PC4/PAC3 Spring 2024 Conference

Data Champion Workshop

Session Moderators:

Kelly Veneziale

Melanie Bell

Sarah Youngberg

Rebecca Zahn

Amy Schiller

hosted by children's health

Agenda

Time (CT)	Topic	Presenter(s)	Moderator(s)
09:05-10:05	Leveraging your EMR	Viki Haro, Becki Mai, Jenn Kreuter, Maria-Theresa Balbin, Mickey Tirfe, Chona Mariano, Fred Roberts, Jen Schmoker	Kelly Veneziale
10:05-10:35	Data Quality/Internal Auditing	Sarah Schukei, Dristi Khanal, Ivo Pandjaitan, Jazmin Olvera Alonso, Selin Alak-DeBergh	Kelly Veneziale
10:35-10:45	Break		
10:45-11:25	Data Utilization	Sarah Schukei, Dristi Khanal, Teresa Tobin, Jen Schmoker	Amy Schiller
11:30-12:00	Onboarding New Team Members	Rebecca Zahn-Schafer, Mia Kurbalija, Courtney Spence	Melanie Bell, Sarah Youngberg
12:00-12:15	Mixed Acuity Unit	Rachel Schwandt	Rebecca Zahn

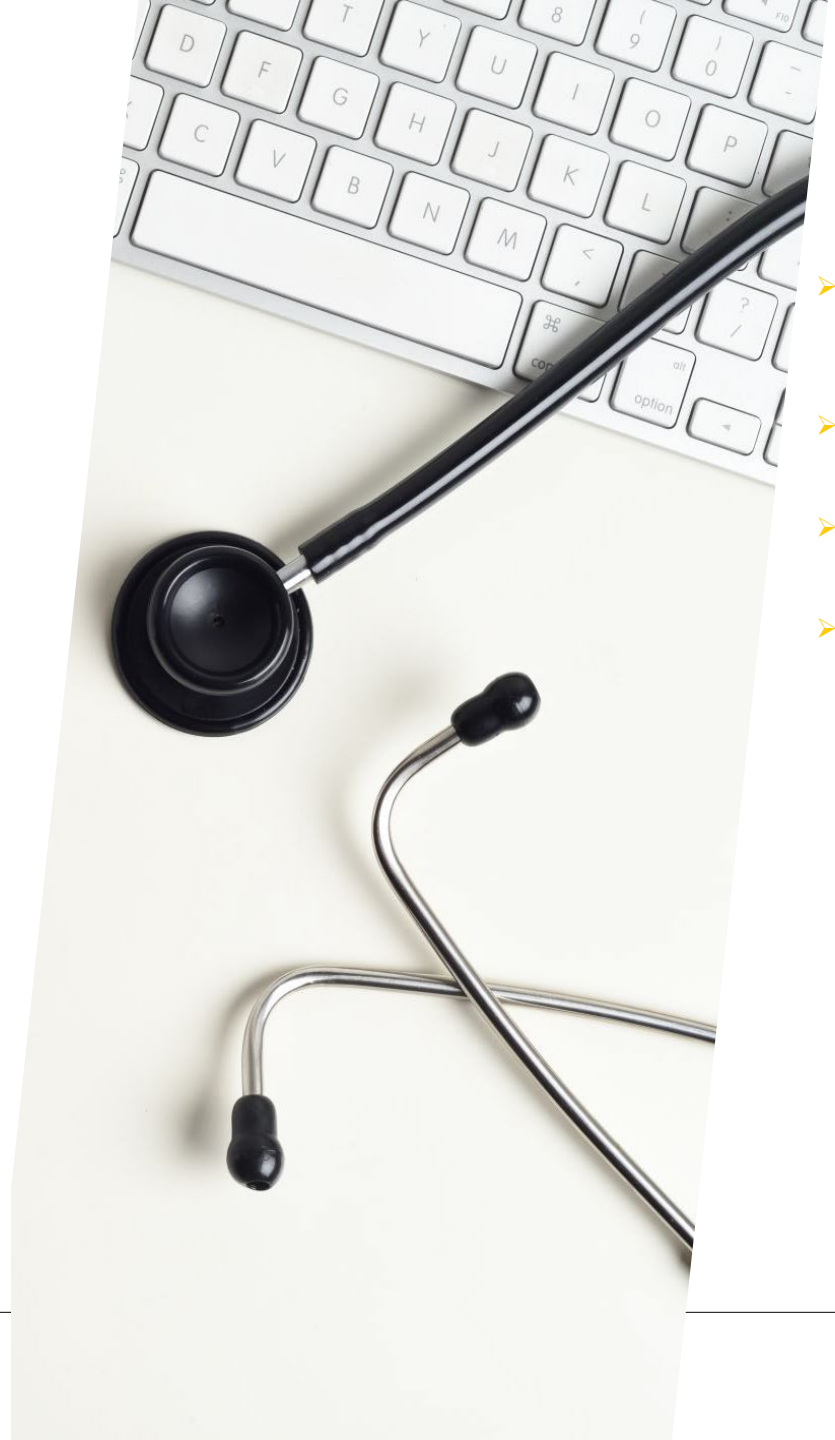
Leveraging your EMR

PC4 PAC3

Pediatric Heart Center Data Team Structure and Highlights

Viki Haro, MSN, NP
Becki Mai, MSN, RN
UCSF Benioff Children's Hospital

Hosted by children's health



BCH PHC Data Team

- Multidisciplinary group formed in June 2016 (Physicians, Data RN's, IT, Administration).
- Oversees all data for Pediatric Heart Center.
- Meet weekly to review data and ongoing issues.
- Goals
  - Provide transparent, benchmarked data for the heart center (and sub-sectional areas) to have data driven quality improvement initiatives.
  - To provide data driven outcomes for referral cardiologists and expecting parents.
  - To provide an accurate, data driven website of our outcomes.
  - To facilitate research and quality initiative projects.
  - To foster a team approach to optimizing cardiac care.

Team Approach

San Francisco

- Sangeeta Lal - Oversight
- Sarah Tabbutt – PC4/Oversight
- Suzanne Strong – Data manager
- Becki Mai – Data Analyst
- Viki Haro – Data Analyst
- Mina Vafaeezadeh – Data Analyst
- V. Mohan Reddy - STS
- Phil Moore / Jeff Meadows – IMPACT
- Mollie Mullaney - IMPACT
- Anshuman Sharma – STS/Anesthesia
- Mike Brook – ECHO
- Ronn Tanel – IMPACT/EP/PAC^3
- Younes Bouab - IT

Oakland

- Sangeeta Lal – Oversight
- Suzanne Strong – Data Manager
- V. Mohan Reddy - STS
- Hitu Patel – IMPACT
- James Reyes - IMPACT
- Becki Mai – Data Analyst
- Viki Haro – Data Analyst

- **Kaiser**
  - Phil Moore - IMPACT
  - Esther Basso – Service Director
  - Carel Troutman – Quality Coordinator
  - Hazel Trinna M. Topacio – Data Analyst
  - Amber Harris - Quality

Pediatric Heart Center Data

http://cardioaccess.com

IMPACT (CATH & EP)

STS (SURGERY/ANESTHESIA)

PC4 (CICU)

PAC3 (STEPDOWN)

Quality Improvement for Institutions

The Society of Thoracic Surgeons

PEDIATRIC CARDIAC CRITICAL CARE CONSORTIUM
PC4 Improving outcomes and quality through collaboration

CNOC Cardiac Neurodevelopmental Outcome Collaborative

PAC3 Pediatric Acute Care Cardiology Collaborative

Quarterly Data Submissions

Bi-annual Data Submissions

Real-time Data Submissions

Real-time Data Submissions

Multidisciplinary Team Covering Both Mission Bay and Oakland campuses

- 1.0 RN Data Manager
- 2.0 FTE RN Data Analyst, 1 Part Time RN Data Analyst
- **Support the following Pediatric Heart Center activities**
  - National registry data submission and reporting (STS, PC^4, PAC^3, IMPACT, CNOC, CCRC)
  - Data driven quality initiatives (Target Based Care, Wound Complication Group)
  - Morbidity and Mortality review (Peer Review - monthly, PHC QI – monthly)

Some Highlights / Accomplishments

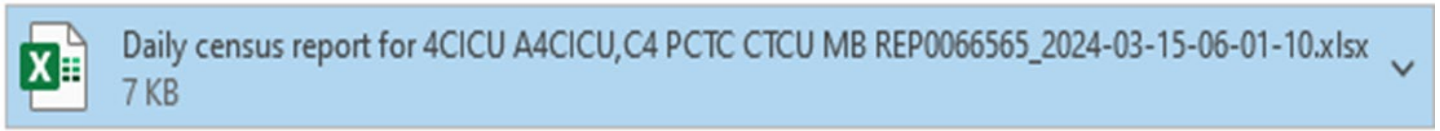
- Transition to PHC Tableau Dashboard (from Qlikview)
- USNWR Survey Completion (annually)
- Leapfrog Hospital Survey (annually)
- Optum Survey (annually)
- RFI / RFPs
- JHACO Survey data support
- Supporting multiple QI and research initiatives annually

PHC Patient Volume 2023

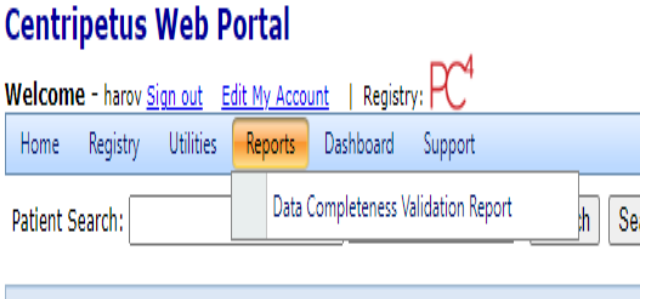
- 406 admissions for PC^4
- 481 admissions for PAC^3
- 617 IMPACT encounters
- Heart Center Data Champions:
  - Suzanne Strong, PHC Manager
  - Becki Mai, PAC^3 and STS
  - Viki Haro, PC^4 and IMPACT
  - Mina Vafaeezadeh, STS, CCRC, PAC^3, PHTS

Daily Census

- Daily census used to track discharges, transfers and admissions, daily updates for inpatients.
- Saved to shared drive folder Monday- Friday.

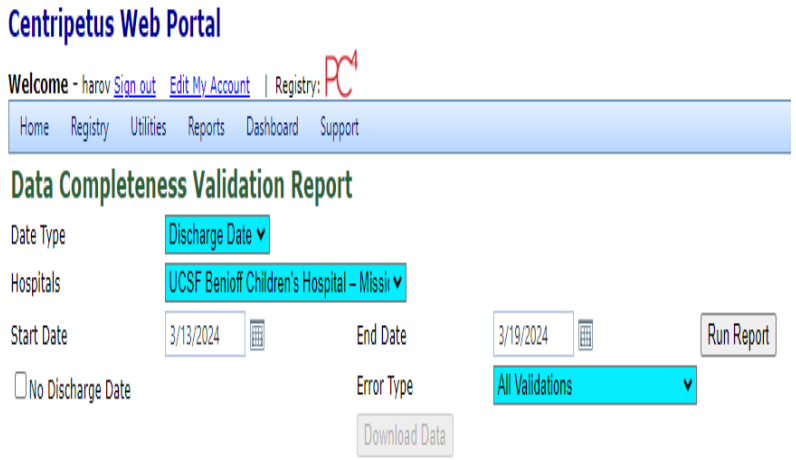


Data Completeness Validation Report



- Report run every Wednesday to generate a list of discharges for DC Review meeting on Friday

Data Completeness Validation Report



- View of DCVR to generate weekly list of discharges for review

Discharge Review Prep

Discharge review list includes Pat ID, Event ID, Patient Name, MRN, Admit Date and Discharge Date.

The DCVR patient list is reviewed by STS, PAC^3 and PC^4, and IMPACT Heart Center data team on Thursday before Friday DC Review meeting.

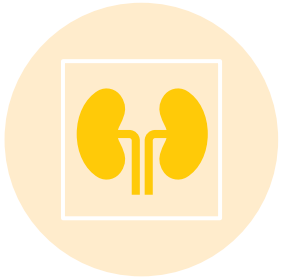
PC4						
Patient ID	Event ID	First Name	Last Name	Med Rec #	Admit Date	Discharge Date

Discharge Review Prep

Data fields that are reviewed on Fridays

FUNDAMENTAL DIAGNOSIS

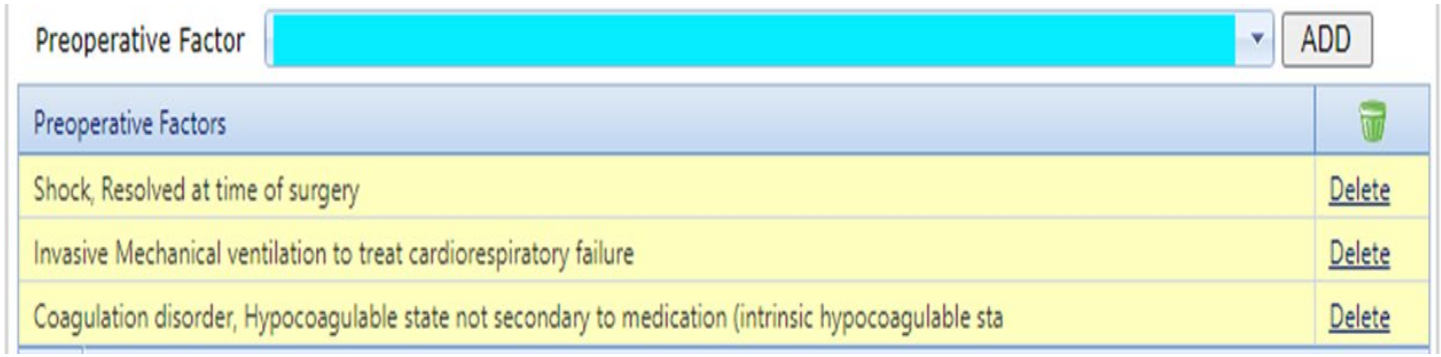
PREOP RISK FACTORS FOR STS AND PC[4]



COMPLICATIONS FOR STS, PC[4] AND PAC[3]

Discharge Review Prep

Sample of Preop Risk Factors

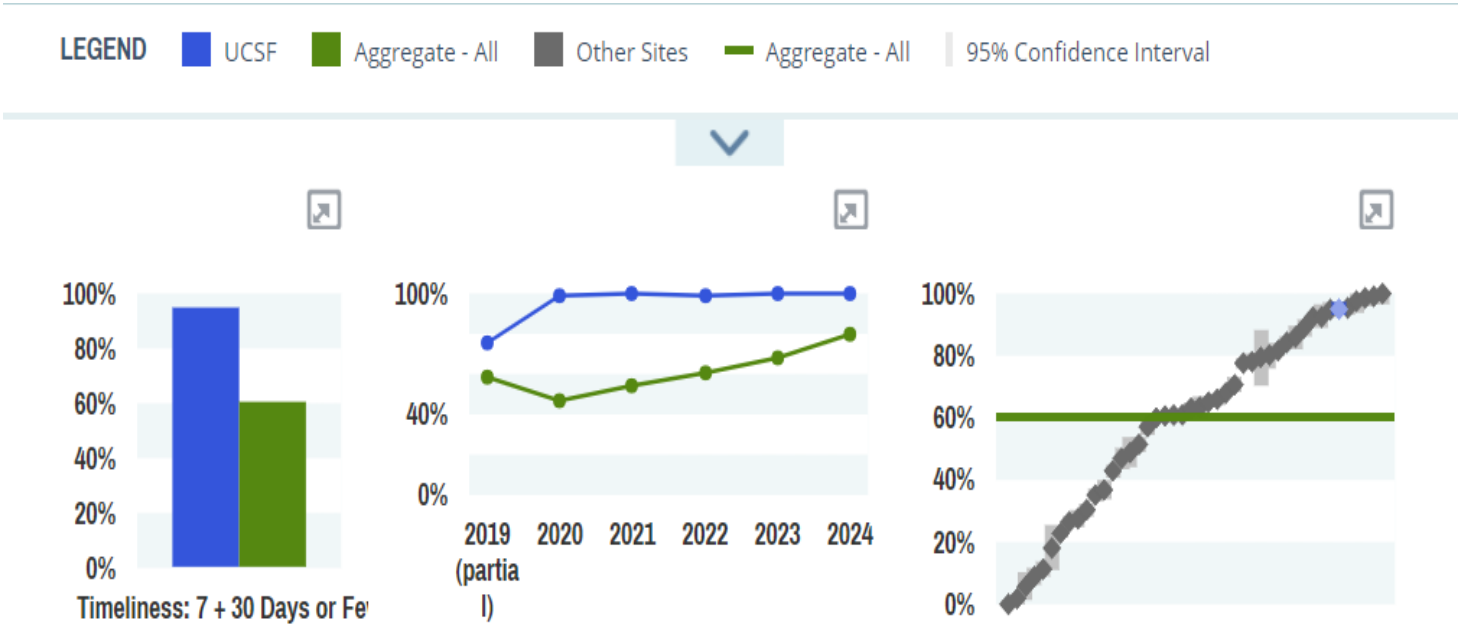


Day of Discharge Review

- CICU attending reviews fundamental diagnosis, STS procedure diagnosis, and STS procedure codes
- PC^4 physician lead reviews all PC^4 data fields, surgical, and cath data fields
- PAC^3 physician lead reviews PAC^3 data fields

UCSF Timeliness for PC[4] Data Submission

UCSF Timeliness for PAC[3] Data Submission



PC⁴ Data Abstraction Tool

Jennifer Kreuter RN, BSN

Children's Colorado

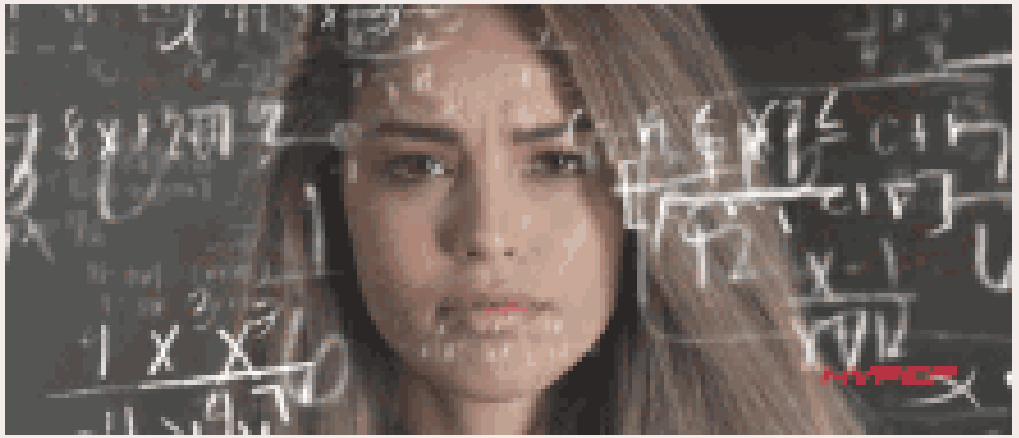
Hosted by children's health

A Little About Our Data Team

- FTE for PC^4/PAC^3: 2.65
- PAC^3 Admissions ~1200/year
- PC4 Admission ~700/year
- Two abstractors for PAC^3, two abstractors for $PC4/PAC^3$ and one PC^4 only
- Goal to cross train at least one or two more abstractors
- Historically retrospective data collection, working towards a hybrid approach
- EPIC and CardioAccess
- Depending on availability of Clinical Champions standing weekly “Office Hours” to review any questions with Clinical Champions
- In Epic we have comprehensive flowsheet that aid in our abstraction efficiency.

Forming the Idea

- The dreaded backlog
  - Outside company tried to sell automated data abstraction
  - A failure that created more of a backlog…
  - Sparked idea to recreate it within our own institution



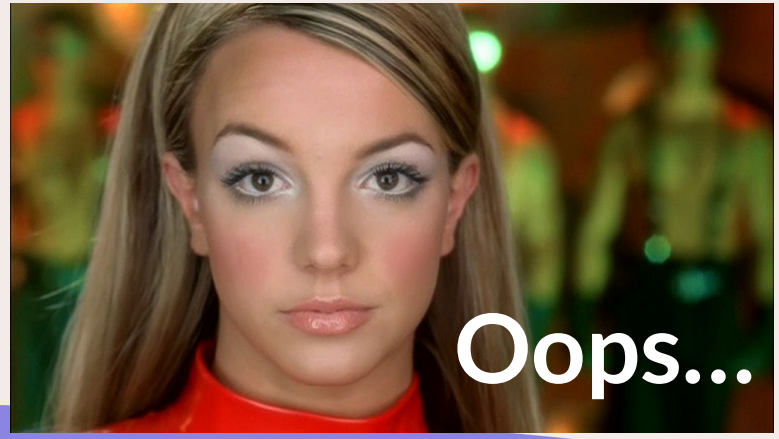
The Partner

- The Analytics Resource Center (ARC) is its own department with software engineers
  - The Heart Institute was lucky enough to have a dedicated software engineer to the whole department.
- ARC can assist with custom dashboards and self-service reports
  - Create a report using Tableau

The Process

- Partnering with ARC and the Heart Institute's "own" software engineer
  - Where to start?
    - What is most time consuming
    - What are discrete data points
  - Defining PC4 definitions/rules
  - Start with a subset
    - Surgical Patients

- Charting is done by humans…
  - Creating overarching "rules" to when things are miss charted or charted out of the normal
  - Finding the source of truth for discrepancies

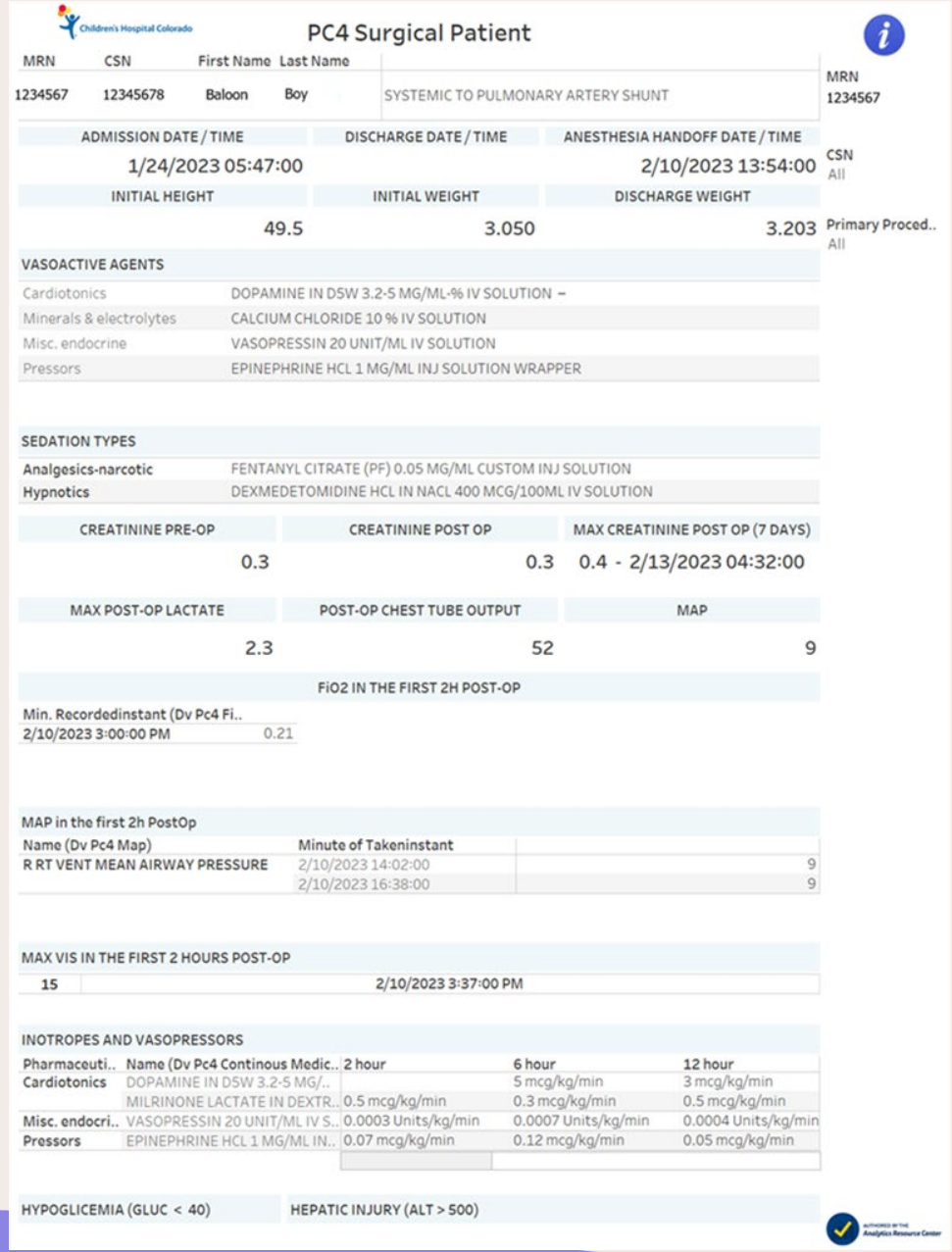


PC4 PAC3

Challenges

- Identifying medication administration routes/times/doses
- Adult dosing vasopressin (units/min) → automatically convert to units/kg/min and when to exclude vasopressin based on dosing
- Defining CICU start and end times
- Finding the various labels labs can be listed multiple ways
- Setting up face time with the software engineer to show data points to pinpoint source of truth
- Validating enough unique cases to know the tool is correct in multiple situations.

The (Almost) Finished Product



Children's Hospital Colorado

PC4 Surgical Patient

MRN	CSN	First Name	Last Name	
1234567	12345678	Baloon	Boy	SYSTEMIC TO PULMONARY ARTERY SHUNT

MRN 1234567

CSN All

Primary Proced.. All

ADMISSION DATE / TIME	DISCHARGE DATE / TIME	ANESTHESIA HANDOFF DATE / TIME
1/24/2023 05:47:00		2/10/2023 13:54:00

INITIAL HEIGHT	INITIAL WEIGHT	DISCHARGE WEIGHT
49.5	3.050	3.203

VASOACTIVE AGENTS

Cardiotonics	DOPAMINE IN D5W 3.2-5 MG/ML-% IV SOLUTION –
Minerals & electrolytes	CALCIUM CHLORIDE 10 % IV SOLUTION
Misc. endocrine	VASOPRESSIN 20 UNIT/ML IV SOLUTION
Pressors	EPINEPHRINE HCL 1 MG/ML INJ SOLUTION WRAPPER

SEDATION TYPES

Analgesics-narcotic	FENTANYL CITRATE (PF) 0.05 MG/ML CUSTOM INJ SOLUTION
Hypnotics	DEXMEDETOMIDINE HCL IN NACL 400 MCG/100ML IV SOLUTION

CREATININE PRE-OP	CREATININE POST OP	MAX CREATININE POST OP (7 DAYS)
0.3	0.3	0.4 - 2/13/2023 04:32:00

MAX POST-OP LACTATE	POST-OP CHEST TUBE OUTPUT	MAP
2.3	52	9

FiO2 IN THE FIRST 2H POST-OP

Min. Recordedinstant (Dv Pc4 Fi..	
2/10/2023 3:00:00 PM	0.21

MAP in the first 2h PostOp

Name (Dv Pc4 Map)	Minute of Takeninstant	
R RT VENT MEAN AIRWAY PRESSURE	2/10/2023 14:02:00	9
	2/10/2023 16:38:00	9

MAX VIS IN THE FIRST 2 HOURS POST-OP

15	2/10/2023 3:37:00 PM

INOTROPES AND VASOPRESSORS

Pharmaceuti..	Name (Dv Pc4 Continous Medic..	2 hour	6 hour	12 hour
Cardiotonics	DOPAMINE IN D5W 3.2-5 MG/..		5 mcg/kg/min	3 mcg/kg/min
	MILRINONE LACTATE IN DEXTR..	0.5 mcg/kg/min	0.3 mcg/kg/min	0.5 mcg/kg/min
Misc. endocri..	VASOPRESSIN 20 UNIT/ML IV S..	0.0003 Units/kg/min	0.0007 Units/kg/min	0.0004 Units/kg/min
Pressors	EPINEPHRINE HCL 1 MG/ML IN..	0.07 mcg/kg/min	0.12 mcg/kg/min	0.05 mcg/kg/min

HYPOGLICEMIA (GLUC < 40)	HEPATIC INJURY (ALT > 500)

PC4 PAC3

Timely Data Submissions

Maria Balbin, MPH, BSN
Mekdela (Mickey) Tirfe, MSN, RN, BSN
Children's National Hospital

Hosted by children's health

Agenda/Summary

- Background of Children's Hospital
- Data Champion structure
- EMR & Software Vendor
- Data collection process
- What helped us?
- What's next?

Children's National

Children's National Hospital – Washington, DC

CICU

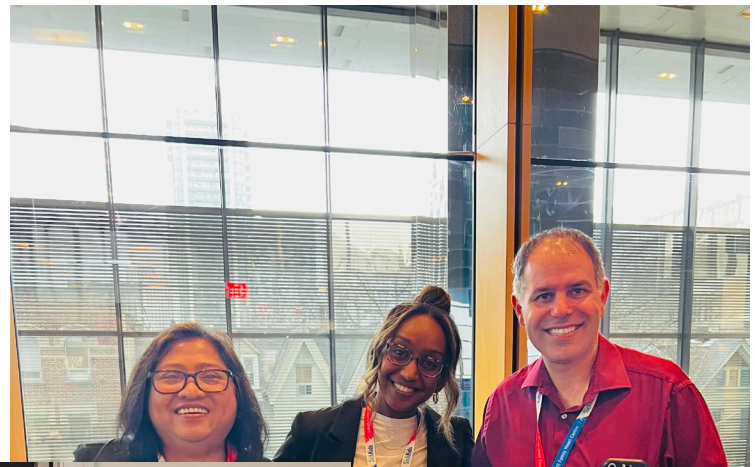
- Critical intensive care unit
- 26 beds

HKU

- Acute care cardiology unit
- 20 beds

Children's National

Team Structure



2019

PAC[3] 1 FTE

- Maria Balbin (2021)
- Dr. Ashraf Harahsheh

2014

PC[4] 1 FTE

- Mekdela Tirfe (2019)
- Dr. Yuliya Domnina

1997

STS 1 FTE

- Janet Kreutzer (2022)
- Dr. Can Yerebakan

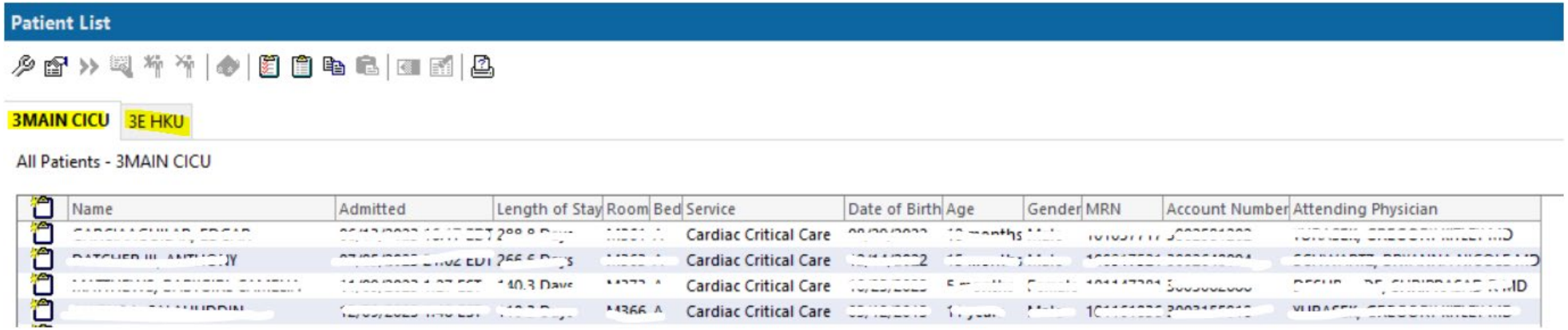
2 New Openings .5 FTE

- Remote Data Coordinator
- Remote Data Analyst

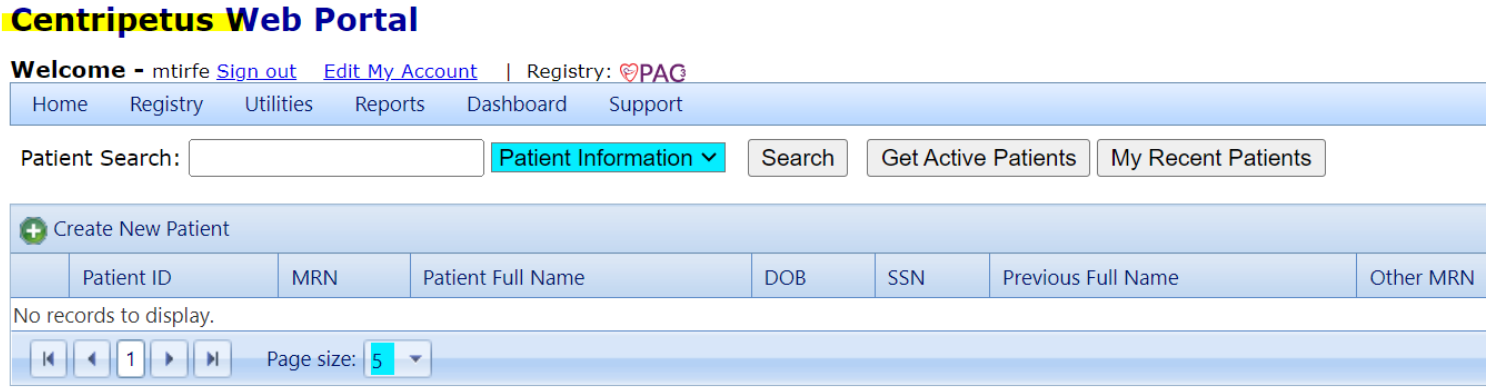
Children's National

EMR & Software Vendor

- Electronic Medical Record: Cerner



- Software Vendor: CardioAccess



Children's National

BACKLOG

NO FULL TIME FTE PRIOR TO US

COVID

AUDIT

Children's National

Retrospective Data Collection Process

Run 2 week-discharge report (HealtheAnalytics)

Place report in shared Discharge Teams spreadsheet

Place discharged patients in respective (PAC^3/PC^4) spreadsheet

Open CardioAccess

Open Cerner, and paste any new admissions into (PAC^3/PC^4) spreadsheet

Use CNHI data flowsheet (2022) for data abstraction

Once case is submitted, GREEN line in shared discharge spreadsheet

Questions about a case – highlight yellow & comment

Children's National

What helped us?

