



Clinical Informatics Fellowship Recap

Rubayet (Ruba) Hossain, MD

Second Year Clinical Informatics Fellow

The MetroHealth System

Case Western Reserve University

Areas of Focus

- Analytics ☒
- Quality Improvement ☒
- Business intelligence ☒
- Evidence-based medicine ☒
- Prediction/Forecasting ☒
- Health Economics ☒

Structured Education: Epic Certifications

Physician Build - Basic

As a specialist, you document important physician information to customize the system.

This course is for those with experience building reports on a daily basis. Topics include:

- Navigating the system
- Profiles
- Print Groups
- Reports
- Synopses
- Timelines
- Columns

Physician Build - Advanced

If you attended the Physician Build – Basic class (CLN150) and found yourself wanting to dive even deeper into the system to learn how to build Epic's specialty screens, this class is for you! We'll help you become a true architect of the system.

Physician Build - Analytics

Topics include:

- Navigating the system
- Profiles
- Print Groups
- Reports
- Synopses
- Timelines
- Columns

Caboodle Data Model Fundamentals

It is not just a data model, it relies on the reporting structure of the registries.

VIRTUAL TRAINING: NO TRAVEL NEEDED

As a Business Analyst, you need to know:

- What tool to use
- Where can you find the answers

The answer is in the data. Learn how to use the Clarity Data Model.

Learn to navigate Caboodle's data against Caboodle's data. Learn about the Clarity Data Model.

Clarity Data Model Fundamentals

Clarity is Epic's normalized relational database and the middle ground between Chronicles and Caboodle. This class will teach you about the rules known as the Clarity Data Model that developers follow while storing Epic EHR data. Learn how to use the Clarity Data Model.

Clinical Data Model

Cogito's Clinical Data Model class covers how to report on clinical information stored in Chronicles, Clarity, and Caboodle. The course focuses on those areas of clinical reporting that are common across most of Epic's clinical applications, such as patient encounters, diagnoses, orders, flowsheets, and SmartData Elements. By focusing on how this data is structured in Chronicles but also calling out how those structures translate to Clarity and Caboodle, Clinical Data Model enables all types of report writers to improve the quality and efficiency of their clinical reports.

- Write SQL queries
- Use the Clarity Data Model
- Identify a Clarity Data Model
- Map the relationships
- Learn tips and tricks

Structured Education: CWRU Health Informatics Certificate

MPHP 532 / HSMC 432 (3 Credit Hours) – Introduction to Health Informatics

The course is intended to develop competence and confidence in the participant's ability to understand and manage the complex information environment, plan for computer-based information systems, specify their functional design, manage a system adoption project, deal with system vendors, and

PQHS 416 (3 Credit Hours) – Computing in Biomedical Health Informatics

This course introduces students to computational techniques and concepts that underpin biomedical and health informatics data management and analysis. In particular, the course will focus on the three topics of: (1) Biomedical terminologies and formal logic used in building knowledge models such as ontologies; (2) Natural language processing (NLP), and (3) Big Data technologies, including

CRSP 401 (3 Credit Hours) - Introduction to Clinical Research Summer Series

This course is designed to familiarize one with the language and concepts of clinical investigation and statistical computing, as well as provide opportunities for problem-solving, and practical application of the information derived from the lectures. The material is organized along the internal logic of the research process, beginning with mechanisms of choosing a research question and moving into the

HSMC 420 (3 Credit Hours) – Health Finance

Exploration of economic, medical, financial and payment factors in the U.S. healthcare system sets the framework for the study of decisions by providers, insurers, and purchasers in this course. The mix of students from various programs and professions allows wide discussion from multiple viewpoints.

