

2022-2023 Data Support COL
Educational Offering #4

Making Data-Driven QI Sustainable:
Leveraging the Electronic Medical
Record



Wednesday
March 8, 2023
3:00 – 4:30PM EST



ALLIANCE FOR INNOVATION ON MATERNAL HEALTH

The Alliance for Innovation on Maternal Health is a national, cross-sector commitment designed to support best practices that **make birth safer, improve maternal health outcomes, and save lives.**

You can find more information at
saferbirth.org.

This program is supported by a cooperative agreement with the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under grant number UC4MC28042, Alliance for Innovation on Maternal Health. This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.



Before We Get Started

- ▶ You are **muted** upon entry to the call.
- ▶ **You will have the ability to unmute** yourself during Q&A times.
- ▶ We encourage participants to **remain muted** to reduce background noise.
- ▶ If you are experiencing technical difficulties, please chat an AIM staff member or **email aimdatasupport@acog.org**

This presentation will be recorded.

Both the slides and recording will be available on the AIM Data Resources Webpage and shared in the follow-up newsletter.



Agenda

1 Welcome

2 Upcoming Data COL Events & Additional Supporting Resources

3 Speaker Presentation: Drs. David Lagrew & Kelly Gibson

4 Questions

5 Closing



Meet the National AIM Data Team



Isabel Taylor
Data Program
Supervisor



Inderveer Saini
Program Data Analyst



Rekha Karki
Program Data Analyst



David Laflamme
Epidemiology
Contractor

Upcoming Data COL Events and Additional Resources





Office Hours Opportunity

Questions?

Sign up for Office Hour with Dr.
David Lagrew

March 15 , 2023
3:00PM-4:00PM (EST)

Questions?

Sign up for Office Hour with Dr.
Kelly Gibson

March 22, 2023
2:00PM-3:00PM (EST)

Register at saferbirth.org/aim-data/resources/
Click Resource Type and Select 2023 Data Support COL



Data Coaching

- ▶ Have broader questions about using data for quality improvement and AIM data processes? **Sign up for data coaching!**
- ▶ Available to state, jurisdiction, and hospital teams
- ▶ Available December 2022 through August 2023

SELECT A SERVICE

<p>Data Coaching - 60 min. <input type="radio"/></p> <p>Curious about using data for quality improv... Read more</p> <p>1 hour</p>	<p>Data Coaching - 30 min. <input type="radio"/></p> <p>Curious about using data for quality improv... Read more</p> <p>30 minutes</p>
--	--

Select a service to see available dates and times

Register at saferbirth.org/aim-data/resources/
Click Resource Type and Select 2023 Data Support COL



Supplemental Funding Opportunity

- ▶ AIM has dedicated supplemental funding available to support data and reporting projects.
- ▶ Supplemental funding for data and reporting projects can be submitted via a project narrative through AIM's Supplemental Funding Form.

Only states and entities with an executed subaward agreement with ACOG are eligible for COL supplemental funding.



Upcoming Educational Offerings

Register at saferbirth.org under Resources > Events

Educational Offering #5

Leveraging Multiple Data Types for Improvement: Chart Abstraction & Multidisciplinary Case Review for Inpatient QI

April 6, 2023
2:00PM-3:30PM

Educational Offering #6

Using Data to Understand Inequities: Strategies for Collecting Race, Ethnicity, and Language Data in Clinical Settings

May 2, 2023
3:00PM-4:30PM (EST)

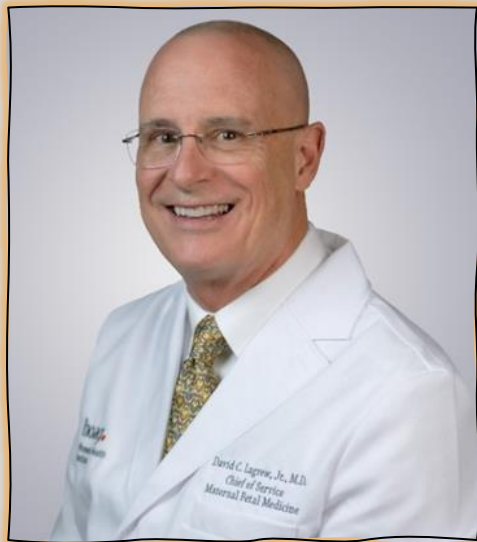
Educational Offering #7

We Collected the Data, Now What?: Visualization Best Practices for Disaggregated Data

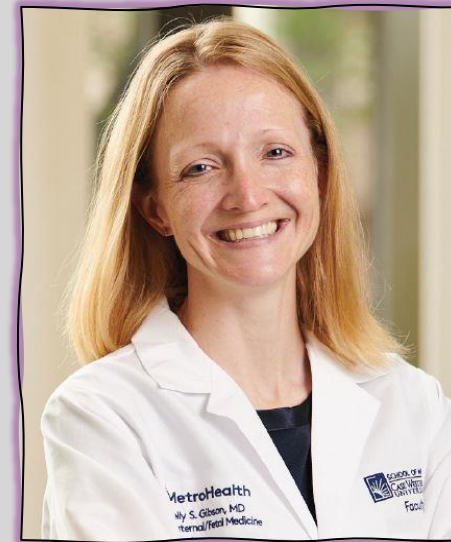
June 8, 2023
2:00PM-3:30PM (EST)



Faculty



David Lagrew, MD
Chief of Service, Maternal Fetal Medicine
for Hoag Healthcare



Kelly Gibson, MD
Associate Professor & Division Director,
The MetroHealth System & Case Western
Reserve University

Making Data-Driven QI Sustainable: Leveraging the Electronic Medical Record

Kelly S Gibson, MD FACOG

Division Director, Maternal Fetal Medicine

Associate Director of Clinical Informatics, Obstetrics

The MetroHealth System

Associate Professor, Reproductive Biology

Case Western Reserve University

David Lagrew, MD

Maternal Fetal Medicine Specialist & Physician Informaticist

Chief of Service, Hoag Healthcare

Disclosures

- No relevant financial disclosures
- Research funding from
 - Materna Health
 - NIHLBI
 - NICHD
 - ODH

Objectives

- To define Clinical Informatics and frequently used terms
- To understand how to leverage tools in the Electronic Medical Record to drive quality improvement projects and abstract the data needed to improve patient safety
- Describe the logistics involved in adding custom fields to an EMR
- Provide examples of successful quality improvement data integration into an EMR

What is Informatics?

Informatics is the science of how to use data, information, and knowledge to improve human health and the delivery of health care services.

Clinical Informatics is the application of informatics and information technology to deliver healthcare services.

What is Informatics?



Photo credit: Stonybrook Informatics

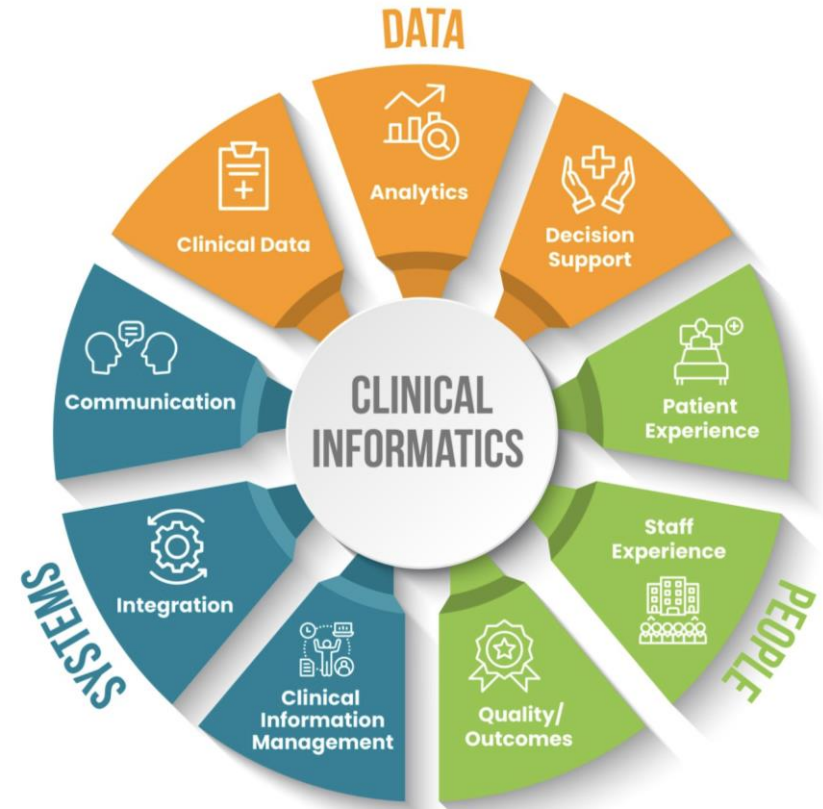


Photo credit: Nevorpmotors

Four segments of Clinical Informatics

- Data
- Interoperability
- Computerized Physician Order Entry
- Clinical Decision Support System

Data

- Data is the foundation of Health Information
- Every interaction with a patient generates data
 - Patient specific versus Administrative
 - Internal versus External
- Need to consider standard terminology
 - Is it retrievable
 - Discrete
 - Free text



Photo credit: Coursera

Interoperability

- The ability of different information systems, devices and applications
 - To access, exchange, integrate and cooperatively use data
 - To provide timely and seamless portability of information
 - To optimize the health of individuals and populations
- Can the systems talk the same language?

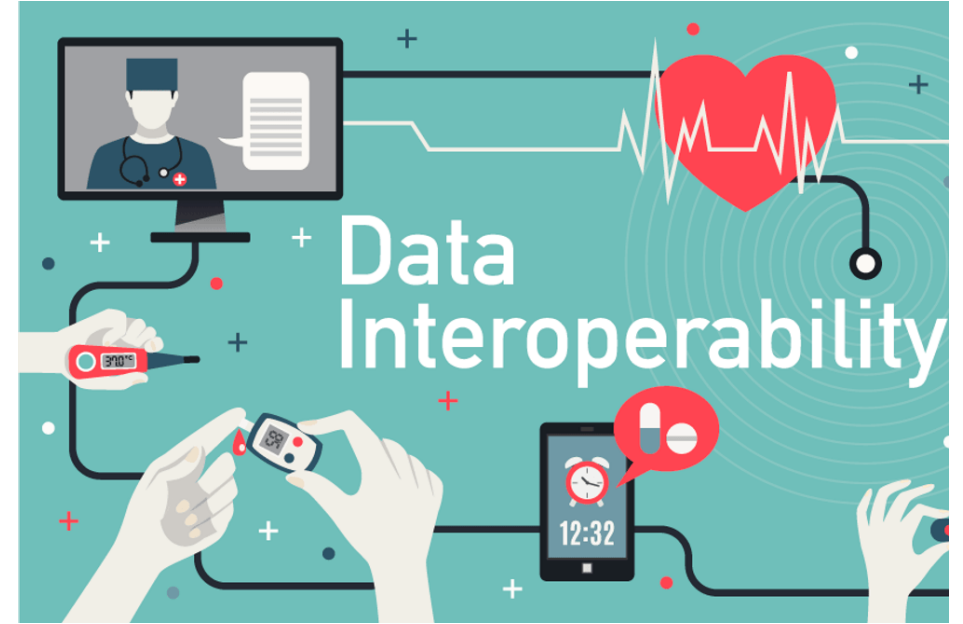


Photo credit: Hello Health

Computerized Physician Order Entry

➤ What?

- General Orders
- Nursing Orders
- Medications
- Labs
- Imaging
- Referrals / Consults

➤ Why?

- Improve Patient Safety
- Implementation of Guidelines
- Provider Productivity
- Financial Benefits
- Outcomes Analysis

**Computerized Provider Order
Entry System (CPOE)**

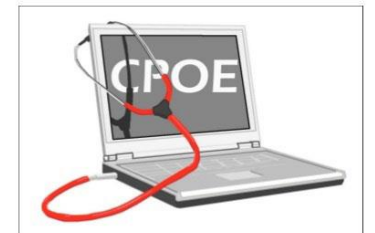
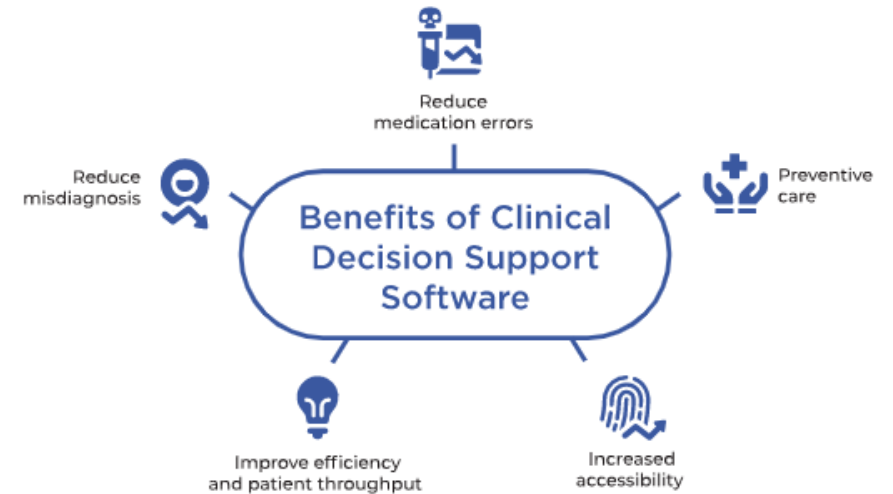


Photo credit: Emerald Health

Clinical Decision Support System

➤ Process for enhancing health-related decisions and actions with pertinent, organized clinical knowledge and patient information to improve health and healthcare delivery.

- ❑ Increased quality of care and enhanced health outcomes
- ❑ Avoidance of errors and adverse events
- ❑ Improved efficiency, cost-benefit, and user satisfaction



LeewayHertz

Photo credit: LeewayHertz

Clinical Decision Support System

Workflow:

- The RIGHT Information
- To the RIGHT Person
- In the RIGHT clinical decision support intervention format
- Through the RIGHT channel
- At the RIGHT point in workflow



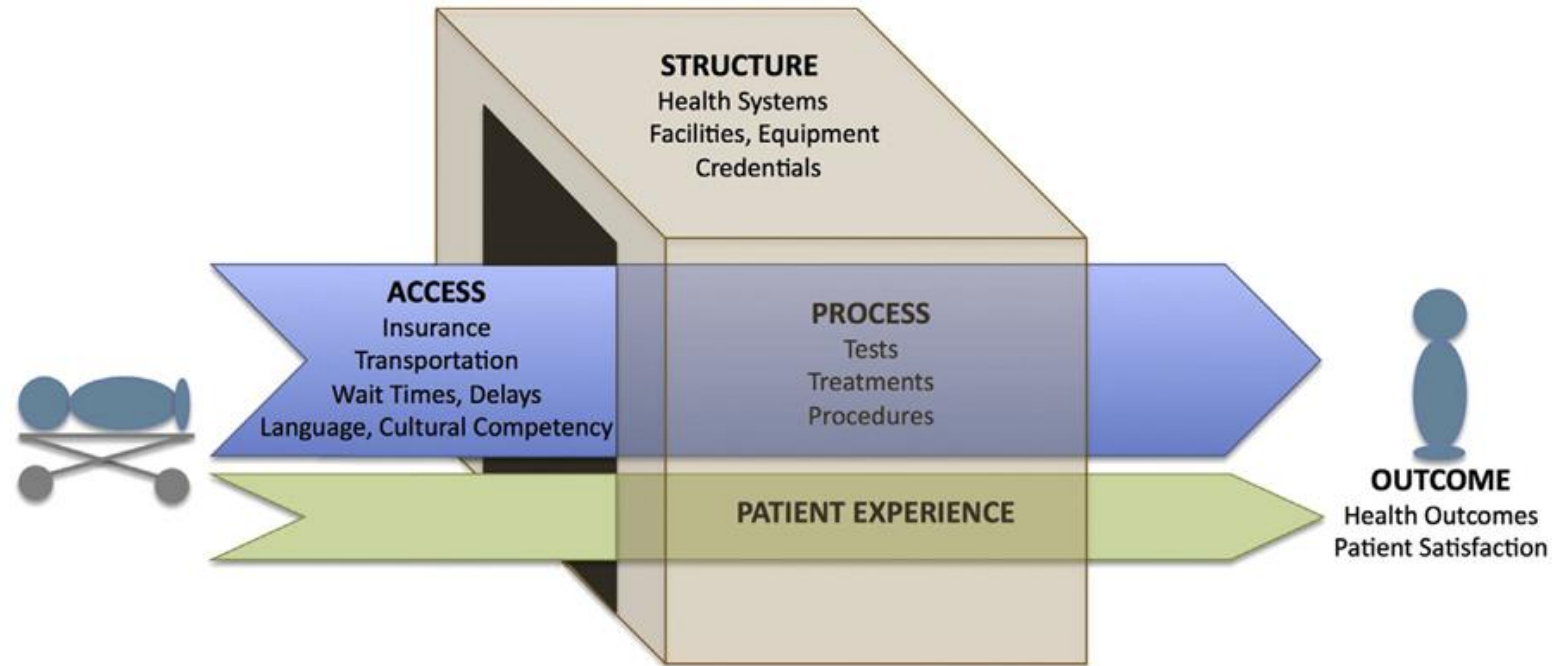
© marketoonist.com

Objectives

- To define Clinical Informatics and frequently used terms
- To understand how to leverage tools in the Electronic Medical Record to drive quality improvement projects and abstract the data needed to improve patient safety
- Describe the logistics involved in adding custom fields to an EMR
- Provide examples of successful quality improvement data integration into an EMR

Quality Improvement Domains

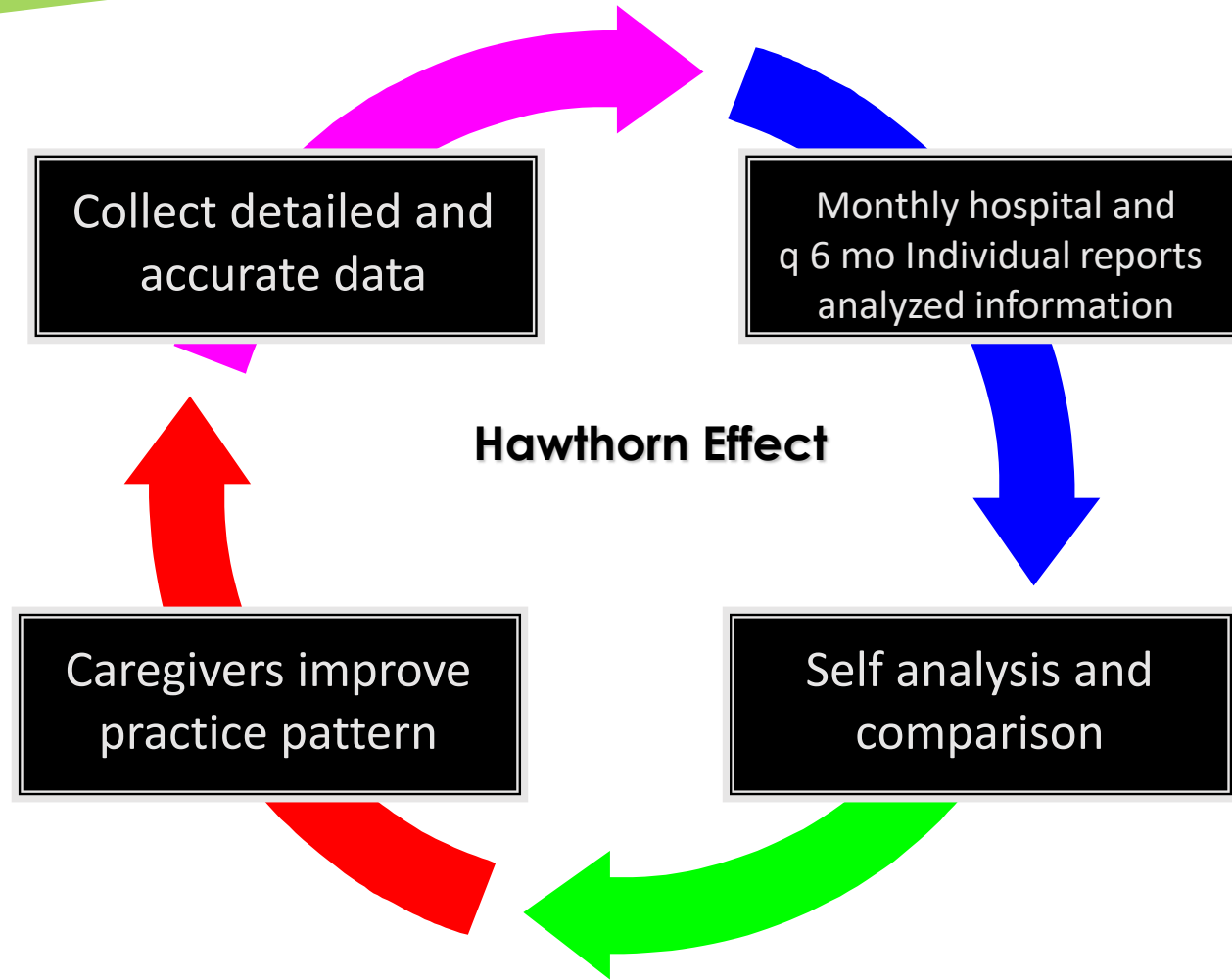
Five components of health care quality



Agency for Healthcare Research and Quality 5 domains of quality.