Meetings

- Meeting with PAC[3] Mentor & PC[4] Database collector
- Clinical Champion meetings
- Turbo Sessions & QI meetings

Reports

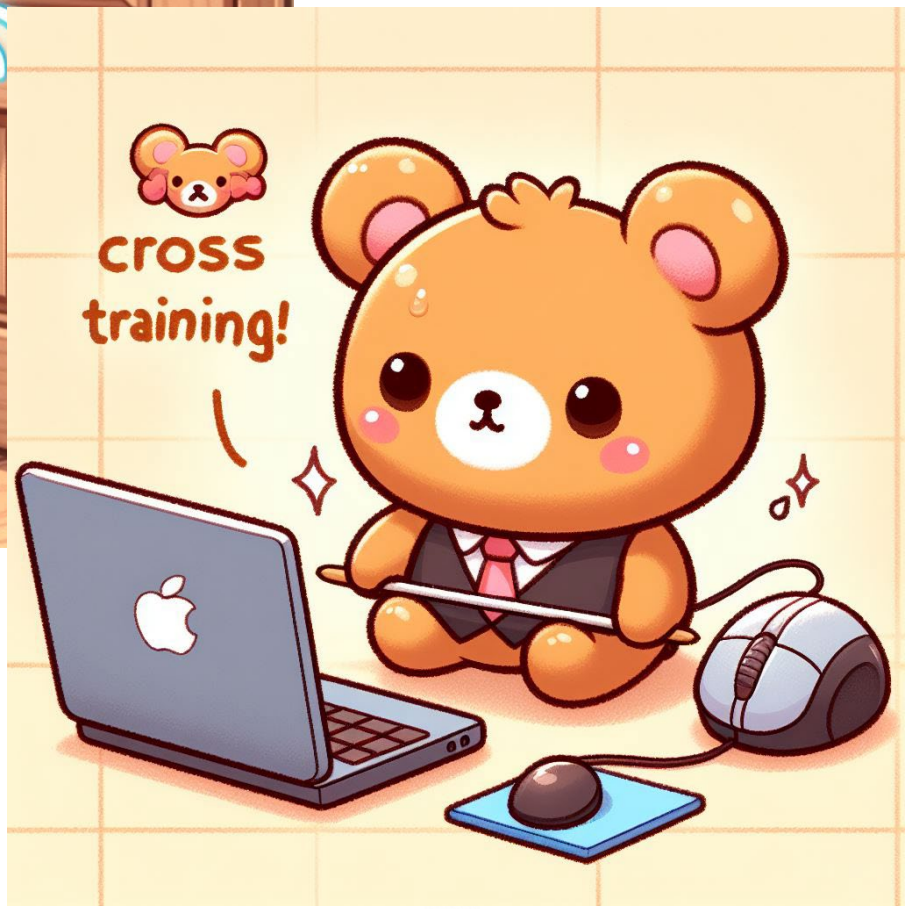
- Discharge report every 2 weeks
- Census Adjudication every 6 months

Communication

- Teams chat between data champions for discrepancies
- Openly communicate with departments
- Open communication with CardioAccess support

Children's National

What's ne



Thank you – Questions/Comments

- Maria Balbin, MPH, BSN
  - Mbalbin@childrensnational.org
- Mekdela Tirfe, MSN, RN, BSN
  - Mtirfe@childrensnational.org

Children's National

Discharge Spreadsheet

	A	B	C	D	E	F	G	H	I	J	K
1	Encounter Alias	Last Name	First Name	Birth Date	Zip Code	Admission Type	Classification	Admission/Arrival Date-Time	Discharge Date-Time	Hospital Service	Nurse Unit
2						Emergency	Inpatient	2/28/2024 18:42	3/11/2024 16:04	Cardiology	3E HKU
3						Elective	Inpatient	3/19/2024 10:58	3/22/2024 17:05	Cardiovascular Surgery	3E HKU
4						Elective	Inpatient	3/19/2024 10:58	3/22/2024 17:05	Cardiovascular Surgery	3MC
5						Elective	Inpatient	3/13/2024 6:10	3/18/2024 16:19	Cardiovascular Surgery	3MC
6						Elective	Inpatient	3/13/2024 6:10	3/18/2024 16:19	Cardiovascular Surgery	3E HKU
7						Emergency	Inpatient	3/11/2024 0:21	3/18/2024 17:34	Hospital Medicine	3MC
8						Emergency	Inpatient	3/15/2024 21:57	3/21/2024 23:41	Cardiology	3E HKU
9						Emergency	Inpatient	3/11/2024 23:07	3/17/2024 21:02	Hospital Medicine	3E HKU
10						Elective	Inpatient	3/19/2024 20:51	3/21/2024 15:43	Cardiology	3E HKU
11				1		Elective	Inpatient	2/22/2024 16:10	3/21/2024 12:00	Critical Care Medicine	3MC
12				1		Emergency	Inpatient	3/13/2024 15:01	3/15/2024 17:07	Cardiology	3E HKU
13						Emergency	Inpatient	3/9/2024 11:47	3/21/2024 20:02	Cardiology	3E HKU
14						Emergency	Inpatient	3/9/2024 11:47	3/21/2024 20:02	Cardiology	3MC
15						Emergency	Inpatient	3/6/2024 8:37	3/11/2024 16:20	Cardiology	3E HKU
16						Elective	Inpatient	3/13/2024 6:07	3/19/2024 21:02	Cardiovascular Surgery	3MC
17						Elective	Inpatient	3/13/2024 6:07	3/19/2024 21:02	Cardiovascular Surgery	3E HKU
18						Emergency	Inpatient	3/17/2024 0:53	3/19/2024 21:51	Cardiac Critical Care	3MC
19						Elective	Inpatient	3/8/2024 7:11	3/12/2024 14:58	Cardiovascular Surgery	3E HKU
20						Elective	Inpatient	3/8/2024 7:11	3/12/2024 14:58	Cardiovascular Surgery	3MC
21						Elective	Inpatient	3/21/2024 7:26	3/24/2024 15:49	Cardiovascular Surgery	3MC
22						Elective	Inpatient	3/21/2024 7:26	3/24/2024 15:49	Cardiovascular Surgery	3E HKU
23						Elective	Inpatient	3/14/2024 7:17	3/16/2024 19:01	Cardiac Critical Care	3MC
24						Elective	Inpatient	3/12/2024 7:25	3/17/2024 15:56	Cardiovascular Surgery	3E HKU

01012024-01142024 | 0115-1282024 | 0129-02112024 | 0212-02252024 | 0226-03102024 | 0311-03242024 +

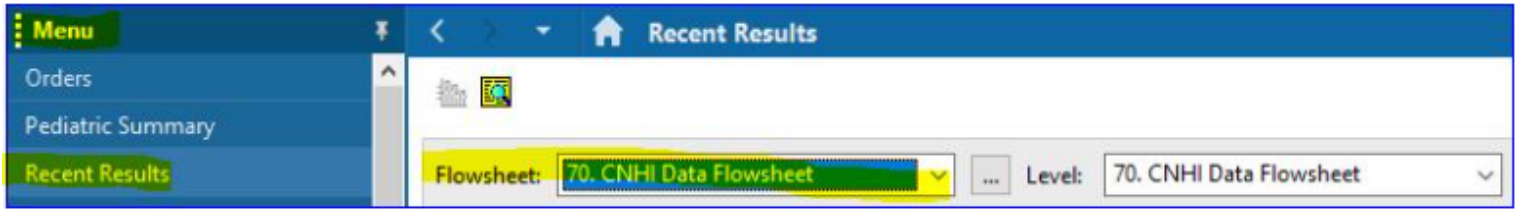
Children's National

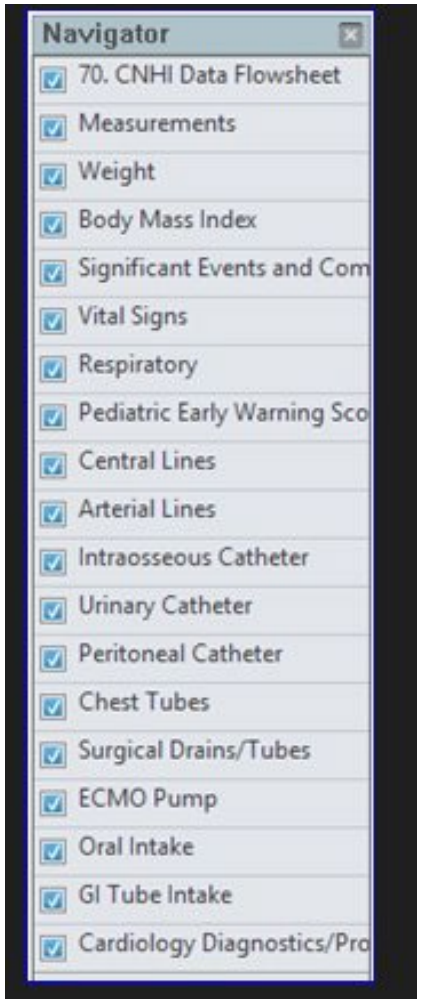
Respective registry Teams spreadsheet

	A	B	C	D	E	F	G	H	I	J	K
1	Admit	Encounter	Patient Name	MRN	Location	Status	Comments	Updated	IUM	Date Entere	Discharged
2	2/1/2024	2/1/2024			Discharged	Submitted				2/29/2024	2/6/2024
3	2/1/2024	2/1/2024			Discharged	Submitted				3/8/2024	2/10/2024
4	2/2/2024	2/2/2024			Discharged	Submitted				3/12/2024	2/14/2024
5	2/2/2024										
6	2/2/2024	2/3/2024			Discharged	Submitted				2/29/2024	2/7/2024
7	2/4/2024	2/4/2024			Discharged	Submitted	planned admission?			3/12/2024	2/16/2024
8	2/4/2024	2/4/2024			Discharged	Submitted				2/29/2024	2/8/2024
9	2/6/2024	2/6/2024			Discharged	Submitted				3/11/2024	2/12/2024
10	2/6/2024	2/6/2024			Discharged	Submitted	Surgical status?			3/12/2024	2/17/2024
11	1/29/2024	2/5/2024			Discharged	Submitted	CLABSI 2/5?			3/27/2024	3/5/2024
12	2/6/2024										
13	2/7/2024	2/7/2024			Discharged	Submitted				3/11/2024	2/11/2024
14	2/1/2024	2/7/2024			Discharged	Submitted				3/8/2024	2/10/2024
15	2/7/2024	2/8/2024			Discharged	N/A	PICU Overflow				
16	2/8/2024	2/8/2024			Discharged	Submitted				3/11/2024	2/11/2024
17	2/8/2024	2/8/2024			Discharged	N/A	PICU Overflow				
18	2/8/2024										
19	2/8/2024	2/8/2024			Discharged	N/A	PICU Overflow				
20	2/10/2024	2/10/2024			Discharged	Submitted				3/11/2024	2/12/2024
21	2/10/2024										
22	1/29/2024	2/11/2024			Discharged	Submitted	Admitted for multioorgan failure? S			3/27/2024	3/5/2024
23	2/12/2024	2/12/2024			Discharged	Submitted				3/18/2024	2/18/2024
24	2/12/2024	2/12/2024			Discharged	Submitted				3/18/2024	2/20/2024

Children's National

Data Collection Process





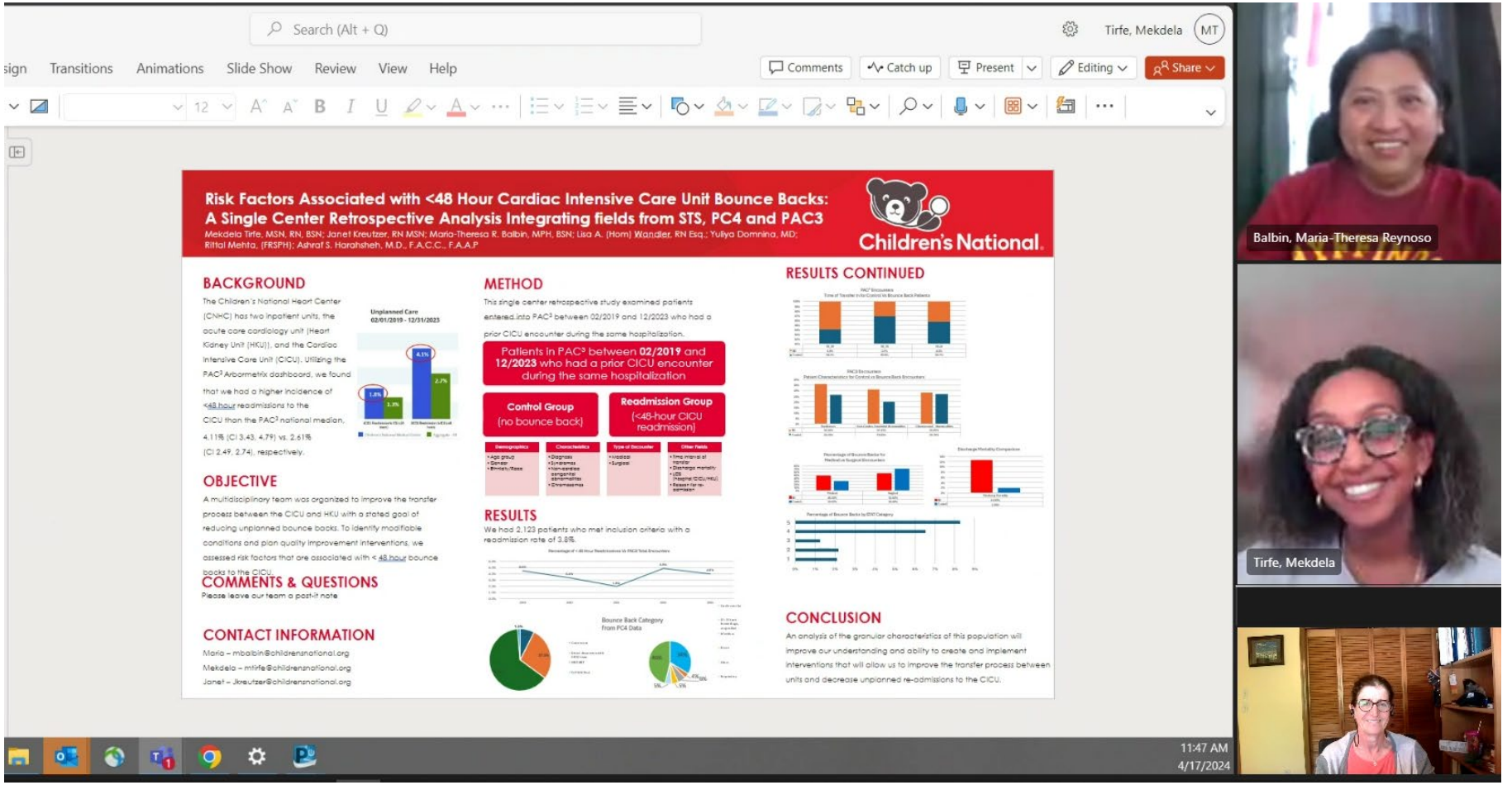
Children's National

Finished discharge spreadsheet

	A	E	F	G	H	I	J	K	L
1	Encounter Alias	Zip Code	Admission Type	Classification	Admission/Arrival Date-Time	Discharge Date-Time	Hospital Service	Nurse Unit	Comments
2			Emergency	Inpatient	2/28/2024 18:42	3/11/2024 16:04	Cardiology	3E HKU	
3			Elective	Inpatient	3/19/2024 10:58	3/22/2024 17:05	Cardiovascular Surgery	3E HKU	
4			Elective	Inpatient	3/19/2024 10:58	3/22/2024 17:05	Cardiovascular Surgery	3MC	
5			Elective	Inpatient	3/13/2024 6:10	3/18/2024 16:19	Cardiovascular Surgery	3MC	Review Cardiac Arrest
6			Elective	Inpatient	3/13/2024 6:10	3/18/2024 16:19	Cardiovascular Surgery	3E HKU	
7			Emergency	Inpatient	3/11/2024 0:21	3/18/2024 17:34	Hospital Medicine	3MC	
8			Emergency	Inpatient	3/15/2024 21:57	3/21/2024 23:41	Cardiology	3E HKU	Ask about Cath

Children's National

Data Team on Turbo Session (Wednesdays)



Children's National

CardioAccess Flowsheet Data

Chona Mariano, RN, BSN

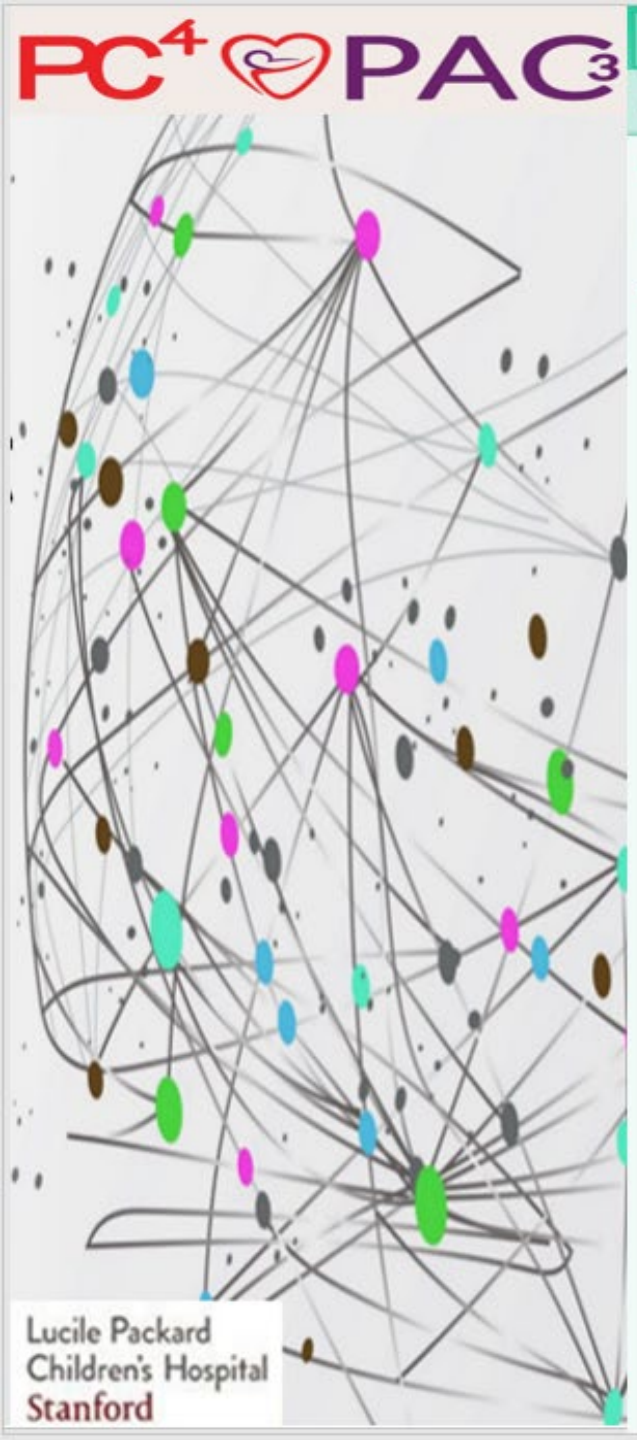
Lucile Packard Children's Hospital

Hosted by children's health

CardioAccess

Comprehensive Flowsheet

Lucile Packard
Children's Hospital
Stanford



Epic

Flowsheets | Results Review | MAR | Chart Review | Care Everywhere | Medications | Summary | SnapShot | Patient Station | Sear

Flowsheets

File | Cosign | LDA Avatar | Add Col | Insert Col | Hide Comp'd | Last Filed | Reg Doc | Graph | Go to Date

Critical Care Vital S... | Critical Care Assessment | Peds Intake/Output | IV Assessment | ECMO | Mechanical Support | CRRT | Her

Search (Alt+Comma)

Hide All Show All

- WARMING COOLING/MEASURES
- VITAL SIGNS
- HEMODYNAMIC MEASURES
- PAIN ASSESSMENT AND INTE...
- SEDATION/PARALYTIC ASSES...
- PROVIDER NOTIFICATION
- BLOOD GAS RESULTS
- COMFORT/DEVELOPMENTAL ...
- CHEMICALLY PARALYZED PATI...
- COMA SCALE
- BASELINE DELIRIUM SCALE
- DELIRIUM SCALE
- SEDATION/PARALYTIC ASSES...
- VENTILATOR INFORMATION
- WITHDRAWAL ASSESSMENT
- APNEA/BRADYCARDIA/DESAT ...
- PRECEPTOR VERIFICATION
- SHIFT EVENT
- BEDSIDE PROCEDURE(S)
- ICU TIME OUT
- CLINICAL MEASUREMENTS

Accordion | Expanded | View All

CardioAccess Flowsheet Data

Go to now | 3/12/2024 | 03/12/24 - 03/12/24

Timeline | 24 Hrs | 8 Hrs | 4 Hrs | 1 Hr | 15 Min | All

	Perioperative Department					Cardiovascular Intensive Care 220												
15 Min:	1601	1616	1631	1646	1701	1716	1731	1746	1801	1816	1831	1846	1901	1916	1931	1946	2001	2016
Infusions																		
Calcium Chloride (mg/kg/hr)					*10 m...			10 mg...				10 mg...				10 mg...		7.5 m...
Dexmedetomidine (mcg/kg/hr)					*1 mc...			1 mcg...				1 mcg...	1.2 m...			1.2 m...		
Dopamine (mcg/kg/min)					*3 mc...			3 mcg...				3 mcg...				3 mcg...		
Epinephrine (mcg/kg/min)					*0.05...			0.05 ...				0.05 ...				0.05 ...		
Fentanyl (mcg/kg/hr)					*3 mc...			3 mcg...				3 mcg...				3 mcg...		
Morphine (mcg/kg/hr)																		
Morphine (mg/kg/hr)																	0.05 ...	
Nitroglycerin (mcg/kg/min)					*1 mc...			1 mcg...				1 mcg...				1 mcg...		
Vasopressin (mu/kg/min)					*0.7 ...			0.7 m...		0.6 m...		0.6 m...		0.5 m...		0.5 m...		
Vecuronium (mg/kg/min)					*0.1 ...			0.1 m...				0.1 m...				0.1 m...		
Oxygen Saturation																		
Cerebral Oxygen Saturation #1 (%)																68		
Cerebral Oxygen Saturation Prob...																Foreh...		
Somatic #1 Oxygen Saturation Pr...																Flank		
Vital Signs																		
SpO2						99+	98	99	99	99	99	98				98		
Renal O2 Saturation																95		
Cerebral Oxygen Saturation #1 (%)																68		
Oxygenation																		
FiO2						78	80	80	70+	65	60	55				55		
O2 Therapy						Invas...		Invas...								Invas...		
Vent Measured																		
MAP (cm H2O)						10												
Resp Monitors																		
ETCO2 (mmHg)							38	39	37	37	38	38				30		
iNO																		
iNO Delivery Device																		
$ Inhaled Nitric Oxide (ppm)						20												
Results Review																		
Creatinine, Ser/Plas					0.26		0.24											
Lactate, iSTAT		3.79				3.76				2.72			3.24					3.25
Glucose, Ser/Plas					319[C]		278											
ALT (SGPT), Ser/Plas					23		26											
AST (SGOT), Ser/Plas					109		121											

Intraop / Postop

Arrest with CPR≥10 minutes during procedure	No		
Left OR with open sternum	Yes		
Postop Lactate available (first 2 hrs postop)	Yes	Max Postop lactate (mmol/L)	3.8
2 hour Postop chest tube output (cc)	38		
Invasive vent at 2 hours postop	Yes		
FiO2 available	Yes	FiO2	0.55
Mean airway pressure available	Yes	MAP	10.000
POD0 or POD1 Cr available:	Yes	First postop Cr	0.3 *mg/dL*
Any CICU postop Cr (through POD7):			
Max postop cr (through POD7):	0.3 *mg/dL*	Max postop Cr date	3/15/2024

Any Inotropic/vasopressor infusion in first 2 postop hours: Yes

Dopamine (mcg/kg/min)	3.0	Dobutamine (mcg/kg/min)	0.0
Epinephrine (mcg/kg/min)	0.05	Norepinephrine (mcg/kg/min)	0.00
Milrinone (mcg/kg/min)	0.00	Vasopressin (units/kg/min)	0.0007

Inotrope/Vasopressor Timepoints

Set Infusion y/n to No

Timepoint	Date/Time	Infusion y/n	Dopamine	Dobutamine	Epi	Norepi	Milrinone	Vasopressin	VIS Score	
6 hrs postop	3/12/2024 23:01									Edit
12 hrs postop	3/13/2024 05:01									Edit
18 hrs postop	3/13/2024 11:01									Edit
24 hrs postop	3/13/2024 17:01									Edit
30 hrs postop	3/13/2024 23:01									Edit
36 hrs postop	3/14/2024 05:01									Edit
42 hrs postop	3/14/2024 11:01									Edit
48 hrs postop	3/14/2024 17:01									Edit
06:00 on POD 3	3/15/2024 06:00									Edit
06:00 on POD 4	3/16/2024 06:00									Edit
06:00 on POD 5	3/17/2024 06:00									Edit
06:00 on POD 6	3/18/2024 06:00									Edit
06:00 on POD 7	3/19/2024 06:00									Edit

PC4 PAC3

Lucile Packard Children's Hospital Stanford

Infusions

Vasoactive

Alprostadil

Calcium Chloride

Clevidipine

Dopamine

Dobutamine

Epinephrine

Fenoldopam

Isoproterenol

Methylene Blue

Milrinone

Nicardipine

Nitroglycerin

Nitroprusside

Norepinephrine

Phentolamine

Phenylephrine

Nicardipine

Vasopressin

Sedation

Cisatracurium

Dexmedetomidine

Fentanyl

Hydromorphone

Ketamine

Propofol

Methadone

Midazolam

Morphine

Vecuronium

Antiarrhythmic

Amiodarone

Esmolol

Flecainide

Labetalol

Lidocaine

Procainamide

Other

Heparin

Bivalirudin

Insulin

Sildenafil

Treprostinil

Epoprosterenol

Notes:

Other meds will be added

Work in progress by IT

CardioAccess Flowsheet Data

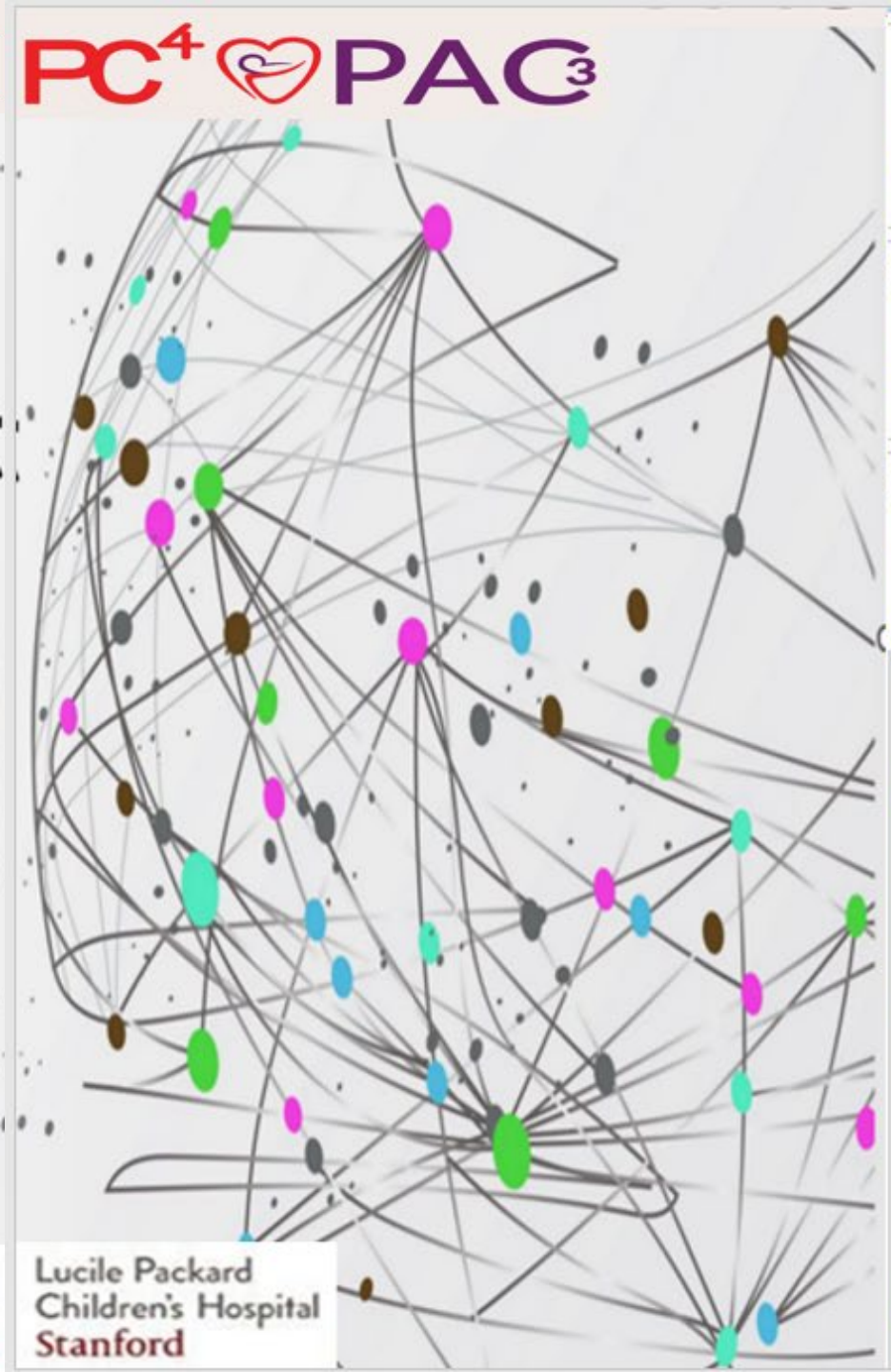
Go to now | 2/12/2024

02/12/24 - 02/15/24

Timeline | 24 Hrs | 8 Hrs | 4 Hrs | 1 Hr | 15 Min | All

Cardiovascular Intensive Care 320

4 Hrs:	02/12 0701 - 02/13 0700						02/13 0701 - 02/14 0700					
	0701	1101	1501	1901	2301	0301	0701	1101	1501	1901	2301	0301
Infusions												
Calcium Chloride (mg/kg/hr)	5 mg...	5 mg...	5 mg...	5 mg...	5 mg...	5 mg...	0 mg...					
Dopamine (mcg/kg/min)	5 mc...	3 mc...	3 mc...	3 mc...	3 mc...	3 mc...	0 mc...					
Epinephrine (mcg/kg/min)	0.03...	0.03...	0.03...	0.03...	0.03...	0.03...	0.02...	0.01...	0 mcg...			
Morphine (mcg/kg/hr)	2.7mL	2.7mL	1.2mL	1.1mL	1.3mL	1.1mL	1mL					
Morphine (mg/kg/hr)	0.05...	0.03...	0.02...	0.02...	0.02...	0.02...	0 mg...					
Oxygen Saturation												
Cerebral Oxygen Saturation #1 (%)	69	68	72	73	69	73	73					
Cerebral Oxygen Saturation Prob...						Fore...	Foreh...					
Somatic #1 Oxygen Saturation Pr...						Flank	Flank					
Antiarrythmic												
Amiodarone (mg)										13.38...		
Amiodarone (mcg/min)											13.4...	13.4...
Vital Signs												
SpO2	99	100	97	99	100	100	90	88	95	90	93	97
Renal O2 Saturation	42	44	50	57	55	60	59					
Cerebral Oxygen Saturation #1 (%)	69	68	72	73	69	73	73					
Oxygenation												
FiO2	40	40	50	40	40	40	40	40	40	40	50	50
O2 Therapy	Inva...	Inva...	CP...	CPAP	CPAP	CPAP	Oxyg...	Oxyg...	Oxyg...	Oxyg...	Oxyg...	Oxyg...
O2 Device	Vent...	Vent...	CP...	CPAP	CPAP	CPAP	High...	High...	High	High...	High...	High...
Vent Measured												
MAP (cm H2O)	6.3	7.8	7.8	6.3	7	6.1	8					
Resp Monitors												
ETCO2 (mmHg)	50	43										
Results Review												
Creatinine, Ser/Plas					0.17						0.17	
Lactate, iSTAT					3.70	2.12	2.10	1.81	1.61		1.32	
Glucose, Ser/Plas					117						75	
Clinical Measurements												
Weight						2.736...						2.52...
Head Circumference (cm)						32.5						33 cm



Mechanical Ventilation

Create Mechanical Ventilation

CICU discharge	Intubation date/time	Extubation date/time	Extubation planned	Mulitple Modes
No	2/1/2024 17:19	2/12/2024 16:14	Yes	No

1 Page size: 10

CPAP/BiPAP Support

Create PAP Support

PAP CICU Start	PAP Start Date	PAP CICU discharge	PAP End Date		
No	2/12/2024	No	2/13/2024	Edit/View	Delete

1 Page size: 10 1 items in 1 pages

HFNC Support

Create HFNC Support

HFNC CICU Start	HFNC Start Date	HFNC CICU discharge	HFNC End Date		
No	1/30/2024	No	2/1/2024	Edit/View	Delete
No	2/13/2024	No	2/16/2024	Edit/View	Delete

Vasoactive Infusion

List all vasoactive agents that patient received during this CICU encounter

Vasoactive Agent Other vasoactive agent - specify ADD

Vasoactive agents	Other Vasoactive agents
Dopamine	
Calcium infusion	
Epinephrine	
Nitroprusside	
Other agent	Clevidipine

1 Page size: 10 5 item

List the start and end dates for each course of vasoactive support in this encounter

Was this course active at CICU start Date vasoactive course began

Did this course continue through CICU discharge Date vasoactive course ended

Add

Active at CICU Start	Start Date	Active at CICU Discharge	End Date	
No	1/30/2024	No	2/13/2024	Edit/View

CardioAccess Flowsheet Data

Go to now | 2/15/2024

02/15/24 - 02/16/24

Timeline | 24 Hrs | 8 Hrs | 4 Hrs | 1 Hr | 15 Min | All

Neonatal Intensive Care

02/14 0701 - 02/15 0700

1 Hr:	0201	0301	0401	0501	0601	0701	0801	0901	1001	1101	1201	1301
Oxygen Saturation												
Vital Signs												
Oxygenation												
Vent Measured												
Resp Monitors												
Results Review												
Creatinine, Ser/Plas		0.71										
Lactate, iSTAT		3.69			3.19						2.16	
Glucose, Ser/Plas		134										
ALT (SGPT), Ser/Plas		12										
AST (SGOT), Ser/Plas		45										
Warming/Cooling Measures												
Warming/Cooling Measures		Radia...				Radia...	Radia...		Radia...	Radia...		
Type of Bed		Radia...				Radia...	Radia...		Radia...	Radia...		
Bed Set Temp	36.7	36.7		36.7	36.7	36.7	36.7		36.7	36.7		
Temperature Skin	36.8	36.7		36.7	36.7	36.7	36.9		36.7	36.9		
Bedside Procedures												
Minor Procedure Performed at Be...		Line ...		Ultra...	Line ...							