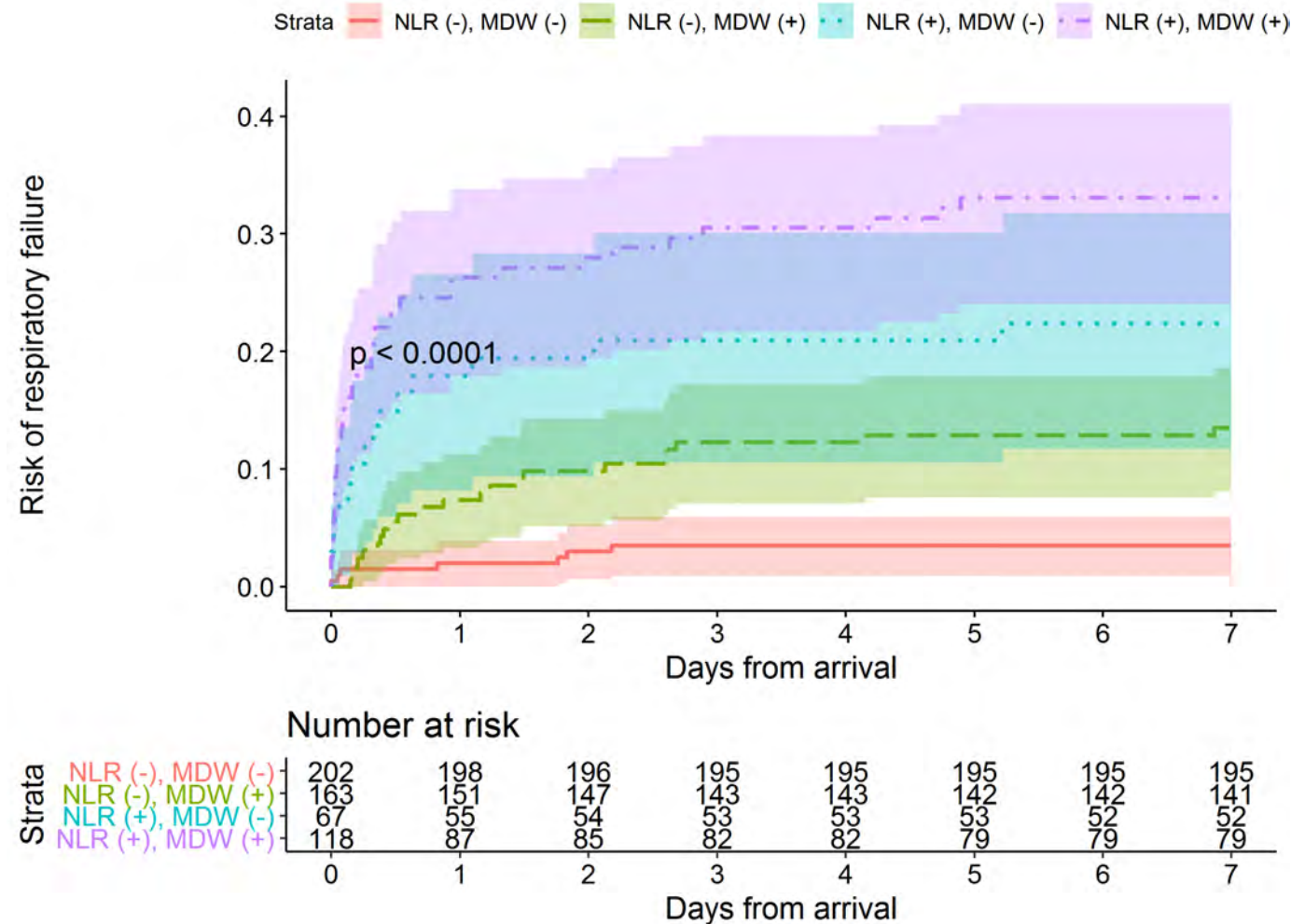
Structured Education: Rotations and Electives

1. Introduction to Clinical Informatics
 - Explore the different fields in informatics
2. Advanced Clinical Informatics
 - Deeper dive into more complex subjects
3. Reporting Elective
 - Reporting workbench, Clarity, and Caboodle reporting
4. Population Health and Quality Improvement/Leadership
 - Lean Six Sigma, FQHC, public health informatics
5. Cleveland Clinic
 - Discover informatics at another institution
6. Electronic Health Record Upgrade
 - Change management, project management
7. Capstone Project
 - Publications



