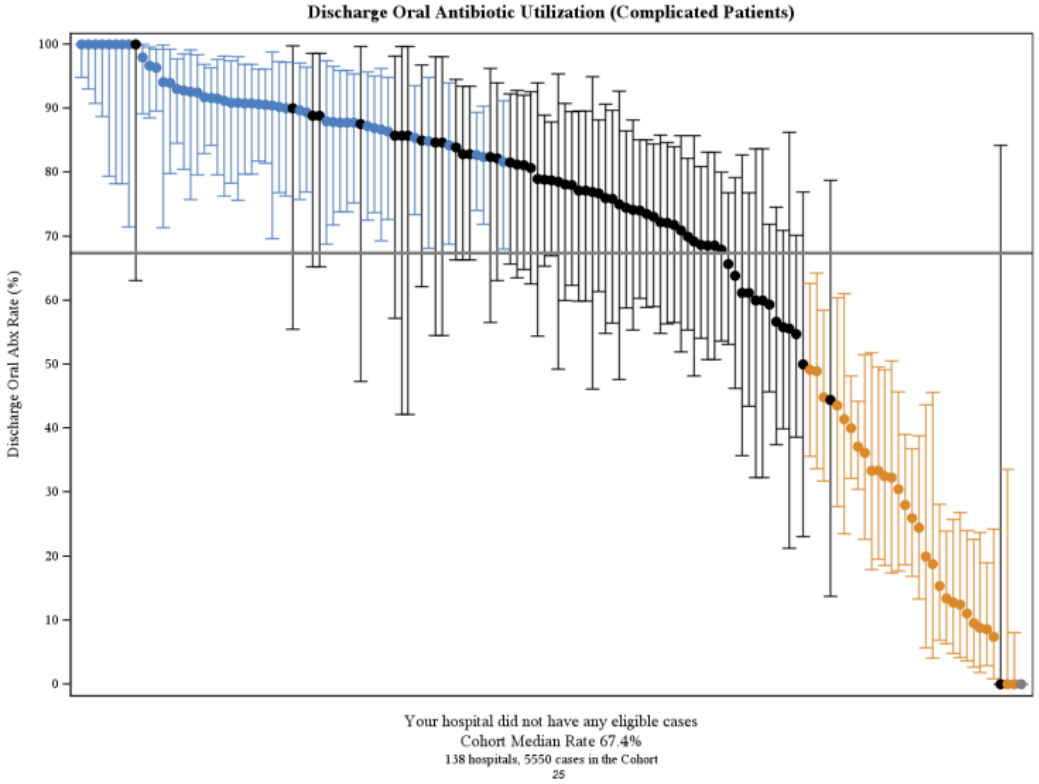
Monroe Carell Jr. Children's Hospital at Vanderbilt

dell children's Ascension

Background

- NSQIP-P cohort there is wide variability in antibiotic prescription practice
    - Most recent NSQIP-P SAR reveals usage of oral antibiotics on discharge ranging from 0% to 100%, with a median of about 65%
- Lack of universally accepted treatment with regard to antibiotic therapy after appendectomy for complex appendicitis in pediatric patients
- Antibiotic stewardship protects patients from harms caused by unnecessary antibiotic use and combats antibiotic resistance

Discharge Oral Antibiotic Usage in Complicated Patients



STOP-IT Trial

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Trial of Short-Course Antimicrobial Therapy for Intraabdominal Infection

R.G. Sawyer, J.A. Claridge, A.B. Nathens, O.D. Rotstein, T.M. Duane, H.L. Evans, C.H. Cook, P.J. O'Neill, J.E. Mazuski, R. Askari, M.A. Wilson, L.M. Napolitano, N. Namias, P.R. Miller, E.P. Dellinger, C.M. Watson, R. Coimbra, D.L. Dent, S.F. Lowry,* C.S. Cocanour, M.A. West, K.L. Banton, W.G. Cheadle, P.A. Lipsett, C.A. Guidry, and K. Popovsky, for the STOP-IT Trial Investigators†