SMFM. *Measuring quality of care in obstetrics. Am J Obstet Gynecol* 2016.

Providing Feedback



6 Steps for QI

- Identifying deficiencies or areas for improvement
- Selecting measures to assess these areas
- Obtaining preintervention baseline data
- Performing an intervention
- Performing postintervention measurement
- Refining the measurement and the intervention

We can't improve what we can't measure

Data types

- To report we need discrete data, not free text
- Stored in a database table at the lowest level of granularity.
 - It is both **measurable** and **reportable**.



Medication Name:	Prilosec
Dosage Qty:	1
Dosage Strength:	20
Dosage Units:	mg
Dosage Form:	Tablet
Frequency:	BID
Duration Number:	3
Duration Length:	Days

Medication Name:	Prilosec
Dosage Qty:	1
Dosage Strength:	20
Dosage Units:	mg
Dosage Form:	Tablet
Frequency:	BID
Duration Number:	3
Duration Length:	Days

<https://healthcareitskills.com/discrete-data-in-healthcare/>

Database Architecture Basics

Database type

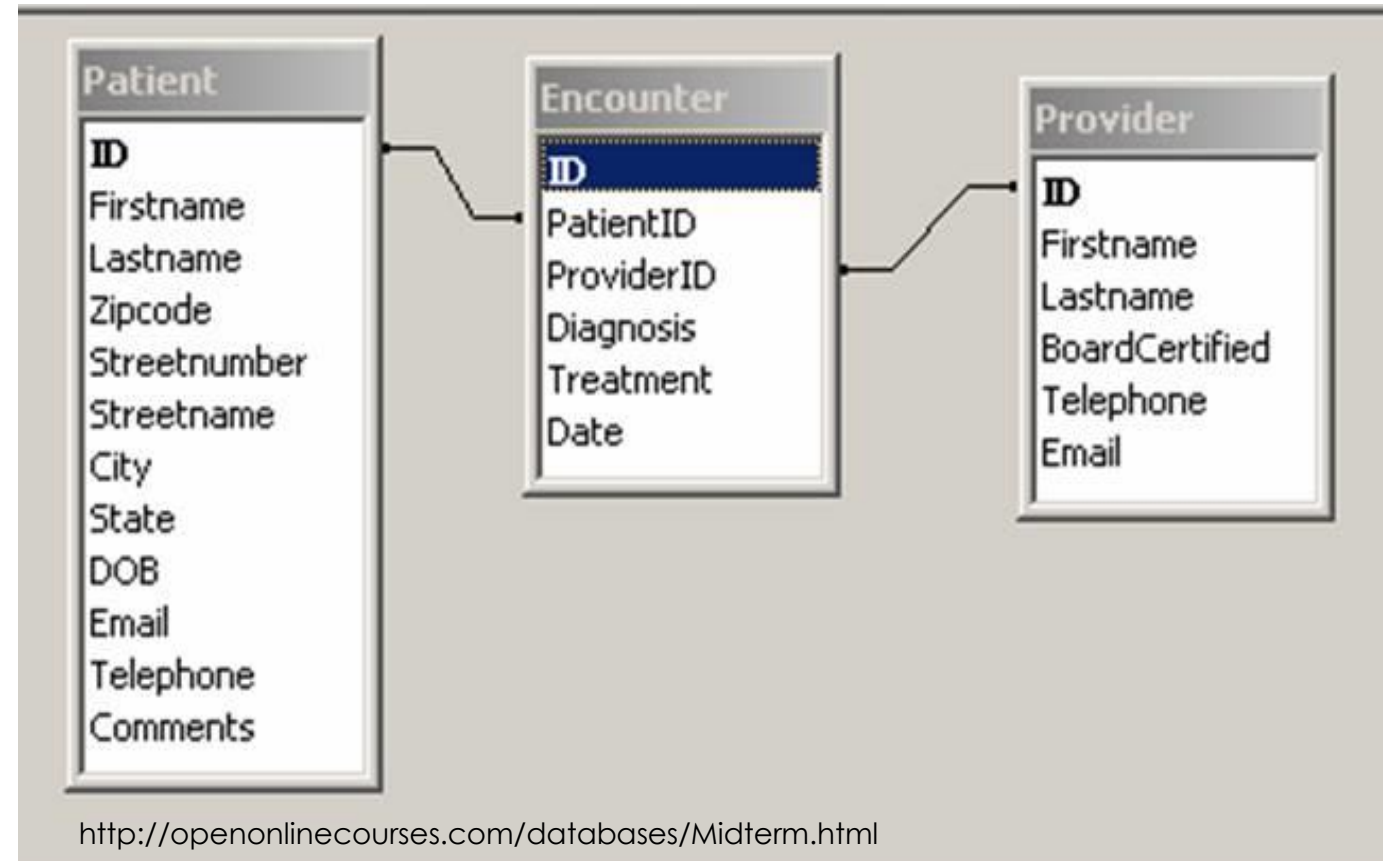
➤ Relational

- Snowflake schema
- Star schema

➤ IDs link the table

- Needed for “joining” for data collection

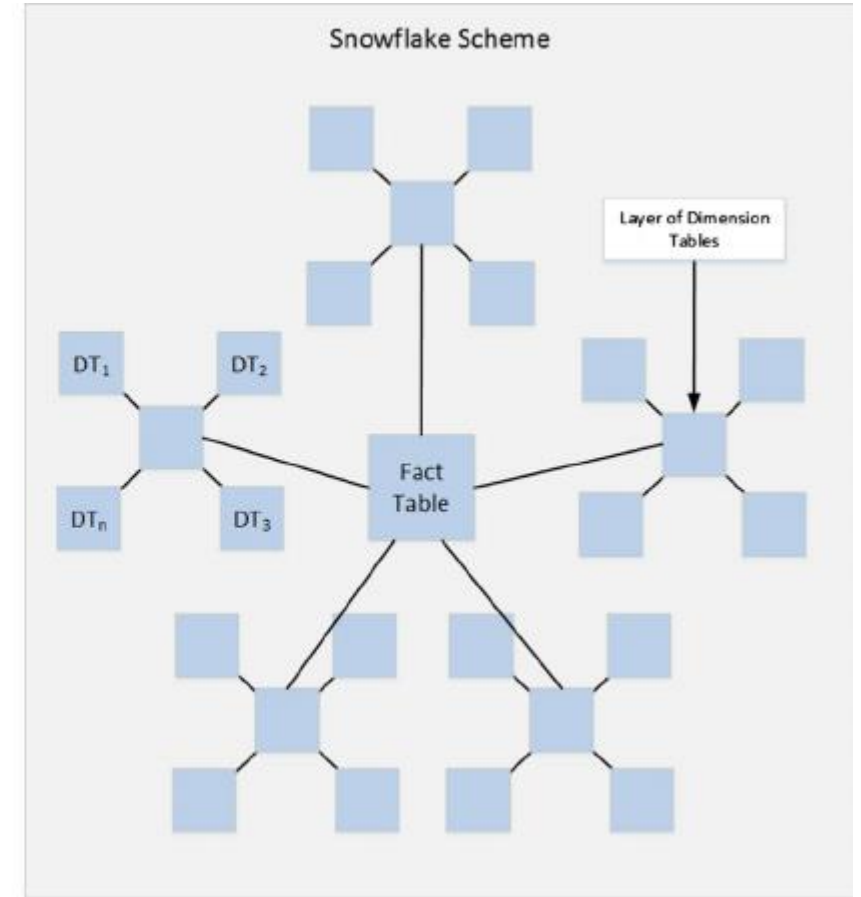
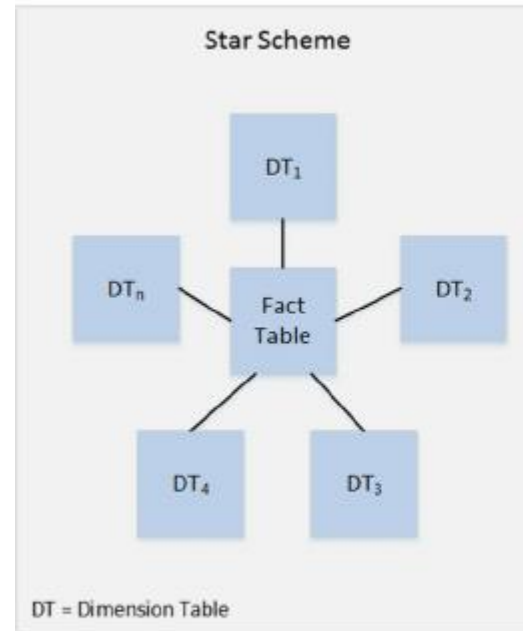
➤ Proper order of relationships is essential for writing queries



Database Architecture Basics

Star versus snowflake design

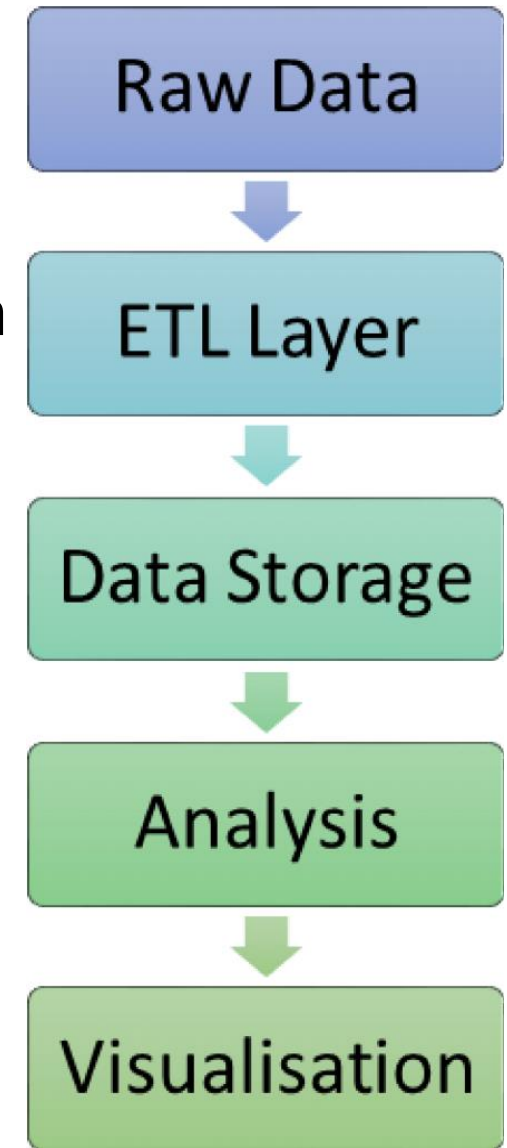
- Star is simple
- Most medical databases are snowflake design
- Knowing your tables is the key to reporting successfully



Hughes & Dobbins. (2015). Res Prac Tech

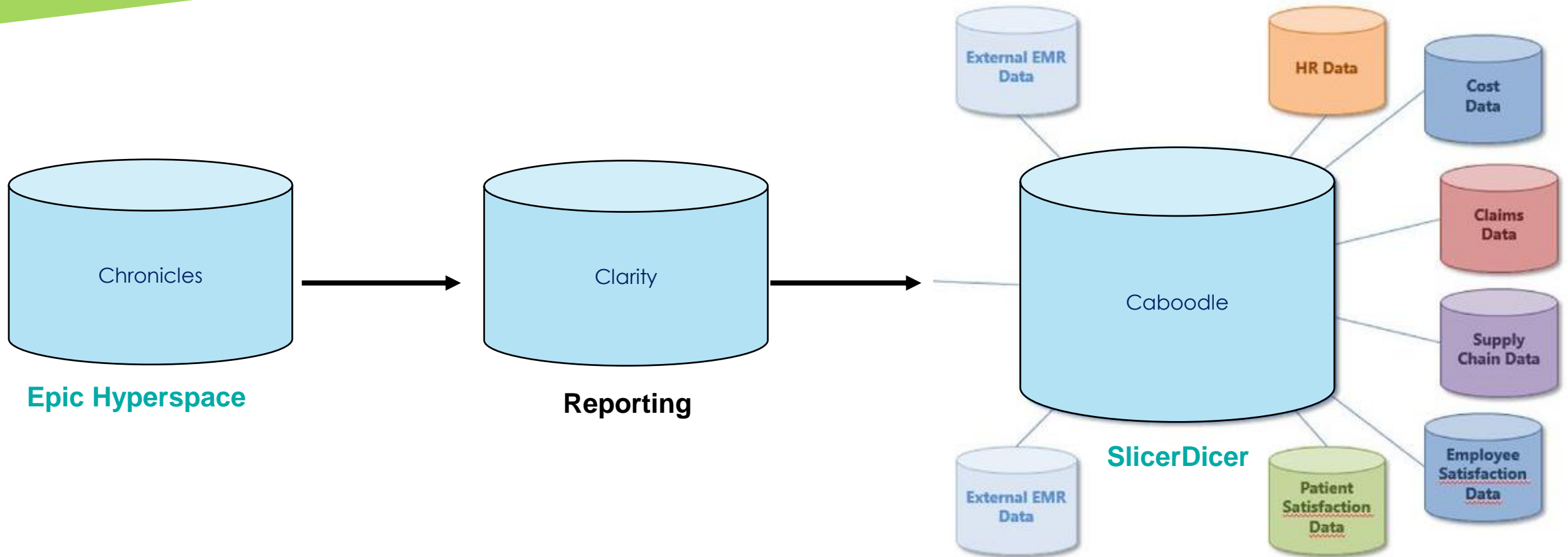
EPIC Data Stores and Reporting

- Chronicles—Cache database support main activity in Production
- Clarity—Operational reporting and custom fields
 - Used for reporting workbench
- Caboodle—Star schema relational database for reporting
 - Business Objects Universe
 - Extensible scheme (local data added via ETL)
 - Used for Slicer Dicer
- Cognitive—Cloud-based storage
- Cosmos—largest repository of patient data from the entire Epic community



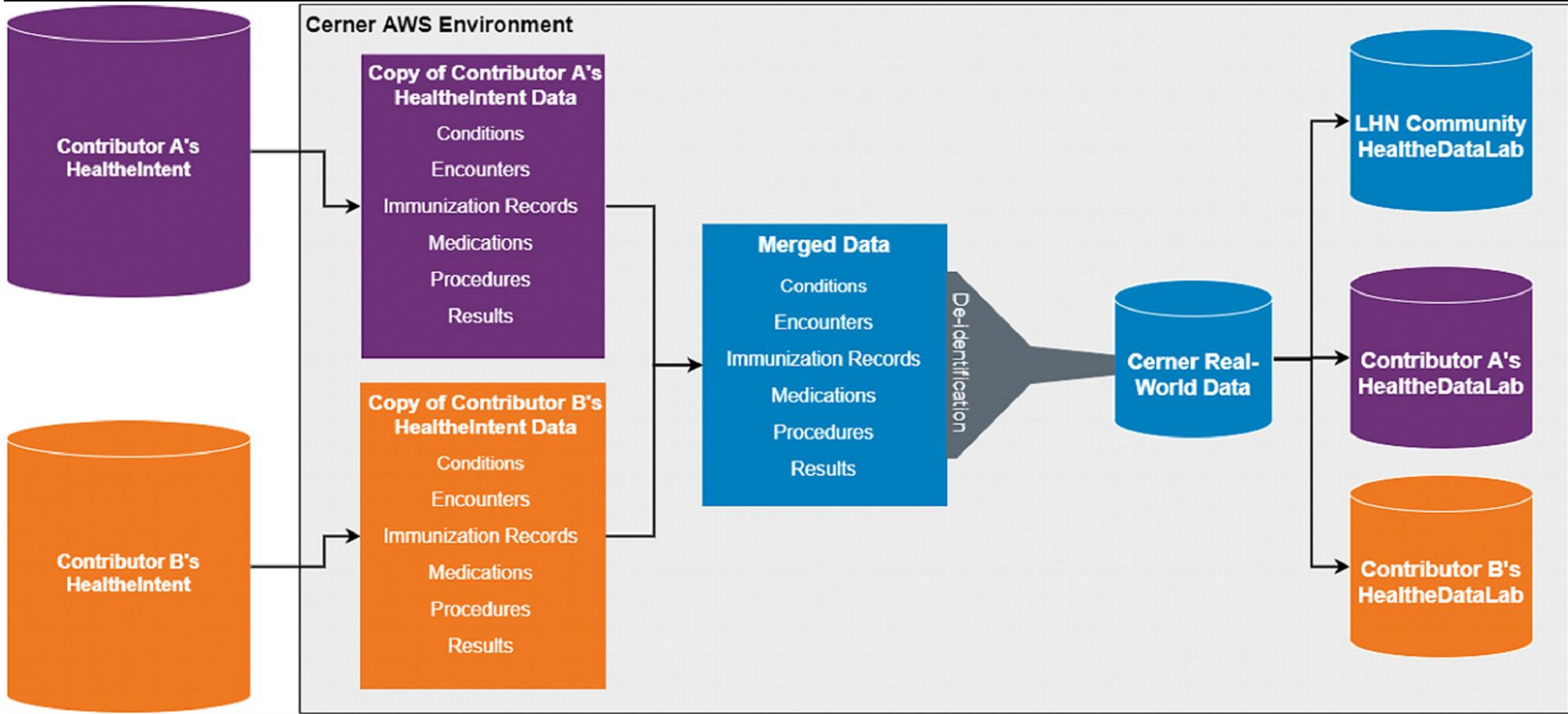
Hughes & Dobbins. (2015). Res Prac Tech

EPIC Data Stores and Reporting



<https://slideplayer.com/slide/12090426/>

Cerner Data Stores and Reporting



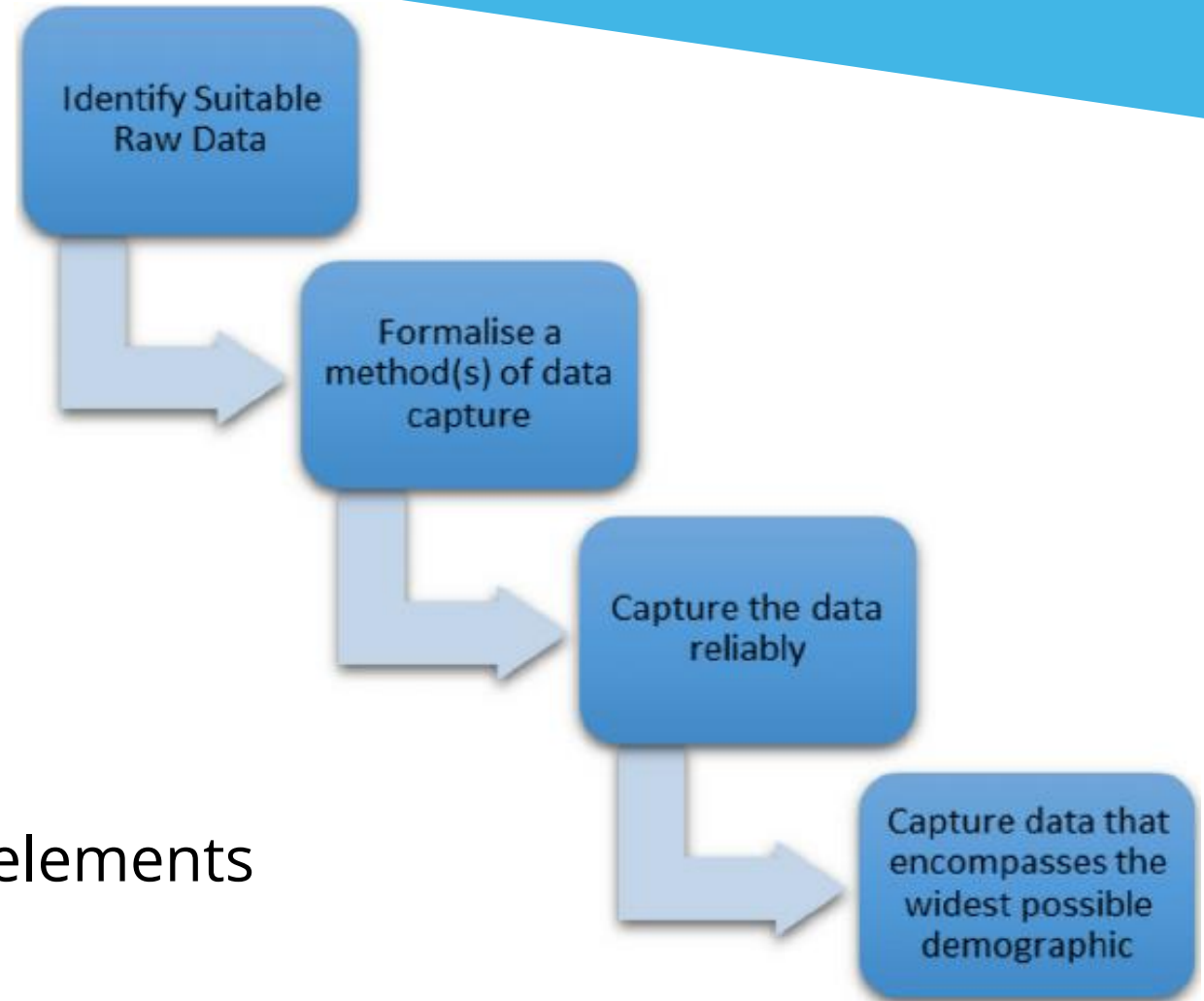
Ehwerhemuepha et al Data in Brief 2022



The following report is proprietary information and constitutes trade secrets of The MetroHealth System and may not be disclosed in whole or part to any external parties without the express consent of the MetroHealth Systems. This document is intended to be used internally for The MetroHealth System discussion.