Blood Culture

Blood Culture (Aerobic & Anaerobic Bottles) [815775137] (Abnormal)

Order Status: Completed

Collected: 02/15/24 0642
Updated: 02/17/24 1030

Specimen	Blood, from Arterial Line
Culture	&Aerobic bottle: Streptococcus agalactiae (Group B) !
Performing Lab	Clinical Laboratory Medical Director
Report Status	2/17/2024 Final
BKRINForganism	SBBB !

Chart Review

LDAs | Notes/Trans | Anes | Surg/Periop | Card | Procedures | Media | Labs | Episodes | Meds | Misc Reports | Encounters | Anes/HIM Extracts

Cardiology Snapshot | CardioAccess Flowsheet Report | ADT Events | Flowsheet (Comprehensive) | Snapshot | Code Documentation

CardioAccess Flowsheet Data

Go to now | 12/30/2023

12/30/23 - 12/30/23

Timeline | 24 Hrs | 8 Hrs | 4 Hrs | 1 Hr | 15 Min | All

Cardiovascular Intensive Care 220

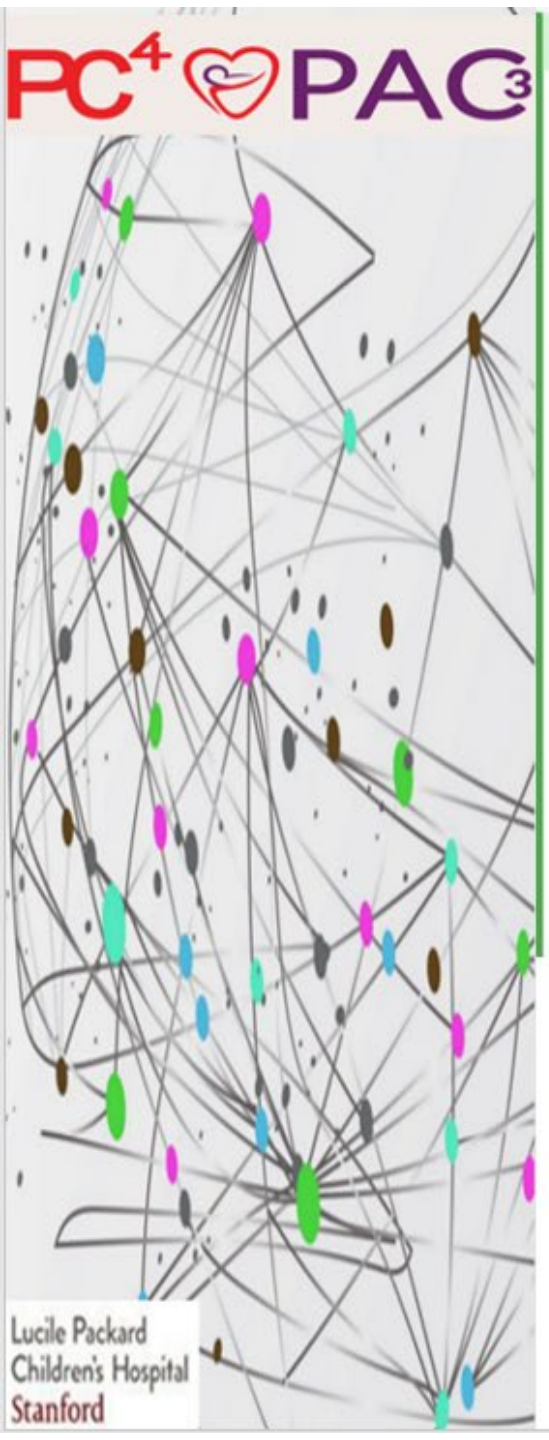
12/29 0701 - 12/30 0700

Time:	0400	0405	0439	0500	0600	0630	0700	0800	0841	0900	1000	1030
Infusions												
Calcium Chloride (mg/kg/hr)	2.5 m...			2.5 m...	2.5 m...		2.5 m...	2.5 m...		2.5 m...	2.5 m...	
Dopamine (mcg/kg/min)	5 mcg...			5 mcg...	5 mcg...		5 mcg...	5 mcg...		5 mcg...	5 mcg...	
Epinephrine (mcg/kg/min)	0.07 ...			0.07 ...	0.07 ...		0.07 ...	0.07 ...		0.07 ...	0.07 ...	
Milrinone (mcg/kg/min)										0 mcg...		
Norepinephrine (mcg/kg/min)		0.02 ...	0.02 ...	0.02 ...	0.02 ...		0.02 ...	0.02 ...		0.02 ...	0.02 ...	0 mcg...
Vasopressin (mu/kg/min)	0.2 m...			0.2 m...	0.2 m...		0.2 m...	0.2 m...		0.2 m...	0.2 m...	
Oxygen Saturation												
Cerebral Oxygen Saturation #1 (%)	61			58	55		63	65		73	73	
Cerebral Oxygen Saturation Prob...				Foreh...	Foreh...		Foreh...	Foreh...		Foreh...	Foreh...	
Somatic #1 Oxygen Saturation Pr...										Flank	Flank	
Antiarrythmic												
Lidocaine (mcg/kg/min)	20 mc...			20 mc...	20 mc...		20 mc...	20 mc...		20 mc...	20 mc...	

Inotrope/Vasopressor Timepoints

Set Infusion y/n to No

Timepoint	Date/Time	Infusion y/n	Dopamine	Dobutamine	Epi	Norepi	Milrinone	Vasopressin	VIS Score
06:00 on POD 4	12/30/2023 06:00	Yes	5.0	0.0	0.07	0.02	0.00	0.0002	16.0
06:00 on POD 5	12/31/2023 06:00	Yes	5.0	0.0	0.03	0.00	0.00	0.0000	8.0



CardioAccess Flowsheet Data

Go to now | 3/15/2024

03/15/24 - 03/15/24

Cardiovascular Intensive Care 220

03/14 0701 - 03/15 0700

15 Min:	0101	0116	0131	0146	0201	0216	0231	0246	0301	0316	0331	0346	0401	0416	0431	0446
Infusions																
Dexmedetomidine (mcg/kg/hr)				1 mcg...		1 mcg...		1 mcg...				1 mcg...				1 mcg...
Dopamine (mcg/kg/min)				2 mcg...				2 mcg...				2 mcg...				2 mcg...
Epinephrine (mcg/kg/min)				0.01 ...				0.01 ...				0.01 ...				0.01 ...
Milrinone (mcg/kg/min)				0.25 ...				0.25 ...				0.25 ...				0.25 ...
Morphine (mcg/kg/hr)				4.3mL				4.3mL				4.3mL				4.3mL
Morphine (mg/kg/hr)				0.07 ...		0.07 ...		0.07 ...				0.07 ...				0.07 ...
Oxygen Saturation																
Vital Signs																
Oxygenation																
Vent Measured																
Resp Monitors																
iNO																
Results Review																
[REMOVED] Chest Tube - 1 Right Chest;Chest, Lower Lateral Pleural 19 French Blake																
[REMOVED] Chest Tube - 2 Right Chest;Chest, Lower Lateral Mediastinal 24 French Standard																
Nutrition																
Diet Type												NPO				
Warming/Cooling Measures																
Pacemaker Information																
Pacemaker Information (Add Row ...	Temp...												Temp...			
Temporary Pacemaker Underlying...	Junct...															
Temporary Pacemaker Status	On												On			
Temporary Pacemaker Rhythm													Paced			
Temporary Pacemaker Function													Pacin...			
Pacer Mode	AAI												AAI			
Upper Rate Setting	125												80			
Sensitivity Atrial	0.5												0.5			
Atrial Output (milliamps)	15												15			
Connections	Conn...															

CardioAccess Flowsheet Data

Go to now | 2/20/2024 | 02/20/24 - 02/21/24

1 Hr:	Cardiovasc...	Interpreter Services	Cardiovascular Intensive Care 220									
											02/20 0701 - 02/21 07	
	0801	0901	1001	1101	1201	1301	1401	1501	1601	1701	1801	1901
Infusions												
Clevidipine (mcg/kg/min)									0.5 m...			
Vital Signs												
SpO2		87	87	88	87	93	93	91+	92		88	91
Oxygenation												
FiO2	100		100		100		100	100	100		100	100
O2 Therapy	Oxyge...		Oxyge...		Oxyge...		Oxyge...	Oxyge...	Oxyge...		Oxyge...	Oxyge...
O2 Device	High ...		High ...		High...+		High ...	High ...	High ...		High ...	High ...
iNO												
iNO Delivery Device					High ...			High ...				High ...
$ Inhaled Nitric Oxide (ppm)					20			20				20
Results Review												
Creatinine, Ser/Plas											0.57	
Lactate, iSTAT									8.72		8.21	9.41
Glucose, Ser/Plas											195	
ALT (SGPT), Ser/Plas											1,779 1,779	
AST (SGOT), Ser/Plas											2,931 2,931	
BNP										5,449		
Nutrition												
Diet Type										Regular		Full ...
Feeding Assistance										Minim...		

EEG

None

Bronchoscopy

None

Cardioaccess flowsheet Revision – Go live May 9

Infusion will be categorized

VasoActive

Sedation

Antiarrhythmic

PH Meds

Other drips

Vital signs

HR

Rhythm

Temp.

Hemodynamics

CVP

PAP

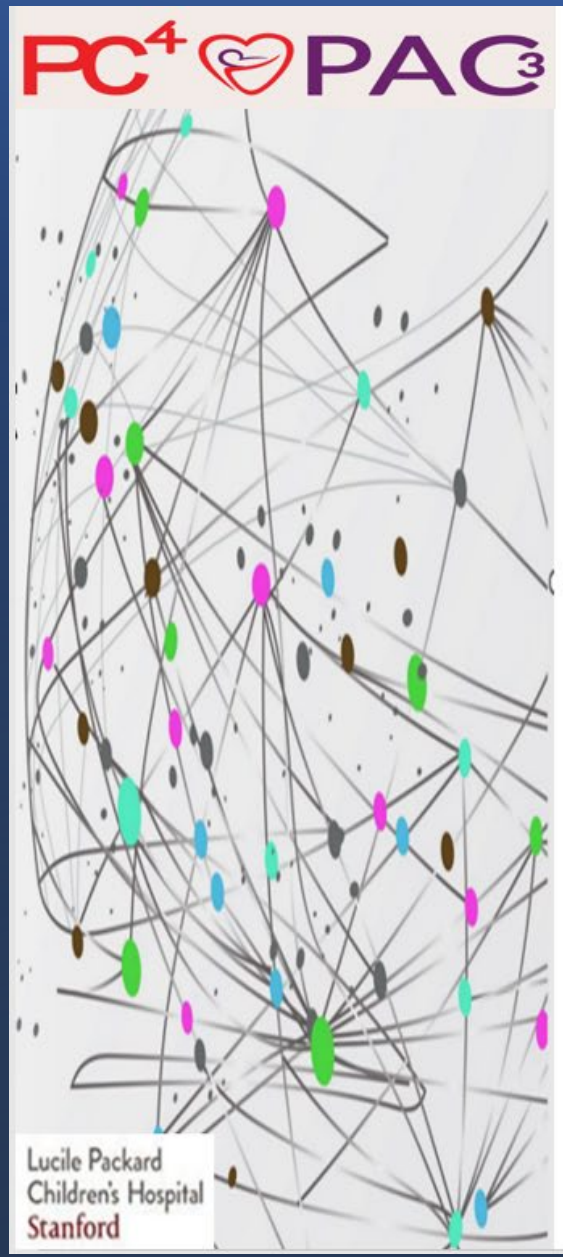
PAP (Mean)

LA Pressure

Advance Directive

Yes

No



If you have any question, suggestion, comments and concerns please feel free to contact me.
Your feedback will be greatly appreciated.

Thank you.

Chona Mariano
Chona Mariano RN,BSN
PC4 Clinical Data Abstractor
Lucile Packard Childrens Hospital
ChMariano@stanfordchildrens.org
Cell:8587055253

PC4 PAC3

A “black box” for making DeGauss addresses

Useful, self-contained automation

Fred Roberts
UPMC Children’s Hospital of Pittsburgh

Jen Schmoker
Children’s Nebraska

Hosted by children’shealth®

Last year

- Demonstrated Excel charts that had value and had potential 
- But would otherwise be difficult for people to implement 

"Excel was invented 1985"

People before 1985:

This year

- Can we showcase something that doesn't require skills to use?

- Yes! 

Recall: database backend access

- CardioAccess runs on Microsoft SQL Server
- The database is “open”, meaning the vendor doesn’t lock the users out
- Access to the tables is vendor-supported
- We will provide the details to hand over to your local IT team to gain access

Why DeGauss?

- It’s something we all have to do
- The addresses are already typed in a database, along with the ID
- We have to upload in CSV format
- If only there was a tool that could read databases and write CSV?

Introducing: *DeGauss CSV builder*

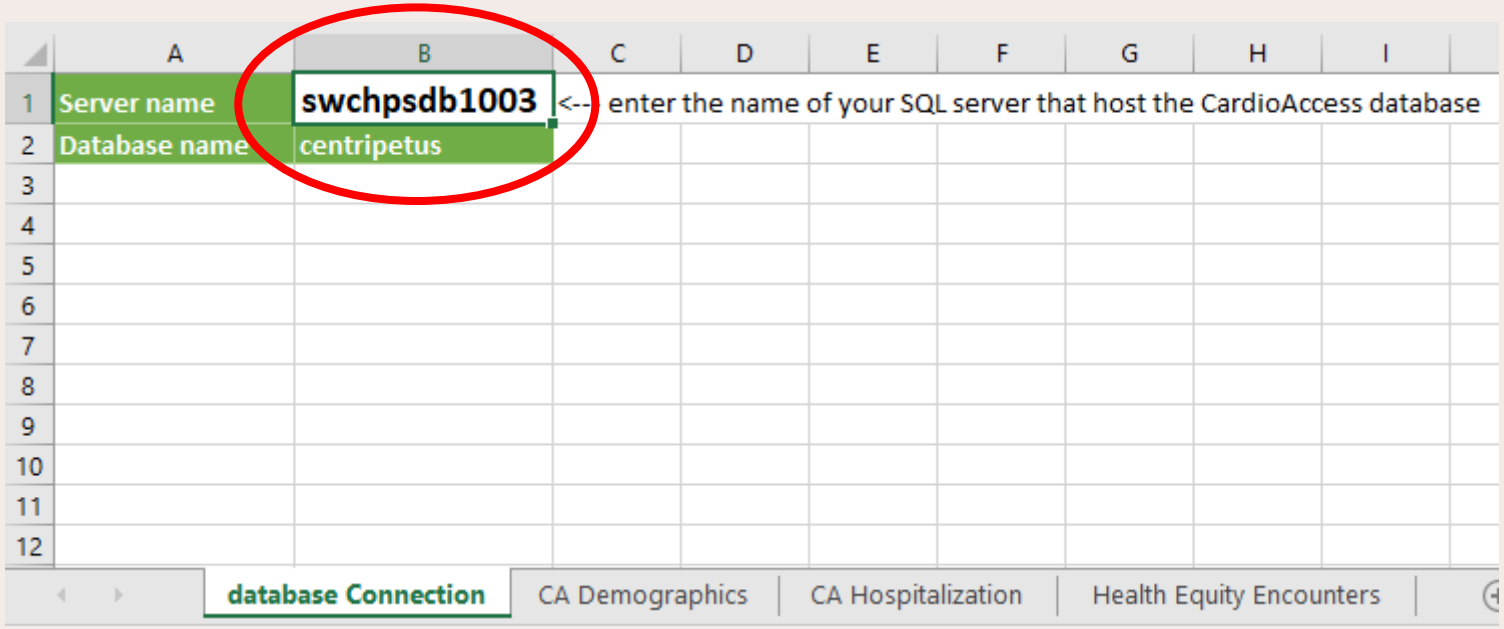
- An example of a tool to streamline a cumbersome process
- Given:
  - To start, the addresses in the database are structured
  - At the other end, the CSV file requirements are structured too
  - We should be able to make a procedure to get from ‘start’ to ‘end’
  - You already know your list of HospitalizationIDs; you just need to attach the addresses
  - *Yes, this will be in Excel*

Red pill or blue pill?

- Will need look up tables
  - Address data is part of a patient row, so we need a list of patients
  - Patients could have many hospitalization rows, so we need that list too
  - We can filter for hospitalizations that happened after H2H / HE began
- Tools
  - 2 queries → pull the patient and hospitalization lists
  - 1 CONCATENATE() → to build the address string
  - 2 VLOOKUPs() → gets the address to the hospitalization, and then to your upload list
  - 3 macros → automate the repetitive steps

DeGauss CSV builder – getting ready

NEW



1. First, save the tool to a folder where you will keep your DeGauss files.
2. Enter your CardioAccess SQL Servername into cell B1

PC4 PAC3

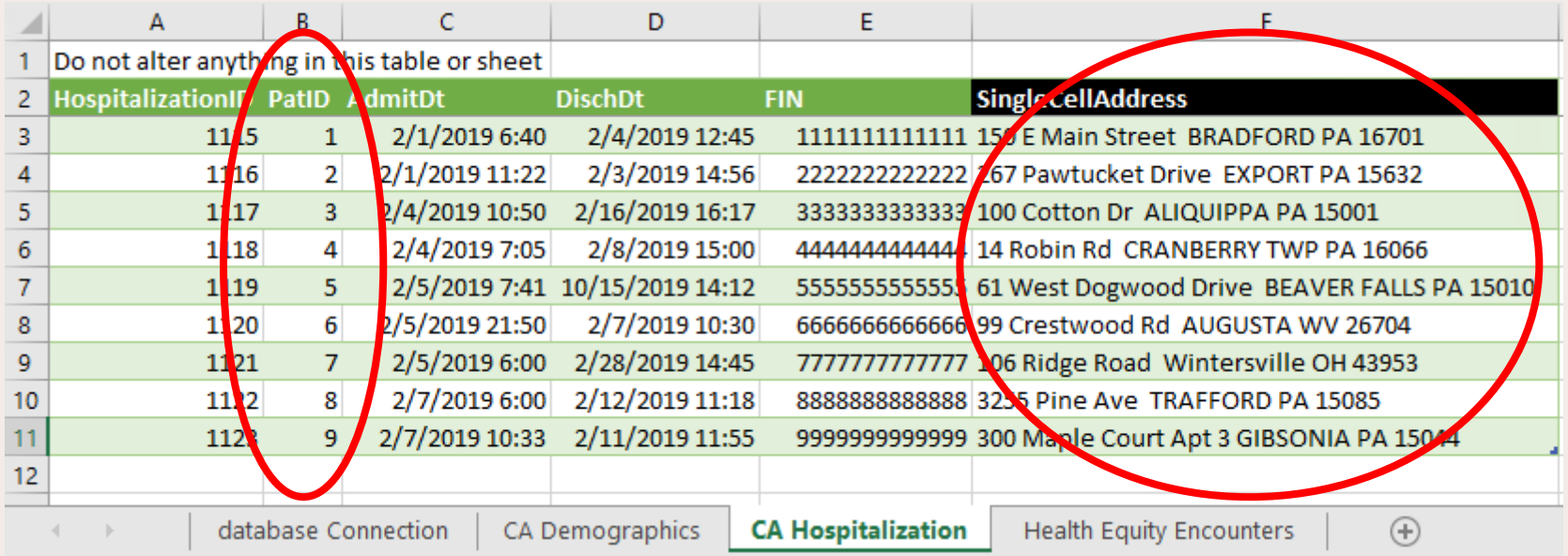
DeGauss CSV builder – getting ready

	A	B	C	D	E	F	G	H	I	J
1	Do not alter anything in this table or sheet									
2	PatID	MedRecN	PatLName	PatFName	PatAddr	PatAddr2	PatCity	PatState	PatZip	SingleCellAddress
3	1	111111111	Malone	Sam	150 E Main Street		BRADFORD	PA	16701	150 E Main Street BRADFORD PA 16701
4	2	222222222	Chambers	Diane	267 Pawtucket Drive		EXPORT	PA	15632	267 Pawtucket Drive EXPORT PA 15632
5	3	333333333	Peterson	Norm	100 Cotton Dr		ALIQUIPPA	PA	15001	100 Cotton Dr ALIQUIPPA PA 15001
6	4	444444444	Clavin	Cliff	14 Robin Rd		CRANBERRY TWP	PA	16066	14 Robin Rd CRANBERRY TWP PA 16066
7	5	555555555	Boyd	Woody	61 West Dogwood Drive		BEAVER FALLS	PA	15010	61 West Dogwood Drive BEAVER FALLS PA 15010
8	6	666666666	Howe	Rebecca	99 Crestwood Rd		AUGUSTA	WV	26704	99 Crestwood Rd AUGUSTA WV 26704
9	7	777777777	Crane	Frasier	106 Ridge Road		Wintersville	OH	43953	106 Ridge Road Wintersville OH 43953
10	8	888888888	Pantuso	Ernie	3255 Pine Ave		TRAFFORD	PA	15085	3255 Pine Ave TRAFFORD PA 15085
11	9	999999999	Tortelli	Carla	300 Maple Court	Apt 3	GIBSONIA	PA	15044	300 Maple Court Apt 3 GIBSONIA PA 15044
12										

database Connection | CA Demographics | CA Hospitalization | Health Equity Encounters

- When you run the tool, it automatically pulls down your patient list from the database
- Column J is a calculation that concatenates the address values into a single field

DeGauss CSV builder – getting ready



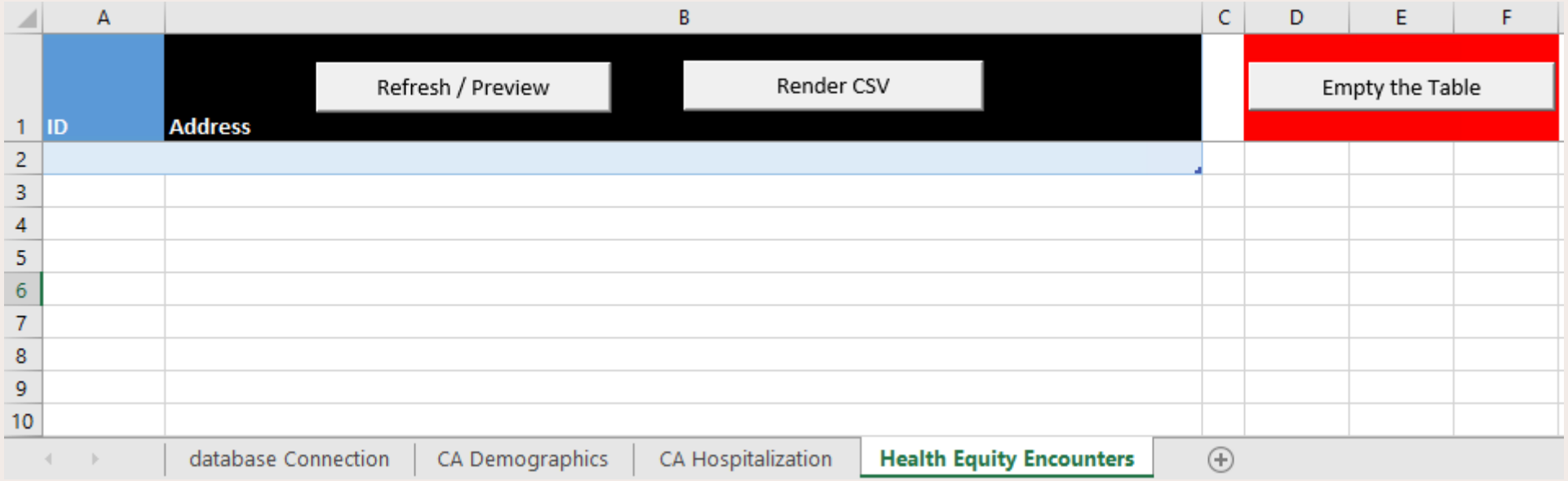
	A	B	C	D	E	F
1	Do not alter anything in this table or sheet					
2	HospitalizationID	PatID	AdmitDt	DischDt	FIN	SingleCellAddress
3	1115	1	2/1/2019 6:40	2/4/2019 12:45	1111111111111	150 E Main Street BRADFORD PA 16701
4	1116	2	2/1/2019 11:22	2/3/2019 14:56	2222222222222	267 Pawtucket Drive EXPORT PA 15632
5	1117	3	2/4/2019 10:50	2/16/2019 16:17	3333333333333	100 Cotton Dr ALIQUIPPA PA 15001
6	1118	4	2/4/2019 7:05	2/8/2019 15:00	4444444444444	14 Robin Rd CRANBERRY TWP PA 16066
7	1119	5	2/5/2019 7:41	10/15/2019 14:12	5555555555555	61 West Dogwood Drive BEAVER FALLS PA 15010
8	1120	6	2/5/2019 21:50	2/7/2019 10:30	6666666666666	99 Crestwood Rd AUGUSTA WV 26704
9	1121	7	2/5/2019 6:00	2/28/2019 14:45	7777777777777	106 Ridge Road Wintersville OH 43953
10	1122	8	2/7/2019 6:00	2/12/2019 11:18	8888888888888	3255 Pine Ave TRAFFORD PA 15085
11	1123	9	2/7/2019 10:33	2/11/2019 11:55	9999999999999	300 Maple Court Apt 3 GIBSONIA PA 15044
12						

database Connection | CA Demographics | **CA Hospitalization** | Health Equity Encounters

- Likewise, the hospitalization table fills
- Note: the address is brought in by using a VLOOKUP on the PatID

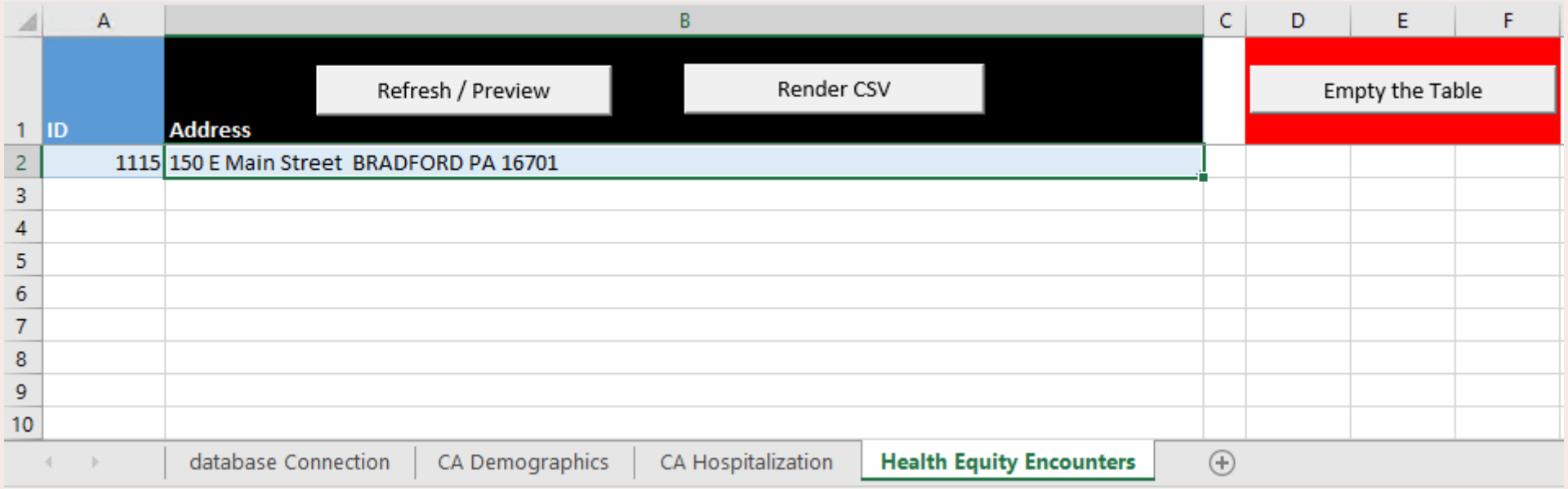
PC4 PAC3

DeGauss CSV builder – Usage



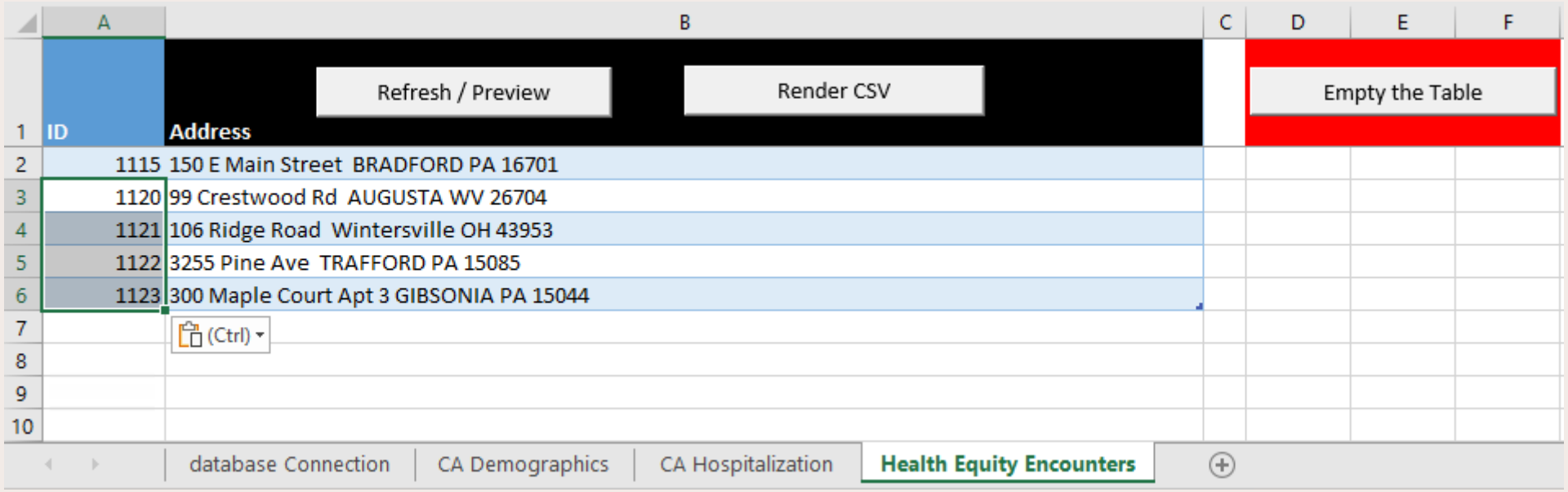
- Simply type a value in the ID column

DeGauss CSV builder – Usage



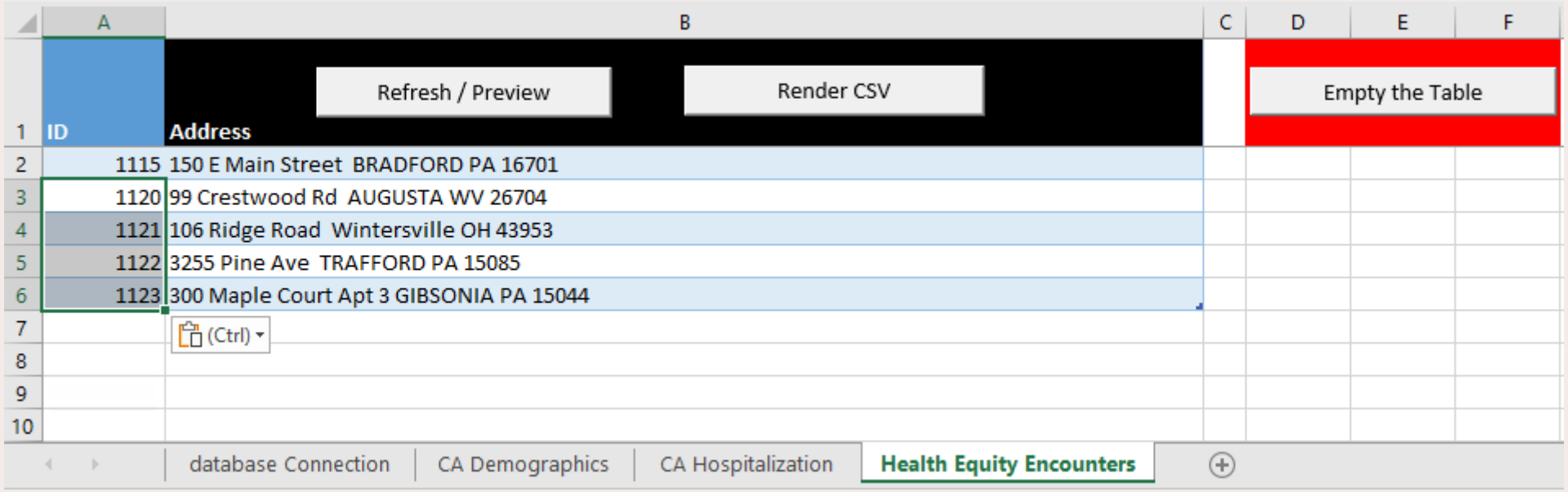
- Simply type a value in the ID column, press TAB
- The address column uses a VLOOKUP function to fetch the address value from the hospitalization table

DeGauss CSV builder – Usage



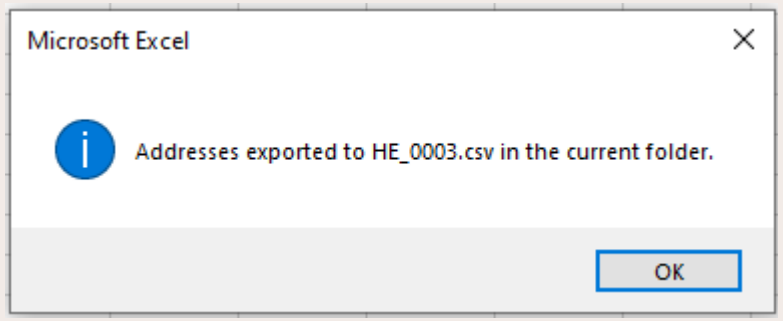
- Simply type a value in the ID column, press TAB
- The address column uses a VLOOKUP function to fetch the address value from the hospitalization table
- You can type or paste(*) a blob of HospitalizationIDs (* Edit, Paste Special, Values)

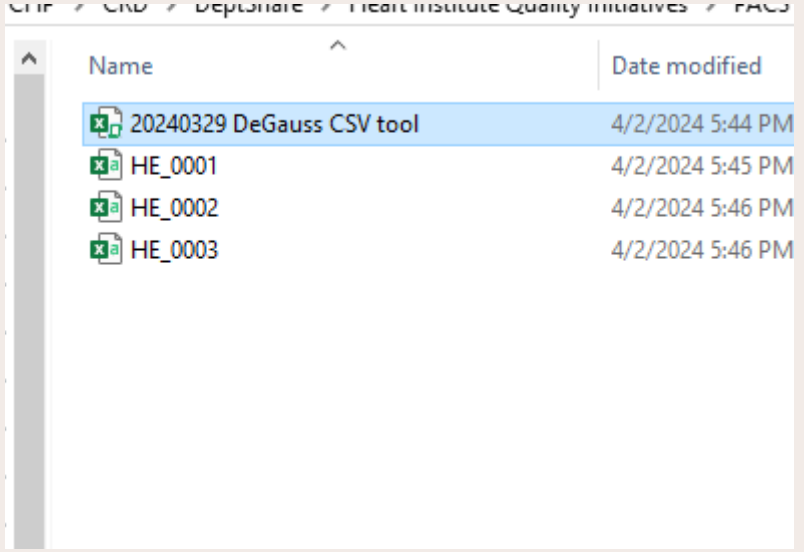
DeGauss CSV builder – Usage



- When you're done, click the Refresh/Preview button to make sure you have the latest patient and hospitalization data from your database
- Then click the Render CSV button

DeGauss CSV builder – Usage





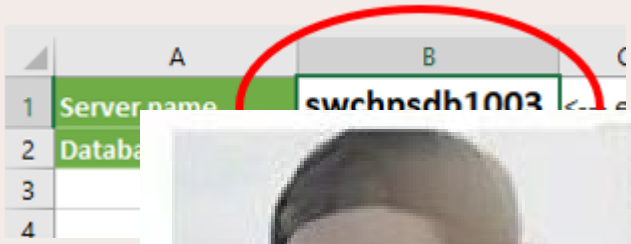
- This will place a file in the same folder as this spreadsheet. The filename will be HE_00*nn*.CSV. The rendering tool will increment the filename by 1 each time

Self-containment features

- Possible to build one tool and share it
- Sharing tools means people might generate new ideas
- Leverages what is useful without requiring domain expertise (*)

(*) But certainly allows for learning and skill development!