- 518 Adult patients
- Set duration of 4+/-1 days of antibiotic administration after source control of intra-abdominal infections
- Similar outcomes to those treated with longer duration antibiotics (2 days after resolution of fever, leukocytosis, ileus/ max 10 days)
- Median duration of antibiotic therapy was 4.0 days in the experimental group, as compared with 8.0 days in the control group

Pediatric Literature

Journal of Pediatric Surgery 55 (2020) 1026–1031

Contents lists available at ScienceDirect

Journal of Pediatric Surgery

journal homepage: www.elsevier.com/locate/jpedsurg

Effectiveness of a clinical pathway for pediatric complex appendicitis based on antibiotic stewardship principles☆,☆☆

Megan E. Cunningham [a], Huirong Zhu [a], Connor T. Hoch [b], Annalyn S. DeMello [a], Nakada D. Gusman [a], Sara C. Fallon [a], Monica E. Lopez [a,*]

[a] Texas Children's Hospital, Division of Pediatric Surgery, 6701 Fannin Street, Houston, TX 77030
[b] Baylor College of Medicine, 1 Baylor Plaza, Houston, TX 77030, USA

Journal of Pediatric Surgery (2010) 45, 1198–1202

Journal of Pediatric Surgery

www.elsevier.com/locate/jpedsurg

A complete course of intravenous antibiotics vs a combination of intravenous and oral antibiotics for perforated appendicitis in children: a prospective, randomized trial

Jason D. Fraser, Pablo Aguayo, Charles M. Leys, Scott J. Keckler, Jason G. Newland, Susan W. Sharp, John P. Murphy, Charles L. Snyder, Ronald J. Sharp, Walter S. Andrews, George W. Holcomb III, Daniel J. Ostlie, Shawn D. St. Peter*

Department of Surgery, The Children's Mercy Hospital, Kansas City, MO 64108, USA

Journal of Pediatric Surgery 54 (2019) 272–275

Contents lists available at ScienceDirect

Journal of Pediatric Surgery

journal homepage: www.elsevier.com/locate/jpedsurg

Colorectal

Prospective evaluation of a clinical response directed pathway for complicated appendicitis