Data in the EMR

- Design with abstraction in mind
- Identify points in the workflow where discrete fields can be used
- Build tools that are helpful
 - Save clicks/time
- Pre-built fields or create smart data elements



Hughes & Dobbins. (2015). Res Prac Tech

Additional tools to assist with QI

- Best practice alerts
- Unit reminders/Education
- Disappearing help text

QBL calculator and storyboard information

C-Section QBL Calculator

Time taken: 7/11/2021 2346 + Add Group + Add Row + Add LDA Responsible Show Row Info Show Last Filed Value

Items

Small white peri-pad (# used) 0 taken 2 days ago	Big white peri-pad (# used) 0 taken 2 days ago
Infant diaper (# used) 0 taken 2 days ago	Underwear (# used) 0 taken 2 days ago
Large blue Premier Pro chucks (# used) 0 taken 2 days ago	Small blue plastic chucks (# used) 0 taken 2 days ago
Ice pak pad (# used) 0 taken 2 days ago	Raytec sponge dry (# used)
Raytec sponge damp (# used) 0 taken 2 days ago	Lap tape dry (# used) 24 taken 2 days ago
Lap tape damp (# used) 15 taken 2 days ago	Sheet (# used)
Towel (# used)	Washcloth (# used)
Sponge counter bag (# used) 4 taken 2 days ago	Patient gown (# used)
Fitted sheet (# used)	Blanket (# used)


Accept Accept and New Cancel

POSTPARTUM C-SECTION
 Blood Loss: 969
 Has laceration

PPH Risk Assessment Tool

Critical (1)

PPH Pre- Birth Risk Assessment must be completed on every patient.



Standard PC.06.01.01:
Reduce the likelihood of harm related to maternal hemorrhage.

Why is this showing up?
This patient is at risk for hemorrhage and has an incomplete PPH Risk Score entered in Epic. This score is required by The Joint Commission on every patient on admission, intrapartum, and postpartum. If you feel the score is not indicated at this time, please enter a reason in the comments.

Document | Do Not Document | PPH Pre-birth Risk Assessment Collapse

Time taken: 4/7/2021 1056

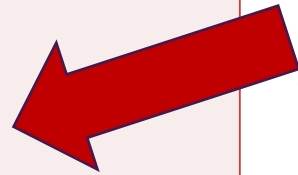
Risk Category: Pre-birth

Labor greater than 18 hours?

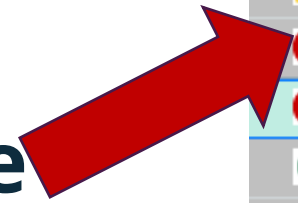
Prolonged second stage (greater than 2 hours)?

Suspected abruption?

Acknowledge Reason



✦ **BPA's trigger**



✦ **Score on the greaseboard**

Where the BPA answers go

There is a BPA that prompts the provider to complete the admission risk screening. It has the most questions. Epic pulls data from the EMR and Pregnancy Episode as well to tabulate the score. **Every question must be answered to generate a score.**

Admission (Current) from 7/12/2021 in Inpatient 2B			
	7/12/21	7/13/21	
	1229	1302	0305
			1100
Risk Category: Admission/Post-birth			
Prior cesare...	No		
Number of ...	0		
Known blee...	No		
Patient or fir...	No		
Induction or...	Yes		No
Large uterin...	No		
Chorioamni...	No		No
Known Feta...	No		
Polyhydram...	No		
Active blee...	No		No
Suspected	No		
Place	No		
Risk Category: Pre-Birth			
Labor great...		No	
Prolonged s...		No	
Suspected ...		No	

A 3rd BPA fires after birth to answer 3 more questions. Additional, behind the scenes, information is pulled in for things like QBL/shoulder dystocia/**operative vaginal delivery/laceration, etc**

At second stage (10cm) – a BPA will prompt the provider to answer additional questions regarding the patient’s labor status.

Repeat PDSA cycle

- Not all scores being completed
 - BPA includes “dismiss” feature
- Added Disappearing Help Text

TIP | No need to delete tips-these do not file into the chart. Complete all required items If you do not see a risk assessment below, please click the link and complete the questions

6. PPH Pre-Birth Flowsheet The patient's pre-birth PPH risk score is:

Low Risk

Abstracting Data

- Reports and Dashboards

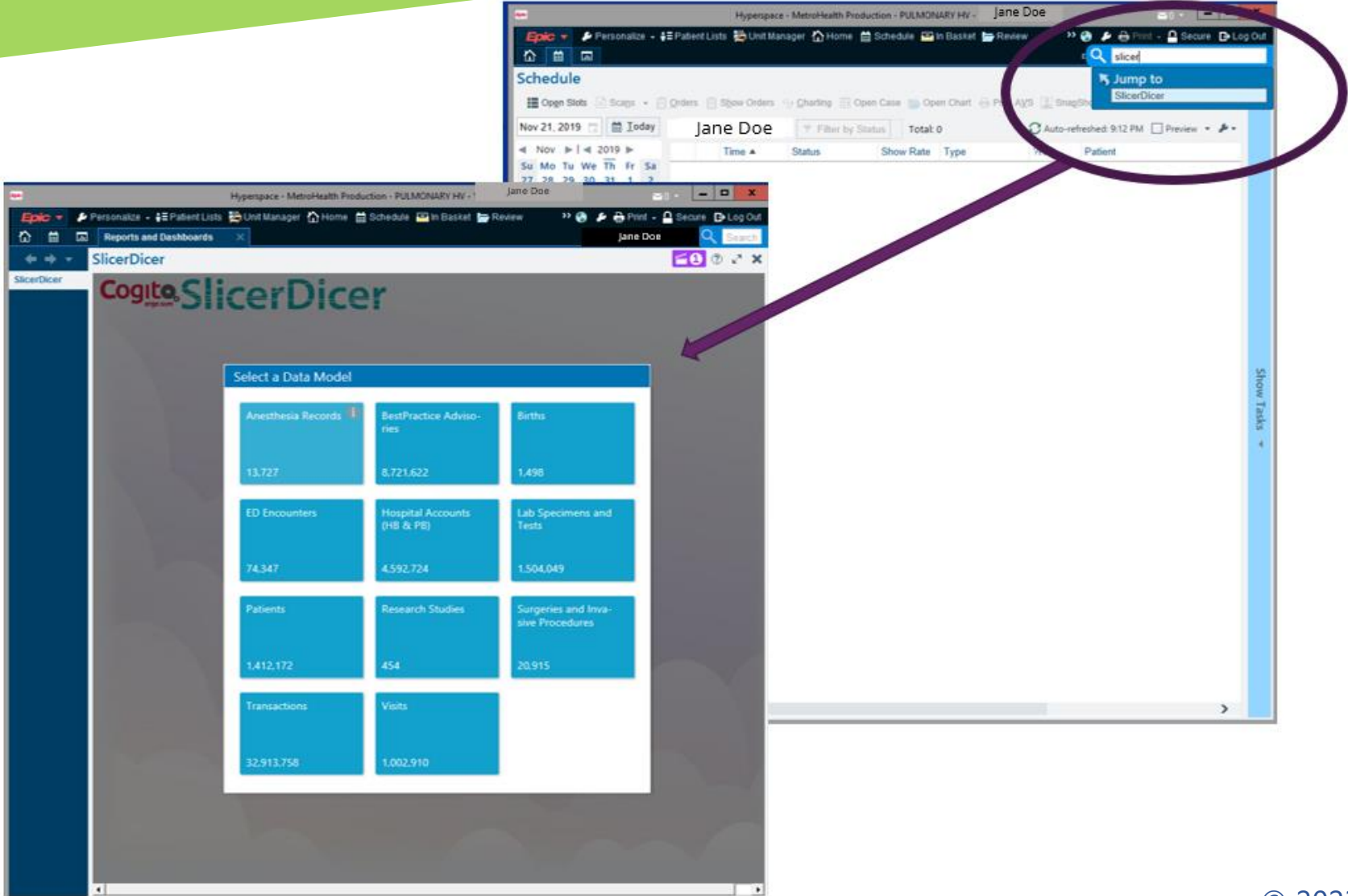
Characteristic	Slicer-Dicer	Clarity Report	TriNetX	Cosmos
Self-Service	Yes	No	Yes	Yes
Volume	1.4 m	1.4 m	7.6 m	173 m
Individual patients	No	Yes	No	No
“Downloadable data”	Possibly	Yes	No	No
Data variety	Medium	High	Medium	Medium
Effort	Very low	High	Medium	Very low

Slicer - What it is



- Epic's primary **self-service reporting tool** that **all providers** have access to
- Helps users validate **hunches, make new discoveries, enumerate and track cohorts or concepts of interest**
- Avoids the need for more advanced report writing
- Great pre-step even if a report is needed

Where is it?



Data Models: The ever-expanding list!

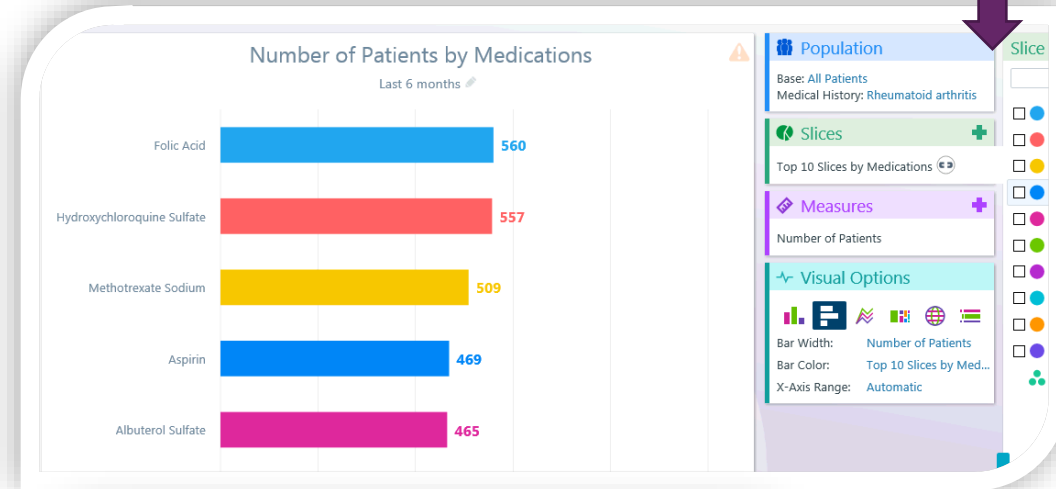
- Anesthesia records
- Births
- Decision support (BestPractice Advisories)
- Emergency department visits, outpatient clinic visits, and inpatient admissions
- ICU stays
- Imaging studies
- Medications and prescriptions
- Lab specimens and tests
- Patients
- Surgeries and invasive procedures
- Wounds
- Research studies
- Referrals
- Hospital accounts
- Transactions
- Denials
- AP claims
- Pharmacy transactions
- Many more

Overview of SlicerDicer Epic SlicerDicer Data Models

SlicerDicer – Nifty Features: Enhanced Slicing

“Show me the top 10 medications that patients with Rheumatoid Arthritis have been prescribed”

New data visualizations and the ability to add metrics!



“What are the top 10 chief complaints in the ED? Now, what is the average age of patients for each one?”

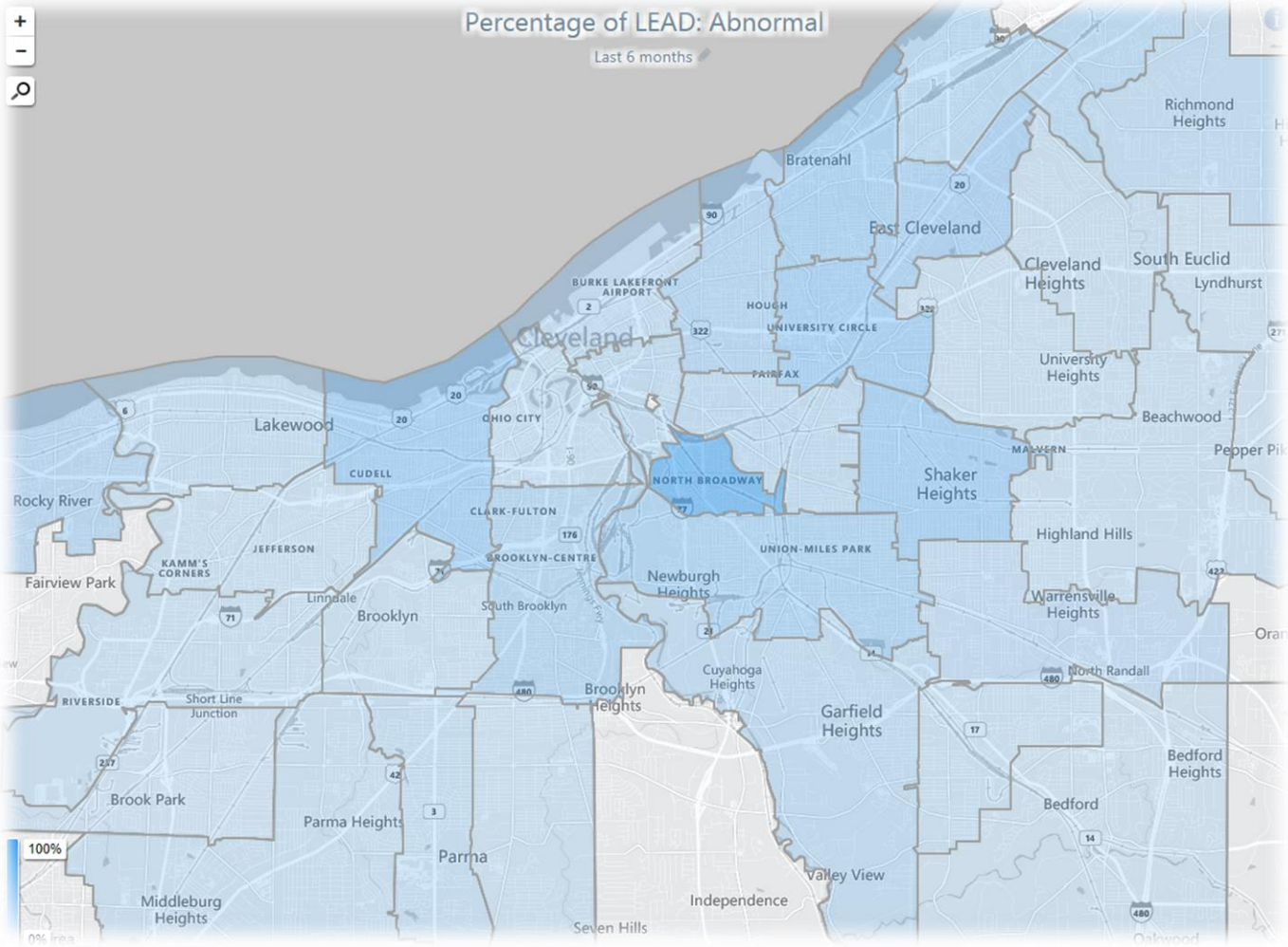
Chief Complaint	Average Age in Years (Current)	Number of Patients
9/29/2018 - 3/28/2019	39 years	20,718
FOLLOW UP	49 years	6,485
REFILL	51 years	5,682
CARE COORDINATION	51 years	4,321
NEW PATIENT, TO ESTABLISH RELATIONS...	47 years	3,217
ER FOLLOW-UP	47 years	2,367
ABDOMINAL PAIN	38 years	2,183
HOSPITAL FOLLOW-UP	57 years	1,783
COUGH	30 years	1,556
CHEST SYMPTOMS/COMPLAINTS	48 years	1,494
APPOINTMENT SCHEDULING	52 years	1,377
None of the above	33 years	8,004

© 2023 Epic Systems Corporation

The following report is proprietary information and constitutes trade secrets of The MetroHealth System and may not be disclosed in whole or part to any external parties without the express consent of the MetroHealth Systems. This document is intended to be used internally for The MetroHealth System discussion.

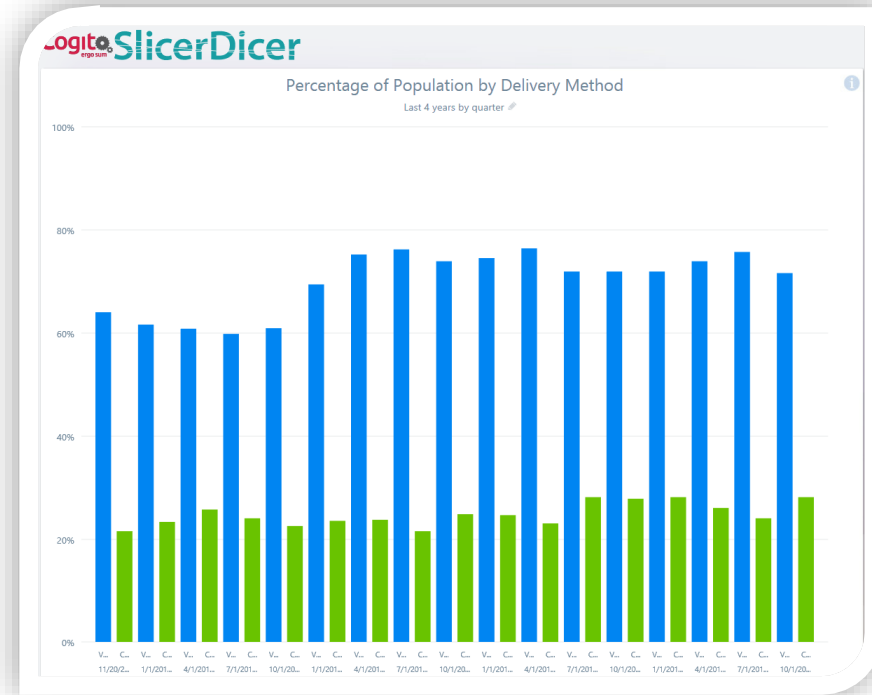
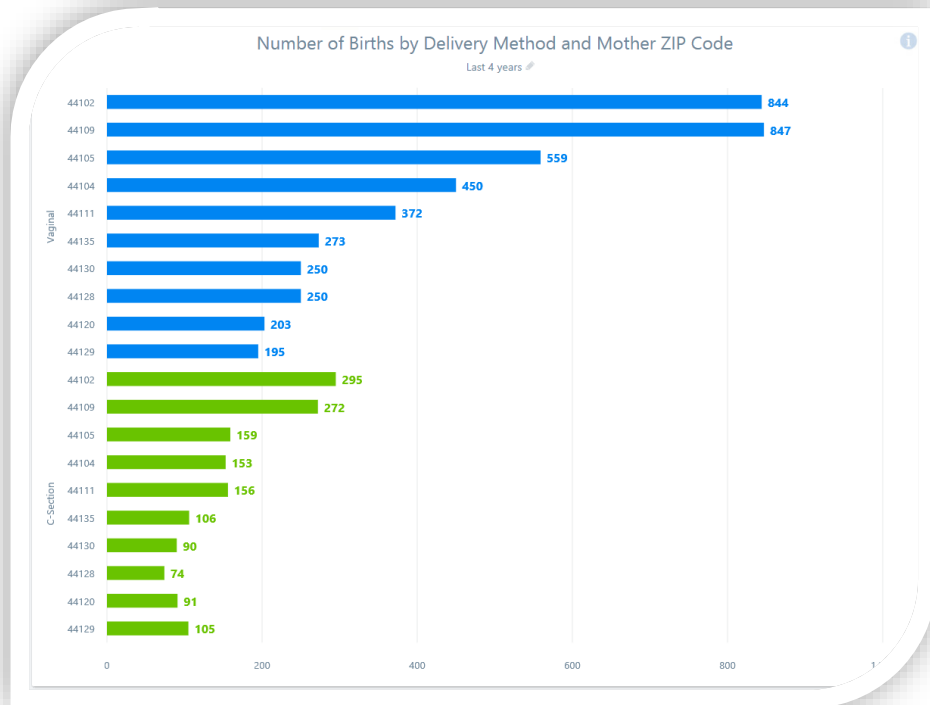
SlicerDicer – Nifty Features: Geocoding

“Show me the frequency of abnormal lead testing by zip code”



Birth model

What is our c-section rate over time?