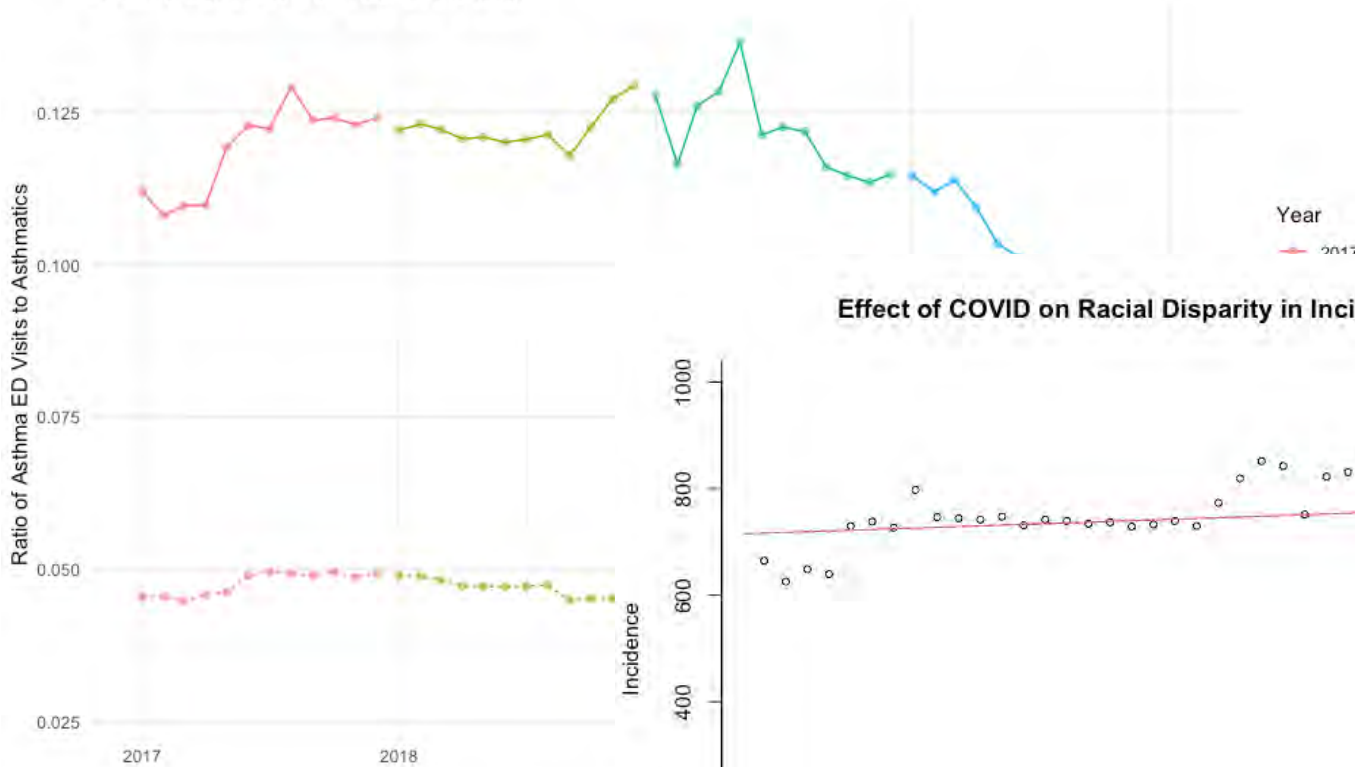
Jonathan Lewis Ted Rosati · 2nd

Monocyte distribution width adds prognostic value in detection of COVID-19 respiratory failure

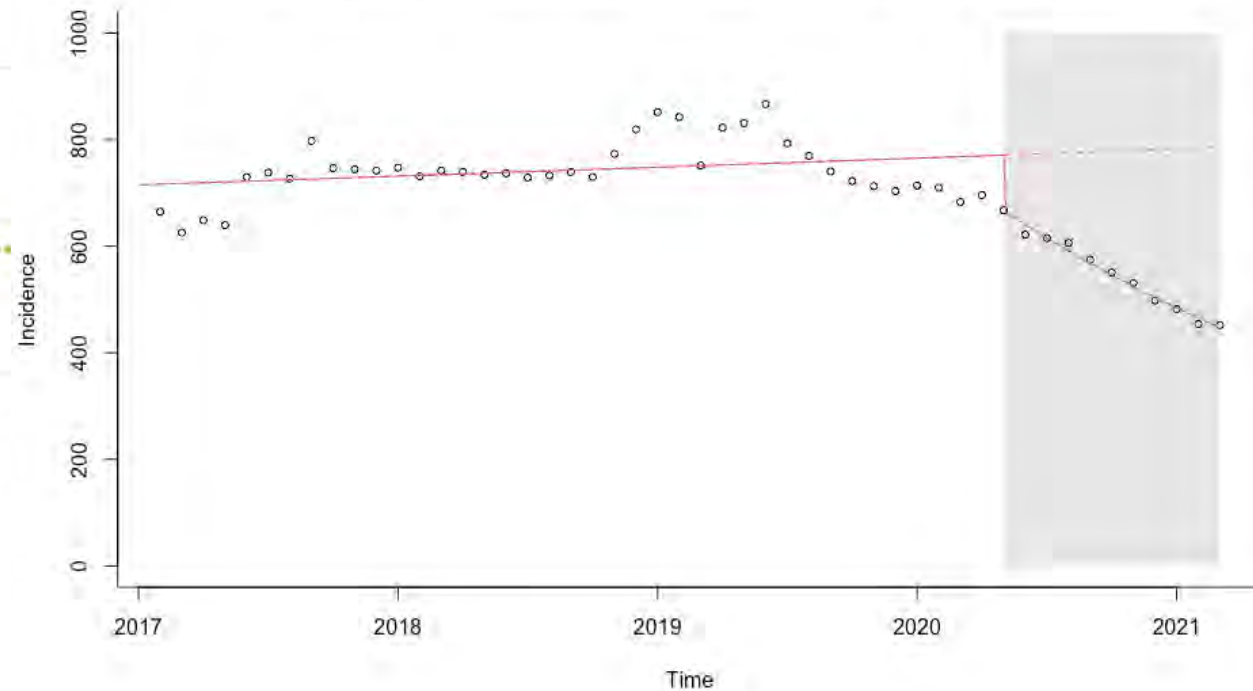


Trends in racial disparities of emergency department utilization for asthma in coronavirus disease 2019