Self-containment features




```
' Copy Addresses sheet to new workbook
ThisWorkbook.Sheets("Health Equity Encounters").Copy Before:=newWB.Sheets(1)

' Remove other sheets except the copied one
Application.DisplayAlerts = False ' Disable alerts for sheet deletion
Do While newWB.Sheets.Count > 1
    newWB.Sheets(2).Delete
Loop
Application.DisplayAlerts = True ' Re-enable alerts

' Save the new workbook as CSV
newWB.SaveAs fileName:=savePath & fileName, FileFormat:=xlCSV, CreateBackup:=False
```

What's Next?

- Documentation for gaining database access
- Location on PAC^3 SharePoint to host files available for download
- Feedback mechanism on SharePoint for ideas and questions

frederick.roberts2@chp.edu

jschmoker@childrensnebraska.org

Questions?

Data Quality/Internal Auditing

PC4 PAC3

Improving Data Reliability: Implementing an Audit Process for Registry Data

Sarah Schukei, MSN-NI, CPN, CNRN
Dristi Khanal, MSN-NI, BSN
Dell Children's Medical Center

Hosted by children's health

The University of Texas at Austin
Dell Medical School

Improving Data Reliability: Implementing an Audit Process for Registry Data

Texas Center for Pediatric and Congenital Heart Disease
UT Health Austin-Dell Children's Medical Center

"In the beginning, internal audits identify opportunities for improvement, at the end, internal audits provide a mechanism for monitoring the implemented improvements in order to sustain its benefits for the long term" – John Novak

SARAH SCHUKEI, MSN-NI, CPN, CNRN
Quality Data Specialist Lead

DRISTI KHANAL, MSN-NI, BSN
Quality Data Specialist

Objectives

- Highlight the importance and challenges of data audits
- Program structure introduction
- Development of an audit process
- Automating the audit process
- Challenges and Benefits

Texas Center for Pediatric and Congenital Heart Disease

- Dedicated Cardiac Care Unit
  - 48 beds
  - Mixed acuity
  - Mixed service lines
- NICU cardiac service line
- 2023 volume
  - 445-PC[4] encounters
  - 473-Caths/EP's
  - 603-PAC[3] encounters
  - 388-Cardiac surgeries

Program Structure

5 Outcome Specialists

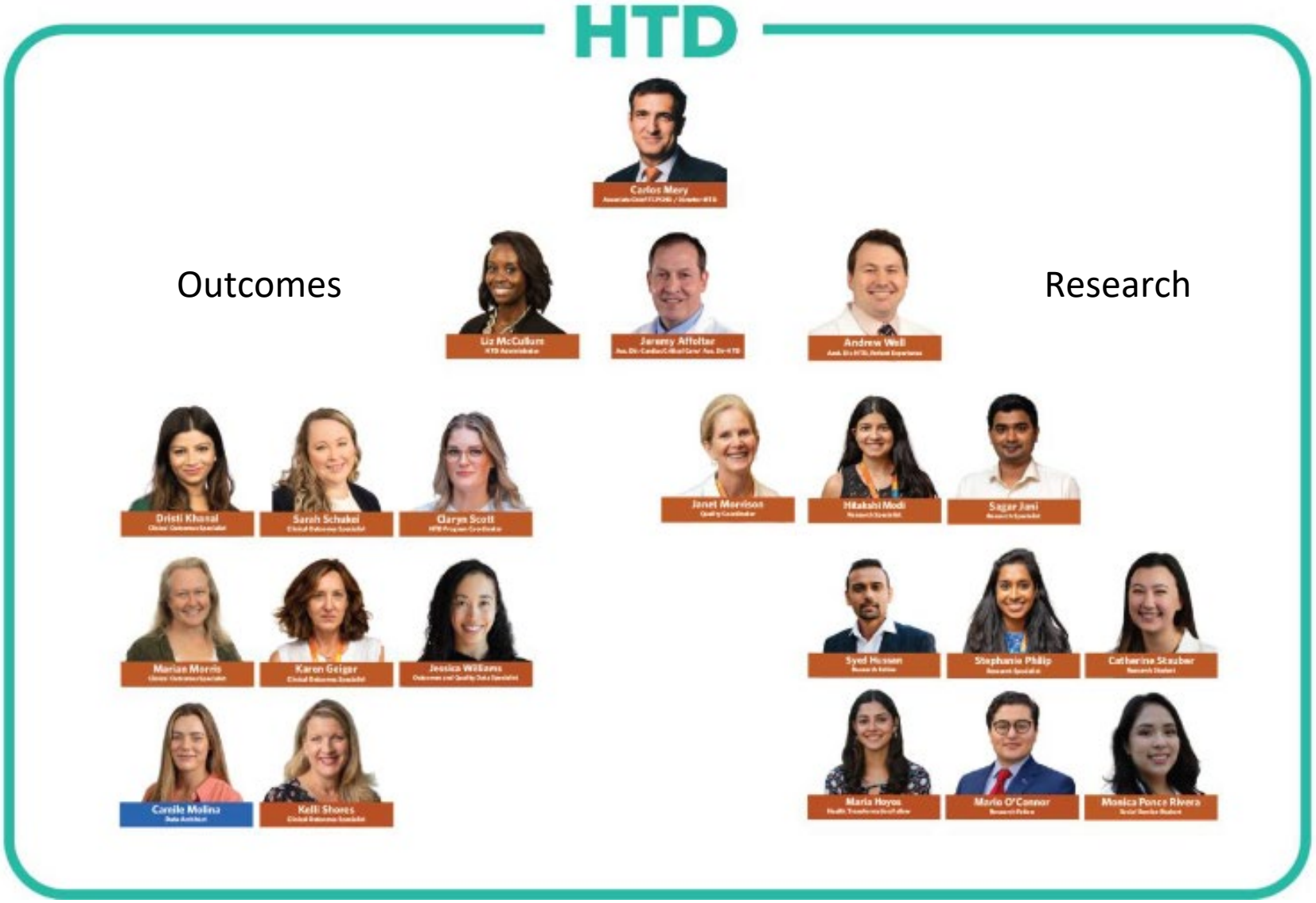
1 Data Analyst

2 Quality Associates

---

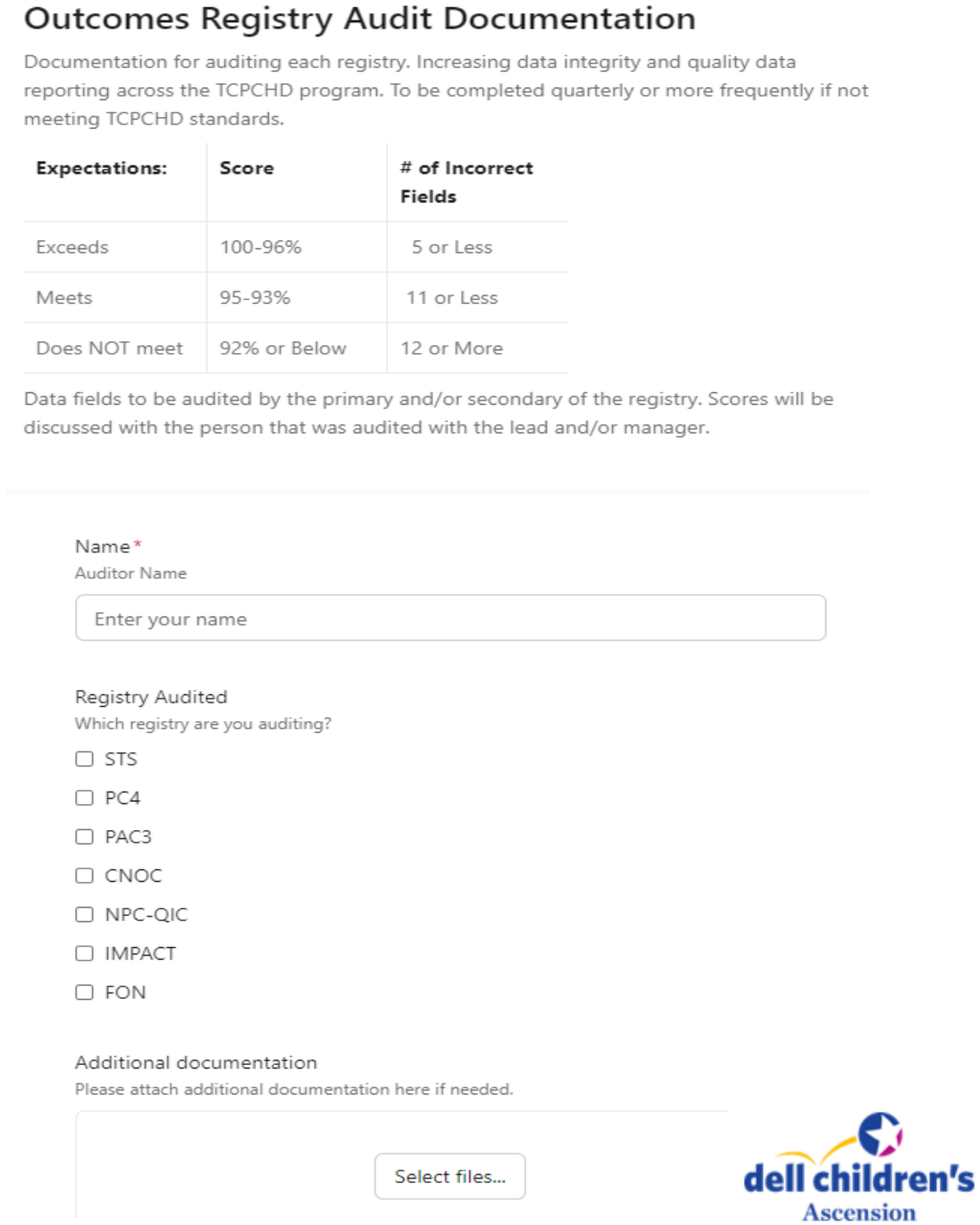
6 Registries

Primary – Backup Roles



First step- Manual Audit

- Primary-Backup audit
  - Completed on a quarterly basis
  - Whole chart audited
  - Fields are weighted
  - MD champion notified, if applicable
- Modeled off PAC^3 audit



Outcomes Registry Audit Documentation

Documentation for auditing each registry. Increasing data integrity and quality data reporting across the TCPCHD program. To be completed quarterly or more frequently if not meeting TCPCHD standards.

Expectations:	Score	# of Incorrect Fields
Exceeds	100-96%	5 or Less
Meets	95-93%	11 or Less
Does NOT meet	92% or Below	12 or More

Data fields to be audited by the primary and/or secondary of the registry. Scores will be discussed with the person that was audited with the lead and/or manager.

Name *
Auditor Name
Enter your name

Registry Audited
Which registry are you auditing?
- ☐ STS
- ☐ PC4
- ☐ PAC3
- ☐ CNOC
- ☐ NPC-QIC
- ☐ IMPACT
- ☐ FON

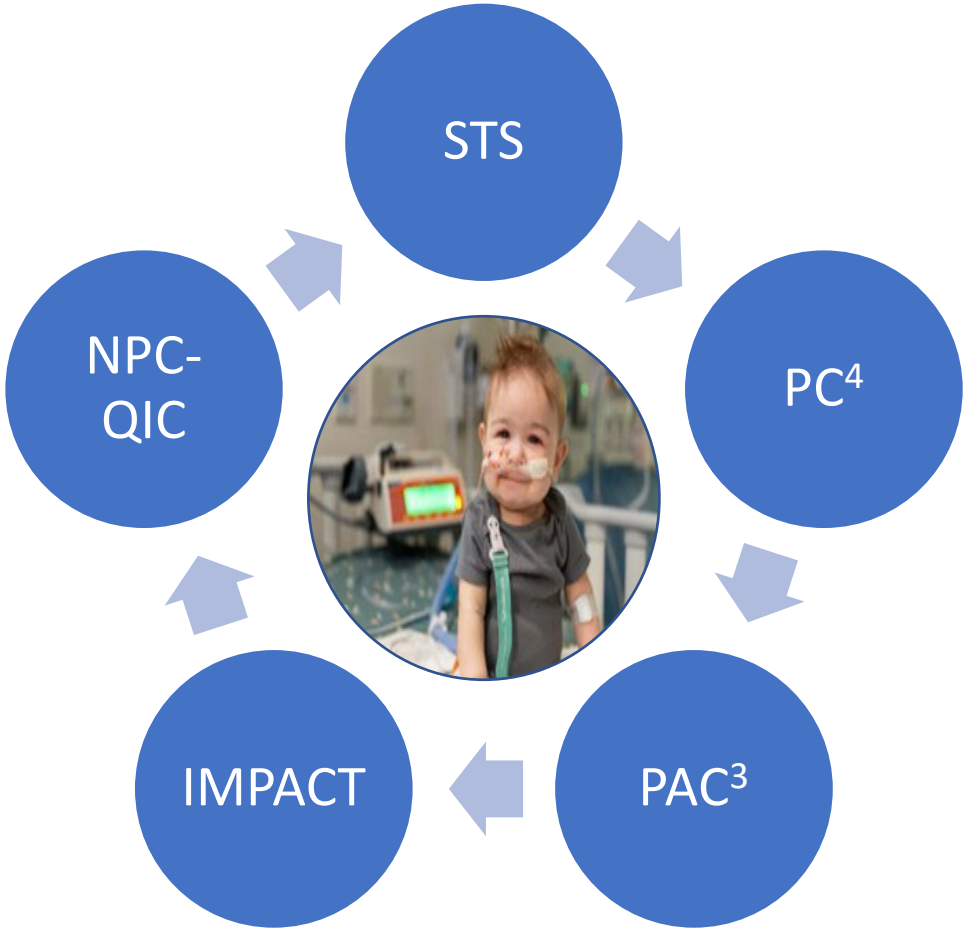
Additional documentation
Please attach additional documentation here if needed.
Select files...

Registry Metrics

- Between PAC[3], PC[4], STS and ACC not including 'shared' fields there could be ~100 validations

- **Maximum Number of fields:**
  STS: 635/1,010
  PC[4]: 593
  NPC-QIC: 200
  FON: 1,028
  PAC[3]: 365
  CNOC: 313
  IMPACT: 347

Taking a step back



Needs for Automation

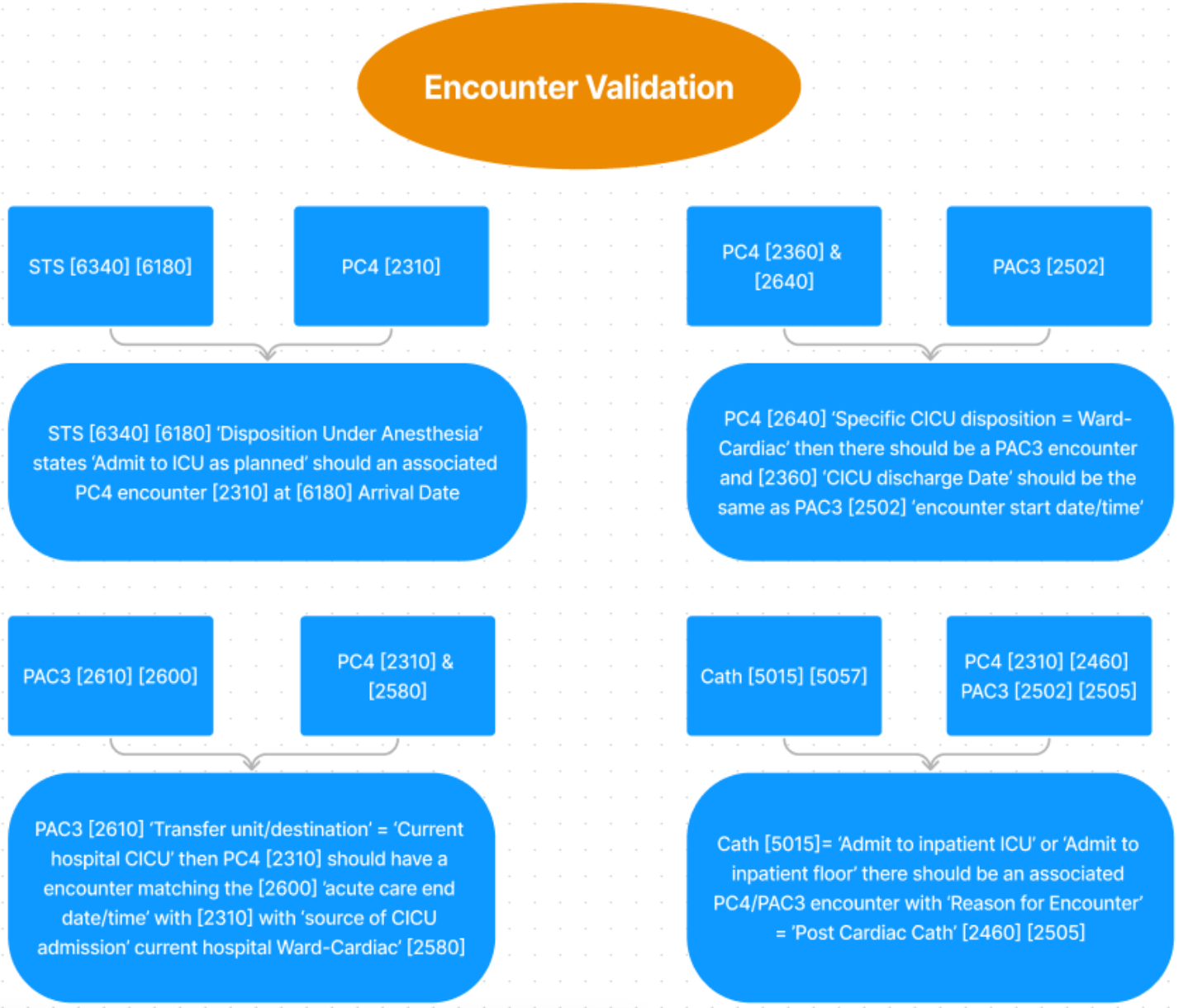
- Access to data
- Language of data
- Available help resources
- Available software use

How to set up Automated Data Validation

- Access to SQL server and registry database (Centripetus or LumiDex)
- Identify similar data field among registries
- Write SQL query
- Automate data validation by embedding SQL query in excel
- Data validation, error correction, and data re-submission

Second Step - Validation Between Registries

- Similar metrics captured on the SAME patient
  - Pre-operative
  - Post-operative
  - Complications
  - Risk factors
  - Date/times
  - Service line transfers



G-Tube Validation

PC4/PAC3 [1120] [1140]

PC4 [2805]

PC4/PAC3 [1140] 'New Perm Feeding Tube' Yes then [2805] ' Permanent feeding tube at CICU admit' should say no

PC4/PAC3 [1120] [1140]

STS [4740]

PC4/PAC3 [1140] 'New Perm Feeding Tube' Yes AND STS encounter after insertion then [4740] 'Postop Events' should include 'Non-cardiac re-operation during the postoperative time period [6.23]

PAC3 [3300] [3312]

PC4/PAC3 [1120] [1140]

PC4/PAC3 [1140] 'New Perm Feeding Tube' Yes AND [3312] ' Feeding route at encounter end' equals G-tube of G-J tube then PC4/PAC3 (1120] 'Tube feeding at hospital discharge' should be yes

PC4/PAC3 [1120] [1140]

PAC3 [3300]

PC4/PAC3 [1120] 'Tube feeding at hospital discharge' & [1140] 'New Perm Feeding tube' then PAC3 [3300] 'Gastric tube at encounter end' Yes

PAC3 [1010]

PC4 [2805]

PAC3 [1010] 'Gastric tube present at hospital admission' Yes then PC4 [2805] 'Permanent feeding tube at CICU admit' should be 'Yes'

PC4/PAC3 [1120] PC4 [2805]

STS {616]

PC4/PAC3 [1120] 'Tube Feeding at Hospital Discharge' yes and [2805] 'Permanent feeding tube at CICU admit' yes, then STS {616] 'Preoperative Factor Known- G-tube Present ' should be selected

Other Validation

PC4 [4140] & [2640]

PAC3 [2700]

PC4 [4140]Vascular line 'Present at CICU end' and [2640] 'Specific CICU Disposition' is Ward - Cardiac PAC3 [2700] 'Venous lines' is yes

PC4/PAC3 [1021]

STS [620]

PC4 [2810]

PC4/PAC3 [1021] 'Tracheostomy at hospital admit' Yes then STS [620] Pre-Operative factor should have 'Tracheostomy present' and PC4 [2810 'Existing trach at CICU admission' should be 'yes'

PC4 [2460]

PC4 [2490]

PC4 [2460] 'CICU Reason' is Postop Cardio-thoracic Surgery then [2490] 'Current surgical status' should not be never had cardio-thoracic surgery'

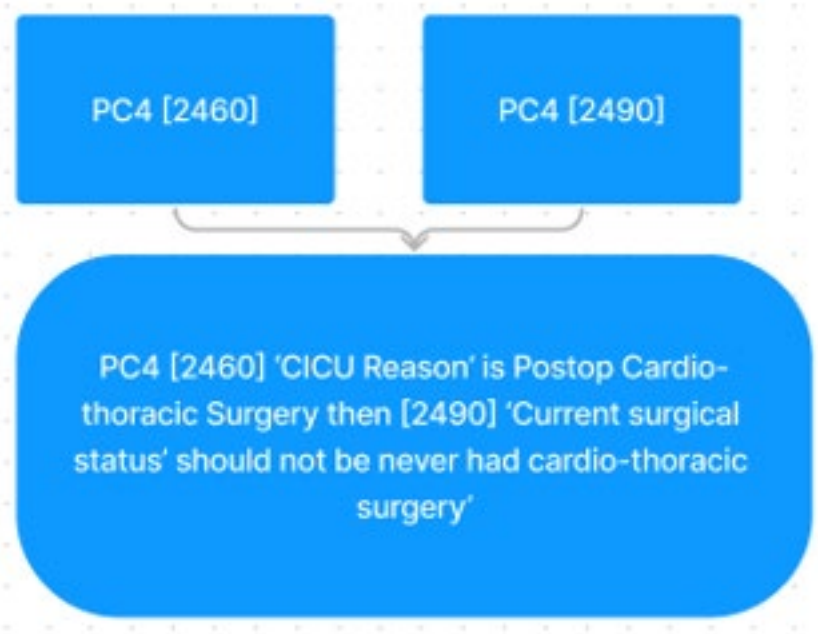
PC4/PAC3 [1029] [1031]

STS [4740]

PC4/PAC3 [1029] 'New DX diaphragm or [1031] 'Vocal cord dysfunction' then STS [4740] 'Post Operative Events' should have 'Paralyzed diaphragm' or 'Vocal cord dysfunction'

Output

EncounterID	HospitalizationID	CICUReason	CICUsurgstatus	CICUStartDtTm	CICUEndDtTm
1354	8254	Postop cardiothoracic surgery	Never had cardiothoracic surgery	8/31/23 17:09	9/4/23 13:22
1393	8342	Postop cardiothoracic surgery	Never had cardiothoracic surgery	10/9/23 22:52	10/11/23 14:59



Data Reliability Validation Output

Challenges

- Different data definitions between registries
- Time limiting
- Knowledge on how to automate
- Patient with multiple encounters

Benefits

- Improving process of data entry
  - Identify patterns
  - Education on missed items
- Data cleaning on large scale
- Data accuracy
- Reliability among data specialists and data submission

The University of Texas at Austin
Dell Medical School

dell children's
Ascension

Texas Center for Pediatric and Congenital Heart Disease

Sarah.Schukei@austin.utexas.edu
Dristi.Khanal@austin.utexas.edu

PC4/PAC3 Data Quality

Jazmin Olvera Alonso

Selin Alak-DeBergh

Ivo Pandjaitan, RN, BSN, PHN, CCRN

Children's Hospital Los Angeles

Hosted by children's health

About CHLA

Children's Hospital LOS ANGELES

Objectives

External follow-ups

Internal Quality

Clinical data Validation

Children's Hospital LOS ANGELES

External Data Quality

01

IMPACT pending fields

02

STS pending fields

03

Infection Control adjudication

Children's Hospital LOS ANGELES

Pending IMPACT

Pending IMPACT 4/6

Olvera Alonso, Jazmin
To Vierck, Shane; Gebh
Cc Pandjaitan, Ivo

Hello cath team, thank you for cor
Here is the pending IMPACT list fo

DUE 4/25

- [redacted]

Jazmin Olvera Alonso
323-351-2747
Research Assistant
Heart Institute
Children's Hospital Los Angeles

AutoSave On | Pending STS Validation | No Label • Saved

File Home Insert Page Layout Formulas Data Review View Automate Help

Paste Cut Copy Format Painter | Aptos Narrow 11 | Wrap Text | General | Merge & Center | Conditional Formatting | Format as Table | Normal 2 | Normal 3 | Normal | Bad | Good | Neutral | Calculation | Check Cell | Insert | Delete | Format | AutoSum | Fill | Clear | Sort Filter

M11 | Pending STS preop Risk fx

Name	Age	Sex	MRN	Hospital Admit Date	Hosp DC date	Entered by	Pending Field or Registry	JA/IP Notes/Qs	Ruthie Notes	Status	Registry	Coding Deck Date
[redacted]				6/12/2023 11:00	1/25/2024 15:00	Ivo	Pending STS preop Risk fx	**add YES to CLD not r/t prematurity in STS preop?** Ex 37 wkr known/dx CLD on O2 preop & later on dx by ENT w/ tracheobronchomalacia, s/p trach & home vent	CLD not r/t to prematurity is correct, but this is a new field and started with 7/1/23 surgeries and would not be coded for 6/12/23- I added in other comments	Validation Complete		3/7/202
[redacted]				6/12/2023 11:00	1/25/2024 15:00	Ivo	Pending Pt Info	**add in ECAA?** should we also add polydactyly, trachebronchomalacia & dysmorphic L pinna, preauricular skin tag & narrow ear canals	I would add all of these	Validation Complete		3/7/202
[redacted]				12/29/2023 3:57	1/28/2024 13:00	Ivo	Pending Pt Info	**code anything in pt info** for mom maternal HIV (viral load undetectable @time of pregnancy on Biktarvy)	No STS field- captured on STS side pregnancy related complication-other(no free text)	Validation Complete		3/7/202
[redacted]				1/18/2024 7:00	1/24/2024 13:37	Ivo	Pending Encounter ct dx	**update encounter ct dx** to address which outflow tract obstruction.. The aortic root or conduit failure RV to PA?	Aortic aneurysm, Aortic root	Validation Complete		3/7/202
[redacted]				3/6/2024	3/6/2024	Molly	Pending Fundamental Dx	Patent ductus arteriosus		Pending Validation	IMPACT	
[redacted]				2/26/2024 6:18	3/1/2024 12:43	Jazmin	Pending Prior # cts			Cardioaccess & pp Updated	PC4	
				2/27/2024 6:19	3/2/2024 13:51	Jazmin	Pending Procedure Dx			Pending Validation	PC4	
				2/27/2024 6:19	3/2/2024 13:51	Jazmin	Pending STS preop Risk fx			Pending Validation	PC4	
				2/29/2024 7:04	3/2/2024 16:25	Jazmin	Pending Fundamental Dx			Pending Validation	PC4	
				2/29/2024 7:04	3/2/2024 16:25	Jazmin	Pending STS preop Risk fx			Pending Validation	PC4	
				2/22/2024 14:24	3/3/2024 13:53	Jazmin	Pending Fundamental Dx			Pending Validation	PC4	
				2/22/2024 14:24	3/3/2024 13:53	Jazmin	Pending STS preop Risk fx			Pending Validation	PC4	
				2/20/2024 14:54	3/4/2024 14:06	Jazmin	Pending Fundamental Dx			Pending Validation	PC4	
				2/20/2024 14:54	3/4/2024 14:06	Jazmin	Pending STS preop Risk fx			Pending Validation	PC4	
				2/26/2024 10:15	3/4/2024 18:55	Jazmin	Pending Procedure Dx			Pending Validation	PC4	
				2/26/2024 10:15	3/4/2024 18:55	Jazmin	Pending STS preop Risk fx			Pending Validation	PC4	
				3/4/2024 8:54	3/6/2024 10:21	Jazmin	Pending Fundamental Dx	Verify fundamental dx by IMPACT: ASD, Secundum (PC4 & IMPACT)		Pending Validation	IMPACT	
				3/1/2024 14:18	3/3/2024 14:00	Jazmin	Pending Fundamental Dx	Verify Fundamental dx already in cardio access no STS encounter yet: Normal heart? Has WPW & HCM (PC4 & IMPACT)		Pending Validation	IMPACT	