Birth model:

What is the frequency of c-sections, relative to vaginal deliveries, by Mother's zip code.

Most of the Birth Model Data is derived from the Delivery Summary

← Delivery Report Mother Baby Audit Trail Open Chart Admit

Complications: NO
Gases sent?: No
Cord comments: 16 week inevitable abortionv with retained placenta

Resuscitation
Method: None

Skin to Skin
Skin to skin initiation
date/time:
Skin to skin end
date/time:
Reason skin to skin not initiated: N/A

Lacerations
Perineal lacerations: No
Periurethral laceration: No
Labial laceration: No
Sulcus laceration: No
Vaginal laceration: No
Cervical laceration: No
Vaginal delivery est. blood loss (mL): 1200
Surgical or additional est. blood loss (mL): 0 (View Only): Edit in Flowsheets
Combined est. blood loss (mL): 1200

Procedures
Procedures: Curettage After Placenta Removal

APGARS
Living status: Neonatal Demise

Apgar	0	1	2
Scoring	Skin color	Blue or pale	Acrocyanotic Completely pink
Key:	Heart rate	Absent	<100 bpm >100 bpm
	Reflex irritability	No response	Grimace Cry or active withdrawal
	Muscle tone	Limp	Some flexion Active motion
	Respiratory effort	Absent	Weak cry; hypoventilation Good, crying

	1 Minute:	5 Minute:	10 Minute:	15 Minute:	20 Minute:
Skin color:	0	0	0	0	0
Heart rate:	0	0	0	0	0
Reflex irritability:	0	0	0	0	0
Muscle tone:	0	0	0	0	0
Respiratory effort:	0	0	0	0	0
Total:	0	0			

Apgar 1 total from OB History: 0
Apgar 5 total from OB History: 0

Apgars assigned by: J. SZERENCZY RN

Newborn Measurements
Weight: 125 g

Vaginal Counts



Births Model Demo Video

The screenshot displays the Epic EMR interface for a user named GABRIEL LABBAD. The main window shows a 'Schedule' view for the department 'BR OB/GYN'. On the left, there is a calendar for January 2020 with the 6th highlighted. Below the calendar is a search bar containing 'BR OB/GYN' and a 'My Schedule' section listing 'LABBAD, GABRIEL' and 'BR OB/GYN'. The main area is a table with the following columns: Time, Reminder, Status, Status Details, Patient, Age/Ge, Reason for Visit, Type, Out, Re Notes, Spe My, Ref Prov, Last Preventative, Last Pap, and Smear Date. The table is currently empty. The top of the screen shows the Epic navigation bar with various icons and the user's name. The bottom of the screen shows the Windows taskbar with various application icons.

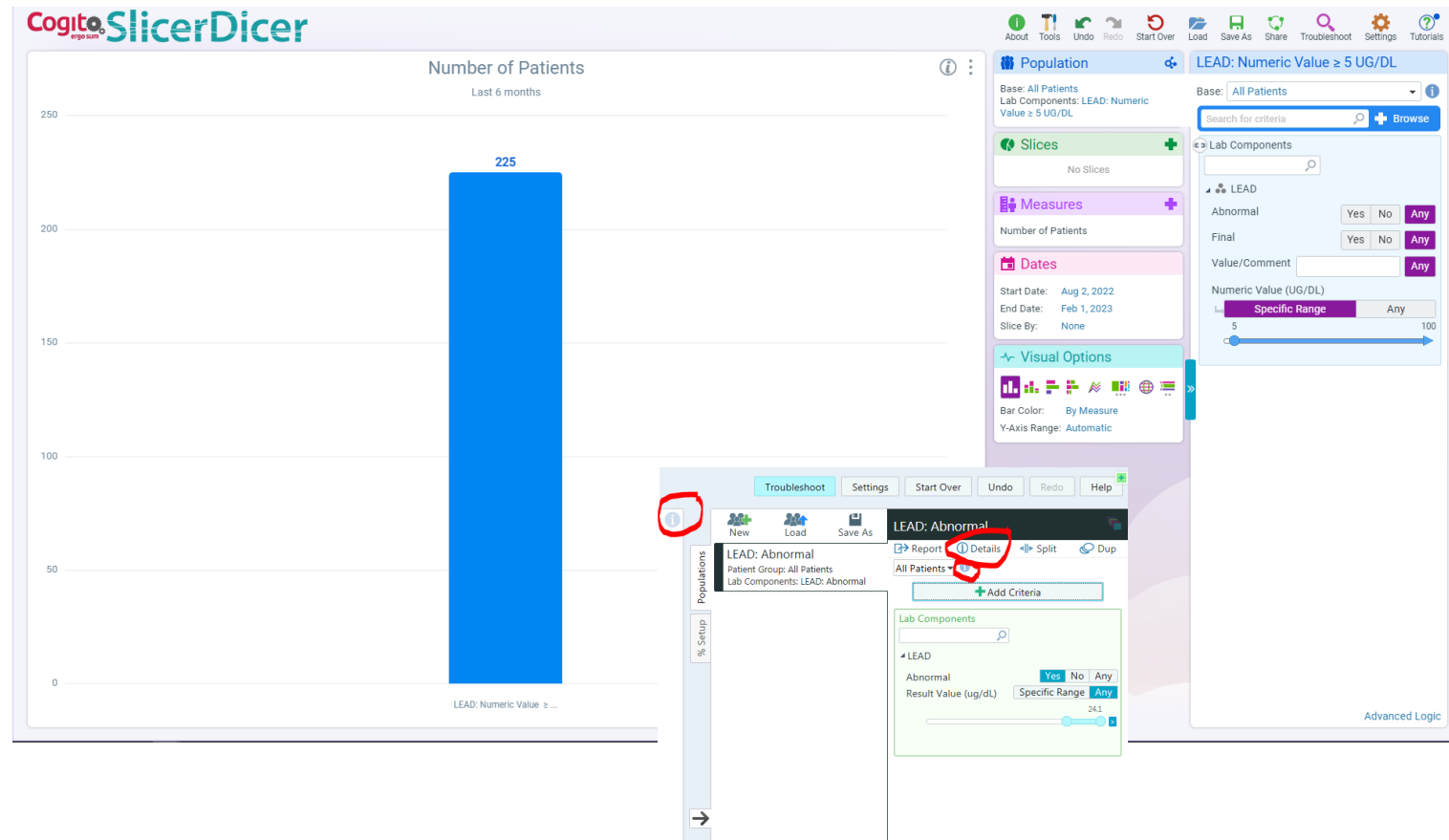


Slide courtesy of Gabriel Labbad, MD © 2023 Epic Systems Corporation

The following report is proprietary information and constitutes trade secrets of The MetroHealth System and may not be disclosed in whole or part to any external parties without the express consent of the Metrohealth Systems. This document is intended to be used internally for The MetroHealth System discussion.

How can I master this?

- The tutorial is a good start
- Just start doing it...
- Your best friend – the (i)
- You can only find what exists
 - ❑ Data must be put into the EMR as distinct data elements
- Groupers are your friend



The task at hand

The lead questions (...):

- How many abnormal lead levels did we detect in the last 5 years?
 - Can you control for the number of tests done (%)
 - Are there temporal (seasonal) changes in lead levels?
 - Are there geographic distributions (zip code level changes) you can find?
- Can you find patients who had lead levels that normalized over time?
 - Can you find patients with abnormal levels who never had it rechecked?

This could be you...





A Universe of Data that Drives Evidence-Based Research and Individualized Patient Care



178 Million Patients



6.5 Billion Encounters



10.3 Million Cancer Patients



22.5K Clinics



1,123 Hospitals



268K Beds



268K Physicians

Key Benefits



Size
The largest integrated database of clinical information in the United States

Cosmos has records from over 178 million patient records from over 6.5 billion encounters, representing patients in all 50 states.



Speed
Query millions of patients in minutes

Cosmos is built on a data platform optimized to answer clinical questions over time in minutes. Clinicians and other scholarly explorers at organizations using Cosmos can ask questions on-demand without needing to put a request in for data.



Representative
Data that looks like the United States

Because Cosmos is built by health systems from across the country, it aligns closely to population metrics of the United States Census. Cosmos has a representative sample of patients across all races, sexes, ages, rural-urban locations, and types of insurance.



Integrated
Longitudinal charts across inpatient, outpatient, every patient

Epic integrates both inpatient and outpatient charts into a single record, including all clinical specialties to form a more comprehensive and detailed picture of a patient's health. For example, a cancer patient's record contains detailed oncology visits, cancer staging, advanced lab results, hospitalizations, and standard outpatient visits.



Diverse
Data sets from labs, meds, social determinants, patient-entered data

Cosmos goes well beyond diagnoses and medications found on claims transactions, and includes patient-generated health data (PGHD), birth records, vitals, and social determinants like transportation and financial security assessments.

Cerner Tricks

Pregnancy Timeline

Pregnancy Timeline
 Onset Date: JUL 03, 2020 Estimated Due Date: JAN 14, 2021

Gestational Age (Week of)	20w	21w	22w	23w	24w	25w	26w	27w	28w	29w	30w
Visits											
Labs and Microbiology											
Ultrasounds											
Monitoring Episodes											
Treatments											

Prenatal Labs & Tests
 Results for indicated lab fall outside of the recommended gestational age range and may be selected to fulfill this range.

Text Name	Result	Result Date
Initial Labs		
8-18 Week Labs		
24-28 Week Labs		
32-37 Week Labs		
Transcribed Labs		

Diagnostics (2)

Name	Reason For Exam	Resulted
XR (0)		
Nuclear Med (0)		
Interventional (0)		
CT Exam (0)		
Ultrasound (2)		
US Pregnancy Complete w/ Detail	R/O IUGR	NOV 06, 2020 11:00
US Pregnancy 1st Trimester	--	JUL 03, 2020 15:14

NOV 06, 2020
 30w 1d

4 Visits (2)

Outpatient Visit
 Location: BW Womens Hlth
 Reason for visit: 30 Week Prenatal Appointment
 Notes: --

Observation Visit
 Location: 01
 Reason for visit: R/O Pre-eclampsia
 Notes: NST , MFM Consult Note

4 Labs and Microbiology (9)

Name	Result	Time
INR	1.25	09:00
Hct	44.3 %	09:00
PTT	29.3 seconds	09:00
Hgb	14.3 g/dL	09:00
Platelet	298 x10 ³ /mcl	09:00
WBC	6.4 x10 ³ /mcl	09:00
PT	12.1 seconds	09:00
Protein Urine Dipstick	1+ (30 mg/dl)	08:00
Glucose Urine Dipstick	Negative	08:00

4 Ultrasounds (1)
 Type: US Pregnancy Complete w/ Detail
 Note: US Pregnancy Complete w/ Detail

4 Treatments (1)

Name	Time
hydRALAZINE (hydRALAZINE 20 mg/mL Inj Sol)	09:00

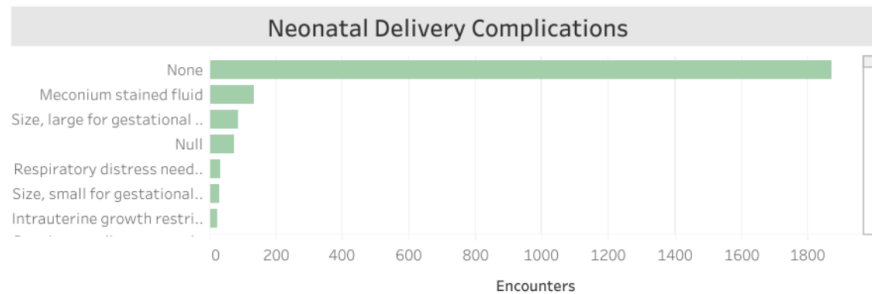
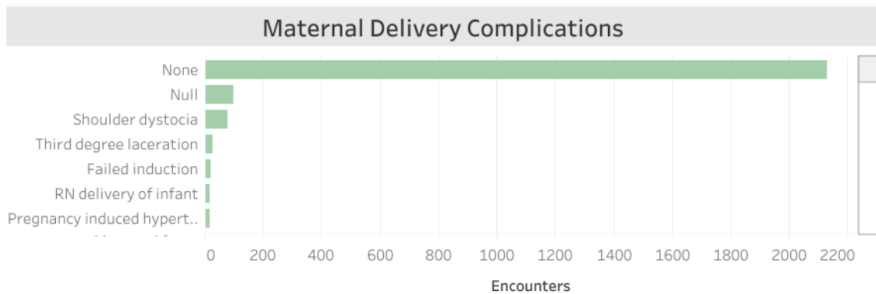
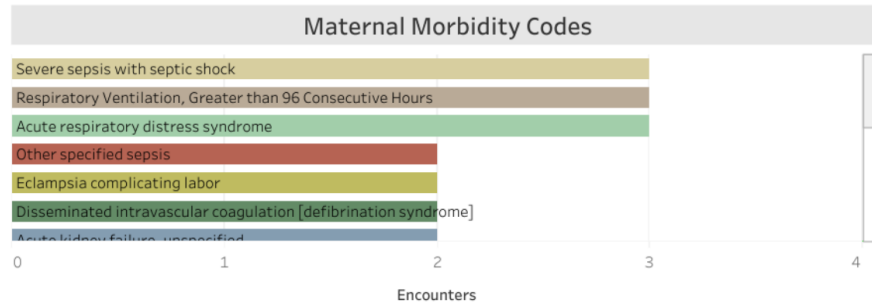
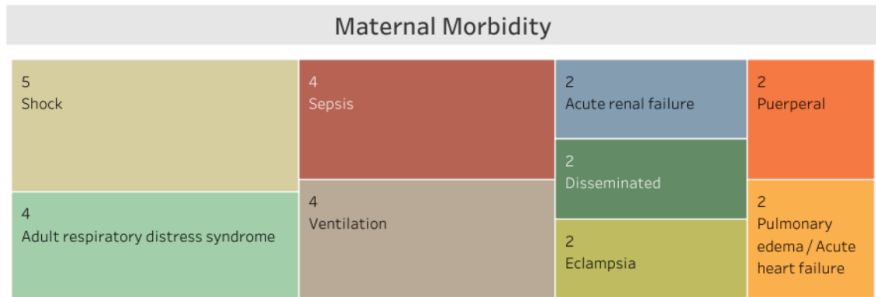
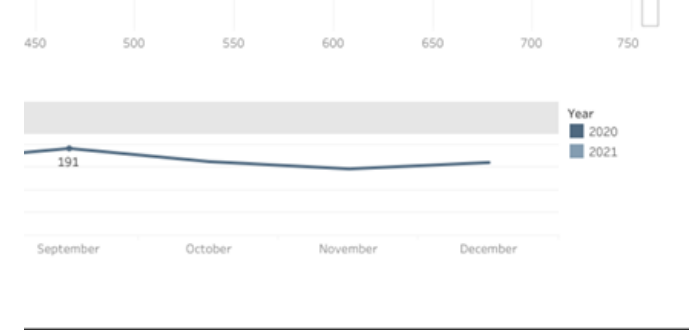
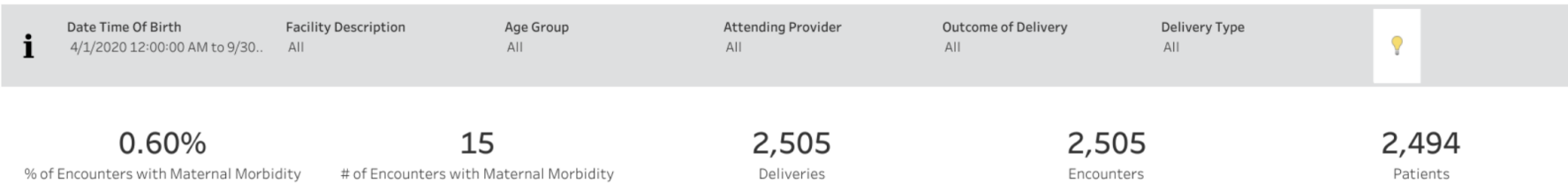
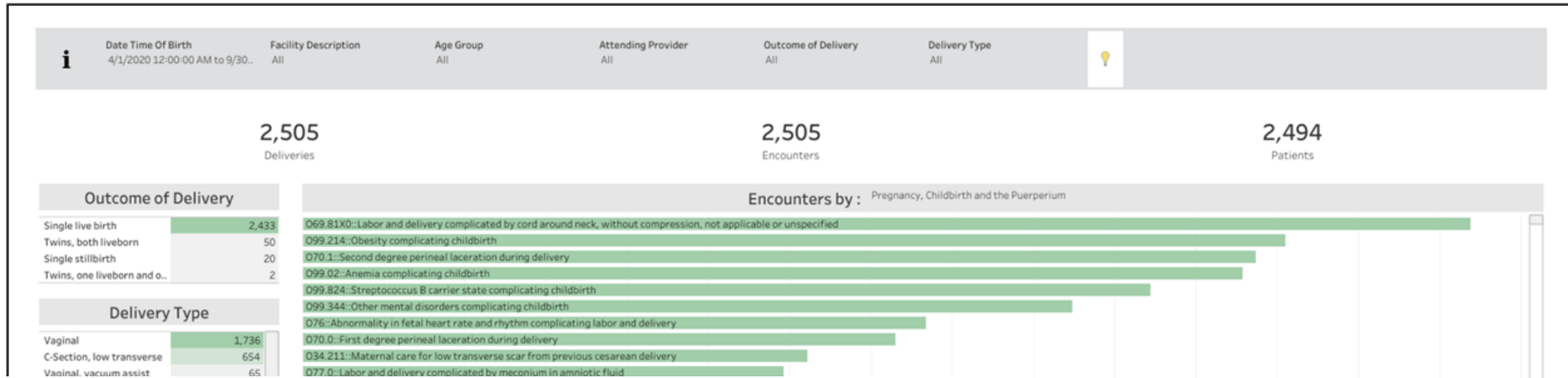
Cerner Women's Health Dashboards

- Cerner Unified Analytics and Reporting
 - ❑ Unified analytics and reporting experience
 - ❑ Common core dataset
 - ❑ Process high volumes of data with minimal delay

- Plans for release 2021, 2022, early 2023

- Common tool set
 - ❑ Enable data strategies and relevant business intelligence

Diagnosis Maternal M&M



Delivery Summary

Open Pregnancies

i Date, Time of Birth From Date, Time of Birth To Mother Facility
[Click here for VBACs](#)
[Click here to filter 20+ weeks and live births](#)