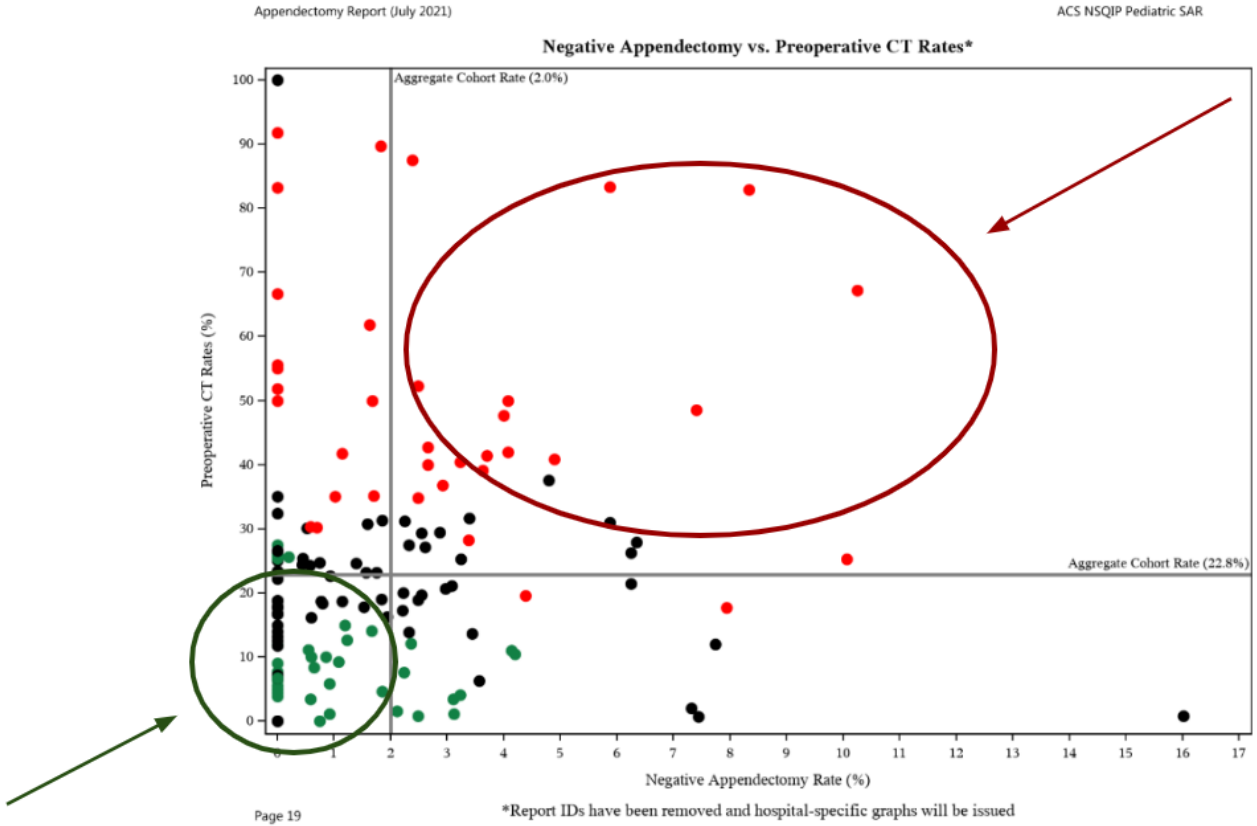
Nick Lansdale [a], Samantha Fryer [b], Mairead Stockdale [b], James Bancroft [b], Jennifer Orr [b], Harriet Corbett [b], Simon Kenny [b,*]

[a] Department of Paediatric Surgery, Royal Manchester Children's Hospital, UK
[b] Department of Paediatric Surgery, Alder Hey Children's Hospital, Liverpool, UK