2024

Pending STS email

Pending STS 10/11

Olvera Alonso, Jazmin
To Lemus, Ruthie

Reply | Reply All | Forward

Wed 10/11/2023 12:16 PM

e	Ruthie Notes
9/26	

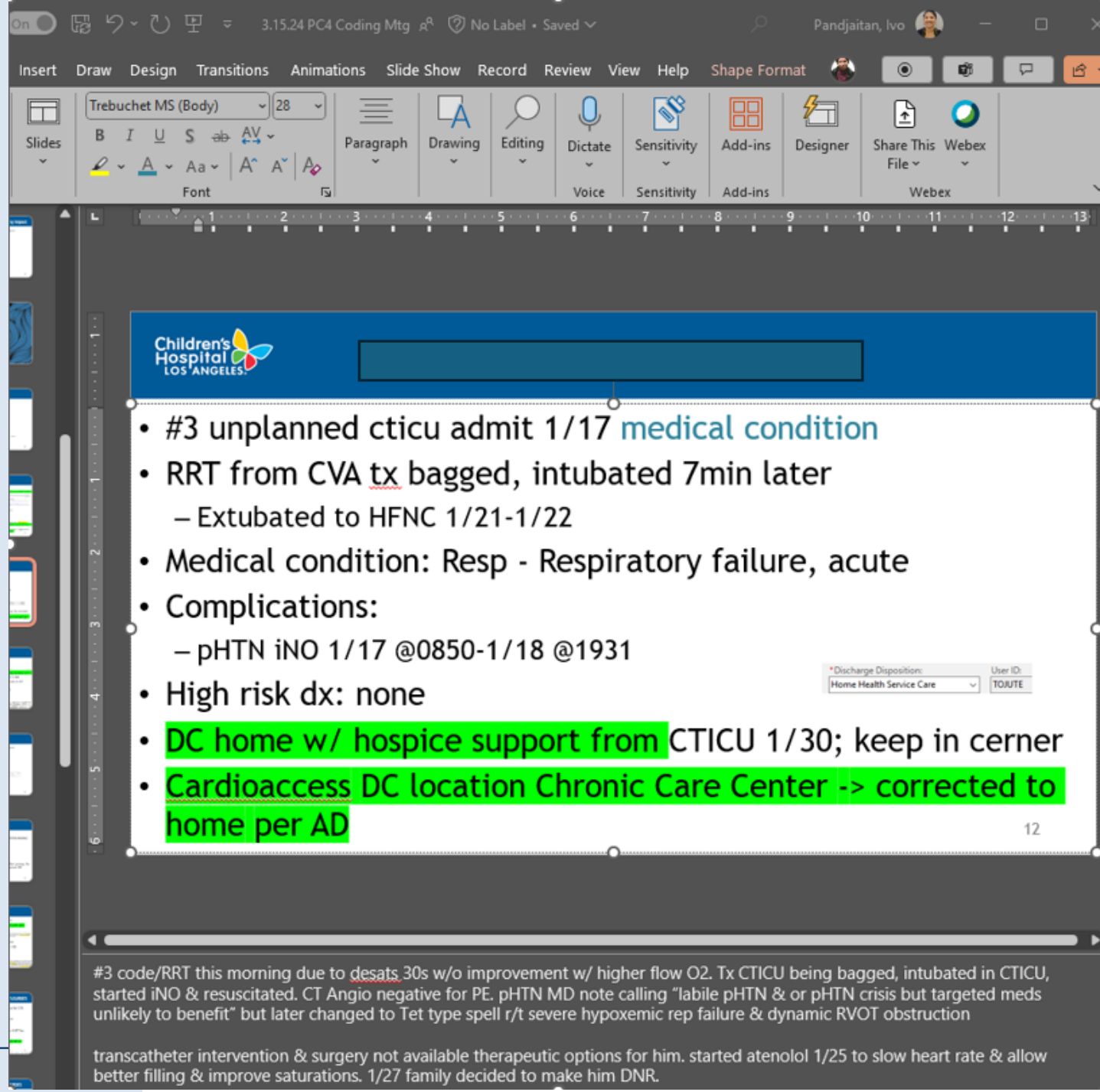
HAC Data Worksheet

A	B	C	D	E	F	G	H	I	J	K	L
Fiscal Ye	Month	Patient Name	MRN	FIN	Culture Type	Culture Collection Da	HAC?	HAC Type	DOE	Attributable Unit	Comments
FY23	November	[redacted]			Blood	11/17/2022	Yes	CLABSI	11/17/2022	CTICU	
FY23	December				Blood	12/16/2022	No	N/A	N/A	N/A	Not a CLABSI, BSI secondary to PNEU2
FY23	December				N/A	N/A	No	N/A	N/A	N/A	SSI but not NHSN reportable due to delayed sternal closure on 11/3
FY23	December				Blood	12/27/2022	No	N/A	N/A	N/A	BSI but not a CLABSI as VAD present for more than 2 days on the BSI DOE. Reported to NHSN but meets CLABSI exclusion criteria due to presence of VAD
FY23	December				Blood	12/12/2022	Yes	CLABSI	12/12/2022	NICCU	
FY23	December				Urine	12/24/2022	No	N/A	N/A	N/A	Not a CAUTI as the patient did not meet signs/symptoms criteria
FY23	January				Urine	1/1/2023	No	N/A	N/A	N/A	Did not meet signs/symptoms criteria and colony count too low for Enterococcus faecalis and Candid species is an excluded organism
FY23	January				Urine	1/15/2023	Yes	CAUTI	1/15/2023		
FY23	January				Wound	1/17/2023	No	N/A	N/A	N/A	SSI but not NHSN reportable as the procedure performed at bedside (mediatinal exploration and washout on 1/13/23) ends surveillance for the original procedure
FY23	January				Blood	1/29/2023	No	N/A	N/A	N/A	Not a CLABSI, BSI secondary to PNEU2
FY23	January				Blood	1/31/2023	Yes	CLABSI	1/31/2023	CV Acute	
FY23	February				Wound	2/27/2023	No	N/A	N/A	N/A	SSI but not NHSN reportable as Glen procedure and BT shunt are not NHSN reportable procedures
FY23	February				Blood	2/25/2023	No	N/A	N/A	N/A	Not a CLABSI, BSI secondary to MED
FY23	March				Blood	3/6/2023	No	N/A	N/A	N/A	Not a CLABSI, BSI secondary to PNEU
FY23	March				N/A	N/A	Yes	SSI (S)	3/9/2023	N/A	Purulent drainage from superficial incision site
FY23	March				Wound	3/6/2023	Yes	SSI (D)	3/6/2023	N/A	Purulent drainage from deep incision site

Internal Data Quality

- In Progress PowerPoint
- Roster –Discharge for any notes/actionable items/follow up microarray etc, stats

PC⁴ - PowerPoint



Children's Hospital LOS ANGELES

PAC^3 - PowerPoint

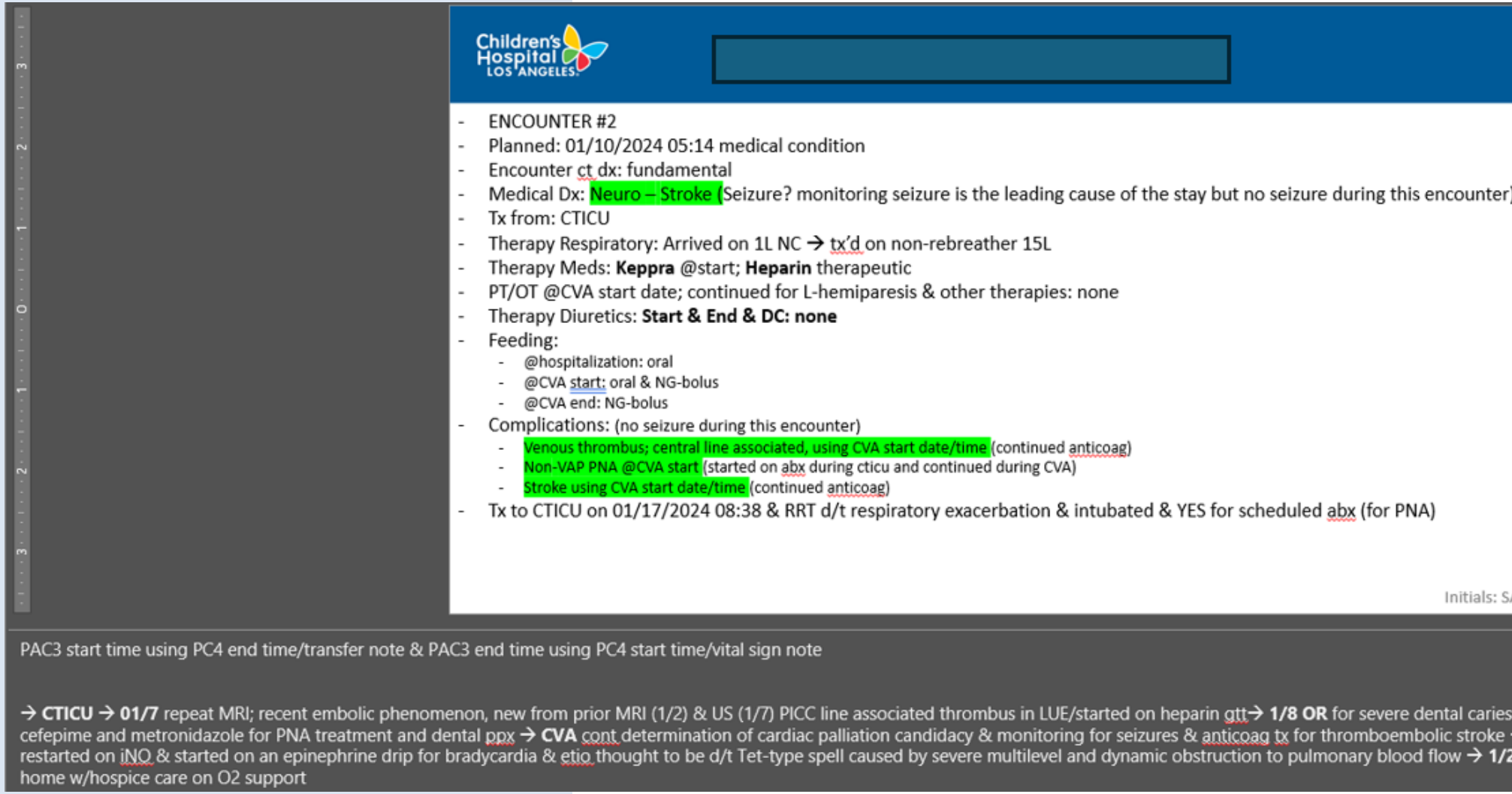
[redacted] – pls review w/ Dana

not pac3 eligible

Pediatric Surgery	Shin (Attending) MD,Cathy

- Planned 1/29/24 12:12
- Encounter ct dx:
- Medical Dx:
- Tx from: home
- Therapy Respiratory: Arrived on _____ or None
- Therapy Meds:
- PT/OT or other therapies
- Therapy Diuretics: **Start: End: DC:**
- Feeding:
  - @hospitalization @CVA start @CVA end ; MBSS, dysphagia or ENT
- Complications:
- DC home 1/30/24 15:05

PAC^3



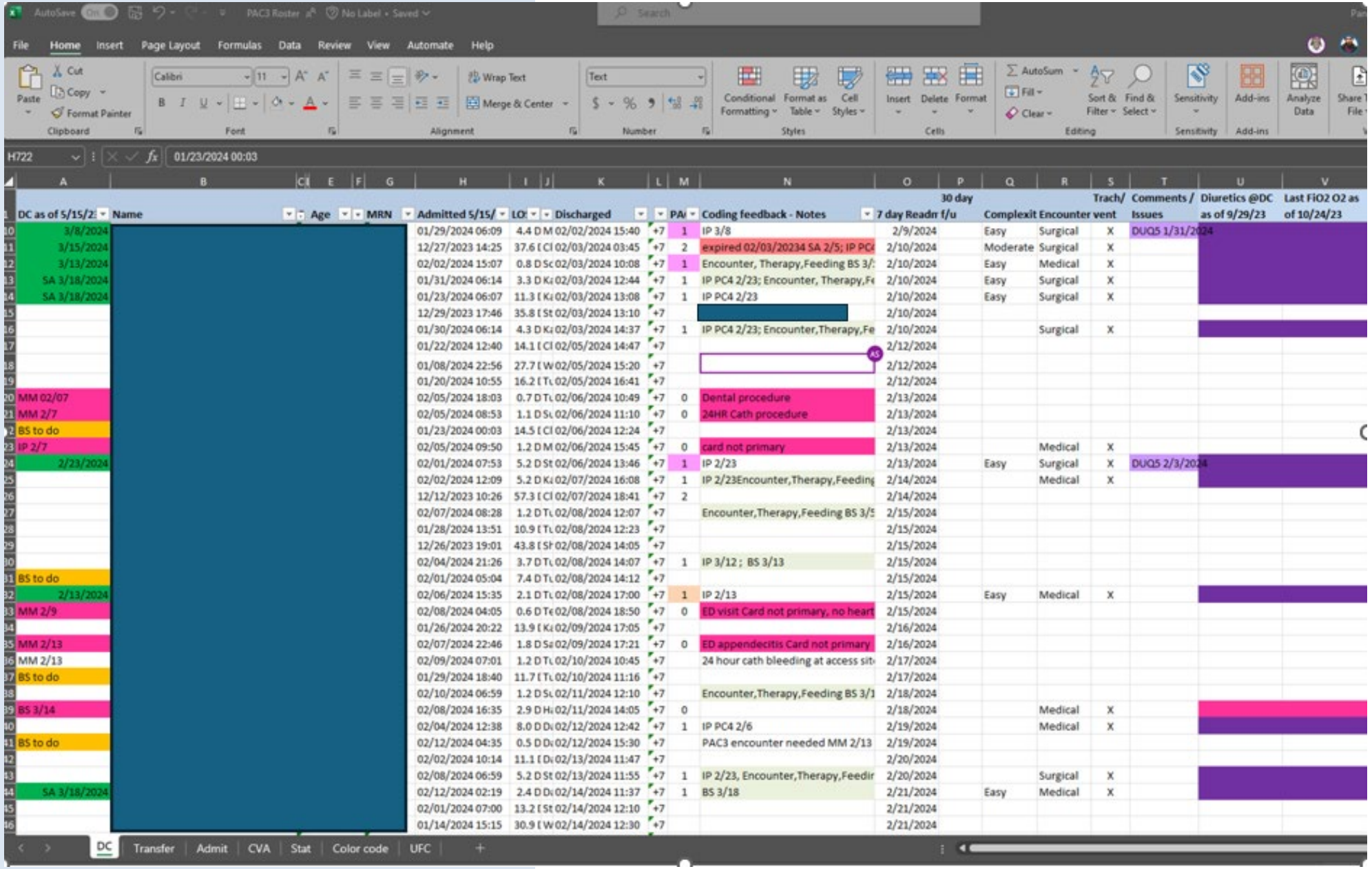
- ENCOUNTER #2
- Planned: 01/10/2024 05:14 medical condition
- Encounter ct dx: fundamental
- Medical Dx: Neuro – Stroke (Seizure? monitoring seizure is the leading cause of the stay but no seizure during this encounter)
- Tx from: CTICU
- Therapy Respiratory: Arrived on 1L NC → tx'd on non-rebreather 15L
- Therapy Meds: **Keppra** @start; **Heparin** therapeutic
- PT/OT @CVA start date; continued for L-hemiparesis & other therapies: none
- Therapy Diuretics: **Start & End & DC: none**
- Feeding:
  - @hospitalization: oral
  - @CVA start: oral & NG-bolus
  - @CVA end: NG-bolus
- Complications: (no seizure during this encounter)
  - Venous thrombus; central line associated, using CVA start date/time (continued anticoag)
  - Non-VAP PNA @CVA start (started on abx during cticu and continued during CVA)
  - Stroke using CVA start date/time (continued anticoag)
- Tx to CTICU on 01/17/2024 08:38 & RRT d/t respiratory exacerbation & intubated & YES for scheduled abx (for PNA)

Initials: S

PAC3 start time using PC4 end time/transfer note & PAC3 end time using PC4 start time/vital sign note

→ **CTICU** → **01/7** repeat MRI; recent embolic phenomenon, new from prior MRI (1/2) & US (1/7) PICC line associated thrombus in LUE/started on heparin gtt→ **1/8 OR** for severe dental caries cefepime and metronidazole for PNA treatment and dental ppx → **CVA** cont determination of cardiac palliation candidacy & monitoring for seizures & anticoag tx for thromboembolic stroke restarted on iNO & started on an epinephrine drip for bradycardia & etio thought to be d/t Tet-type spell caused by severe multilevel and dynamic obstruction to pulmonary blood flow → **1/2** home w/hospice care on O2 support

PAC³ Roster



Children's Hospital LOS ANGELES

Stat

Coding Meetings	3/14/2024	3/21/2024
Submitted prior to mtg	19	16
Reviewed in mtg	21	17
STS (pending)	0	0
Impact (pending)	0	0
pending 7D readmission	0	0
24hr Cath	3	1
not submitted prior to coding mtg	1	0
No encounter needed	2	1
Total pts RA/LVN reviewed	25	18
Need to create PAC3 enc	1	0
Meeting Notes:		Notes:
		[redacted] -> f/u UFC on ct r

Coding Meetings	3/7/2024	3/15/2023
Submitted	26	16
Reviewed	26	16
STS (pending)	0	0
Impact (pending)	0	0
Other (pending)	0	0
		[redacted] f/u on non VAP pna 1/6 +cx
	notes:	
	[redacted] : f/u w/ Ruthie for encounter ct dx - whic	

Children's Hospital LOS ANGELES

PC^4 Roster

DC as of 05/02/2022	Name	Age	MRN	Admitted	LOS	Discharged	PC4	Coding feedback	Encounter	Cath
JA 3/14	[redacted]			3/7/2024 3:13	6.3 Da	3/13/2024 11:07	1	pending procedure dx & # of prior cts	surgical	planned surgery
JA 3/14/2024				3/8/2024 7:35	5.4 Da	3/13/2024 18:58	1		medical	
JA 3/15/2024				3/9/2024 18:16	4.6 Da	3/14/2024 10:33	1		medical	
JA 3/15/2024				3/6/2024 21:06	7.6 Da	3/14/2024 13:02	2		medical	
JA 3/15				3/12/2024 6:27	2.4 Da	3/14/2024 15:17	1	**<5 day admission;** pending sts fundamental dx & preop	surgical	planned surgery
JA 3/15				3/6/2024 6:08	8.4 Da	3/14/2024 16:00	1	pending sts fundamental dx & preop fx 3/6	surgical	planned surgery
JA 3/15				3/6/2024 14:49	8.0 Da	3/14/2024 16:28	1	pending Fundamental	medical	
JA 3/21/2024				12/23/2023 23:17	81.7 D	3/14/2024 16:46	2	expired 3/14/2024; pending DC summary	surgical	planned surgery
JA 3/18				3/14/2024 7:06	1.3 Da	3/15/2024 13:21	1	**<5 day admission**; pending IMPACT 3/14, needs fundar	medical	
JA 3/18				3/11/2024 6:08	4.4 Da	3/15/2024 14:36	1	**<5 day admission**; pending sts fundamental & preop fx	surgical	planned surgery
JA 3/18				3/12/2024 9:57	3.2 Da	3/15/2024 15:36	1	**<5 day admission**; pending sts fundamental & preop fx	surgical	planned surgery
JA 3/19				2/18/2024 15:38	26.0 D	3/15/2024 16:39	1	needs fundamental	medical	
JA 3/19				3/2/2024 2:47	14.3 D	3/16/2024 11:06	1	needs fundamental	medical	
JA 3/19				3/12/2024 8:35	5.4 Da	3/17/2024 17:46	1	needs fundamental	medical	
JA 3/19				2/9/2024 9:25	38.1 D	3/18/2024 13:41	1	no DC summary; pending sts procedure dx, fundament	surgical	planned surgery
JA 3/19				3/13/2024 6:38	5.4 Da	3/18/2024 15:40	1	pending sts fundamental & preop fx	surgical	planned surgery
JA 3/19				3/15/2024 10:28	3.3 Da	3/18/2024 18:29	1	**<5 day admission;** pending sts fundamental & preop fx	surgical	planned surgery
JA 3/20				2/29/2024 15:44	18.9 D	3/19/2024 15:16	1	pending sts procedure dx & preop fx	surgical	planned surgery
JA 3/21				3/14/2024 7:22	6.2 Da	3/20/2024 12:02	1	pending sts fundamental & preop fx	surgical	planned surgery
JA 3/21				3/4/2024 21:56	15.7 D	3/20/2024 15:41	1	pending OSH genetics; pending sts fundamental & pre	surgical	planned surgery
JA 3/21/2024				3/19/2024 19:41	0.9 Da	3/20/2024 16:38	1	**<5 day admission**	medical	
JA 3/22				2/26/2024 5:54	24.3 D	3/21/2024 14:54	1	pending sts procedure dx & preop fx; no IMPACT for 3/	surgical	planned surgery
JA 3/22				3/20/2024 14:01	1.3 Da	3/21/2024 20:21	1	**<5 day admission;** pending IMPACT 3/20	medical	planned cath

Total CICU Encounters **1808**

Children's Hospital LOS ANGELES

Clinical Champion Data Validation

- Weekly coding meetings & followups to verify data accuracy & address questions/issues
  - After audit, workflow updated to review important fields vs entire encounter

RE: f/u questions & 4 straightforward encounters

Pandjaitan, Ivo
To DeMarco, Alicia
Cc Lemus, Ruthie; Olvera Alonso, Jazmin
You replied to this message on 4/1/2023 10:09 AM.

Reply | Reply All

Hello,

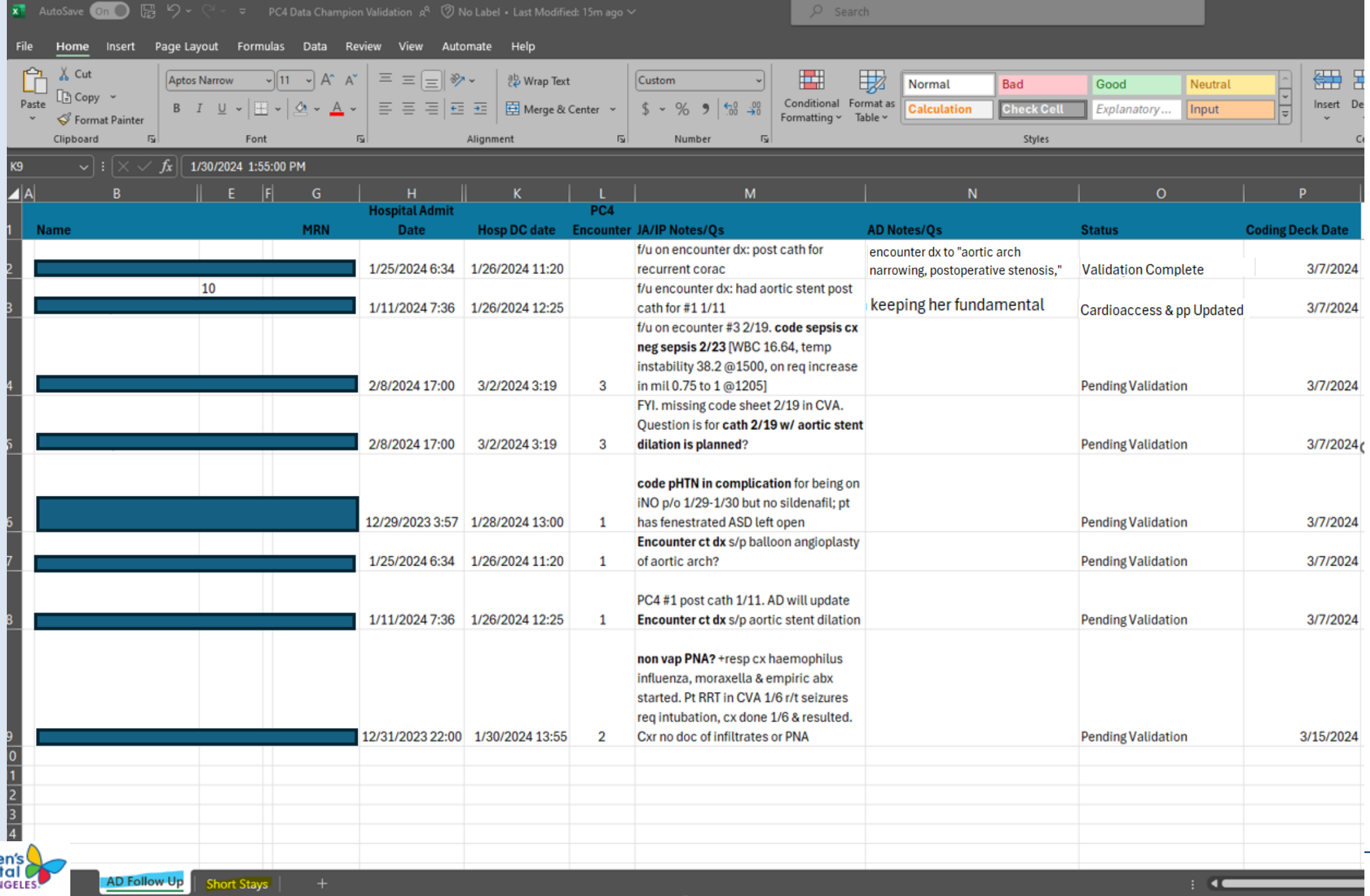
Updated this email to include questions/discussions from 3/31/23 coding mtg & [redacted] slides at the end of email.
Legend. Ivo, Ruthie, Alicia

Alicia's comments	Name	Age	Sex	MRN	Admit Date	DC Date	Notes
	[redacted]	[redacted]	[redacted]	[redacted]	3/27/2023	3/27/2023	Last pt fr 3/31 coding mtg & didn't finish
					3/9/2023 6:08	3/11/2023 12:52	fam hx CHD including MOM
					3/9/2023 6:59	3/13/2023 14:19	added propofol for sedation – not in MAR summary but noted in anes record, progress note & nurse iView VS comments
					3/10/2023 5:13	3/13/2023 17:25	Will not wait for cath to do impact bc only TEE done in cath 3/10;
					3/10/2023	3/13/2023	

Things needing Alicia to follow up on [from previous coding mtgs]:

Coding mtg 3/16/2023:

- [redacted] 2 arrhythmias coded in complications. 1st is JET treated w/ amio bolus x2 during p/o period 2/22. Cardioaccess updated bc there shouldn't be temp pacing or defib/cardioversion/RAP for 1st arrhythmia. Temp pacing started 2 w/another JET "underlying junctional rhythm". No meds administered for 2nd arrhythmia. Is the 2nd arrhythmia accelerated or JET? Currently, in cardioaccess, it is coded as junctional tachycardia which covers both arrhythmias.



AutoSave On | PC4 Data Champion Validation | No Label • Last Modified: 15m ago | Search

File Home Insert Page Layout Formulas Data Review View Automate Help

Paste | Cut | Copy | Format Painter | Clipboard | Aptos Narrow | 11 | Font | Wrap Text | Merge & Center | Alignment | Custom | Number | Conditional Formatting | Format as Table | Normal | Bad | Good | Neutral | Calculation | Check Cell | Explanatory... | Input | Styles | Insert

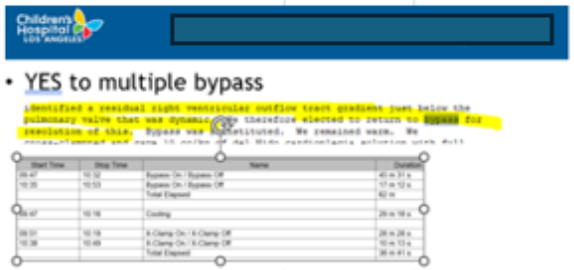
K9 | 1/30/2024 1:55:00 PM

	Name	MRN	Hospital Admit Date	Hosp DC date	PC4 Encounter	JA/IP Notes/Qs	AD Notes/Qs	Status	Coding Deck Date
2	[redacted]		1/25/2024 6:34	1/26/2024 11:20		f/u on encounter dx: post cath for recurrent corac	encounter dx to "aortic arch narrowing, postoperative stenosis,"	Validation Complete	3/7/2024
3	[redacted]	10	1/11/2024 7:36	1/26/2024 12:25		f/u encounter dx: had aortic stent post cath for #1 1/11	keeping her fundamental	Cardioaccess & pp Updated	3/7/2024
4	[redacted]		2/8/2024 17:00	3/2/2024 3:19	3	f/u on ecounter #3 2/19. **code sepsis cx neg sepsis 2/23** [WBC 16.64, temp instability 38.2 @1500, on req increase in mil 0.75 to 1 @1205]		Pending Validation	3/7/2024
5	[redacted]		2/8/2024 17:00	3/2/2024 3:19	3	FYI. missing code sheet 2/19 in CVA. Question is for **cath 2/19 w/ aortic stent dilation is planned**?		Pending Validation	3/7/2024
6	[redacted]		12/29/2023 3:57	1/28/2024 13:00	1	**code pHTN in complication** for being on iNO p/o 1/29-1/30 but no sildenafil; pt has fenestrated ASD left open		Pending Validation	3/7/2024
7	[redacted]		1/25/2024 6:34	1/26/2024 11:20	1	**Encounter ct dx** s/p balloon angioplasty of aortic arch?		Pending Validation	3/7/2024
8	[redacted]		1/11/2024 7:36	1/26/2024 12:25	1	PC4 #1 post cath 1/11. AD will update **Encounter ct dx** s/p aortic stent dilation		Pending Validation	3/7/2024
9	[redacted]		12/31/2023 22:00	1/30/2024 13:55	2	**non vap PNA?** +resp cx haemophilus influenza, moraxella & empiric abx started. Pt RRT in CVA 1/6 r/t seizures req intubation, cx done 1/6 & resulted. Cxr no doc of infiltrates or PNA		Pending Validation	3/15/2024
10									
11									
12									
13									
14									

AD Follow Up | Short Stays | +

Children's Hospital LOS ANGELES

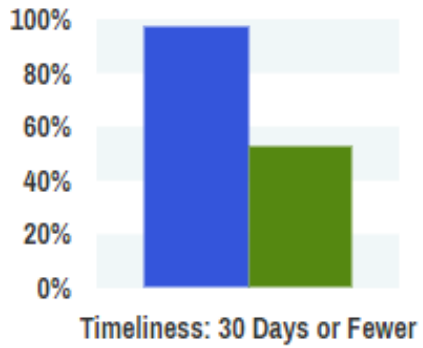
Name	MRN	Hospital Admit D	Hosp DC date	PC4 Enco	JA/IP Notes/Qs	AD Notes/Qs	Status	Coding Deck Date
[redacted]		2/21/2024 20:55	2/24/2024 11:50	1	Medical Dx: None? Or infectious - bronchiolitis, viral, other for +rhinoentero & coronavirus HKU1		Pending Validation	
[redacted]		2/21/2024 10:02	2/25/2024 12:24	1			Pending Validation	
[redacted]		2/20/2024 6:18	2/25/2024 16:40	1			Pending Validation	
[redacted]		2/22/2024 7:03	2/26/2024 11:49	1	**multiple bypass?**		Pending Validation	
[redacted]		2/28/2024 6:25	2/29/2024 11:50	1			Pending Validation	
[redacted]		2/26/2024 6:18	3/1/2024 12:43	1	pending sts procedure dx & preop fx 2/26		Pending Validation	
[redacted]		2/28/2024 5:29	3/2/2024 13:35	1	pending sts fundamental dx & preop fx 2/28		Pending Validation	
[redacted]		2/27/2024 6:19	3/2/2024 13:51	1	pending sts procedure dx & preop fx 2/27		Pending Validation	
[redacted]		2/29/2024 7:04	3/2/2024 16:25	1	pending sts fundamental dx & preop fx 2/29		Pending Validation	
[redacted]		3/1/2024 14:18	3/3/2024 14:00	1	correct IMPACT fundamental dx: normal heart to hypertrophic cardiomyopathy; update encounter ct dx post cath? **Add bronch in cath (done by anes) in non cts in encounter tab?**		Pending Validation	
[redacted]		[redacted]024 10:15	3/4/2024 18:55	1	pending sts procedure dx & preop fx 2/26		Pending Validation	
					Med dx: Other - Feeding tube		Pending	

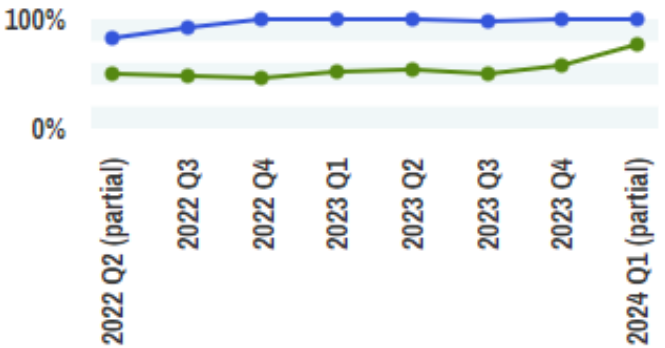


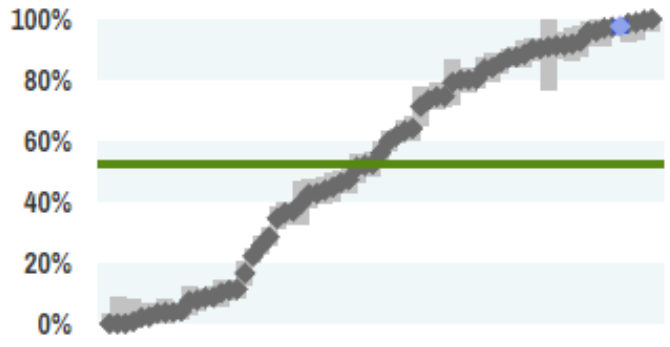
PC4

PC4 Summary 05/02/2022 - 03/19/2024, Timeliness: 30 Days or Fewer

LEGEND Children's Hospital of Los Angeles | Aggregate - All | Other Sites | Aggregate - All | 95% Confidence Interval







Data Quality Overview	Cases	Out of	Children's Hospital of Los Angeles - Unadj	Aggregate - All - Unadj	P Value (Unadj)
Timeliness: 30 Days or Fewer	1405	1439	97.6%	52.7%	<0.001
Timeliness: 45 Days or Fewer	1431	1439	99.4%	68.2%	<0.001
Timeliness: 60 Days or Fewer	1432	1439	99.5%	75%	<0.001
Timeliness: Greater than 60 Days	7	1439	0.49%	25%	<0.001
Average Timeliness (Days)	13139	1439	9.13 days	58.6 days	<0.001

APPLY

Children's Hospital LOS ANGELES

Data Quality // Summary 05/15/2023 - 03/19/2024, Timeliness: 7 + 30 Days or Fewer

FILTERS

SITES

Children's Hospital of Los Angeles

Select All

APPLY

PERIOD GROUP

Discharge Date

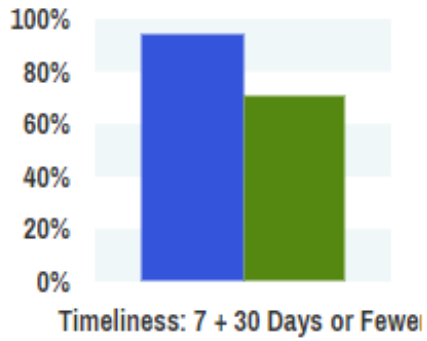
DISCHARGE DATE

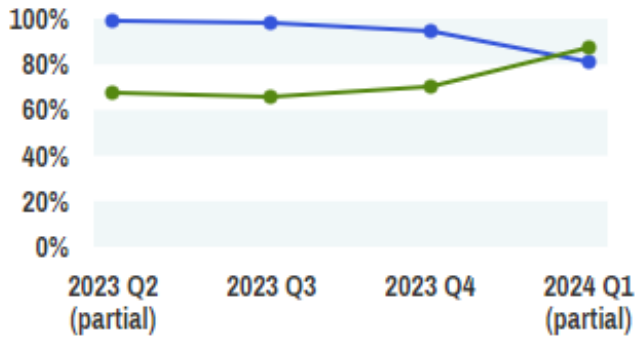
Custom

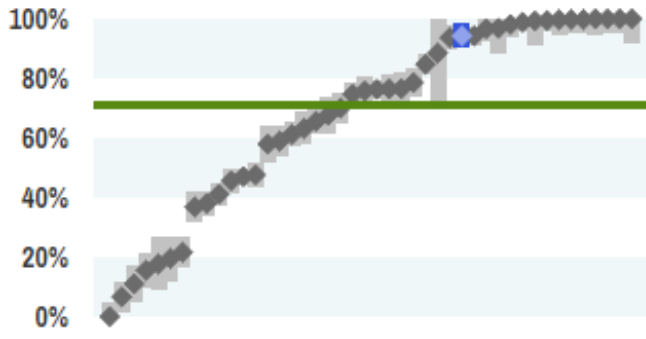
TRENDING INTERVAL

Quarterly

LEGEND Children's Hospital of Los Angeles | Aggregate - All | Other Sites | Aggregate - All | 95% Confidence Interval







Data Quality Overview	Cases	Out of	Children's Hospital of Los Angeles - Unadj	Aggregate - All - Unadj	P Value (Unadj
Timeliness: 7 + 30 Days or Fewer	527	559	94.3%	71%	<0.001
Timeliness: 7 + 45 Days or Fewer	555	559	99.3%	82.7%	<0.001
Timeliness: 7 + 60 Days or Fewer	556	559	99.5%	88.2%	<0.001
Timeliness: 7 + 61 Days or Greater	3	559	0.54%	11.8%	<0.001
Average Timeliness (Days)	11968	559	21.4 days	36.8 days	0.059

Children's Hospital LOS ANGELES

Questions?