468 Mothers
100% Mothers %
477 Delivered
264 Nulliparous Mothers

Delivery Info ▶ **Anesthesia** ▶

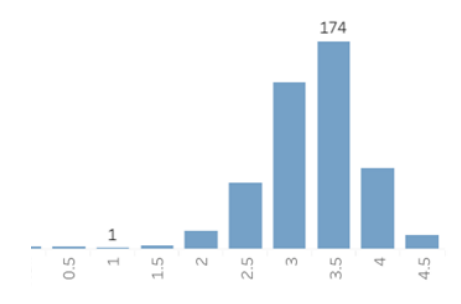
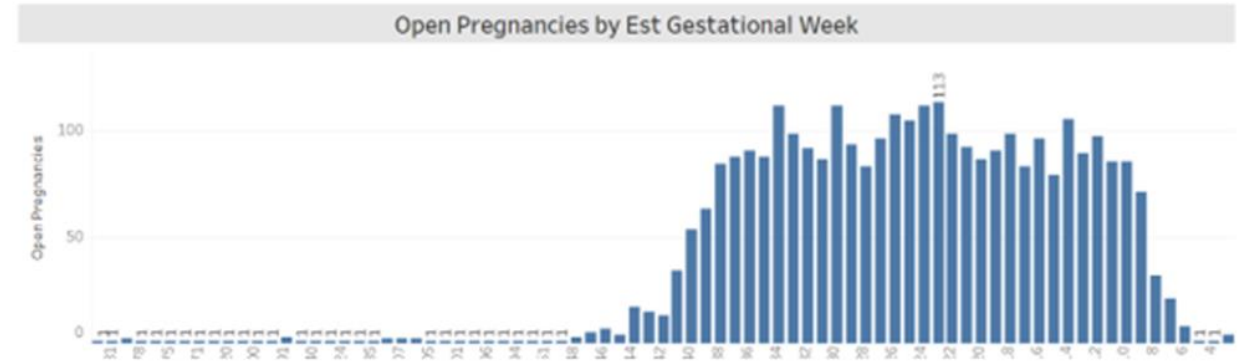
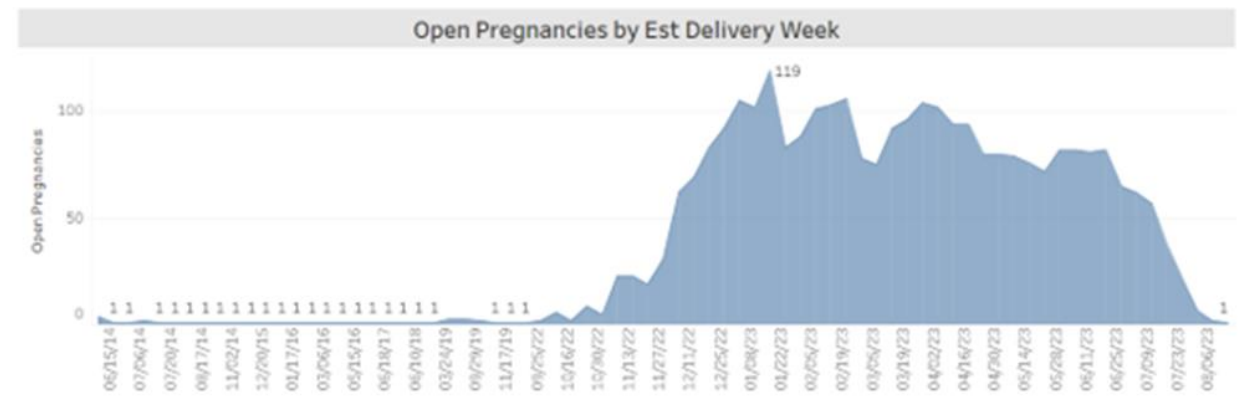
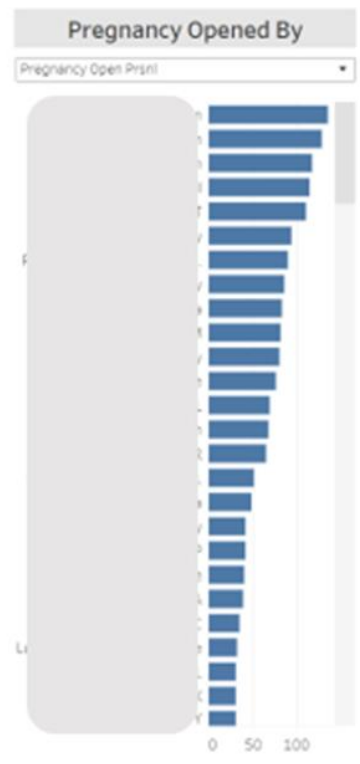
[Delivery Type](#)
[Multi Gest](#)
[Outcome](#)
[Delivery Weeks](#)

[Birth Weight \(hierarchy\)](#)

[Anesthesia Type](#)

2,268
Open Pregnancies

70
Estimated Deliveries this Week



Anesthesia Type	Count
Epidural, labori..	244
Spinal	98
None	64
Epidural, opera..	19
Epidural, labori..	8
General	7
Epidural, labori..	7
Epidural, labori..	5
Null	4
Narcotic	3
Pudendal block	2

Degree ▶

468

Inductions & Augmentations ▶

Induction Method	Count	Augmentation Method	Count
Null	292	Null	376
Artificial rupture of m..	71	Oxytocin infusion	42
Oxytocin infusion	19	Artificial rupture of m..	27
Artificial rupture of m..	18	Artificial rupture of m..	24



The following report is proprietary information and constitutes trade secrets of The MetroHealth System and may not be disclosed in whole or part to any external parties without the express consent of the Metrohealth Systems. This document is intended to be used internally for The MetroHealth System discussion.

© 2023 Cerner Corporation
 Images Courtesy of Monica A. Lutgendorf, MD

<39w IOL rate NTSV Rate

Delivery Summary | Birth Log | Baby Friendly | Unlinked Mothers and Children | Cesarean Decision to Incision | Inductions Less Than 39 Weeks | Primary Cesareans | Exclusive Breast Milk Feeding | Open

Date, Time of Birth From: 11/1/2022 | Date, Time of Birth To: 12/12/2022 | Mother Facility: (All) | EGA at Delivery: (All) | Induction Method: (All) | Indication for Induction: (All)

55 Mothers Induced Less Than 39 Weeks | 31% Mothers % Induced Less Than 39 Weeks | 176 Mothers Induced

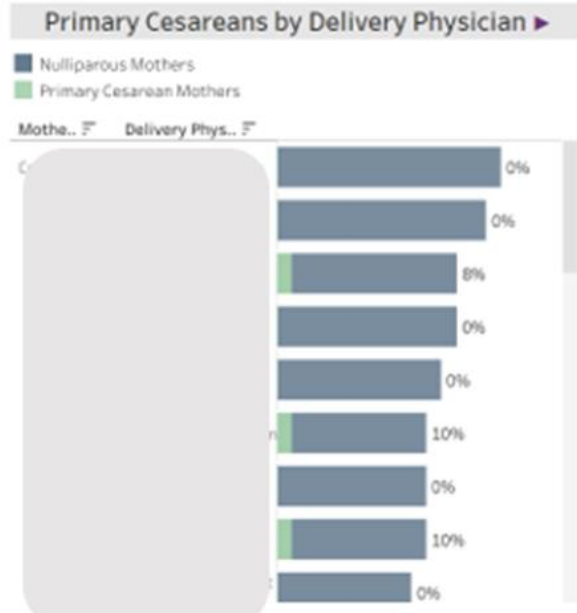
Delivery Summary | Birth Log | Baby Friendly | Unlinked Mothers and Children | Cesarean Decision to Incision | Inductions Less Than 39 Weeks | Primary Cesareans | Exclusive Breast Milk Feeding | Open

Date, Time of Birth From: 11/1/2022 | Date, Time of Birth To: 12/12/2022 | Mother Facility: (All) | Delivery Type: (All) | Presenting Part: (All) | Multiple Gestation Description: (All)

5 Primary Cesarean Mothers | 264 Nulliparous Mothers | 468 Mothers

[Download CSV](#)

Measured Blood Loss	Total Measured Blood Loss	Total Length of Labor
Null	Null	5.8minute(s)
Null	Null	923minute(s)
Null	Null	7.42minute(s)
Null	Null	Null
Null	Null	2.85minute(s)
Null	Null	5.82minute(s)
Null	Null	9.4minute(s)
212.0Milliliter	Null	17.05minute(s)



Detail [Download CSV](#)

Mother Full Name	Mother FIN	Primary Cesarean M.	Para Fullterm	Para Preterm	Para Abortions	Para Living	Delivery Type	Presenting Part	Multiple Gestation D.	EGA at Deliv
		0	1	0	0	1	Vaginal birth	Vertex	Singleton	40W 5
		0	1	0	0	1	Cesarean birth	Vertex, Confirmed ..	Singleton	40W 4
		0	1	0	0	1	Cesarean birth	Vertex	Singleton	37 we
		0	1	0	2	1	Vaginal birth	Undetermina d, Other: ba..	Singleton	25 we
		0	0	0	1	0	Vaginal birth	Vertex	Singleton	37W 1
		0	1	0	0	1	Vaginal birth	Vertex	Singleton	39W 4
		0	Null	Null	Null	Null	Vaginal birth	Vertex, Confirmed ..	Singleton	35W 1
		0	1	1	2	3	Cesarean birth	Vertex	Singleton	39 we
		0	1	0	0	1	Cesarean birth	Vertex	Singleton	39 we

© 2023 Cerner Corporation
 Images Courtesy of Monica A. Lutgendorf, MD



The following report is proprietary information and constitutes trade secrets of The MetroHealth System and may not be disclosed in whole or part to any external parties without the express consent of the MetroHealth Systems. This document is intended to be used internally for The MetroHealth System discussion.

EPIC Radar Dashboards

➤ Pull in reports, information from multiple areas to a single dashboard

- Reporting Workbench
- Epic-Crystal reports
- Intranet or internet sites
- Other activities in Epic

➤ Tabular display of summarized data

- Workbench reports, extensions, or dashboard resources, including graphs
- Organizational documents

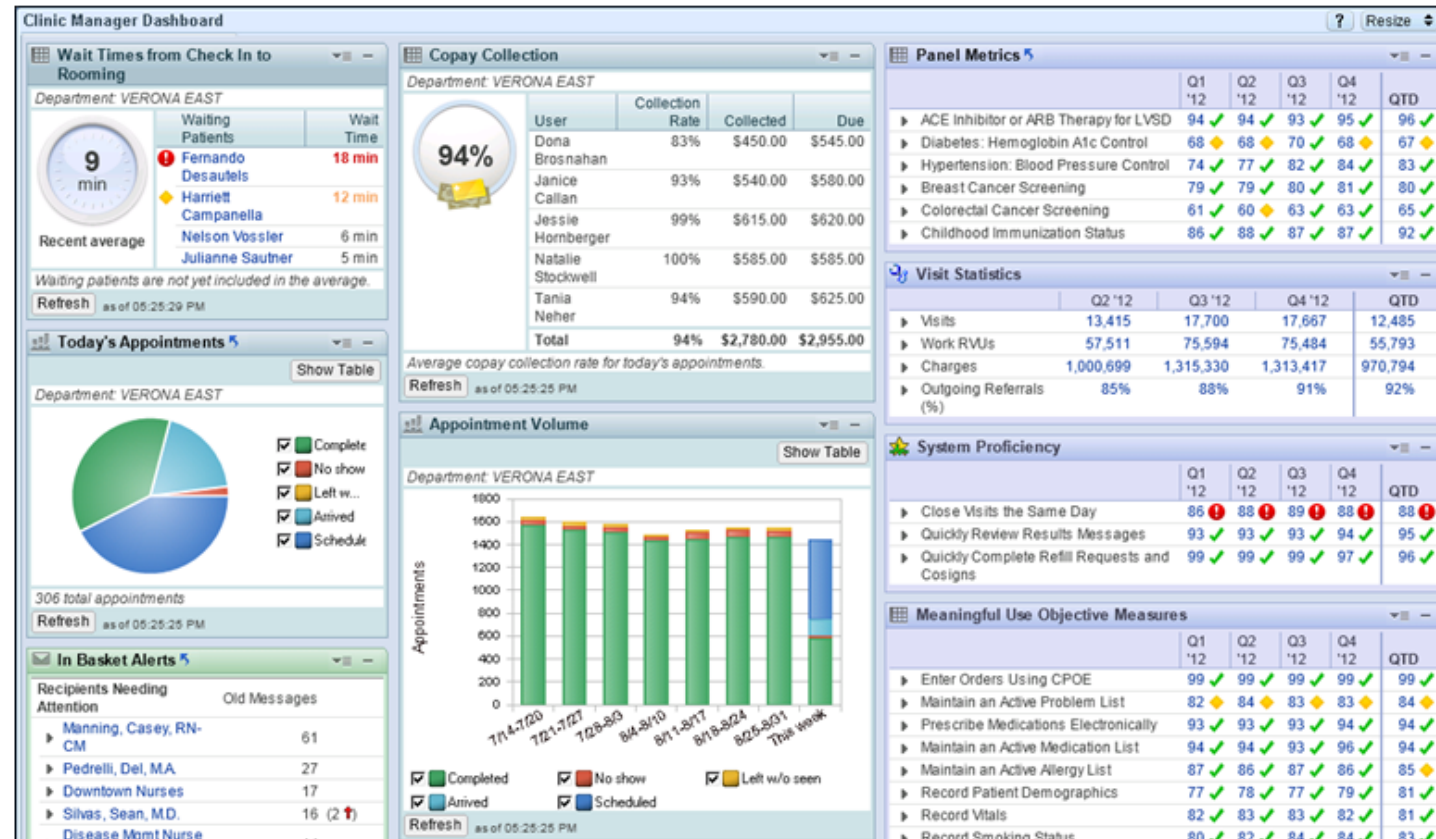


Image Courtesy of David Lagrew, MD

EPIC Reporting Workbench

- Reporting Workbench templates define what data a particular report will search and what data it will return
 - Clinical, billing, and access applications.
 - With proper training and security allows for various users to take templates and customize to their needs.
- Perfect for case-review for QI and research list
 - Data can be exported to Excel

SJO NSTSV Executive Summary by week

July 2020

Week:	N: # NSTSV fallouts	D: # of cases	% for week	Documented c/s reason	Attending	Decision making MD/Nurse	notes	Recom mendation	ACOG Criteria met
July 3-9	2	20	10%						
1				Non-Reassuring FHR			38.3 weeks <u>decels</u> in office; attempted ind. multiple prolonged <u>decels</u>		Yes
2				Failed Induction			40.1 weeks sent from MFT for ind.		No
July 10-16	5	25	20%						
1				Non-Reassuring FHR			40 weeks labor (<u>lates, temp, mec</u>)		Yes
2				Non-Reassuring FHR			39.2 weeks admitted for <u>decels</u>	Yes	
3				Maternal Request			37.2ind for elevated BP's. 2+ day labor and patient requested for maternal exhaustion an 8cm for 5 <u>hrs</u>		
4				2 nd Stage Labor Dystocia			40.5 ind.		Yes
5				2 nd Stage Labor Dystocia			40.4 <u>ind</u>		Yes
July 17-23	6	36	16.7%						
1				Non-Reassuring FHR			39 weeks admitted for Dec. FM		Yes

Objectives

- To define Clinical Informatics and frequently used terms
- To understand how to leverage tools in the Electronic Medical Record to drive quality improvement projects and abstract the data needed to improve patient safety
- Describe the logistics involved in adding custom fields to an EMR
- Provide examples of successful quality improvement data integration into an EMR

Adding custom fields

Define what you want

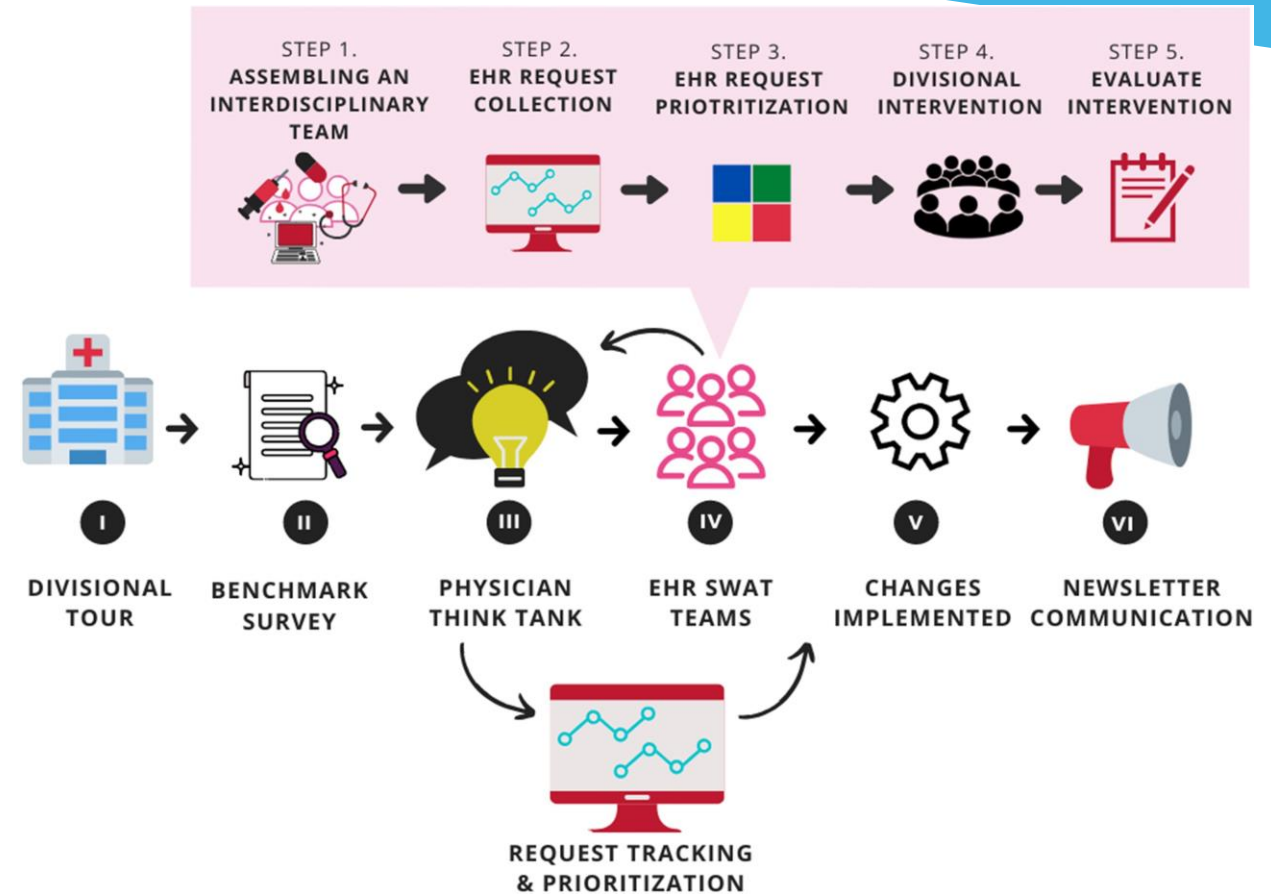
- Discrete
- Entered in a timely fashion
- Entered in the current workflow
- Education end users
- Work with your IT team
 - Form relationships with your analysts



shutterstock.com • 107150216

How do we engage IT in improving healthcare processes in the EMR – EHR SWAT Team

- Initiative implemented to improve physicians' experience with EHRs
 - ❑ Reduce burnout
 - ❑ Improve efficiencies in EMR
- The EHR SWAT Team focused on engagement of Physicians with EHR IT teams
 - ❑ EHR Benchmark Survey
 - ❑ Developed Physician Think Tank
- Measured outcomes, communicated results



SWAT Team Assemble!

- Chief Medical Officer – Leadership buy-in / support
- Clinical Informatics Nurse(s) - Workflows
- Clinical Applications Team Members (3) – Programming / interface with EMR support
- Health Information Management Specialist – Data flow and support with clinical information flow
- Pharmacy & PACS/Ultrasound Informatics Specialist(s)
- Project Management Lead
- MFM Division Liaison – Connection to clinical faculty/providers



Tracking Requests

- Date of submission
- Disciplines impacted
- Request priority category
- Request details
- Clinical division
- Validation, triage
- Requestor/contact
- Date of committee approvals
- Testing and validation date and comments
- In-production date
- Communication (via newsletter) date

Categorization of EHR Requests

Table 1.