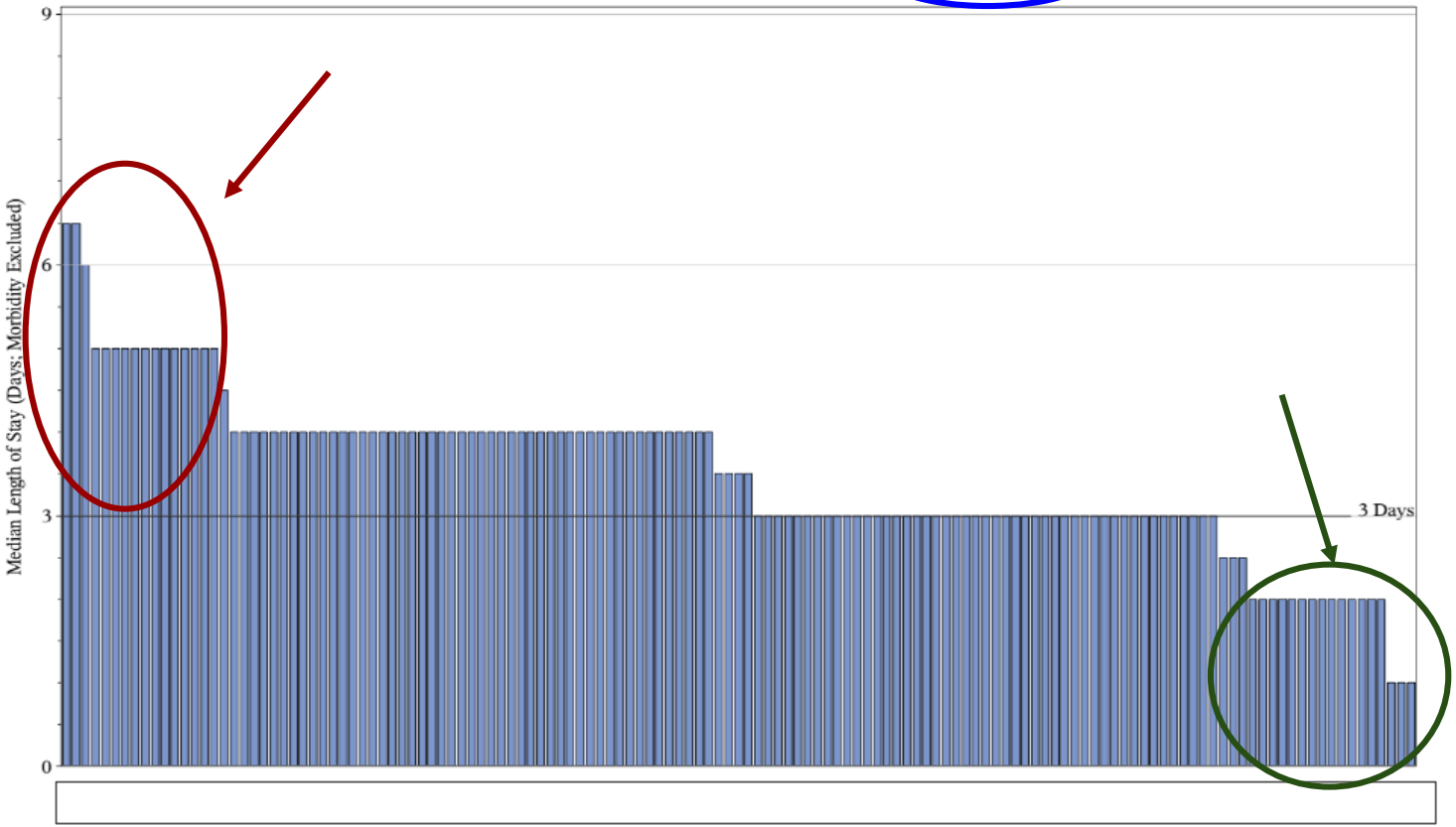
Aim of Project

- *Evaluate the Collaborative cohort antibiotic usage (oral and IV) after appendectomy for complex appendicitis*
- *Baseline data*
  - *discharge antibiotic information plotted against length of stay in morbidity excluded patients (primary outcome)*
  - *discharge antibiotic information plotted against surgical site infections (secondary outcome)*
  - *discharge antibiotic information plotted against return to ED/re-hospitalization (alternative secondary outcome/balance metric).*
- *Understand outliers of centers that discharge these patients without antibiotics, have shorter hospital stay, and less postoperative occurrences*
- *Use qualitative methods to ascertain postop protocols from low and high outliers*

Scatter Plot Example



Median Length of Stay (Days; Morbidity Excluded) for Complicated Cases



Aggregate Median Length of Stay (Days; Morbidity Excluded) = 3 Days (Q1 = 2 Days, Q3 = 5 Days)

Variables

- Evaluate in complex appendectomy patients as well as the morbidity excluded set
  - Length of stay
  - Antibiotics at discharge
  - Surgical site infections
  - Return to ED/OR
  - Readmission
  - Duration of postoperative antibiotics (days from source control)*
  - Method of antibiotics (IV vs oral - with time stamp for each)*
  - Type of oral antibiotic at discharge*
- Additional confounding factors include severity of complex appendicitis and method of source control

**additional data to be collected*

Suppositions and Implications

- *Hypothesis: no significant difference in postoperative occurrence rate in centers that discharge complex appendectomy patients with or without antibiotics*

- *Implication that antibiotic stewardship principles would dictate more judicious use of postoperative antibiotics after source control in this population*

Questions & Open Discussion

Monroe Carell Jr.
Children's Hospital
at Vanderbilt

dell children's
Ascension