Enjoy your break!

Back at 10:45 am CT

Data Utilization

PC4 PAC3

Data Integration to Create Data Visualization Across Data Sources

Sarah Schukei, MSN-NI, CPN, CNRN
Dristi Khanal, MSN-NI, BSN
Dell Children's Medical Center

Hosted by children's health

The University of Texas at Austin
Dell Medical School

Data Integration to Create Data Visualization Across Data Sources

Texas Center for Pediatric and Congenital Heart Disease
UT Health Austin- Dell Children's Medical Center

"In God we trust, all others must bring data."

- W. Edwards Deming

SARAH SCHUKEI, MSN-NI, CPN, CNRN
Quality Data Specialist Lead

DRISTI KHANAL, MSN-NI, BSN
Quality Data Specialist

Objectives

- Highlight the importance of data integration in healthcare
- Explore the process of data integration across multiple sources
- Showcase the power of data visualization using Tableau
- Discuss real-world applications
- Implementation process
- Challenges and Benefits

Registry Data

STS

Congenital Heart Surgery

- Volume in 2021-2023:1,501
- Number of fields: 635/1,010

PC^4

Cardiac ICU

- Volume in 2021-2023: 1,309
- Number of fields: 593

ACC- IMPACT

Cardiac Catheterization

- Volume in 2021-2023: 1,339
- Number of fields: 347

Total Data Points
1-2 million

3 years

The University of Texas at Austin
Dell Medical School

dell children's
Ascension

Registry Data

STS: 635/1,010
PC⁴: 593
NPC-QIC: 200
FON: 1,028
PAC³: 365
CNOC: 313
IMPACT: 347
Harvest Report: ++
Aggregate Data: ++

- Taking a step back to see the bigger picture

Data Sources

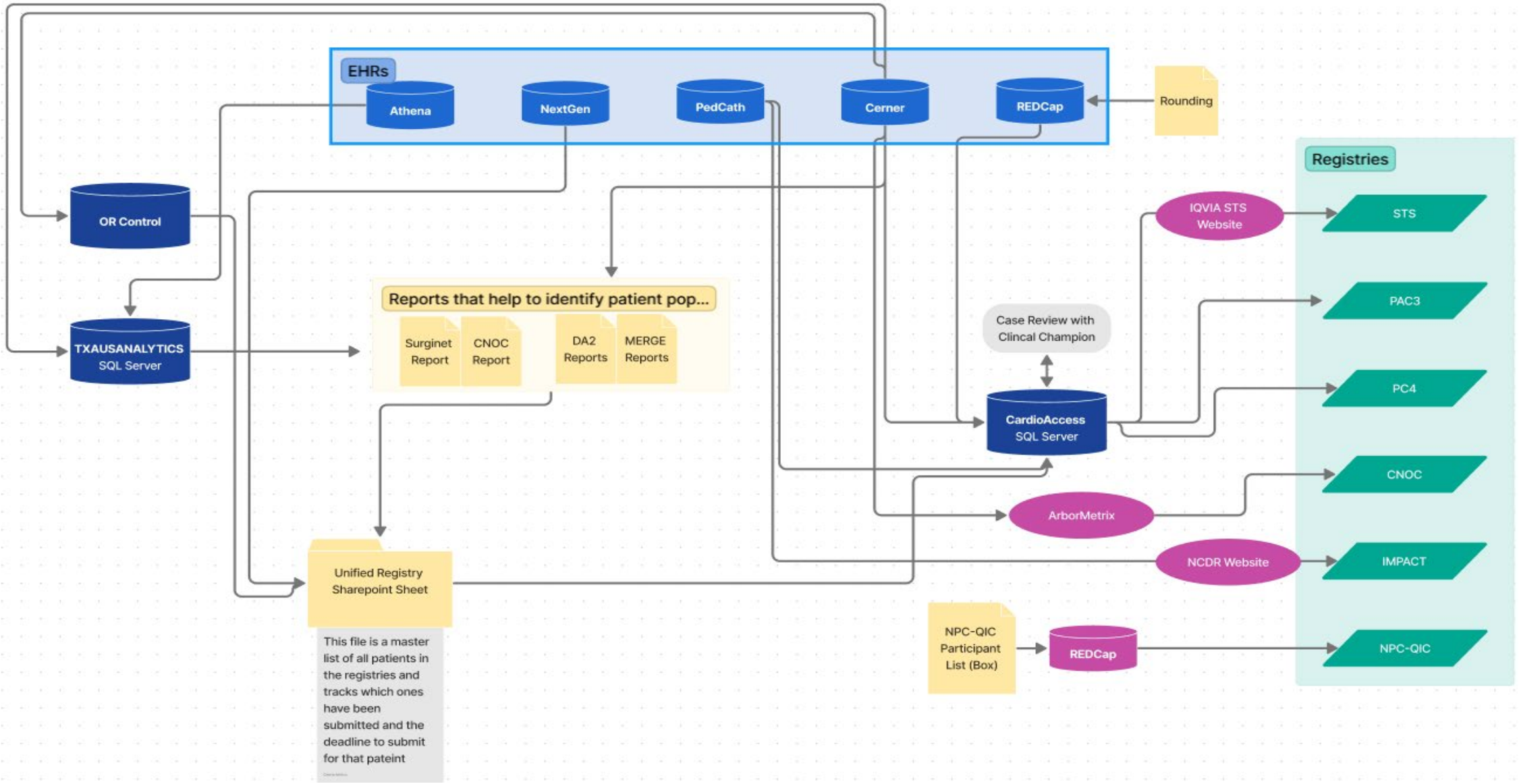


Tableau for Data Integration and Visualization

- User-friendly interface
- Ability to handle large datasets from multiple sources
- Integrate data from various sources
- Creation of interactive dashboards

Texas Center for Pediatric and Congenital Heart Disease
Dell Children's Medical Center
Dashboard Landing Page

dell children's Ascension

The University of Texas at Austin
UT Health Austin

Surgery
STS Volumes and Outcomes

Program Data
Overall TCPCHD Volumes and Outcomes

CICU
Volumes and Outcomes in the CICU with PC4 Metrics

Operations
Volumes and Daily Census Counts for TCPCHD

STS Harvest Report
Biannual STS Report Summary

Perfusion
Case Volume, CPB Minutes and Perfusionist Case Mix

Friday Conference
Previous Week's Surgeries with Procedure Descriptions from REDCap

Surginet Report
Previous Month's Surgeries with Procedure Descriptions from Cerner

CLABSI
DCMC Central Line Bloodstream Infection (CLABSI) Events and Trends

CAUTI
DCMC Catheter Associated Urinary Tract Infection (CAUTI) Events and Trends

DCMC CV Dashboard
Heart Center Volumes & Patient Days from Cerner

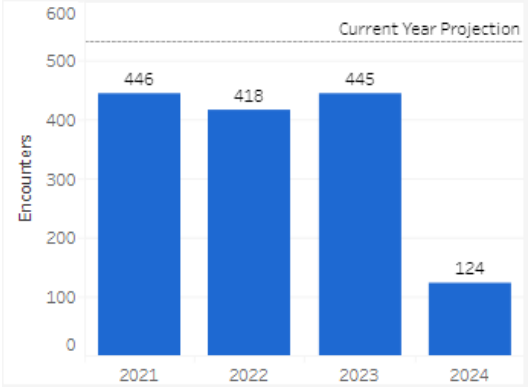
Strategic Decision Making

Texas Center for Pediatric and Congenital Heart Disease
Dell Children's Medical Center
Cardiac Intensive Care Unit (CICU) Service Line

dell children's Ascension

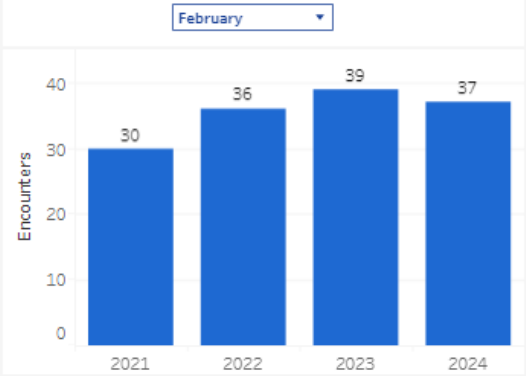
The University of Texas at Austin UT Health Austin

CICU Service Line Admission by Year



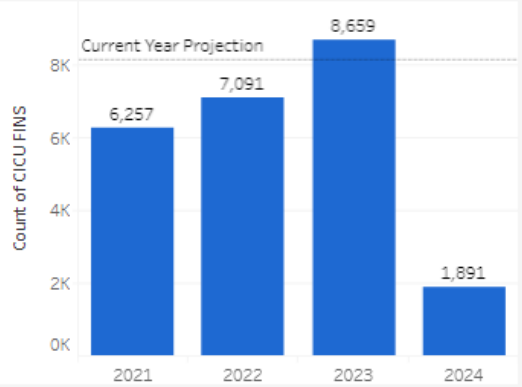
Distinct count of inpatient FINs by date admitted to CICU

CICU Service Line Admission by Year & Month



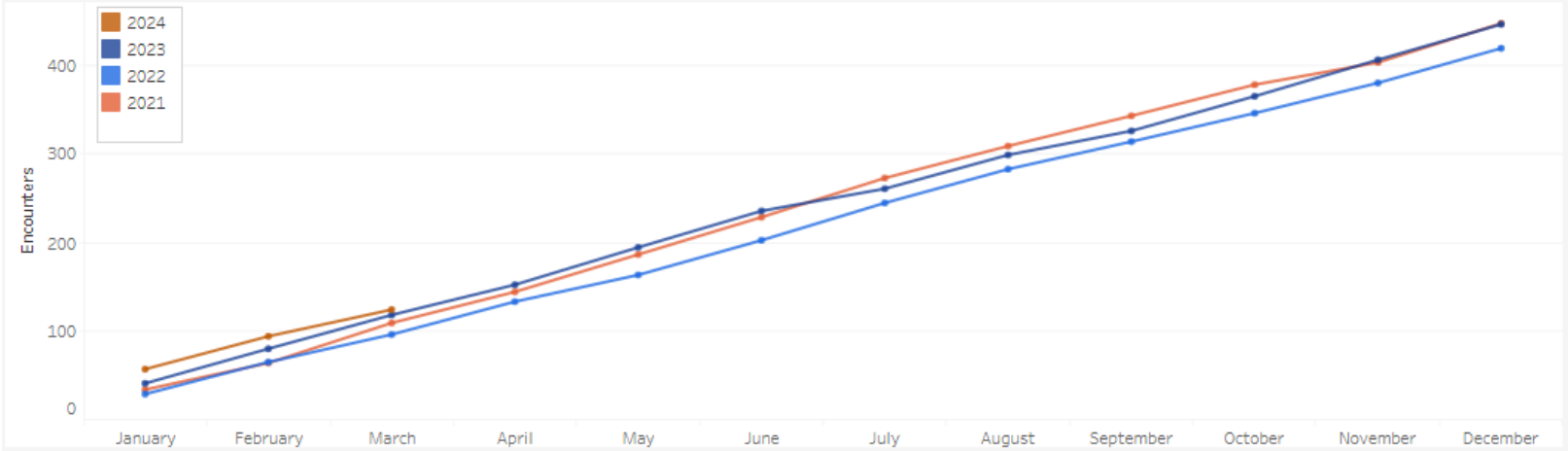
Distinct count of inpatient FINs by date admitted to CICU with month filter

CICU Service Line Patient Days by Year



Count of inpatient FINs for each day patient is in CICU

CICU Service Line Cumulative Volume by Month and Year



Prepared By: Camile.Molina@ascension.org | Confidential and Propieretary | Refreshed Daily

Service Line

Census | Procedures | FY Volumes | Service Line Trends | Population Trends

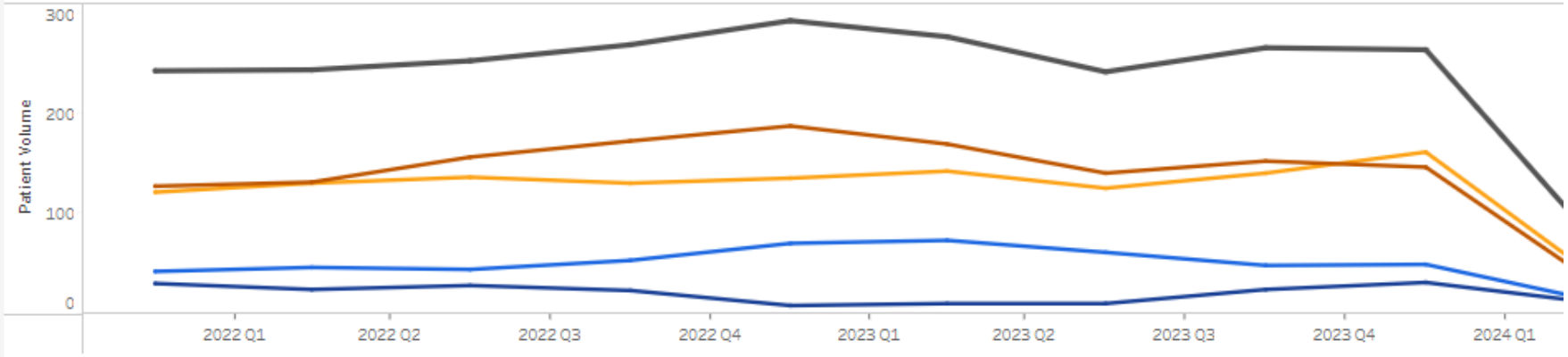
Texas Center for Pediatric and Congenital Heart Disease
Dell Children's Medical Center
Operations

dell children's Ascension

The University of Texas at Austin UT Health Austin

CICU | NICU | Acute | Other

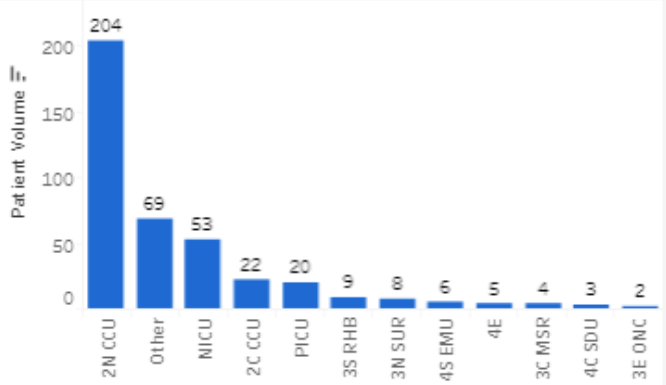
Quarterly Volume by Service Line



Service line designations come from unit, physician specialty and cardiac related documented events and notes in Cerner

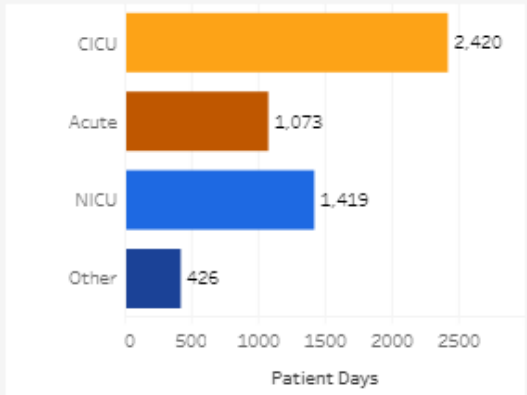
Total Volume by Unit Location

1/1/2024 to 4/22/2024



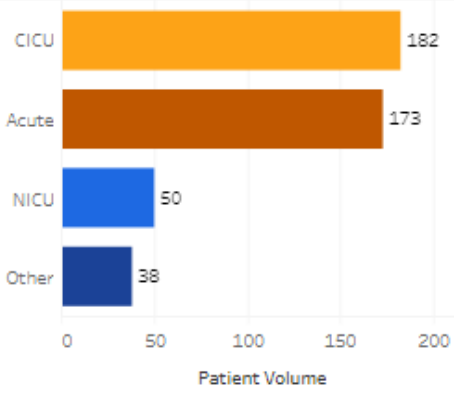
Patient Days by Service Line

1/1/2024 to 4/22/2024



Total Volume by Service Line

1/1/2024 to 4/22/2024



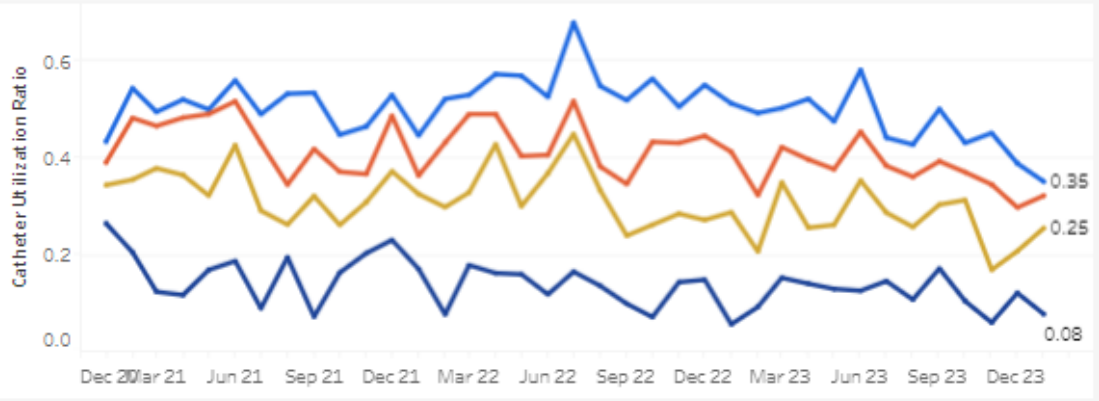
Patient Level- PC⁴ Data Utilization

Texas Center for Pediatric and Congenital Heart Disease
Dell Children's Medical Center
Cardiac Intensive Care Unit (CICU) Service Line

dell children's Ascension

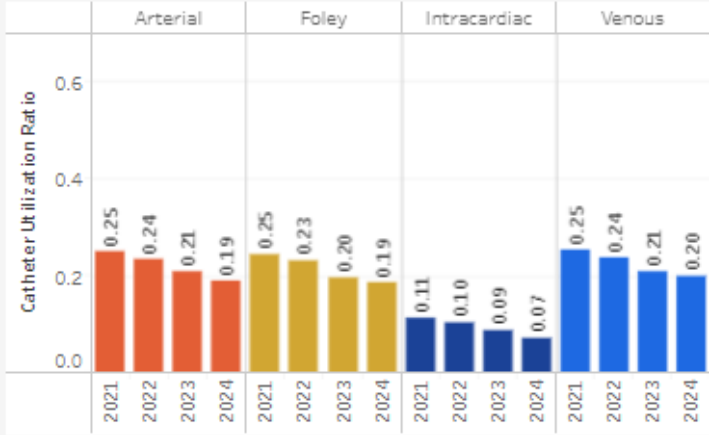
The University of Texas at Austin
UT Health Austin

PC4 Catheter Utilization Ratio

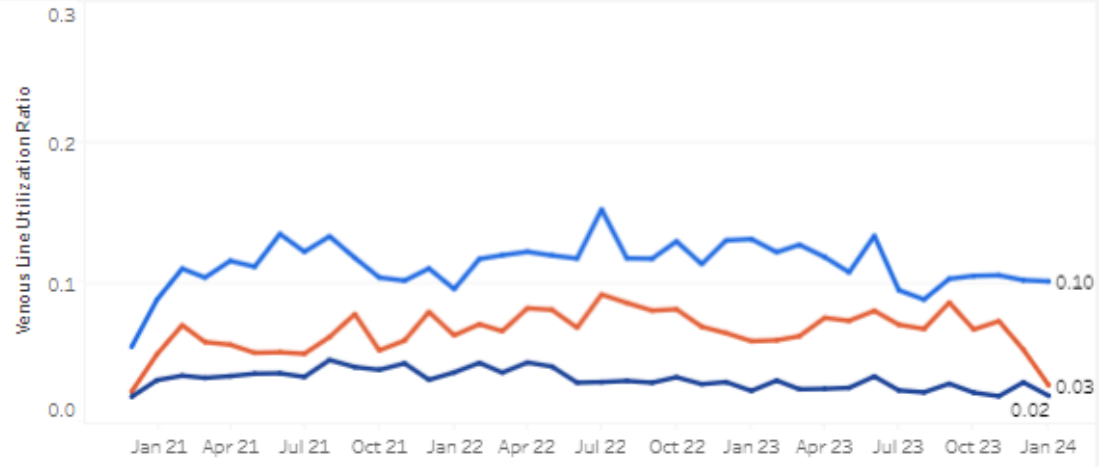


Catheter Utilization Ratio = CICU Catheter Days / CICU Patient Days

PC4 Catheter Utilization Ratio by Year

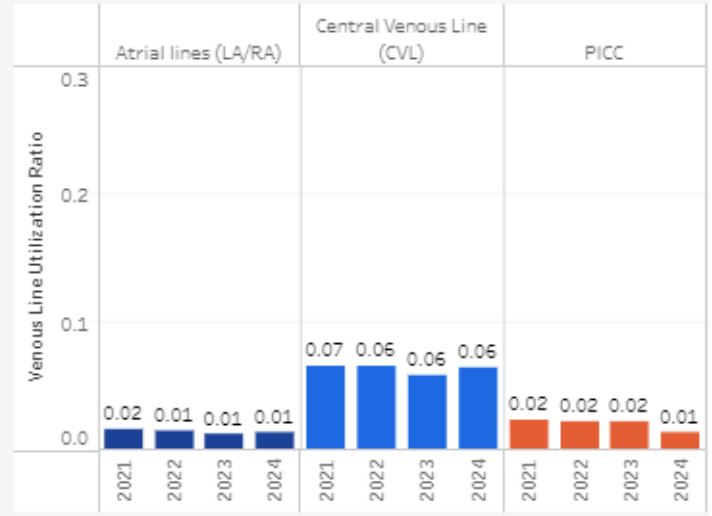


PC4 Venous Line Utilization Ratio



Venous Line Utilization Ratio = CICU Venous Line Days / CICU Patient Days

PC4 Venous Line Utilization Ratio by Year

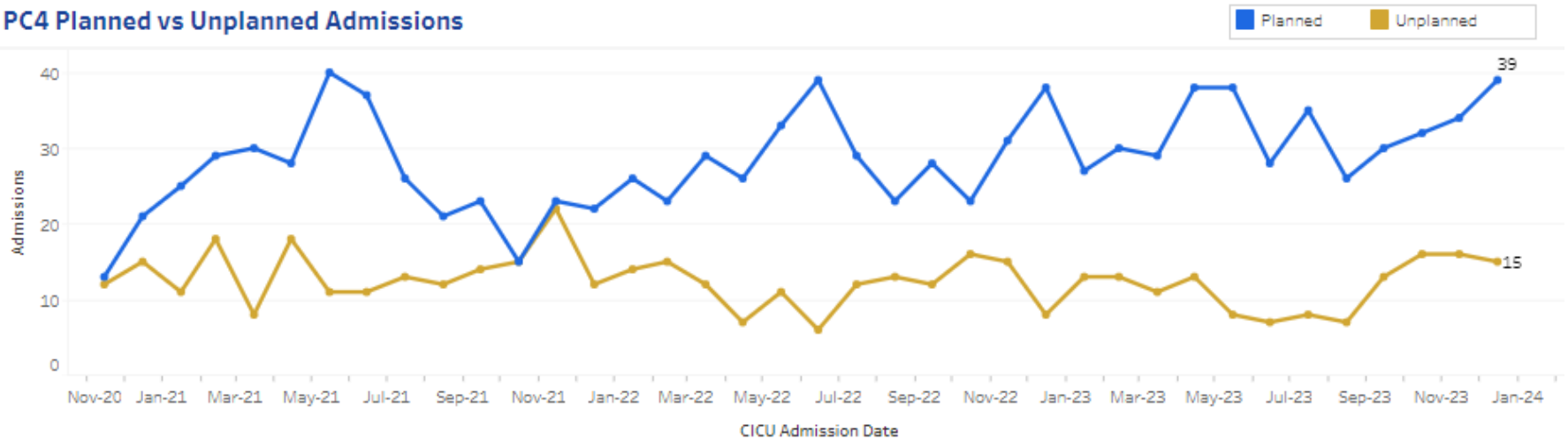


Texas Center for Pediatric and Congenital Heart Disease
Dell Children's Medical Center
Cardiac Intensive Care Unit (CICU) Service Line

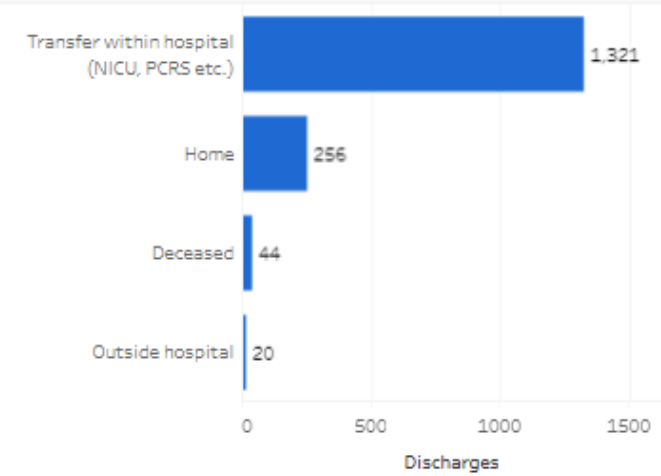
dell children's Ascension

The University of Texas at Austin UT Health Austin

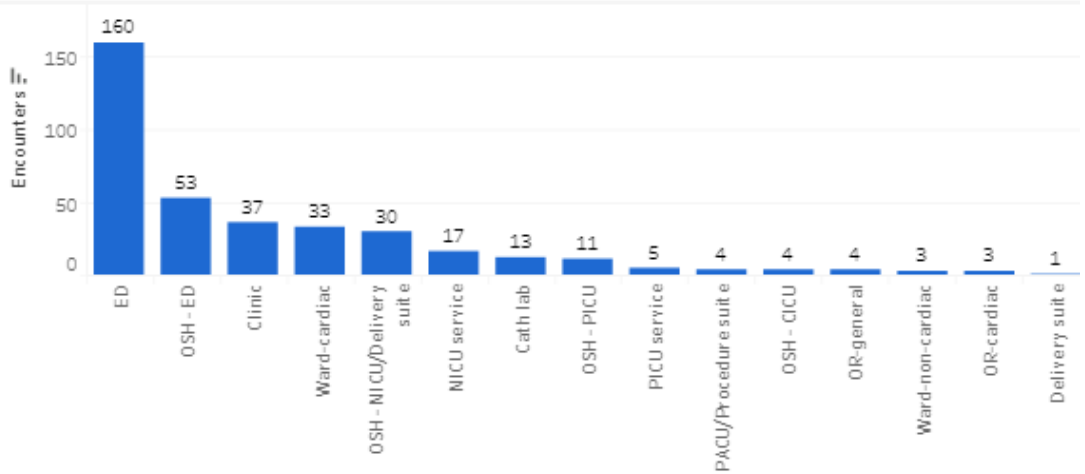
PC4 Planned vs Unplanned Admissions



PC4 Discharge Outcomes



PC4 CICU Unplanned Admission Source

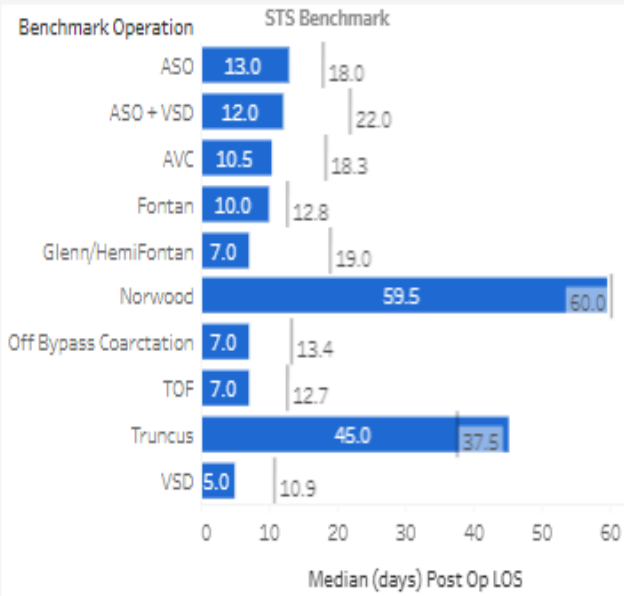


Benchmarking

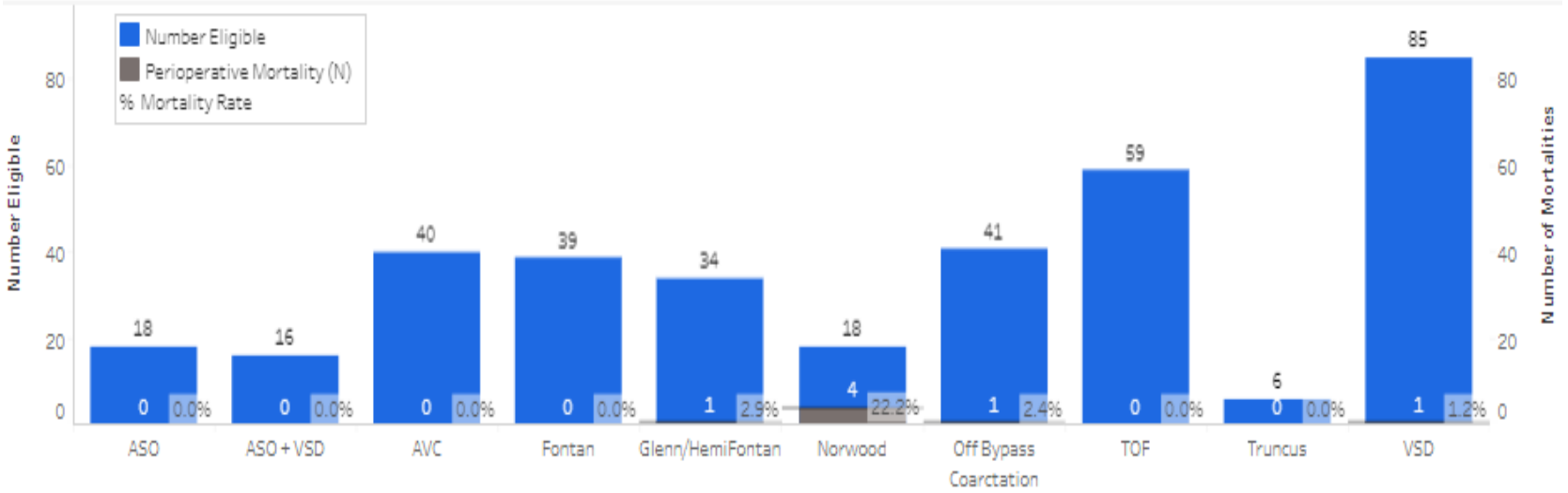
Outcomes by Benchmark Operation

Benchmark Operation	Number Eligible	Perioperative Mortality (N)	Perioperative Mortality (%)	STS Benchmark Mortality (%)	Median Postop LOS	STS Benchmark Median Postop LOS
ASO	18.0	0.0	0.0%	1.93	13.00	17.95
ASO + VSD	16.0	0.0	0.0%	4.34	12.00	22.00
AVC	40.0	0.0	0.0%	1.79	10.50	18.26
Fontan	39.0	0.0	0.0%	1.16	10.00	12.81
Glenn/HemiFontan	34.0	1.0	2.9%	1.49	7.00	19.03
Norwood	18.0	4.0	22.2%	11.84	59.50	60.00
Off Bypass Coarctation	41.0	1.0	2.4%	0.90	7.00	13.39
TOF	59.0	0.0	0.0%	0.93	7.00	12.71
Truncus	6.0	0.0	0.0%	7.69	45.00	37.50
VSD	85.0	1.0	1.2%	0.39	5.00	10.87

Median PostOp LOS

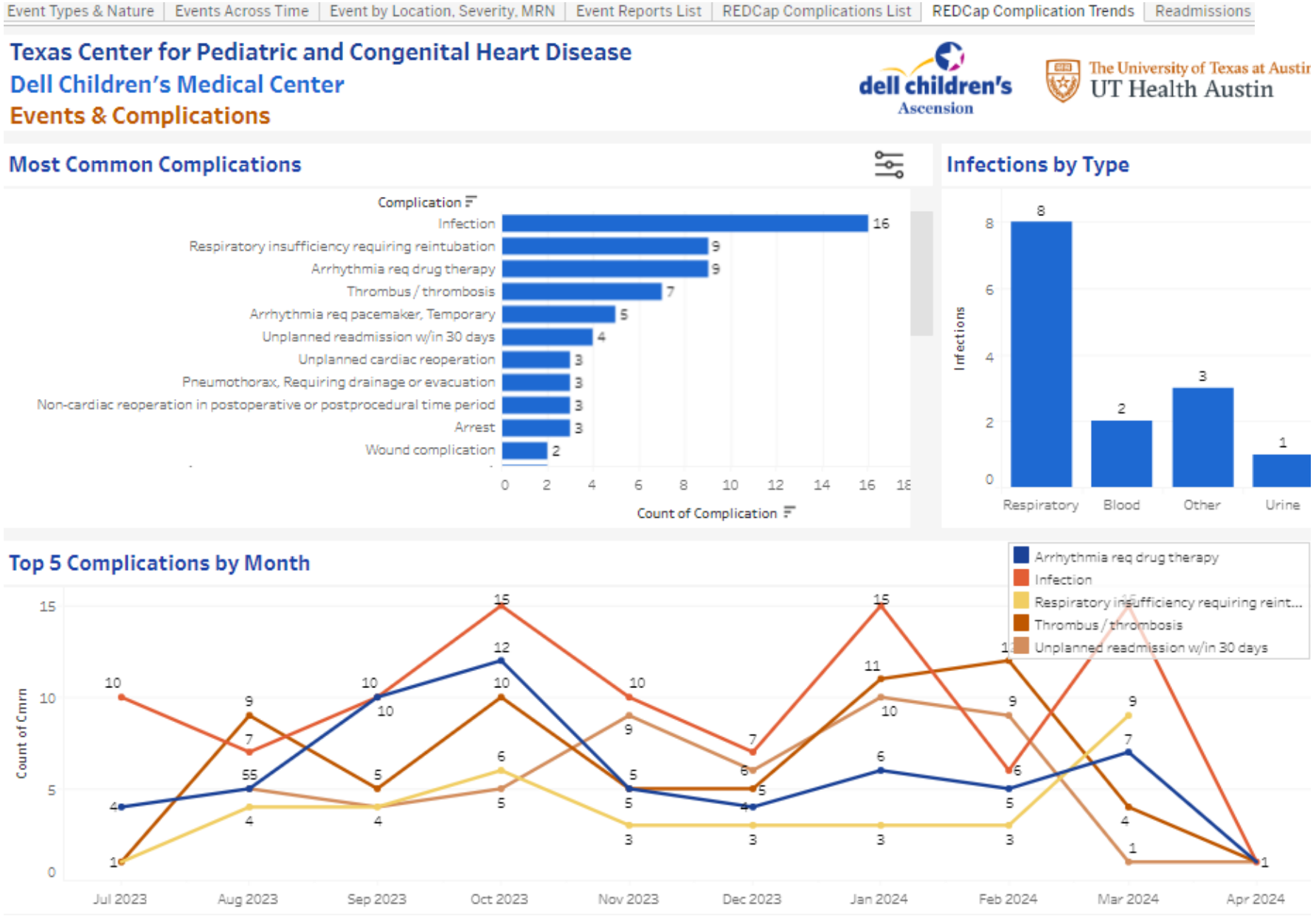


Perioperative Mortalities by Benchmark Operation



Patient Level- Safety & Quality

- Early detection and prevention
- Quality improvement



Process to Build Visual Dashboard

Define Goals

- Identify hospital goals to be accomplished
- Identify the drivers, KPIs, and metrics

Understand Data

- Identify the application data sources and accessibility
- Understand data transformation

Process to Build Visual Dashboard- Cont.