Categorization of EHR change requests

Category	Description	Examples	Number of unique requests (% total)
(1) Re-education:	Functionality currently exists within the EHR, and physicians required training or a refresher on how to carry out a specific task	Examples of re-education requests included the following: using global auto-text, finding and viewing laboratory and diagnostic results, finding patient information such as insurance coverage, creating customized medication lists, accessing the provincial EHR, and forwarding discharge summaries and consult notes	43 (36.4%)
(2) Quick (6 weeks) fixes:	These change requests included fixes that can be delivered within 6 weeks of submission to internal change control governance	Examples of such requests included the following: creating new consult note templates, ensuring laboratory orders older than 30 days do not get hidden, including toxicology reports within discharge summaries	20 (17%)
(3) Future (1 year+) fixes:	Such change requests are those that require a significant amount of work, often including coordination from multiple stakeholders including the vendor, and hence a longer timeline for implementation	Examples included the following: linking EHR directly to billing, free-text search, automatic faxing of certain referrals	42 (35.6%)
(4) Not able to fix/address due to technical or regulatory restraints:	These change requests were those that remained out of scope for fixing due to technical restrictions of the EHR, as dictated by the vendor, or due to regulatory restraints of scope of work	Examples included the following: summary reports based on a physician's patient list, visual representation of medication history	13 (11.0%)

Lessons Learned

Table 2. Lessons learned

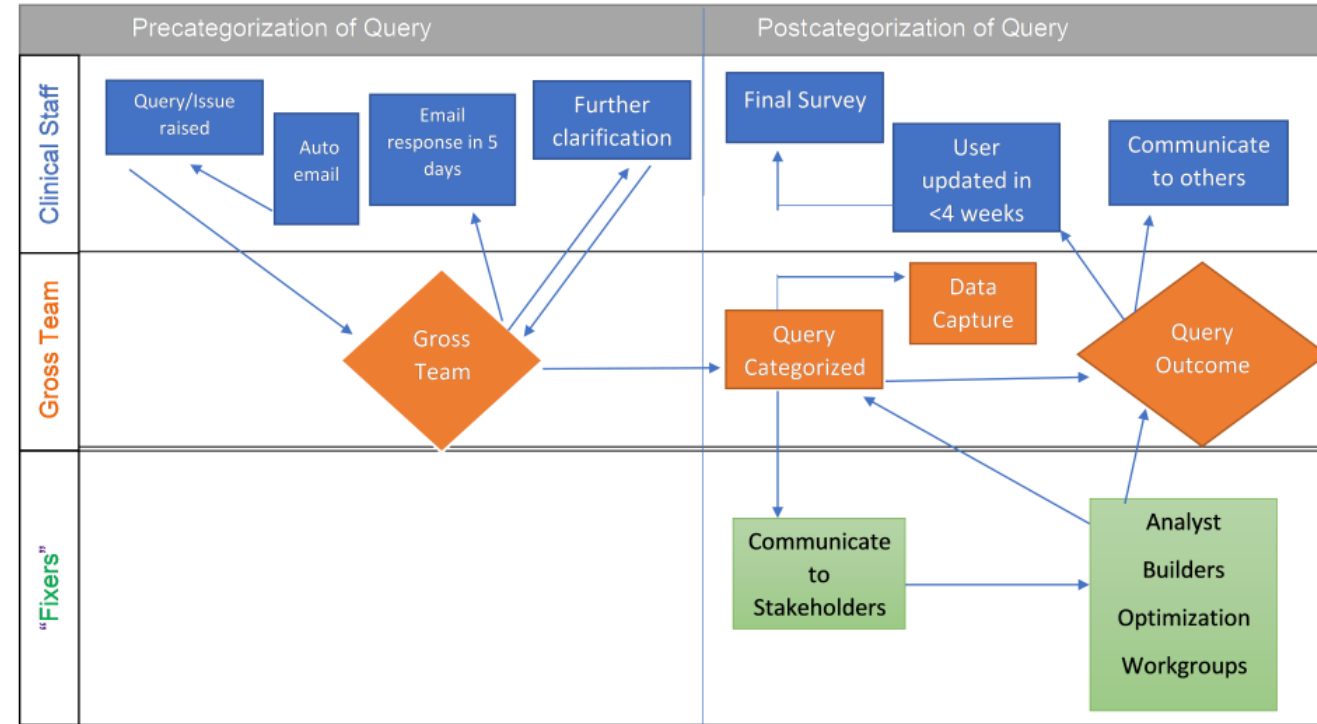
	Theme	Key benefit
1	Leadership buy-in	Allowed us key in-kind resources that were needed to accomplish prioritization, approval, and implementation of change requests
2	Physician engagement	Allowed us to leverage monthly divisional meetings, providing physicians with protected time for this initiative
3	Project management	Allowed the team to efficiently carry out project management activities related to this initiative, including planning (e.g., scheduling divisional meetings), execution (e.g., collecting and tracking EHR change requests), and monitoring the initiative (e.g., carrying out evaluation), and tracking
4	Agile methodology	Allowed us to produce incremental updates and changes to the EHR, while striving for maximum physician end-user satisfaction with the EHR
5	Defined accountability	Allowed us to leverage a monthly newsletter to inform physician end-users about updates to the EHR and educational messages

Beyond Getting Rid of Stupid Stuff in the Electronic Health Record (Beyond-GROSS): Protocol for a User-Centered, Mixed-Method Intervention to Improve the Electronic Health Record System

The contents of the REDCap form section that will be filled out by a clinician requester.

1. Issues and suggestions:
 - What is the issue to fix, improve, or remove?
 - Please upload any supporting document or screenshot.
 - Why is it beneficial to fix or improve the issue?
 - Please share any suggestions on how to fix or improve this issue.
2. Contact and location of clinician requester:
 - What is your name?
 - What is your email address?
 - What is the best phone number to contact you?
 - Where do you work? (hospital/department/clinic)
 - What EPIC login department did you use when you encountered this issue?
 - What is your clinical role? (registered nurse [RN], physician, physician assistant [PA], nurse practitioner [NP])

- Mount Sinai Hospital, New York City
- Input from users to RedCap database
- Plan-Do-Study-Act reaction to change requests accepted



Otokiti JMIR Res Protoc. 2021

Possible EMR Applications to Support AIM Patient Safety Bundle Implementation



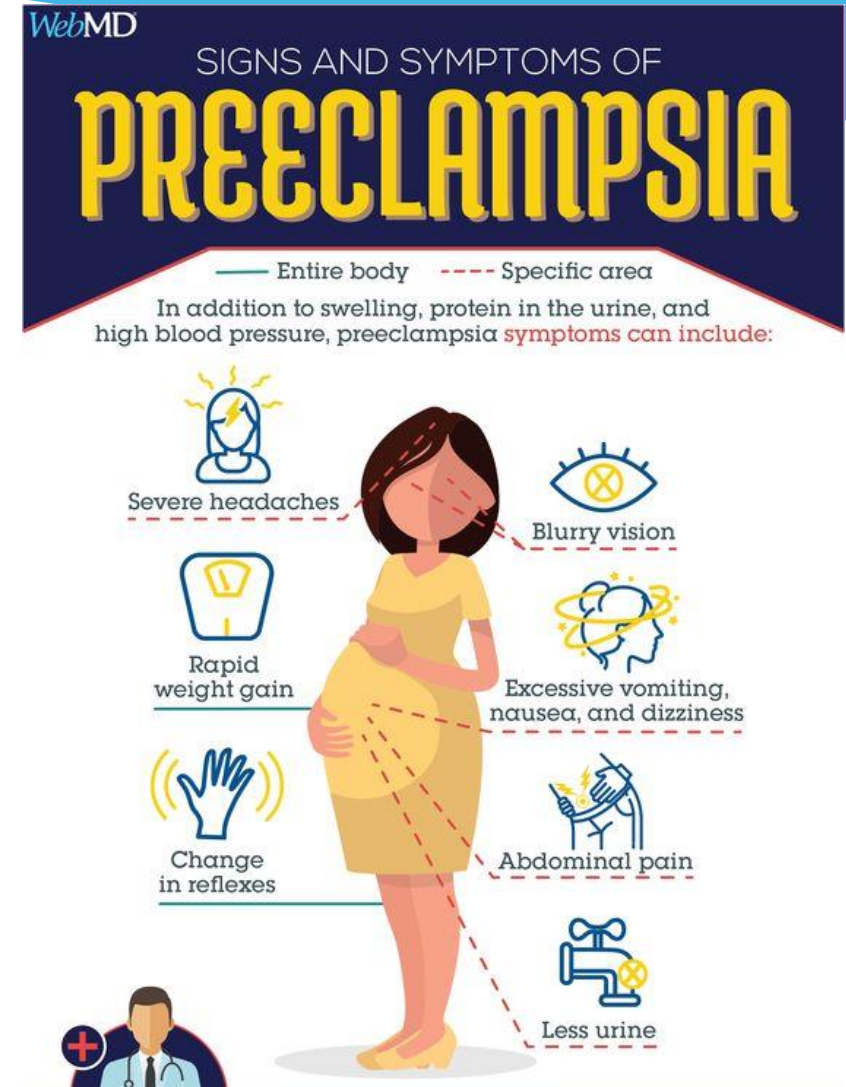
Example 1—HTN Treatment



Readiness on Every Unit

➤ Create standards for severe preeclampsia/ eclampsia

- Early warning signs
- Diagnostic criteria
- Monitoring and treatment

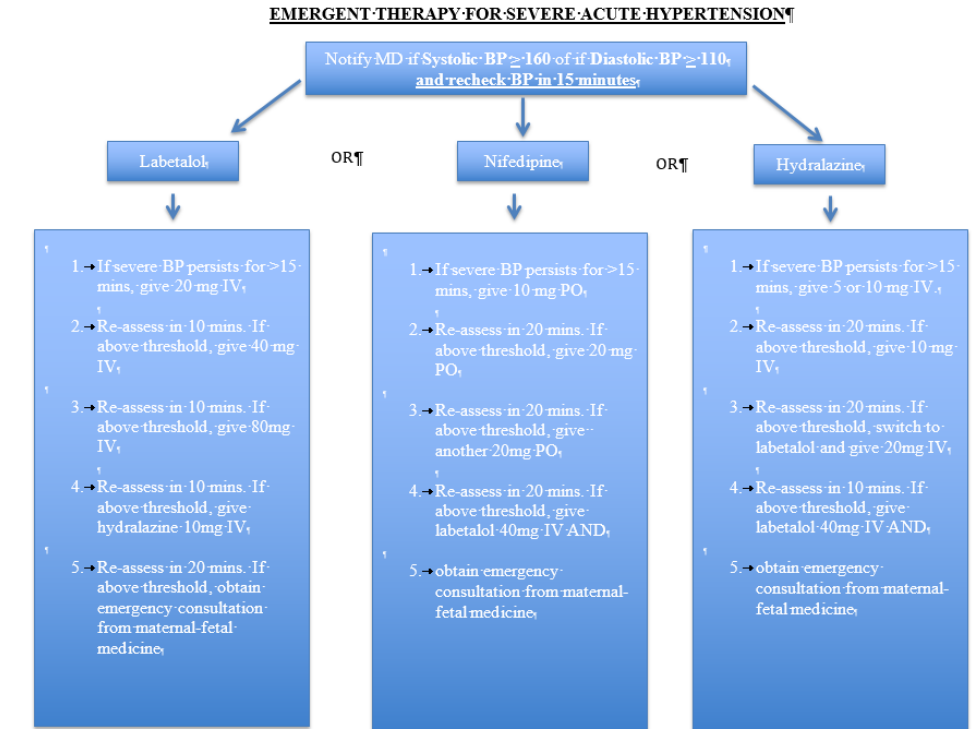


Recognition and Prevention for Every Patient

- Standard protocols for all pregnant patients
 - Measurement and assessment of BP
 - Urine protein
- Standard response to maternal early warning signs
 - Discussing and evaluating patient symptoms
 - Lab assessment
- Patient education standards on signs and symptoms of hypertension and preeclampsia

Order Sets, Order Panels, and Education

- Order sets for admission
- Order panels for just the meds and monitoring orders
- RN PI Project to improve communication and response to hypertension
 - ☐ Education and signs in every room



MetroHealth Medical Center†
Appendix 1†
†

Standard orderset

▼ OB Hypertension Medications

Hypertension Medications Beginning with Hydralazine

hydrALAZINE (APRESOLINE) injection (\$\$\$)
5 mg, Intravenous Push, ONCE, 1 dose, today at 1630

And

hydrALAZINE (APRESOLINE) injection (\$\$\$)
10 mg, Intravenous Push, ONCE, 1 dose, today at 1630

And

labetalol (TRANDATE) injection (\$\$)
20 mg, Intravenous Push, ONCE, 1 dose, today at 1630

And

labetalol (TRANDATE) injection (\$\$)
40 mg, Intravenous Push, ONCE, 1 dose, today at 1630

Hypertension Medications Beginning with Labetalol

Hypertension Medications Beginning with Nifedipine

▼ OB Hypertension Medications

Hypertension Medications Beginning with Hydralazine

hydrALAZINE (APRESOLINE) injection (\$\$\$)
5 mg, Intravenous Push, ONCE, 1 dose, today at 1630

And Hypertension Medications Beginning with Labetalol

hydrALAZINE (APRESOLINE) injection (\$\$\$)
10 mg, Intravenous Push, ONCE, 1 dose, today at 1630

And Hypertension Medications Beginning with Nifedipine

labetalol (TRANDATE) injection (\$\$)
20 mg, Intravenous Push, ONCE, 1 dose, today at 1630

And
NIFEdipine (PROCARDIA) capsule (\$)
10 mg, Oral, ONCE, 1 dose, today at 1630

And
NIFEdipine (PROCARDIA) capsule (\$)
20 mg, Oral, PRN, starting today at 1621, Until Discontinued, Hypertension not resolved by initial 10 mg dose of nifedipine.

And
NIFEdipine (PROCARDIA) capsule (\$)
20 mg, Oral, PRN, starting today at 1621, Until Discontinued, Hypertension not resolved by 20 mg dose of nifedipine.

And
labetalol (TRANDATE) injection (\$\$)
20 mg, Intravenous Push, PRN, starting today at 1621, Until Discontinued, Hypertension not resolved by second 20 mg nifedipine dose.

▼ Medications Preeclampsia

- Up To Date: Preeclampsia Seizure Management
- Up To Date: Management of HTN in Pregnant and Postpartum

- Magnesium Panel
- Calcium Gluconate IV (\$\$\$)
1,000 mg, ONCE
- Betamethasone Acet-Betamethasone Sod Phos 3-3 MG/ML [Celestone Soluspan] IM (\$\$)
12 mg, DAILY for 2 doses

4 metrics for maternal hypertension

Rate Blood Pressure Retaken Within 15 Minutes of Severe Hypertension

Hypertensive Emergency Rate

Rate Emergency Therapy Administered Within 60 Minutes of Hypertensive Emergency

Average Minutes To Treatment After Hypertensive Emergency

OB Nurse Manager Metrics

Select a Date

Summary Level:

- ### Risk Prevention Rates
- Severe Maternal Morbidity Incidence
 - Postpartum 30-Day Readmission
 - Hypertensive Emergency
 - Delivery with 3rd or 4th Degree Laceration

- ### Severe Maternal Bleeding Rates
- Vaginal Delivery
 - C-Section Delivery
 - All Delivery

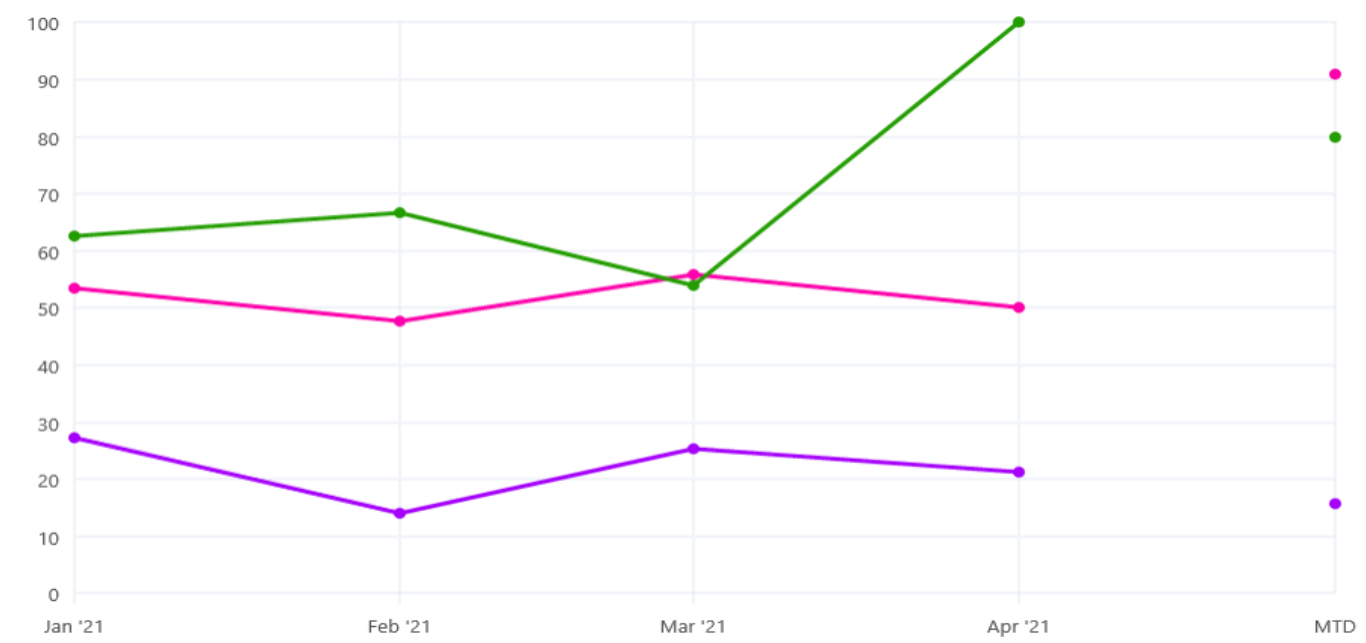
- ### Delivery Procedure Outcome
- Induced Delivery Ending in C-Section
 - Successful VBAC Delivery

Demise Rates

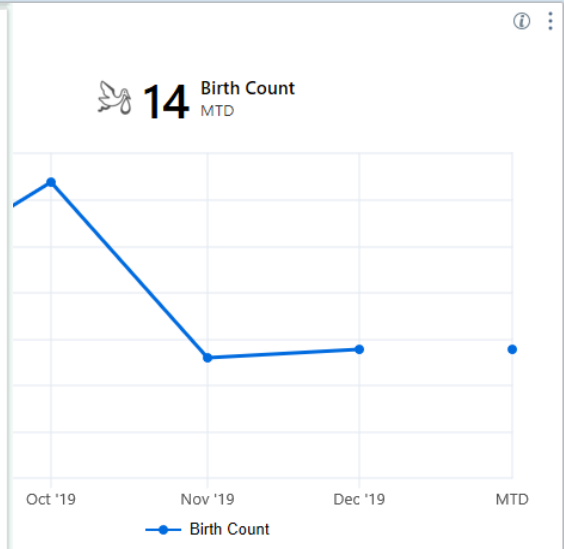
0 % Fetal Demise MTD

Treatment Protocol Compliance Rates

	Jan	Feb	Mar	Apr	MTD
GBS Prophylaxis	-	-	-	-	-
Retake BP Within 15 Minutes for Hypertension	54 %	48 %	56 %	50 %	91 %
Hypertensive Emergency Med Within 60 Minutes	63 %	67 %	54 %	100 %	80 %
Average Minutes to Hypertensive Emergency Med	28	14	26	22	16



- Retake BP Within 15 Minutes for Hypertension
- Hypertensive Emergency Med Within 60 Minutes
- Average Minutes to Hypertensive Emergency Med



C-Section Delivery Rates

57 % C-Section Delivery MTD

	Sep 19	Oct 19	Nov 19	Dec 19	MTD
C-Section Delivery	34 %	35 %	31 %	25 %	57 %
Spinal Anesthesia	14 %	4 %	0 %	0 %	0 %
epidural or	0 %	0 %	0 %	0 %	0 %
General Anesthesia	5 %	0 %	0 %	7 %	0 %
Other	0 %	0 %	0 %	0 %	0 %

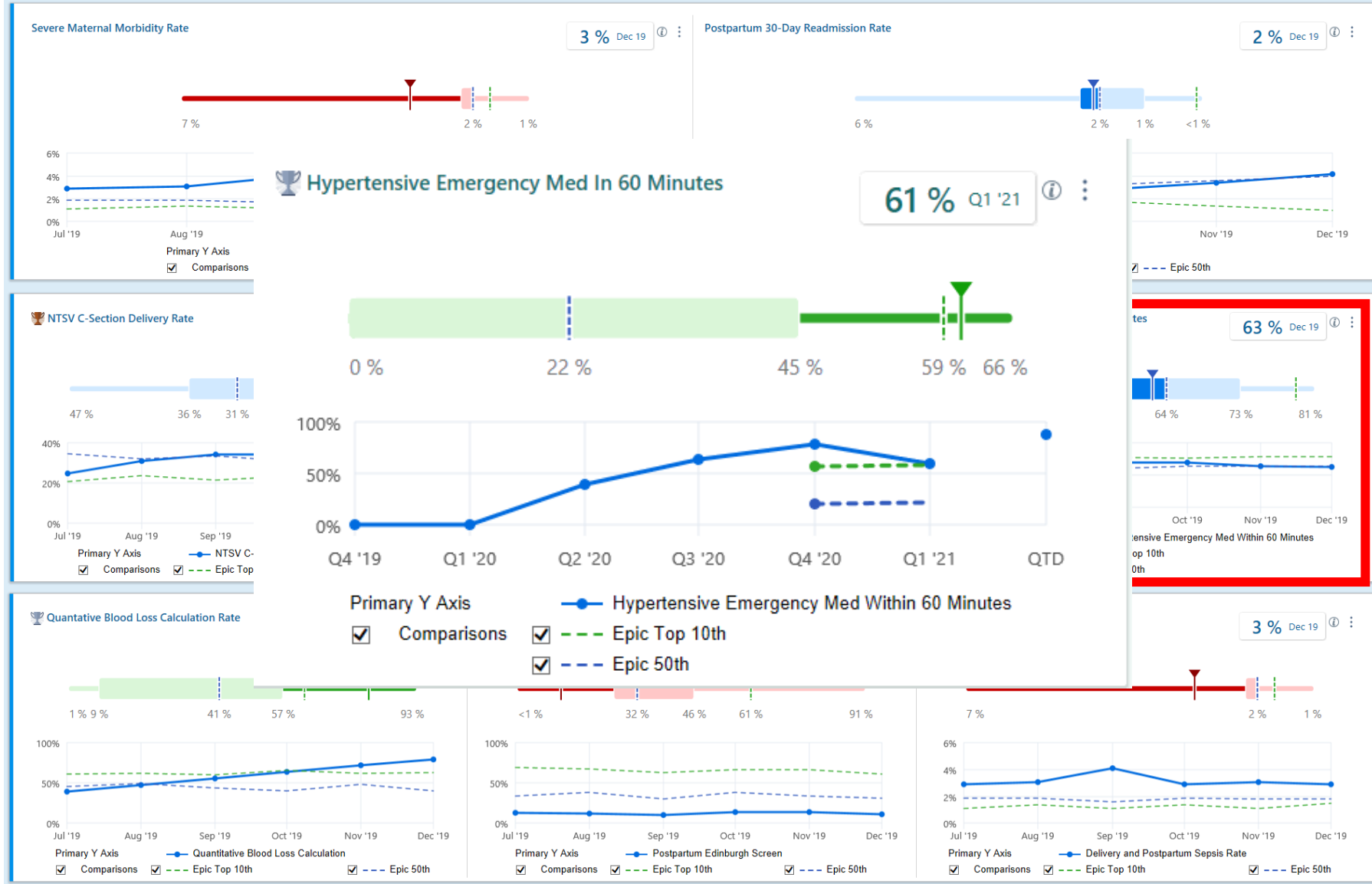
Measures Compliance Rates

	Sep 19	Oct 19	Nov 19	Dec 19	MTD
Measures Compliance Rates					



© 2023 Epic Systems Corporation
 The following report is proprietary information and constitutes trade secrets of The MetroHealth System and may not be disclosed in whole or part to any external parties without the express consent of the MetroHealth Systems. This document is intended to be used internally for The MetroHealth System discussion.

Summary Level: Facility Benchmark: Epic



Example 2—HTN Postpartum Follow Up



Post Discharge follow-up Scheduling: Old Process

“Ad Lib” Scheduling

- Dependent on the individual provider
- Communication orders to the RN
 - Inconsistently done
 - Time frame not specified

The screenshot shows a communication order form titled "Communication (Other)". The form includes the following fields and options:

- Specify:** A text box containing "schedule BP check after discharge".
- Comments:** A large text area with a toolbar above it containing icons for undo, redo, help, insert smart text, and zoom (set to 100%).
- Phase of Care:** A dropdown menu.
- Frequency:** A dropdown menu with "ONCE" selected. Other options include "Once", "Prior to Procedure", and "Continuous".
- At:** A date and time selector showing "1/27/2023" and "0941".

At the bottom of the form, there are buttons for "Next Required", "Link Order", "Accept", and "Cancel".



Society for Maternal-Fetal Medicine Special Statement: Quality metric for timely postpartum follow-up after severe hypertension

Society for Maternal-Fetal Medicine (SMFM); Kelly S. Gibson, MD; C. Andrew Combs, MD, PhD; Samuel Bauer, MD; Rebecca Feldman Hamm, MD; Andrew Healy, MD; Jamie Morgan, MD; Lorraine Toner, MD; Amy Whitsel, MD; Patient Safety and Quality Committee

Hypertensive disorders of pregnancy are a leading cause of maternal morbidity and mortality. Because postpartum exacerbation of severe hypertension is common, the American College of Obstetricians and Gynecologists recommends that patients with severe hypertension during the childbirth hospitalization be seen within 72 hours after discharge. In this statement, the Society for Maternal-Fetal Medicine proposes a uniform metric reflecting the rate of timely postpartum follow-up of patients with severe hypertension. The metric is designed to be measured using automated calculations based on billing codes derived from claims data. The metric can be used in quality improvement projects to increase the rate of timely follow-up in patients with severe hypertension during the childbirth hospitalization. Suggested steps for implementing such a project are outlined.

Key words: chronic hypertension, eclampsia, gestational hypertension, HELLP syndrome, pre-eclampsia, quality measure, severe hypertension

Change Process

- Education
 - Providers
 - Postpartum nurses
- Informatics—placing the right order in the right place
- Logistics
 - Clinic outpatient appointment slots



10 days vs 72 hours

- Same process for all hypertensive disorders of pregnancy
 - ❑ Reduce variation
 - ❑ Reduce confusion
- Simplify the process so that everyone has follow up in the same time frame



New Process

- In the postpartum ordersets
- Available for all patients with HDP
- Same process
 - Easier for ordering
 - Easier for scheduling

▼ Discharge Planning

▼ Follow Up

Post Discharge Follow Up
! ONCE, {113589}

BRX303 BabyScripts Post Partum Hypertension

New Process

- Postpartum secretary makes the appointment
- RN reviews with patient prior to discharge
 - Reviews post-birth warning signs
 - Remote Patient Monitoring BP program introduction

Communication (Other) Schedule BP check within 72h ✓ Accept ✗ Cancel

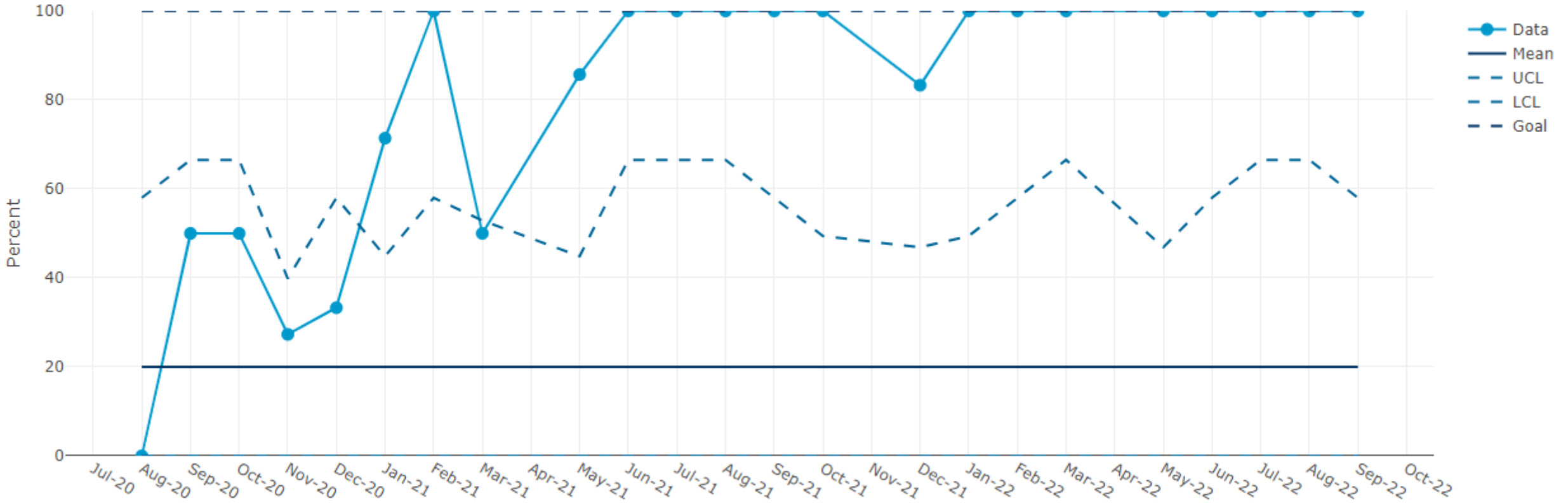
Specify: Schedule BP check within 72h

Comments: Please schedule this patient for a blood pressure RN check visit for within 72h of her expected discharge. Thank you.

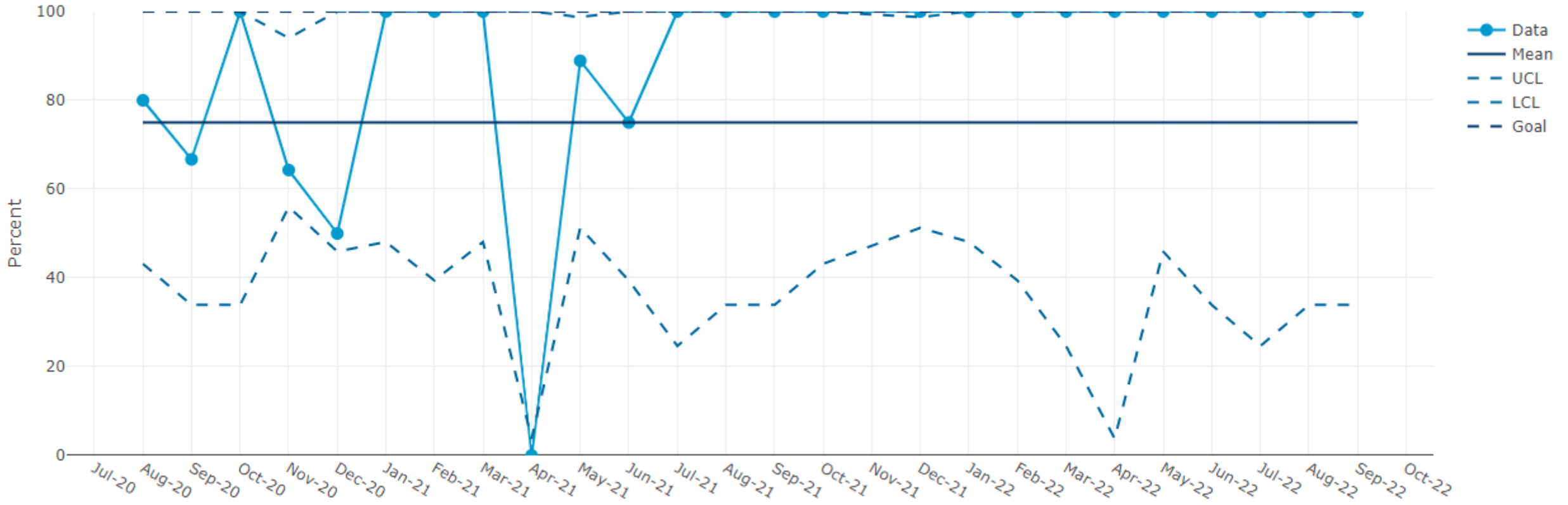
Phase of Care:

Frequency: Once Prior to Procedure Continuous

Percent of pregnant and postpartum people presenting with severe hypertension who were discharged on anti-hypertensive medications and who had a follow-up appointment scheduled within 72 hours for MetroHealth Medical Center



Percent of pregnant and postpartum people presenting with severe hypertension who had a follow-up appointment scheduled within 10 days for MetroHealth Medical Center

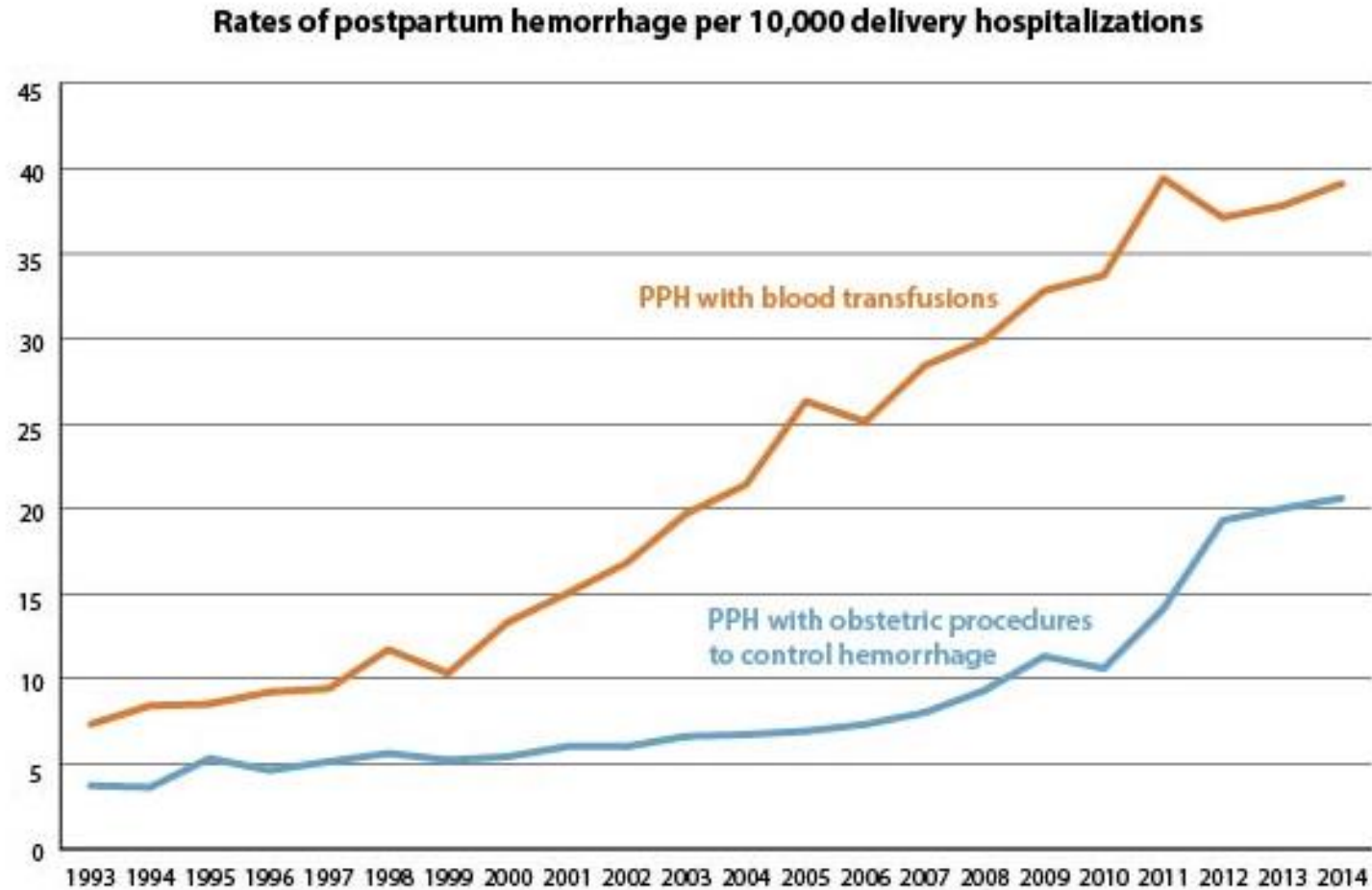


Example 3 — QBL



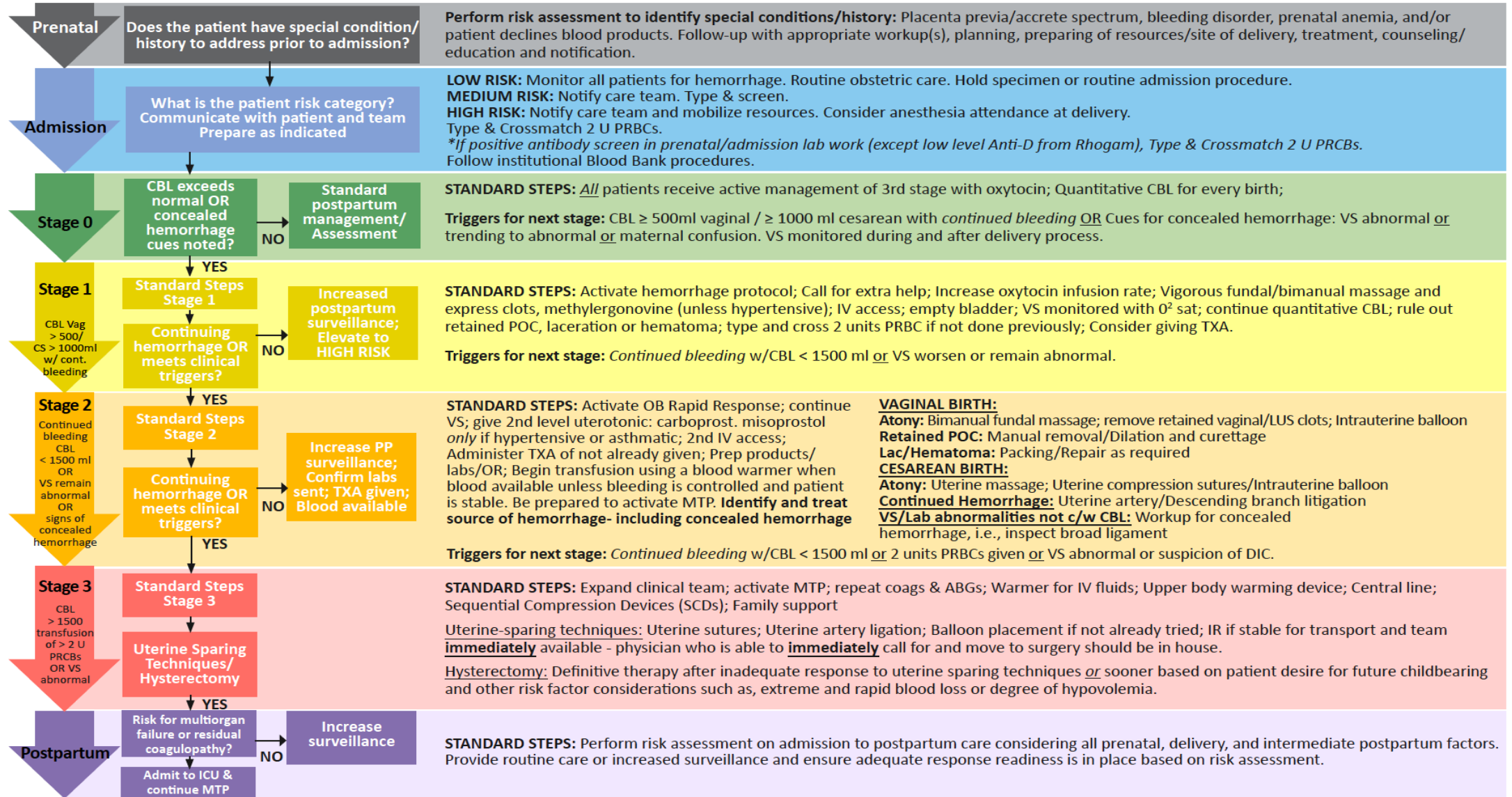
~~EBL CBL QBL!~~

Postpartum hemorrhage rates in the U.S., 1993-2014 (CDC data)





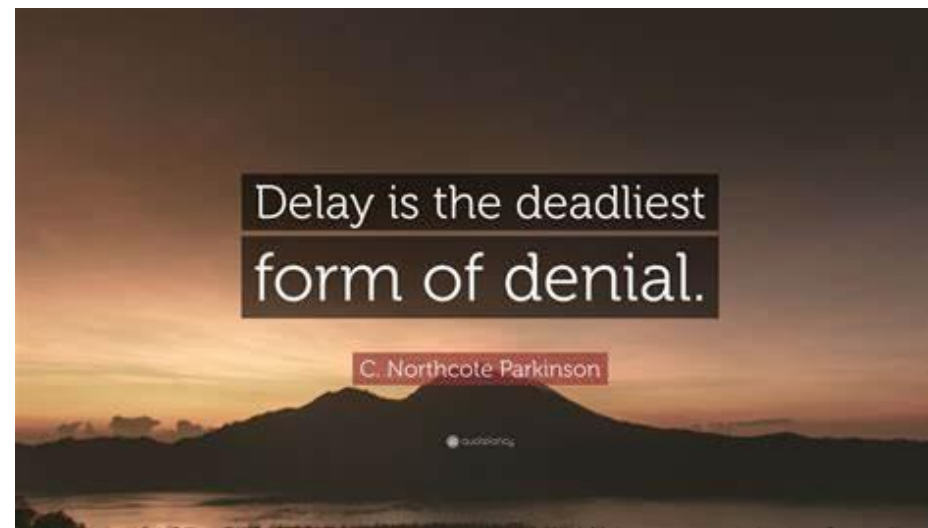
Appendix D: Obstetric Hemorrhage Care Guidelines: Flowchart Format






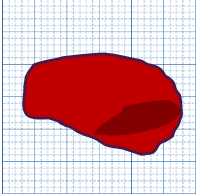

This figure was adapted from the Improving Health Care Response to Obstetric Hemorrhage: A California Quality Improvement Toolkit, funded by the California Department of Public Health, 2015; supported by Title V funds.