- **Pilot**
  - Create sample dashboard
  - Review and feedback
- **Optimize for production**
  - Production implementation
  - Deployment

Challenges of Data Integration & Visualization

- Integrating data from multiple sources
- Real-time completion of registry data
- Cerner
  - Identifying patients
  - Discrete data points

Benefits of Data Integration & Visualization

- Informed decision making
- Tracking progress
- Improving patient outcomes
- Visualize benchmarking

The University of Texas at Austin
Dell Medical School

dell children's
Ascension

Texas Center for Pediatric and Congenital Heart Disease

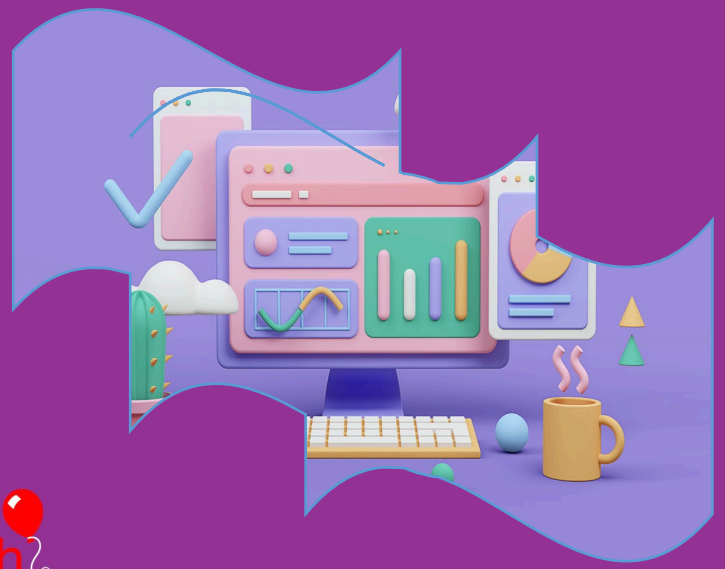
Sarah.Schukei@austin.utexas.edu
Dristi.Khanal@austin.utexas.edu

PC4 PAC3

Data Utilization in Children's Nebraska Criss Heart Center: Implementing ArborMetrix & Other Tools

Teresa Tobin

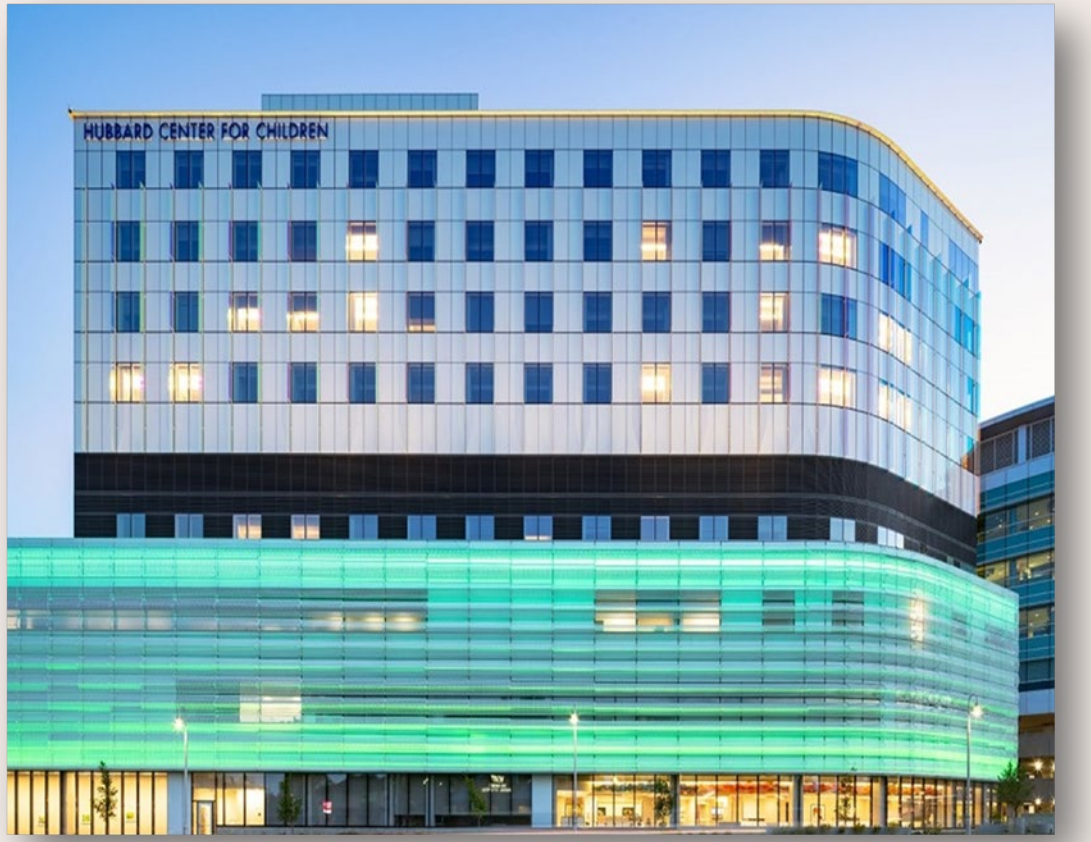
Children's Nebraska



Hosted by children's health

Children's Nebraska

- Hubbard Center for Children- Aug 2021
  - 225 total beds
- Units
  - CCU- 32 beds
    - Single Inpt Service Model
  - PICU- 32 beds
  - NICU- 46 beds
    - Fetal Care Center
- 2023 Volumes
  - CICU- 398
  - CSDU- 609



Children's NEBRASKA

PC4 PAC3

Data Utilization

- Quarterly ECMO-PAC^3-PC^4 Data Reviews
- Cardiac Arrest Prevention (CAP) Case Reviews
- STS- Collaborative Multi-disciplinary Assessment of Performance (CMAP) Rounds

PC^4 PAC^3

Children's NEBRASKA

Quarterly Data Reviews: ECMO, PAC^3, PC^4

- History
- Purpose
- Focused Individualized Data

PC^4 PAC^3

Children's NEBRASKA

ECMO

- # ECMO Runs/Hours
- Survival
- Mortality
- Complications

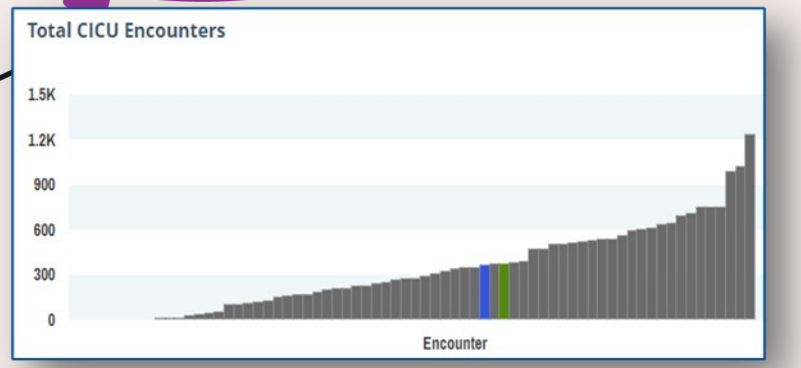
PAC^3

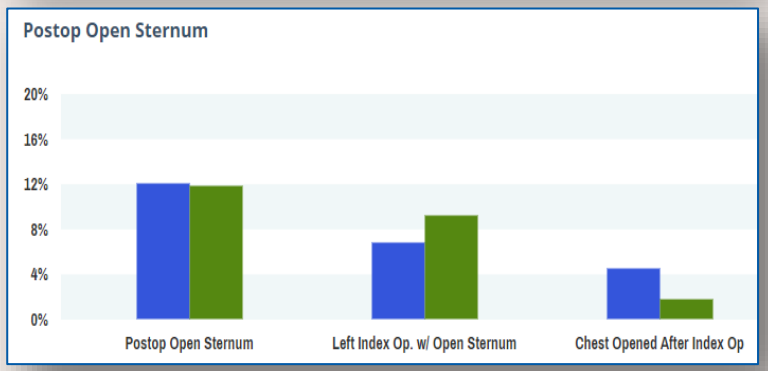
- Patient Volume
- Reason for Admission
- Dashboard
- Surgical Dashboard
- Utilization and Therapies
- Care Escalation
- Medical Events & Complications
- Feeding and Nutrition
- Data Timeliness
- Hearts to Home
- Health Equity Module

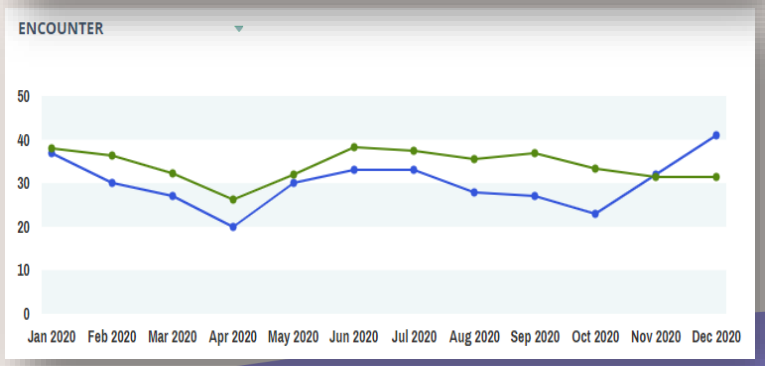
PC^4

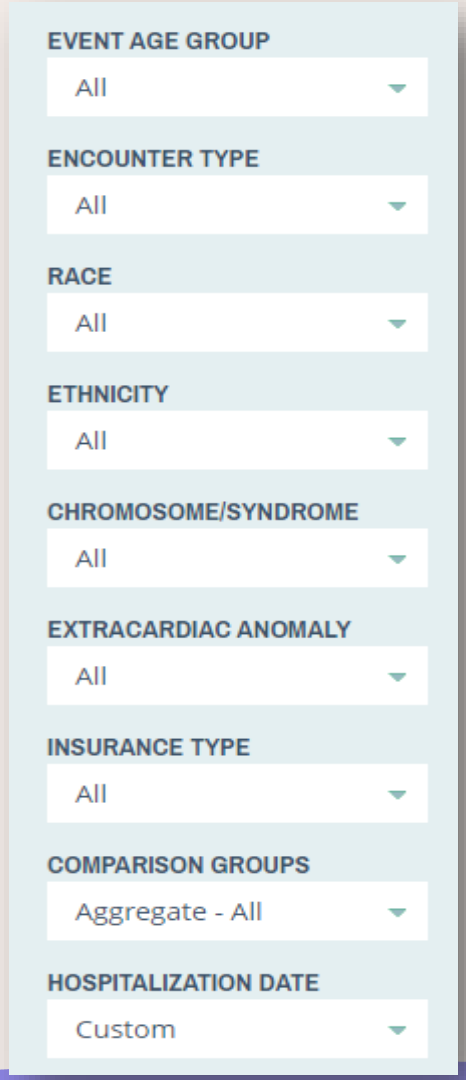
- Patient volumes
- Unplanned CICU Readmissions
- Reason for CICU Encounter
- Mortality
- Vasoactive infusions
- Open Sternum
- Surgical Program Risk Adjusted metrics
- CICU Post-op Quality Risk Adjusted Metrics
- Medical Risk Adjusted Metrics
- CICU Events/Complications
- Data Timeliness

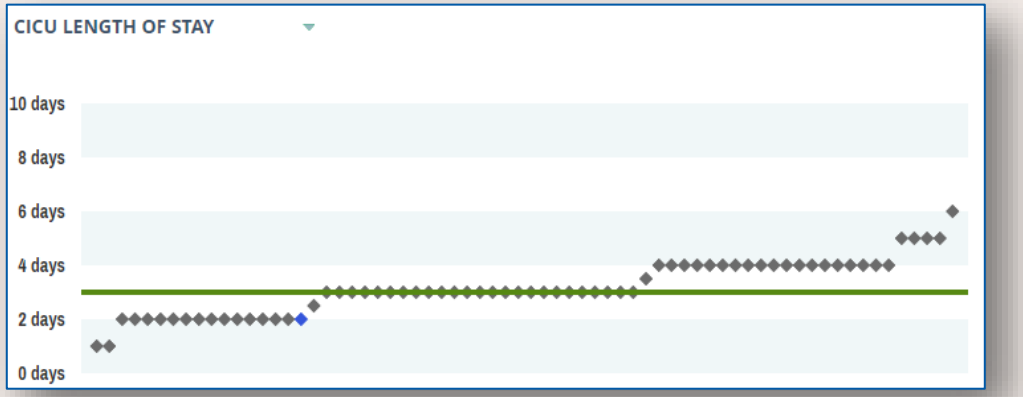
Graphs Used

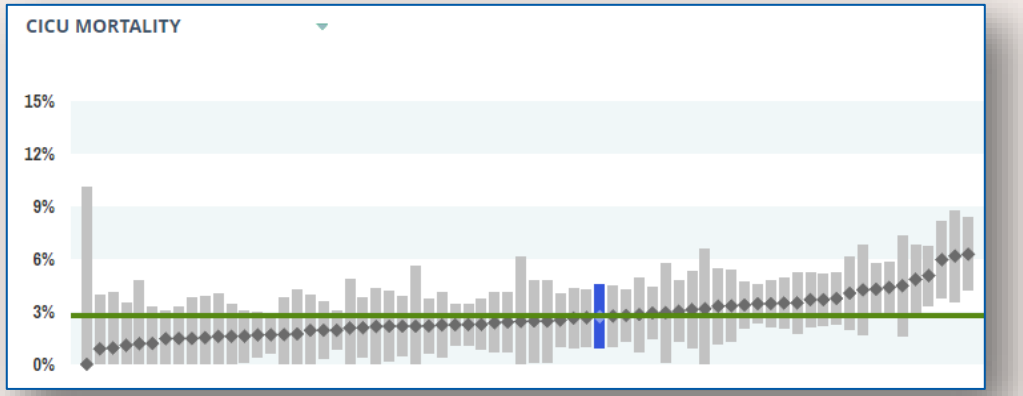












PC4 PAC3

Children's NEBRASKA

Cardiac Arrest Prevention (CAP) Case Reviews

- Biweekly
- Discussion
- Goal

PC4 PAC3

Children's NEBRASKA

STS – Collaborative Multi-disciplinary Assessment of Performance (CMAP) Rounds

- Review weekly
- Identify all levels of outcomes
- Risk over time
- Expected vs Unexpected hospital course
- Learn from them

CMAP Rounds

PC4 PAC3

Children's NEBRASKA

Thank you!

Data shapes the past,
Understanding the data reveals the future.
Giving us the ability to anticipate,
Rather than react after the fact.

Any questions, thoughts, or comments?

PC4 PAC3

Children's NEBRASKA

PC4 PAC3

Where Data and QI Collide: Using Data to Improve Patient Care

Jen Schmoker, RN, BSN, CCRN

Children's Nebraska

Hosted by children's health

slido

Does your ACCU/ICU team visualize PC4/PAC3 data in formal setting?

ⓘ Start presenting to display the poll results on this slide.

slido

Is PC4/PAC3 data is utilized to drive patient care decisions?

ⓘ Start presenting to display the poll results on this slide.

slido

Where are you in your journey?

ⓘ Start presenting to display the poll results on this slide.

Your Work Matters!

- IHI provides a framework for safe, reliable, effective care
  - Non-direct care partners have an important role
- Every project starts with high quality data!!
  - Timely data essential for real time improvement (1-3 weeks)
- Identify trends
  - Evaluate data consistently
  - CMAP rounds, dashboards (real time)
    - Modified JET pathway, echo discrepancies
- Evaluate the big picture
  - Increased LOS but doing more stat 5 surgeries

Where Do I Fit In?

PC4 PAC3

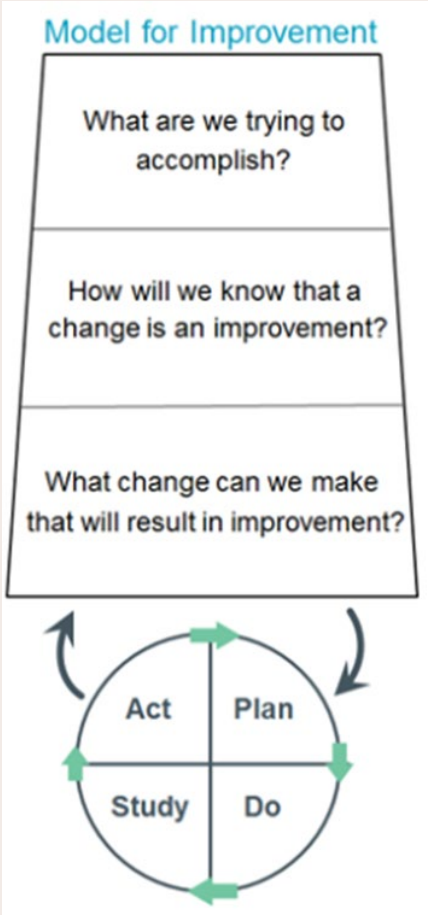
Benefits of Data Champion Involvement in QI

- Increased awareness of PC^4/PAC^3
  - Word of mouth
  - Formal/informal presentation using registry data
- Recognition of your data expertise
- Increased communication with HC leadership
- Increase data utilization through HC
  - Imbedded scorecards
  - Quality dashboards
  - Imbedded quality resources
  - Project involvement (i.e. H2H, local projects)
- Collaboration with other centers
  - Similar goals/projects
  - Path 2 or 3 projects

My Recent QI Journey

PC4 PAC3

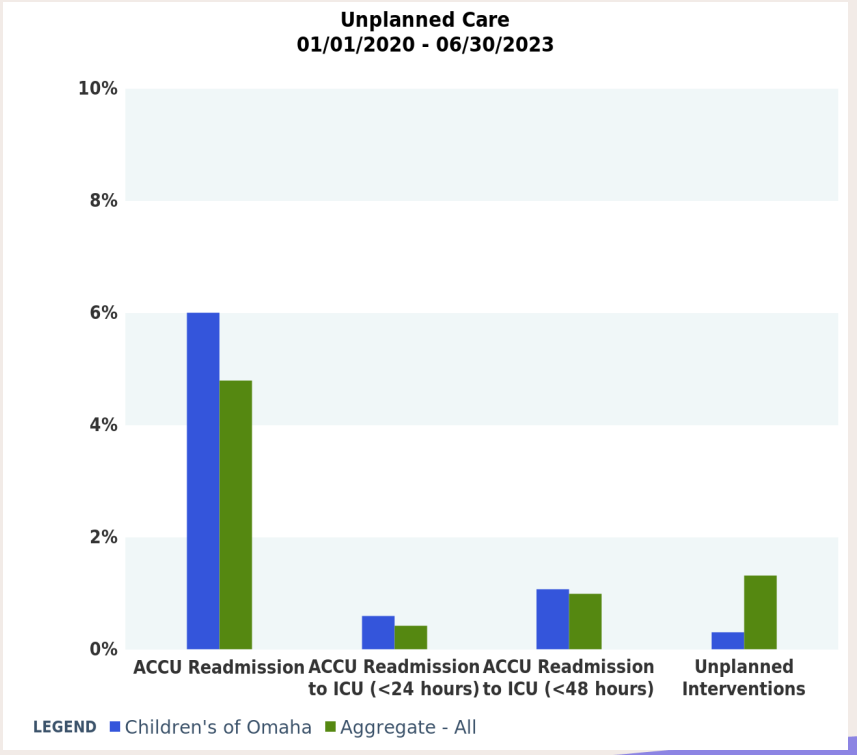
Model for Improvement

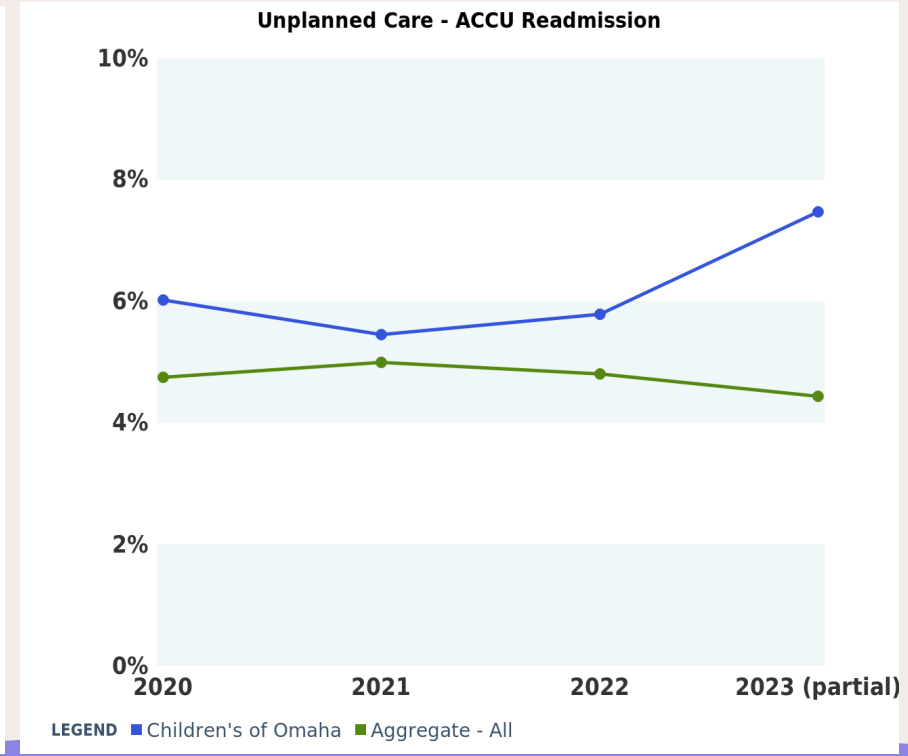


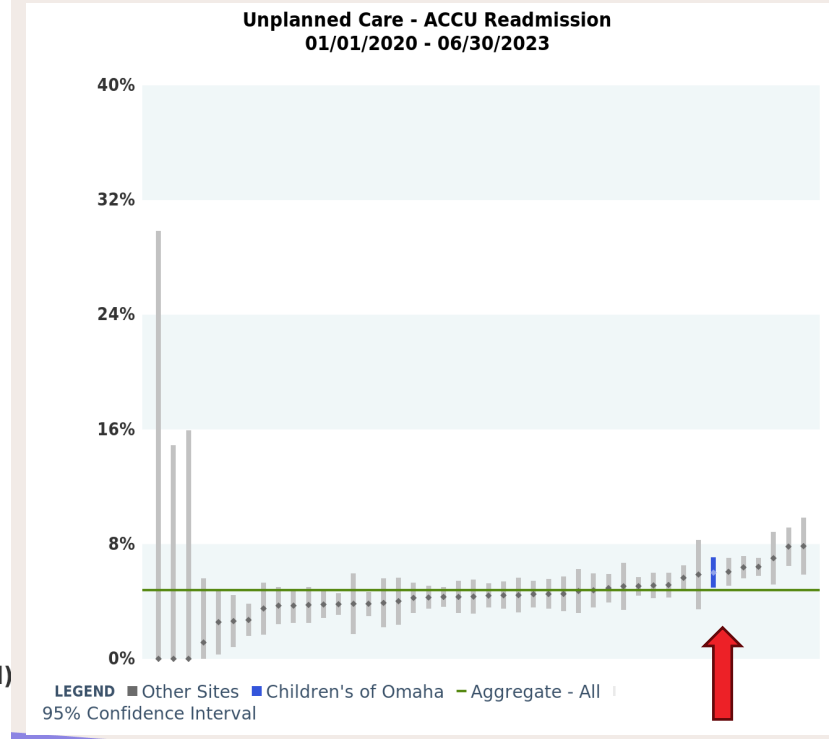
- What is the problem?
- What are we doing about it?
- Did we make an improvement?

Baseline Data 2020-2023

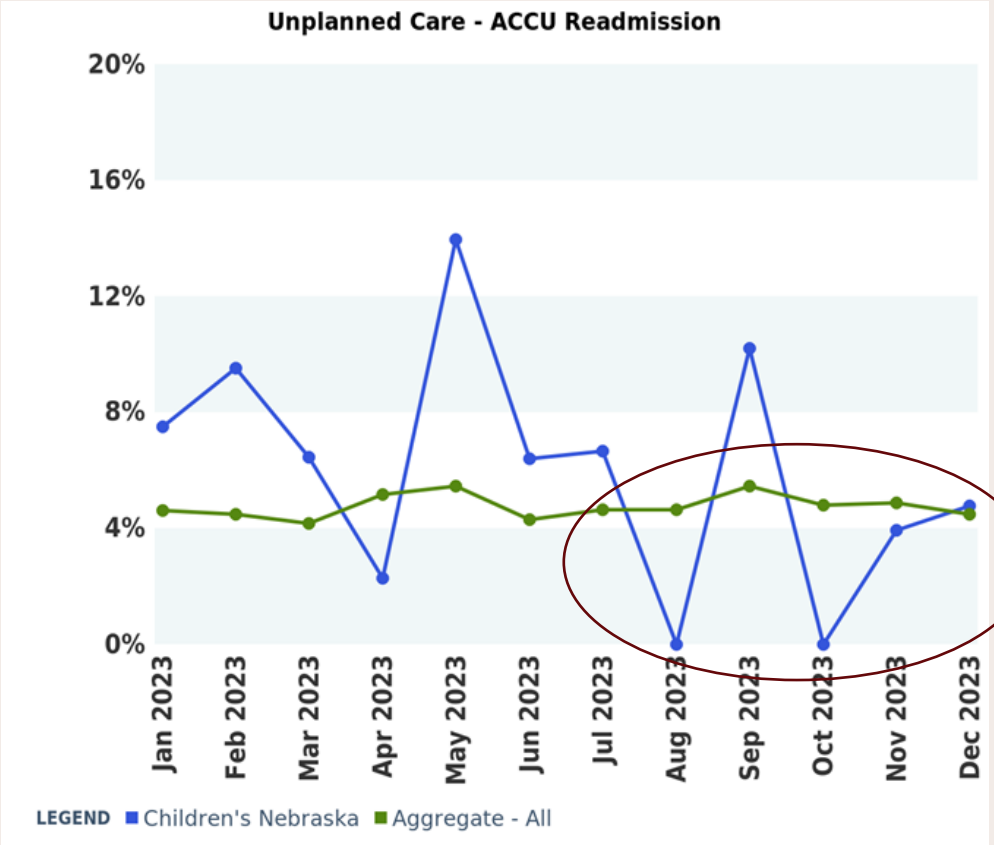
Year	CHMC Readmissions	PAC3 Readmissions
2020	6.03%	4.47%
2021	5.45%	4.99%
2022	5.79%	4.89%
2023	7.97%	4.83%







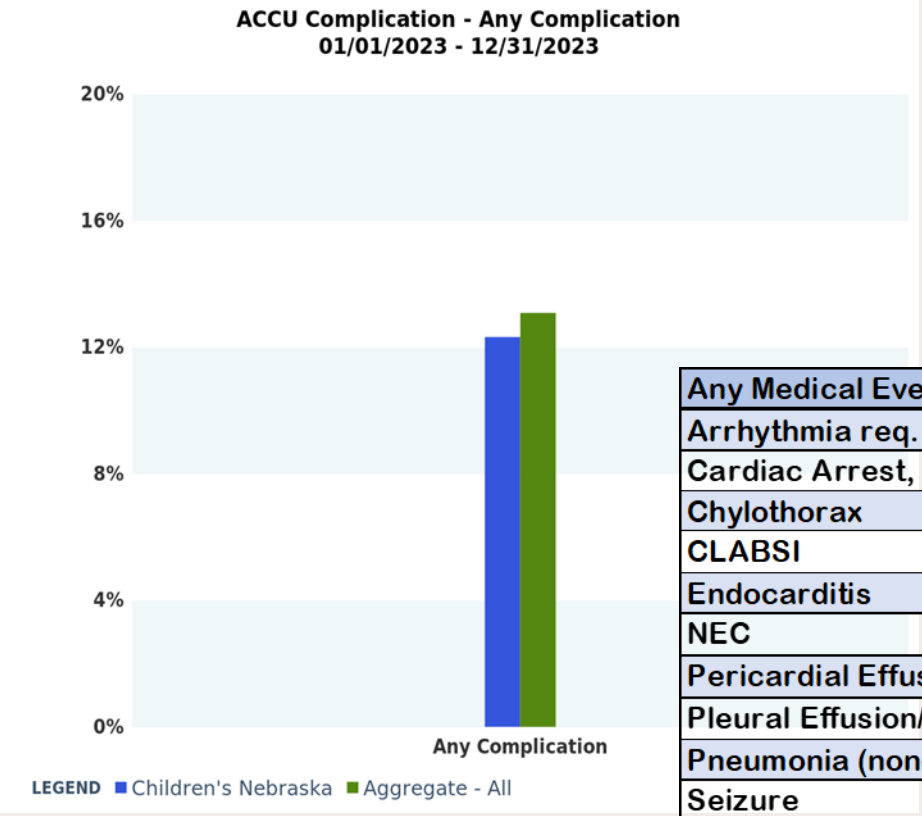
Further Investigation…



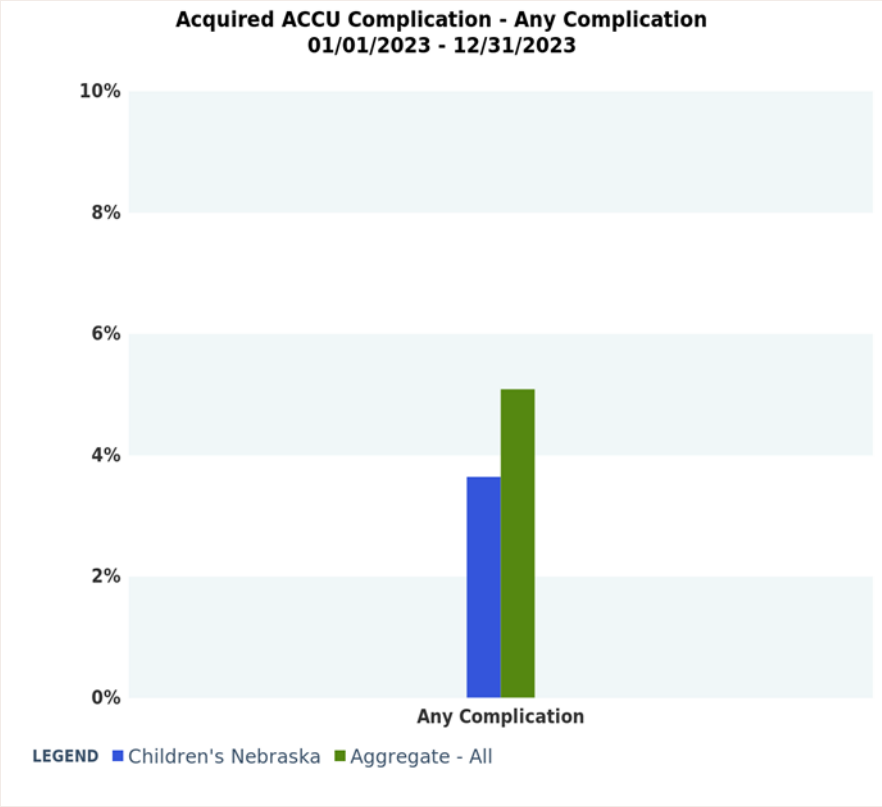
Next Attempt...

PC4 PAC3

Utilize Available Tools…



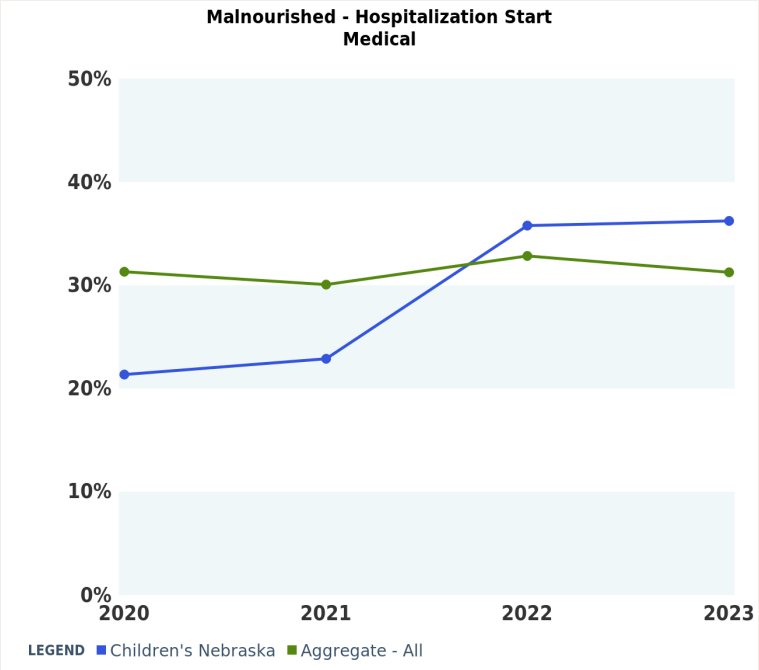
Any Medical Event	# Patients
Arrhythmia req. intervention*	9
Cardiac Arrest, any location	3
Chylothorax	16
CLABSI	1
Endocarditis	1
NEC	1
Pericardial Effusion	18
Pleural Effusion/Hemothorax	2
Pneumonia (non-VAP)	8
Seizure	2
Sepsis	1
Stroke	6
Superficial SSI**	2
UTI (non-CAUTI)	6
UTI (CAUTI)	1

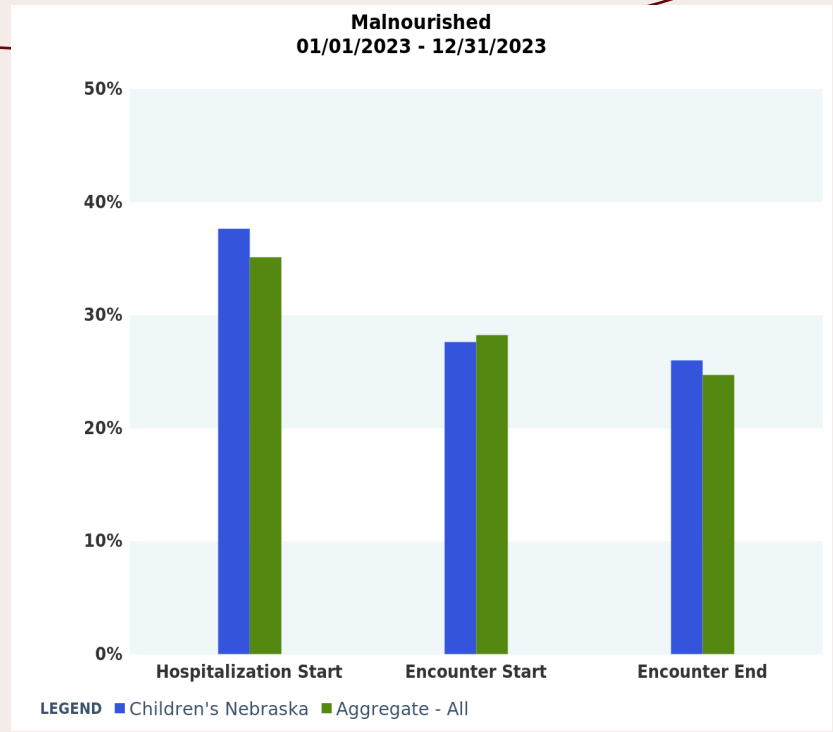


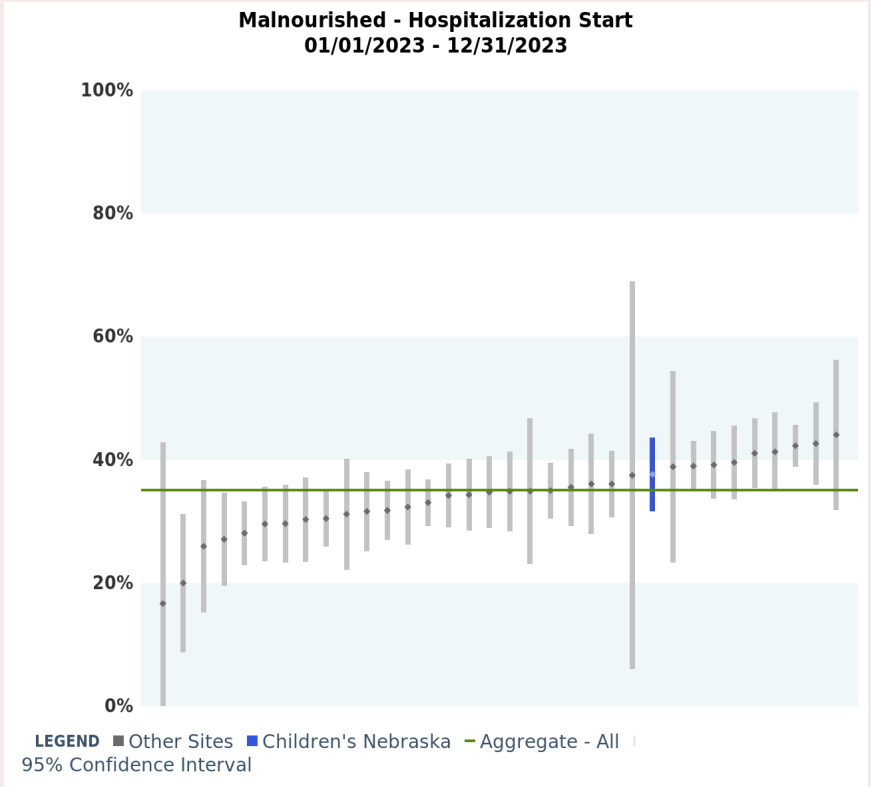
hosted by children's health

2023 Malnutrition at Hospital Admission, Encounter Start & End

Malnourishment	2023 CN	2023 PAC3	2022 CN	2021 CN	2020 CN
Hospital Admission	37.70%	35.10%	38.90%	29.50%	32.90%
ACCU Encounter Start	27.60%	28.20%	23.20%	17.10%	20.70%
ACCU Encounter End	26.00%	24.70%	21.60%	15.10%	15.60%





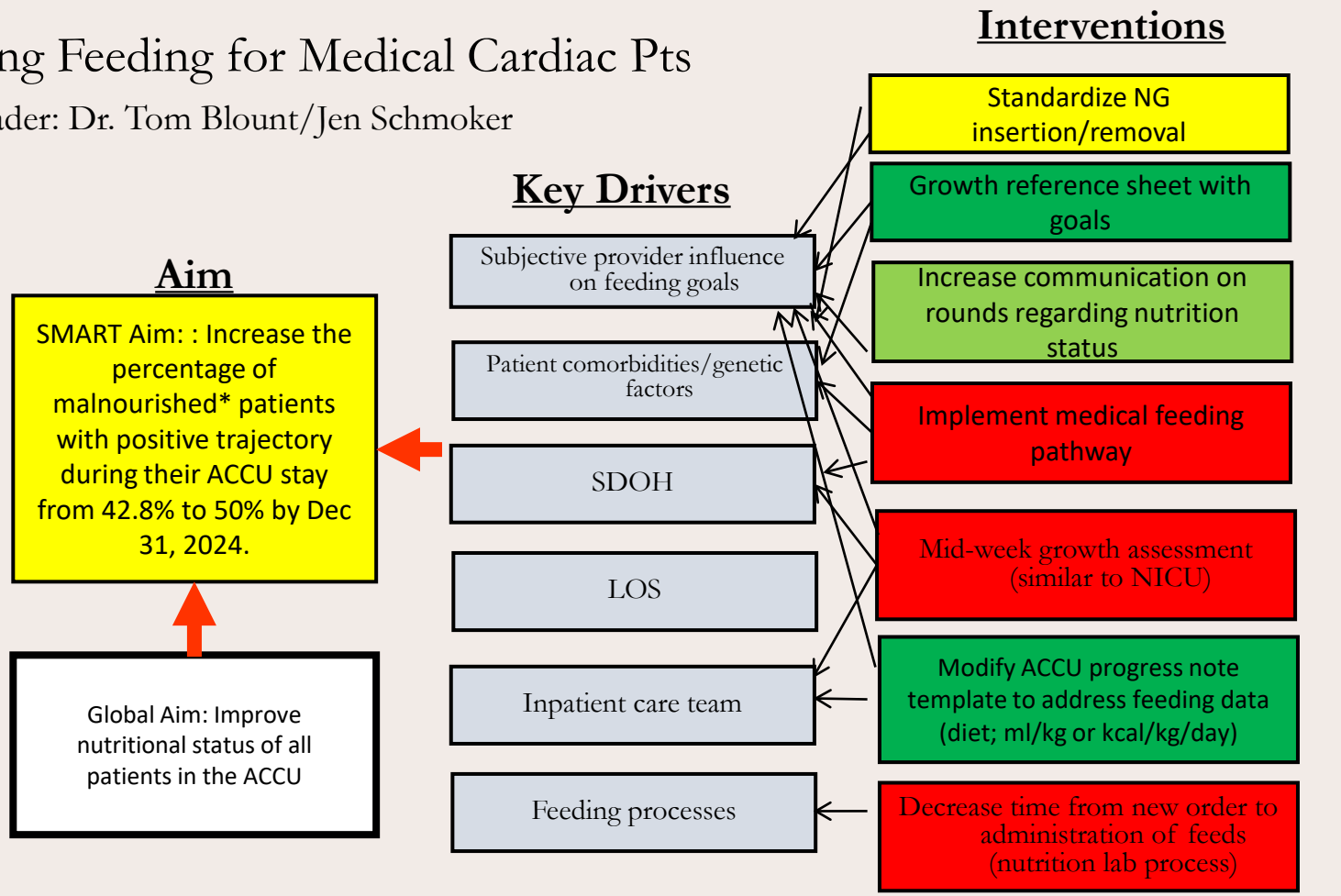


Denominator: All patient age ≤365d at encounter start
Numerator: Patient age ≤365d at encounter start with a weight for age z-score of ≤-2 at hospital start, encounter start, or encounter end
**this is not the same method our dieticians use internally

Last updated:
3/25/24

Improving Feeding for Medical Cardiac Pts

Project Leader: Dr. Tom Blount/Jen Schmoker



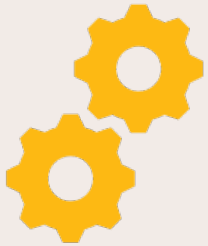
*Weight-for-length z-score

Project Measures

Outcome Measures: Ultimate result (tells how system is performing)

Increase the percentage of malnourished patients with positive weight-for-length z-score trajectory during their ACCU stay from 42.8% to 50% by Dec 31, 2024

Decreasing overall % of malnourished patients from 25.1% to 10% by Dec. 31, 2024 (secondary metric for PAC3 comparison)



Process Measures: Are parts of system performing as planned (affect outcomes measures)?

Time from admission to documentation of nutrition status

% compliance with new NG placement/removal criteria

Balancing Measures: Are changes introduced impacting other areas in expected or unexpected changes

LOS

% patients NG or NG/PO at encounter end

% with NG placed at anytime during encounter

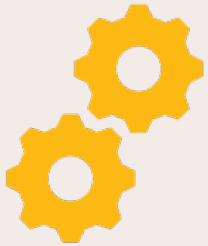
PC4 PAC3

Project Measures

Outcome Measures: Ultimate result (tells how system is performing)

Increase the percentage of malnourished patients with positive weight-for-length z-score trajectory during their ACCU stay from 42.8% to 50% by Dec 31, 2024

Decreasing overall % of malnourished patients from 25.1% to 10% by Dec. 31, 2024 (secondary metric for PAC3 comparison)



Process Measures: Are parts of system performing as planned (affect outcomes measures)?

Time from admission to documentation of nutrition status

% compliance with new NG placement/removal criteria

Balancing Measures: Are changes introduced impacting other areas in expected or unexpected changes

LOS

% patients NG or NG/PO at encounter end

% with NG placed at anytime during encounter

PC4 PAC3

Project Steps

Develop Nutrition Guide	**Completed 12/10/23**
Update nutrition section in EPIC note template	**Live 3/4/24**
Develop NG insertion/removal guidelines	**Completed 1/9/24**

PDSA #1: Pilot Plan: Testing NG Insertion/Removal Guidelines

Timeline	**Beginning March 4**
Pilot	Include only new medical admissions or transfers Test NG guideline on 5 patients
Evaluation	No eligible patients as of 3/29 Reevaluate 4/24

Project Ideas

- Timely data submission
- Hearts to Home (discharge efficiency)
- LOS
- Complications
  - NEC
  - ICU bounce backs
  - Cardiac arrest
  - CT duration
  - Reintubation
  - Reops
  - Readmissions

*Be curious!!

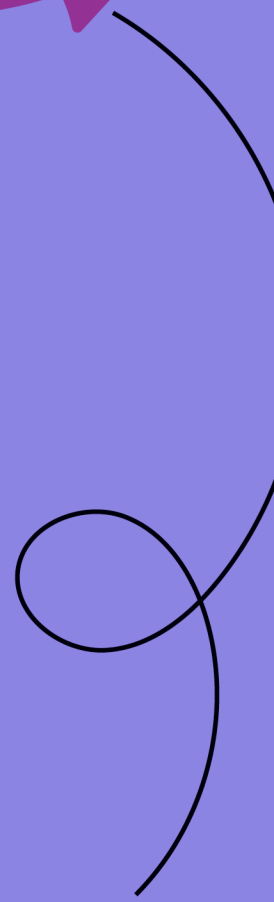
*Be alert to trends as abstracting data

*Utilize Arbormetrix and local data resources

*Use filters, including health equity data

*Recognize your value as a data expert

*Consider taking PAC^3 QI course or working with project team



"No matter how good you get, you can always get better, and that's the exciting part."

~Tiger Woods

PC4 PAC3

Resources

- The Improvement Guide
  - Langley, G.L., Moen, R., Nolan, K.M., Nolan, T.W., Norman, C.L., and Provost, L.P. (2009). The improvement guide: A practical approach to enhancing organizational performance (2nd ed). Jossey-Bass.
- The Healthcare Data Guide
  - Provost, L.P., & Murray, S.K. (2011). The health care data guide: Learning from data for improvement. Jossey-Bass.
- Institute for Healthcare Improvement
  - IHI Open School
  - Multiple resources for implementing QI into practice
  - Ihi.org
- CNU, PC^4, or PAC^3 QI courses
- Local QI courses or resources

Questions?

Onboarding New Team Members

PC4 PAC3

Streamlined Onboarding: A Template for Training New Data Abstractors on a Local Team

Rebecca Zahn, MSN, RN
Mia Kurbalija, BSN, RN
Texas Children's Hospital

Hosted by children's health

Streamlined Onboarding: A Template for Training New Data Abstractors on a Local Team

Texas Children's Hospital®

Baylor College of Medicine

PC4 PAC3

Rebecca Zahn, MSN, RN

Team Lead/Nurse Data Specialist

Mia Kurbalija, BSN, RN

Nurse Data Specialist

Background

- Our local CICU experienced a steady growth in preceding years, resulting in growth of our local PC4 data team.
- Maintained a core group with some turnover among abstractors.
- Challenges in training new data abstractors include:
  - High census numbers and time constraints
  - High volume of data fields with complex concepts
- Solution → Developed a template to streamline the process and support the transition.

The PC^4 Consortium

1) **<u>Introduce the PC^4 consortium</u>:**
   a) Review PC4quality.org
      i. Overview, Mission, Commitment
   b) Orient to PC^4 leadership and introduce to Project Manager Kim Gonzalez.
      i. Email Kim for introduction.
         1. Add abstractor to PC^4 consortium email list.
         2. Obtain access to PC^4 quality.org.
            a. Log-in
            b. Review site navigation and site functionality.
   c) Introduce User Feedback Calls and purpose.

Teams and Roles

1) **<u>Introduce local database teams and describe roles</u>:**
   a) PC^4 Clinical Champions and team
   b) Local database teams:
      i. STS
      ii. PAC^3
      iii. IMPACT
      iv. CNOC

(www.vectorstock.com)

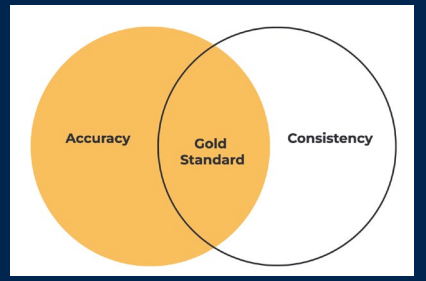
Access and Reports

1) **Log-in access and reports:**
   a. Request Access for CardioAccess.
   b. Add abstractor to team meetings.
   c. Add abstractor to needed automated reports.

(www.demigos.com/blog-post/how-to-improve-data-quality-in-heathcare/)

Data Quality, Integrity, and Expectations

1) **<u>Discuss the importance of data quality, integrity, and data expectations</u>:**
    a) Accuracy, Consistency, Completeness, Timeliness
    b) Teach the abstractor to code each field the same way each time.
    c) High Inter-rater reliability:
        i. Agreement between two or more abstractors independently abstracting the same data field.
    d) Importance of the ***<u>Gold-Standard</u>*** areas in chart to abstract data, and secondary sources of truth.



(www.labelstud.io/blog/integrity-consistency-3-keys-to-maintaining-data-quality-in-machine-learning/)

Local PC4 Folders

1) **<u>Introduce local PC^4 folders</u>:**
    a) Census, files, and reports.
        i. Review local processes:
        1. Maintaining a census
        2. File processes
        3. Use of reports

Definition Manual and FAQs

1) **Review the PC^4 definition manual, FAQs, and local Q/A document:**
   a) Explore manual and FAQs together:
      i. Review nuances in definitions.
      ii. Demonstrate use of “search” box.
   b) Allow time for abstractor to review documents independently.

Sources of Clinical Data

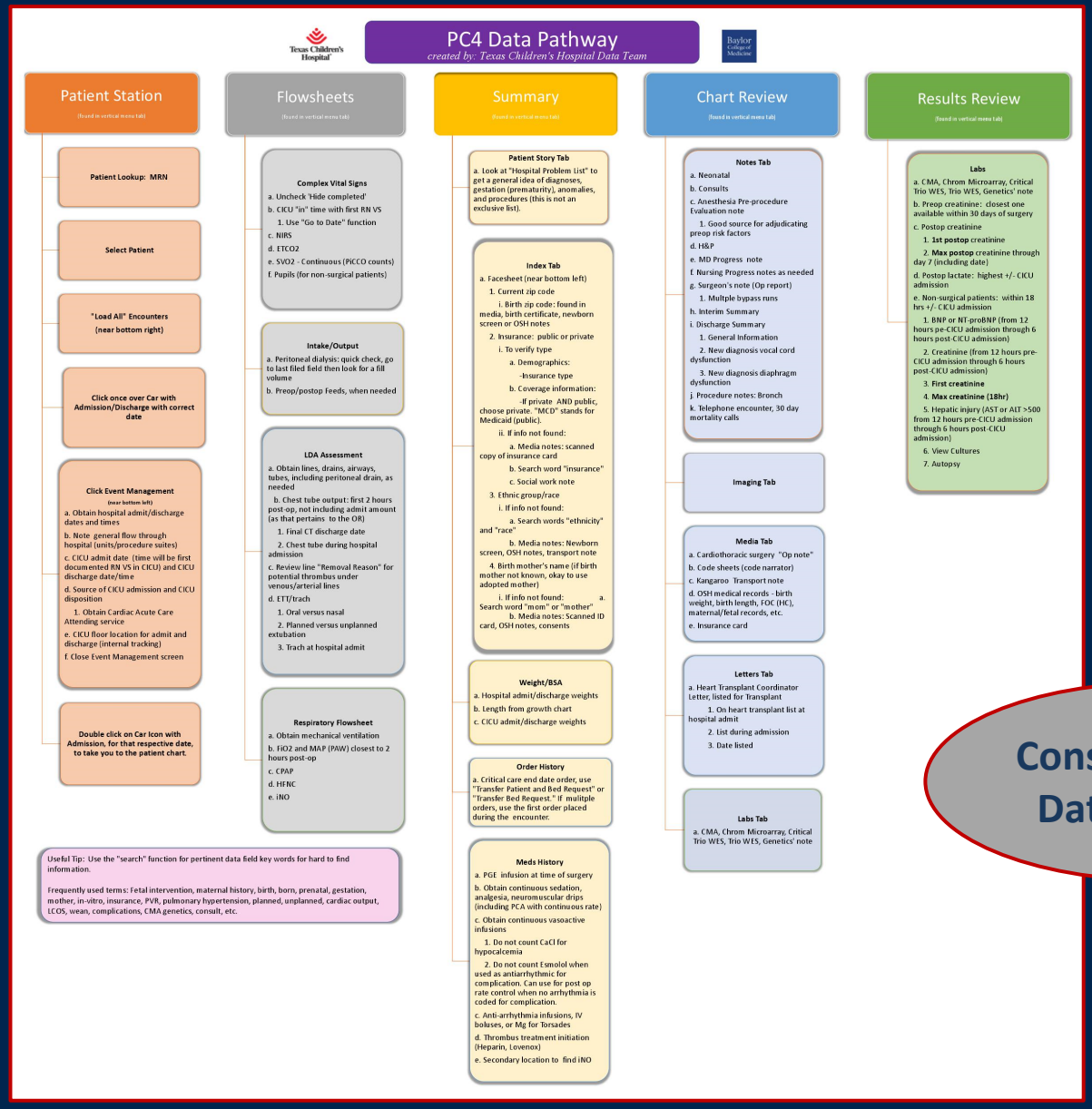
1) **<u>Review sources of clinical data at local center</u>:**
    a) EPIC:
        i. Demonstrate use of “search” option box in EPIC.
        ii. Customize search tabs in EPIC for abstraction.
    b) CardioIMS:
        a) Log-in
        b) Review site navigation

CardioAccess

1) **<u>Introduce CardioAccess</u>:**
   a) Function
   b) Navigation
   c) Teach “Bubble definition” importance.
      i. Use the bubble definitions every time while learning, and often when experienced.
   d) Local CardioAccess manager/programmer

TCH- PC^4 Data Pathway

1) **<u>Introduce the "PC^4 Data Pathway"</u>:**
   a) Review the flow through EPIC.
   b) Abstract an easy cardiothoracic (CT) post-operative patient.
      i. Review each step in the pathway.
      ii. Explain nuances and troubleshoot hard to abstract fields.
      iii. Point out "Gold-Standard" areas and secondary sources of truth, when gold-standard not available.
      iv. Use this pathway for data abstraction, every time.



Consistency and Data Integrity

Texas Children's Hospital

Baylor College of Medicine

Data Abstraction

1) **<u>Trainer and orientee abstract and enter cases</u>:**
   a. 5 easy to moderate CT post-operative cases.
   b. 5 easy to moderate medical cases.
   c. Abstract as many cases as needed until trainer and orientee are comfortable, with a wide case variation.

Collaboration

1) **<u>New abstractor works independently with trainer available for questions</u>:**
    a. Start with easy CT post-operative patients, progressing to medical admissions, slowly increasing complexity.
        i. 1-3 day LOS
        ii. 4-7 day LOS
        iii. 7-14 day LOS
        iv. >2 week LOS
    b. Trainer is available for questions via phone calls, teams meetings/texts, and/or emails.

Audits

1) **<u>Trainer audits each case for teaching purposes</u>:**
    a. Review discrepancies and provide rationale with definition review.
    b. Review each case and all fields until proficient in minor/major fields.
        i. Once a field is consistently correct with abstractor understanding, omit that field from future review, if it is not a major field.
    c. Continue to review major fields.
        i. Major fields defined by local team: Extracardiac anomalies, chromosomal abnormalities, syndromes, reason for admission, medical diagnoses, complications, risk group (preoperative risk factors, high-risk dx, inotropes at time of surgery).
    d. Audit each “case type” until proficient with a focus on complex fields.

Abstractor Independent time

1) **When abstractor is completely independent:**
   a. Use H/P, Interim and Discharge Summaries for quick reference.
   b. Perform periodic checks of diagnoses and complex fields before submitting the case.
   c. Keep an open door policy, welcome questions, discussions, teams messages, and emails.
   d. Perform periodic feedback sessions to address any needed areas of improvement and to ensure ongoing learning and development.

PC4 PAC3

Texas Children's Hospital®

Baylor College of Medicine

Thank You

Mia Kurbalija, BSN, RN, Rachel Schwandt, BSN, RN

Katie Lopez, BSN, RN, Rebecca Zahn, MSN, RN

Ashish Ankola, MD, Priya Bhat, MD, Bradley Scherer, MD

PC4 PAC3

Onboarding Single Data Champion

Courtney Spence, RN

Nemours Children's Hospital

Hosted by children's health

Background

Registered Nurse.

Prior Experience: CICU RN at Nemours Childrens Hospital.

RN for 14 years.

Primarily Pediatric Cardiology.

PC4 PAC3

Nemours.
Children's Health System

PAC³ Submission Prior to Hire

- Our cardiac center had not had a PAC³ abstractor to submit data.
- We had been behind in data submission for >2 years.
- Our current abstractors at Nemours submit to STS and PC⁴.

PC⁴ PAC³

Nemours.
Children's Health System

Hiring Process

- Hospital training for PAC^3 consisted of reviewing database alongside PC^4 abstractor for 1 week.
- Was granted access to PAC^3 website but did not know how to navigate website to find answers to questions.
- No "ROADMAP" typed up for PAC^3 at our center to provide assistance on where to find data.
- Our center uses EPIC which, as a bedside nurse, I had grown very comfortable with navigating.

PC^4 PAC^3

Nemours.
Children's Health System

Building our PAC^3 Foundation

Hospital Information:		
	Hospital Name	Alfred I. duPont Hospital for Children
	Date/Time of Admission	Summary Tab > Event Log > Patient movement >Admission date/time to **2B Telemetry**
	Country of Residence	Demographics Tab > Communication section
	Residential Zip	Demographics Tab > Communication section
	Account Number	Hover over MRN on left sidebar near displaced name > CSN # displayed ; copy & paste
	Initial length/Height (cm)	Flowsheet tab > Historical measurements tab > *find admission date
	Initial weight (kg)	Flowsheet tab > Historical measurements tab > *find admission date
	Gastric tube present at hospital admission	Flowsheet tab > Drains > should be listed \\ Notes > H&P & look for diet at admission
	Nissen fundoplication prior to admission	Search bar type in Nissen
	Cardiothoacic Surgery	Notes Tab > OR note typed out || Will also be mentioned in Discharge summary
	Cardiac Catheterization	Notes Tab > Procedures || Will also be mentioned in discharge summary
Admit Feed:		
	Feeding/Nutrition route(s) a hospital admission	Notes Tab > H&P and look up diet at admission
Discharge Information:		
	Hospital discharge date/time	Summary Tab > Event Log > Patient movement > Discharge date/time
	Mortality Status at hospital discharge	Summary Tab > Event Log > Patient Movement > Discharge date/time to
	Hospital Discharge Location	Summary Tab > Event Log > Patient movement > Discharge date/time
Readmission Information:		
	Readmitted within 7 Days	Patient station tab - idenity if new hospital encounter created
	Readmission Date/time	Patient station tab - idenity if new hospital encounter created
	Planned readmission	patient station tab > admission type listed
	Intubated within 24h	Notes > H&P || Flowsheet > Respiratory > review admission date -24h
	Inotropic support within 24h	Notes > H&P || Summary > event log> MAR
	Fluid resuscitation within 24h	Summary > Event Log> MAR
	Code within 24h	Notes > H&P
	Unplanned intervention within24h	Notes > H&P
	MRT/RRT within 24h	Notes > H&P
	Death within 24h	Notes > H&P /Discharge summary
	Date/Time of death	Notes > Discharge summary
	Readmitted within 30 days	Patient station > identify hospital admission encounters

- I wanted to be able to show where in EPIC we were gathering this information.
- The RoadMap is essentially a “click by click” representation of how we get our information.

PC^4 PAC^3

Nemours. Children’s Health System

Prior to PAC^3 Certification

- Prior to certification, I was calling into all PAC^3 calls.
- At first, I had no idea where other abstractors were getting their information when referring to FAQ's file.
- I accidentally submitted questions to a random PAC^3 questionnaire board .. Oops!

- Utilized help from PC^4 abstractor.
- Referenced "data definitions".
- Explored PAC^3's website and their "Getting started toolkit"
- Signed up for PAC^3 course but had to wait for 2 months.

PC^4 PAC^3

Nemours. Children's Health System

PAC^3 HELP!

- During the calls I had mentioned being very new to this role and still unsure of data definition & FAQ locations.
- PAC^3 assigned me 2 mentors that I could email with clarification questions! Both have been fabulous and very prompt with their responses to my questions!
- Thank you Linda and Jane at Childrens Wisconsin.

PC^4 PAC^3

Nemours.
Children's Health System

Building a Stronger Database

- Currently, our center has a company that we hired to do backlog database abstraction for all charts PRIOR to my hire date.
- This company has become a PAC^3 resource for questions and is helping our program build better standards for database abstraction.
- Currently we have yet to establish a "formal" orientation for our database BUT that is our goal and something that our STS/PC^4/PAC^3 abstractors are striving to complete in the near future.

PC^4 PAC^3

Nemours.
Children's Health System

What I wish I would have known

- As a new database abstractor, I wasn't sure what PAC^3 required to meet their data definition specifications.
- Finding the FAQ's was the "ah-ha" moment for me! YAY!
- Connecting with other PAC^3 abstractors and having them assigned as mentors was extremely helpful.
- Speaking up during PAC^3 calls helped clear up confusion

PC^4 PAC^3

Nemours.
Children's Health System

Thank you

Courtney Spence, RN

Database Coordinator

PAC^3 Data Champion

Nemours Children's Hospital

PC^4 PAC^3

Nemours.
Children's Health System

Questions?

Mixed Acuity Unit

PC4 PAC3

PC4 PAC3

Navigating Patient Acuity Status in a Mixed Acuity Unit: Addressing Challenges and Finding Solutions

Rachel Schwandt, BSN, RN

Texas Children's Hospital

Hosted by children's health

Texas Children's Hospital®

Adult Congenital Heart Program

Baylor College of Medicine

"Navigating Patient Acuity Status in a Mixed Acuity Unit: Addressing Challenges and Finding Solutions"

Rachel Schwandt, BSN, RN
Nurse Data Specialist

Bradley J. Scherer, MD
Assistant Professor
Section of Critical Care

Mia Kurbalija, BSN, RN
Nurse Data Specialist

Rebecca Zahn, MSN, RN
Team Lead/Nurse Data Specialist

About the Unit

- In January 2021, Texas Children's Hospital (TCH) opened a novel Adult Congenital Heart Unit (ACHD) with a mixed acuity model, meaning that the "***patient's acuity status***" may change, but the patient remains in the same bed space throughout their hospital stay.

Source: https://cura4u.com/blog

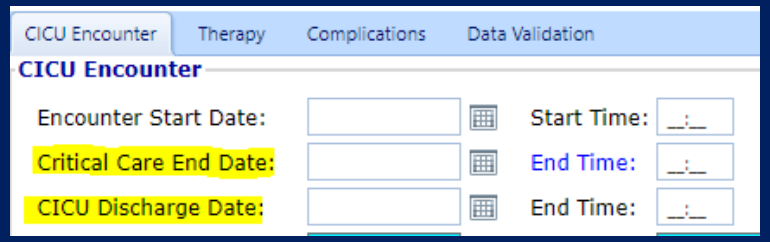
Patient Acuity Status

- A "***key PC^4 metric***" is determining a change in patient acuity, such as:
  - Time when a ICU patient is downgraded to acute care status
  - Time when an acute care patient is upgraded to ICU status

- Traditionally, PC^4 data abstractors have used both "***transfer orders***" placed in the electronic medical record (EMR), as well as the "***time of physical movement of the patient***" to decipher the time of a status change.

Acuity Status Coding in CardioAccess

- The "***change in acuity status***" allows for coding the respective fields:
  - "Critical Care End date and time"
  - "CICU Discharge date and time"



- In a mixed acuity unit, the dates and times for these two fields should always match.

Challenges

- With the mixed acuity model, the data abstractors had "***two main challenges***:"
  - Maintaining an "***accurate PC⁴ census***" of "**ICU status**" patients
  - Difficulty tracking "***acuity status changes***"

Source: https://depositphotos.com/vectors/challenges.html

Contributing Factors

- Contributing Factors:
  - No physical movement of the patient
  - Status orders can be missing or entered long after the patient's status change
  - The ACHD census had a rapid "*volume growth of 24%*" from 2021 through the end of 2022.

Solutions- Maintaining a Census

- Collaboration is Key

TCH Partner	Intervention
ACHD unit secretaries	Taught to maintain a census tailored to PC[4] needs
Charge nurses	Emailed daily summaries with acuity status
ACHD manager and provider director	Reinforced importance of timely orders and documentation of disposition in progress notes
Information services (IS)	Generated a "daily EMR report" of admissions/discharges
Local PAC[3] team	Partnership in shared census spreadsheet for cross-referencing; meetings prn

Solutions- Patient Acuity Date and Time

- Determined secondary "*sources of truth*"

"**Gold Standard**" → *"Provider Transfer order or Update Patient Class order"*

If discrepancy or date/time unavailable:

(1) Provider note disposition documentation

(2) Review for ICU therapies (arterial line or vasoactive drips discontinued, etc.)

With concurrent verification of provider notes reflecting care change from ICU provider to Acute Care provider.

Valuable Resource

- Finally, we identified a single provider who works in the CICU ACHD unit to serve as a longitudinal, consistent liaison when case questions arise.

Conclusion

- Performed a "*self audit*" of the ACHD PC[4] census, over a 3 month period, to verify the team's work after a near miss of patient inclusion as CICU patient. Sources used:
  - Daily EMR report of admissions/discharges
  - ACHD unit census
  - Epic report
    - No errors were found
- The current process of using automatically generated EMR report, charge nurse report, PAC[3] partnership, and having a provider liaison have allowed for "*maximum accuracy, efficiency and productivity*" when documenting patient acuity status in our novel adult congenital heart unit.

Thank you from the TCH PC^4 team.

Questions?