Avoid Delay and Denial

- Hemorrhage algorithm



Terms and Techniques of Describing Blood Loss

EBL	 <p>ESTIMATED BLOOD LOSS: Traditional estimation of blood loss by looking at the items such as sponges, drapes, blood in containers and determining blood loss. Tends to be normalized by over-estimating small losses and under-estimating large losses.</p>	EBL measurements typically done at the end of the case by multiple observers. Research has shown training can improve the technique but that accuracy fades unless repeatedly trained.
QBL Gravimetric	 <p>QUANTITATIVE BLOOD LOSS BY GRAVIMETRIC TECHNIQUE: The blood loss is determined by weighing items and subtracting the dry weight of the sponge, gauze or contained to determine weight.</p>	The method of QBL measurement has been made easier by imbedded calculation tools in the electronic record and by making sure scales are readily available.
QBL Volumetric	 <p>QUANTITATIVE BLOOD LOSS BY VOLUMETRIC TECHNIQUE: The blood loss is determined by observing the total amount of volume containing blood and subtracting the volume represented by amniotic fluid or irrigation.</p>	The method of QBL measurement can be made more accurate and easier if workflow observations, such as brief determinations of volumes of amniotic fluid collection before blood suctioning at CS or before shoulders delivered in vaginal delivery.
QBL Colorimetric	 <p>QUANTITATIVE BLOOD LOSS BY COLORMETRIC TECHNIQUE: The blood loss is determined by a device which scans items or containers and estimates the amount by the size of spot (pixels) and intensity of color.</p>	The method of QBL measurement requires specialized equipment and training. Workflow adjustments should be made to ease staff work in the OR and postpartum units.
CBL	 <p>CUMULATIVE BLOOD LOSS: The ongoing blood loss is determined by adding up the individual EBL or QBL measurements for the events and is used to drive management steps and transfusion.</p>	CBL is the best term to communicate the patient's blood loss and should be visible in the patient electronic record and verbalized in communication between providers during events and handoffs.

Example 1: New QBL Data

Flowsheet Rows:
Addition of QBL-Surgical,
QBL-Non-Surgical and
CBL (calculated running
total)

Multiple entries possible,
direct entry and with
calculators

Necessary to define
units(mls), look back
range, encounter
boundaries, etc.

Staff education on use of
calculators and
definitions

Dashboard tracking for
QBL measurement

Case Presentation

40 yo g2p1 patient undergoes scheduled routine repeat cesarean
with unremarkable operating room course



Medications Given

- TXA pre-op at 18:59; delivery at 19:08
- Oxytocin IV on-going post delivery
- Stage I entered at 20:02
- Methergine at 20:27; 20:49
- Misoprostol 800 mg PR at 20:27
- Hemabate-not used

Transfusion: 3 U PRBC

Completed Other: 3 units

Date	End	Product	Transfused	HGB	HCT	PLATELET COUNT
11/16/22 (1 unit) 645 mL						
	1742	Lab		7.8 g/dL	23.5 %	148 K/uL
	1230	Other	645 mL			
	0455	Lab		6.7 g/dL	19.7 %	139 K/uL
11/15/22 (2 units) 1,070 mL						
	2302	Other	365 mL			
	1633	Lab		6.8 g/dL	21.2 %	170 K/uL
	1215	Other	705 mL			
	0555	Lab		5.7 g/dL	17.4 %	159 K/uL
				Critical Results. This result on 11 15 2022 at 0618, and has been read back.		
	0128	Lab		7.6 g/dL	23.5 %	224 K/uL
11/14/22						
	2110	Lab		9.4 g/dL	29.4 %	196 K/uL
	1730	Lab		12.2 g/dL	37.7 %	202 K/uL

CBL by Stage

Stage 0

Stage 1 Stage 2

Stage 3

	1935	1946	2000	2002	2006	2017	2052	2100	0151	0417	Last Filed
Urine Output											
Straight/Intermittent Cath Insertion											
Intermittent Cath Volume (mL)											
Incontinent Urine											
Post Void Residual (Non-Calc)											
Bladder Scan Volume (mL)											
[REMOVED] Urethral Catheter 11/14/22 1845 latex 16											
Intake (mL)											
Urine Output (mL)											1200
Stool Output											
Stool (mL)											
Stool Occurrence											
Incontinent Stool											
Stool Amount											
Stool Consistency (Adult/Peds)											
Stool Consistency (Infant)											
Stool Color											
Emesis/Gastric Output											
Emesis											
Emesis Occurrence											
Blood Output											
Cumulative Blood Loss	646			1039	1279	1697	2315				2315 mL
Calculated Quantitative Blood Loss Total - Surg...	646			393	240	418	618				618
Blood Loss											
Pad Count											

TXA

OB Hosp

Misoprostol 800 mg PR

Attending

Methergine 0.2 mg

Methergine 0.2 mg

Recommendations for Our Response

- Begin Stage 1 measures Methergine and Bimanual at 20:02
- Stage 2 Meds at 20:10 (Misoprostol oral) if not effective
place Bakri or Jada
- Second TXA given amount of bleeding

QBL/CBL as data...



Can reduce delay in response



Quantitate number of cases by hemorrhage stage/meds used/transfusion



Build alerts to guide response



Follow bleeding on grease boards for oversight and improving response

Example 4—NTSV Cesarean Birth rates



NTSV- CSR Analysis

Fetching data about risk factors, clinical parameters

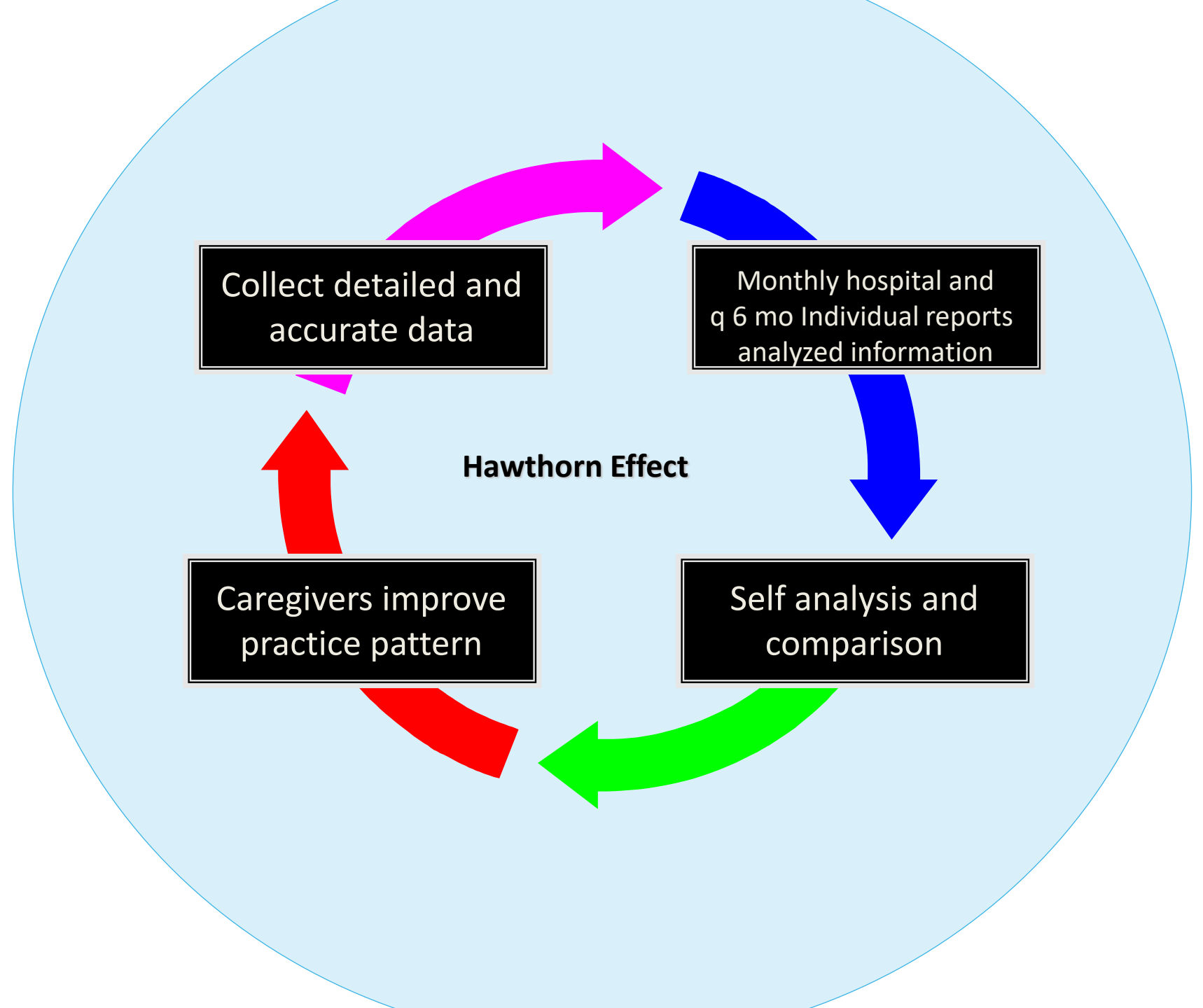
Involves identifying data fields, flowsheet rows and calculated values

Critical for helping hospitals/individual providers understand clinical changes needed for avoiding cesarean deliveries safely

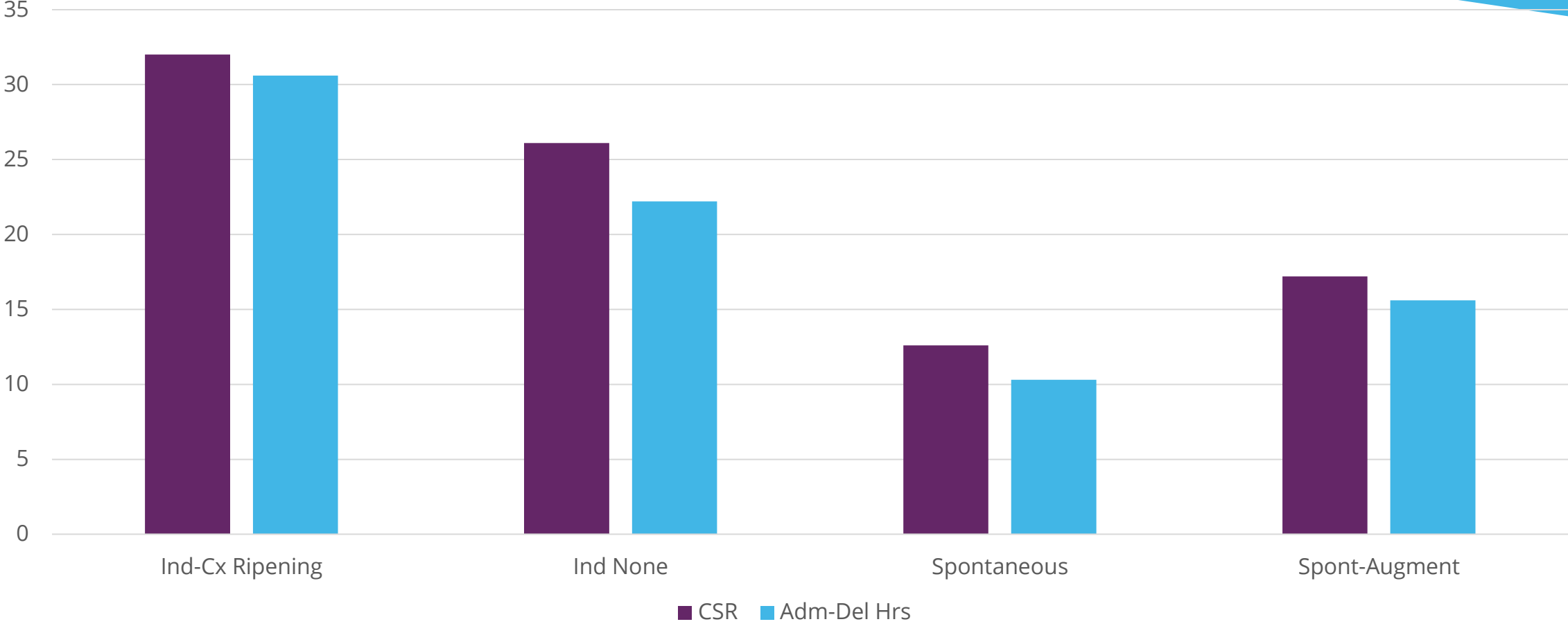
Background



PROVIDING DATA FEEDBACK TO LOWER CSR



Effect of Labor Type



Provider Variance

NTSV CSR	% Spont	% Induc	% No Labor	CSR-Spont	CSR-Induc	CSR-No labor
23.3	62.4	34.1	3.5	15.9	28.9	100
21.8	48.1	43.6	8.3	12.5	17.2	100
24.4	53.0	45.0	1.8	14.1	32.0	100
26.6	60.7	34.1	5.1	20.8	25.9	100
38.7	54.5	35.4	9.7	17.6	54.5	100
44.0	38.9	55.9	5.1	34.8	45.5	100
30.3	52.0	41.7	5.5	19.5	34.8	100

Types of Measures for NTSV CSR

- Outcome measures
- Process measures
- Balancing measures
- Structural measures



Examples Measures

➤ Outcome

- NTSV CSR
- NTSV CSR after Ind
- By labor type
- Length of labor

➤ Balancing

- UNC, SMM, Apgar scores

➤ Process Metrics

- Admission Cms by labor type
- Induction rate
- Cervical ripening rate

Data Extraction Sources

- Admission date/time
- Delivery date/time
- Labor type
- Indications
- Delivery type
- EDD
- Flowsheet rows
 - Cervical exams
 - VS
 - Oxytocin infusion

Tool: Reporting Workbench

The screenshot displays the Epic Reporting Workbench interface. The main window shows a report titled "DCL NSTV Report [47110973] as of Tue 11/2/2021 9:28 AM". The report table includes columns for Delivery Location, Admit Date/Time, Delivery Date/Time, Onset Date/Time, C-Section Indications, and Delivering Clinician. Below the report, there is a section for "Mother's Information" with a table of OB History and a table of delivery outcomes. An overlay window titled "Report Settings - DCL NSTV Hoag [27513484]" is open, showing search criteria for "Find Delivery records".

Delivery Location	Admit Date/Time	Delivery Date/Time	Onset Date/Time	C-Section Indications	Delivering Clinician
CFM PROVIDENCE ST JUDE MEDICAL CENTER	11/02/2021 0543	Tue Nov 2, 2021 07:51:00		C-Section, Low Transverse	
CFM PROVIDENCE ST JUDE MEDICAL CENTER	10/31/2021 2011	Mon Nov 1, 2021 23:15:00	11/01/2021 1116	C-Section, Low Transverse	Arrest of descent
CFM PROVIDENCE ST JUDE MEDICAL CENTER	10/30/2021 1942	Mon Nov 1, 2021 21:56:00	11/01/2021 0035	C-Section, Low Transverse	Failure to Progress
CFM PROVIDENCE ST JUDE MEDICAL CENTER	10/29/2021 1043	Mon Nov 1, 2021 16:28:00	10/31/2021 1900	C-Section, Low Transverse	Arrest of descent
CFM PROVIDENCE ST JUDE MEDICAL CENTER	11/01/2021 0557	Mon Nov 1, 2021 07:55:00		C-Section, Low Transverse	
CFM PROVIDENCE ST JUDE MEDICAL CENTER	10/31/2021 0800	Sun Oct 31, 2021 21:57:00	10/31/2021 0600	C-Section, Low Transverse	Arrest of descent
CFM PROVIDENCE ST JUDE MEDICAL CENTER	10/31/2021 0255	Sun Oct 31, 2021 06:09:00		C-Section, Low Transverse	
CFM PROVIDENCE ST JUDE MEDICAL CENTER	10/28/2021 2220	Sat Oct 30, 2021 11:27:00	10/29/2021 0622	C-Section, Low Transverse	Arrest of descent
CFM PROVIDENCE ST JUDE MEDICAL CENTER	10/29/2021 1226	Fri Oct 29, 2021 16:45:00		C-Section, Low Transverse	Prior uterine surgery
CFM PROVIDENCE ST JUDE MEDICAL CENTER	10/29/2021 0536	Fri Oct 29, 2021 07:58:00		C-Section, Low Transverse	
CFM PROVIDENCE ST JUDE MEDICAL CENTER	10/28/2021 1005	Thu Oct 28, 2021 12:37:00		C-Section, Low Transverse	

Mother's Information

OB History

Gravida	Para	Term
6	3	3
SAB	TAB	Ectopic
3		

Delivery Outcomes

#	Outcome	Date	GA	Labor/2nd
1	SAB			
2	SAB			
3	SAB			
4	Term	04/14/18	39w0d	
5	Term	10/18/19	39w0d	
6	Term	11/02/21	39w0d	

Name: PARAS GIRL MOM GENESIS

421 results met filter on Presentation

Report Settings - DCL NSTV Hoag [27513484]

Criteria | Display | Appearance | Summary | Print Layout | Toolbar | Override | General

Find Delivery records

Find Criteria: Enter a search term, or click the search icon to browse available criteria

Birth date
From: T-30 (11/20/2022) and To: T (12/20/2022)

Delivery department
HHN LABOR AND DELIVERY OR
HHI LABOR AND DELIVERY

Delivery method
C-Section, Classical OR
C-Section, Low Transverse OR
C-Section, Low Vertical OR
C-Section, Unspecified

GA at birth
Weeks: Greater than 37 and Days: (none)

Multiplicity
1

Report Logic: AND

Show search summary

Run Save Save As Restore Close

© 2023 Epic Systems Corporation.

Chart Review: Generating Lists

- Chart review made more efficient by pulling discrete data without having to search through record.
- Being able to open patient encounter without having to search for each chart for reviewing notes, etc.

Export to Excel for chart review, patient enrollment, etc. categorize the type of cesarean, pair with the ACOG/SMFM criteria

SJO NTSV Executive Summary by week

July 2020

Week:	N: # NTSV fallouts	D: # of cases	% for week	Documented c/s reason	Attending	Decision making MD/Nurse	notes	Recommendation	ACOG Criteria met
July 3-9	2	20	10%						
1				Non-Reassuring FHR	[REDACTED]		38.3 weeks <u>decels</u> in office; attempted ind. multiple prolonged <u>decels</u>		Yes
2				Failed Induction			40.1 weeks sent from MFT for ind.		No
July 10-16	5	25	20%						
1				Non-Reassuring FHR			40 weeks labor (<u>lates</u> , <u>temp</u> , <u>mec</u>)		Yes
2				Non-Reassuring FHR			39.2 weeks admitted for <u>decels</u>		Yes
3				Maternal Request			37.2ind for elevated BP's. 2+ day labor and patient requested for maternal exhaustion an 8cm for 5 <u>hrs</u>		
4				2 nd Stage Labor Dystocia			40.5 ind.		Yes
5				2 nd Stage Labor Dystocia			40.4 <u>ind</u>		Yes
July 17-23	6	36	16.7%						
1				Non-Reassuring FHR			39 weeks admitted for Dec. FM		Yes

Final tips

- Get to know your analyst (!)
- Solicit feedback from end users
- Check out the tools from Epic Foundation
 - Carepath
 - Care Companion
 - Order set
 - Reporting tools
- The EMR can work for you



Questions ?



Thank you!

The recording will be emailed to all attendees once ready

Any questions about this COL or the series can be sent to aimdatasupport@acog.org

Be sure to complete the evaluation survey! It will pop up in your browser as you exit the session

Remember to register for upcoming educational offerings!