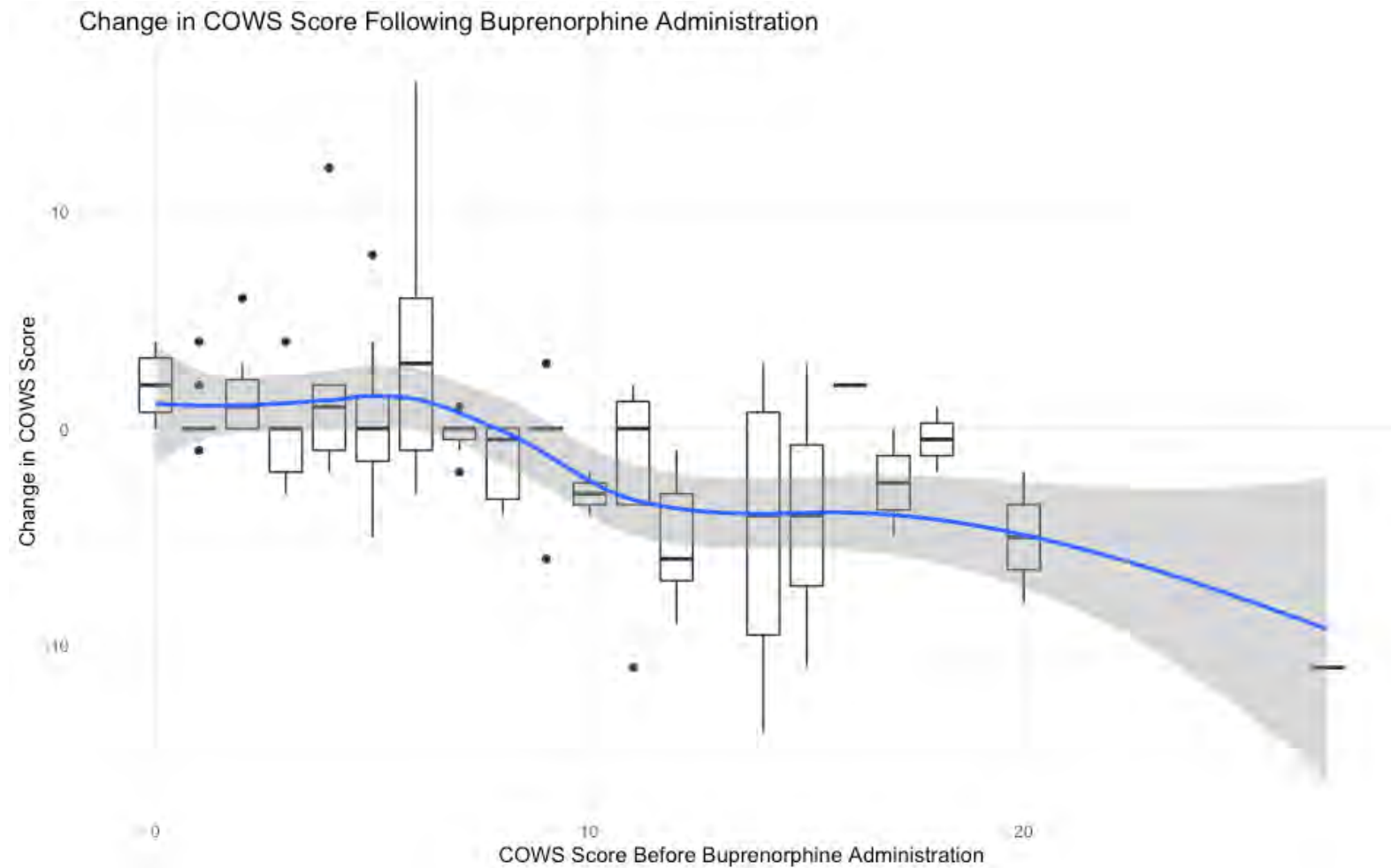
Asthma ED Visits Per Year in the U.S.



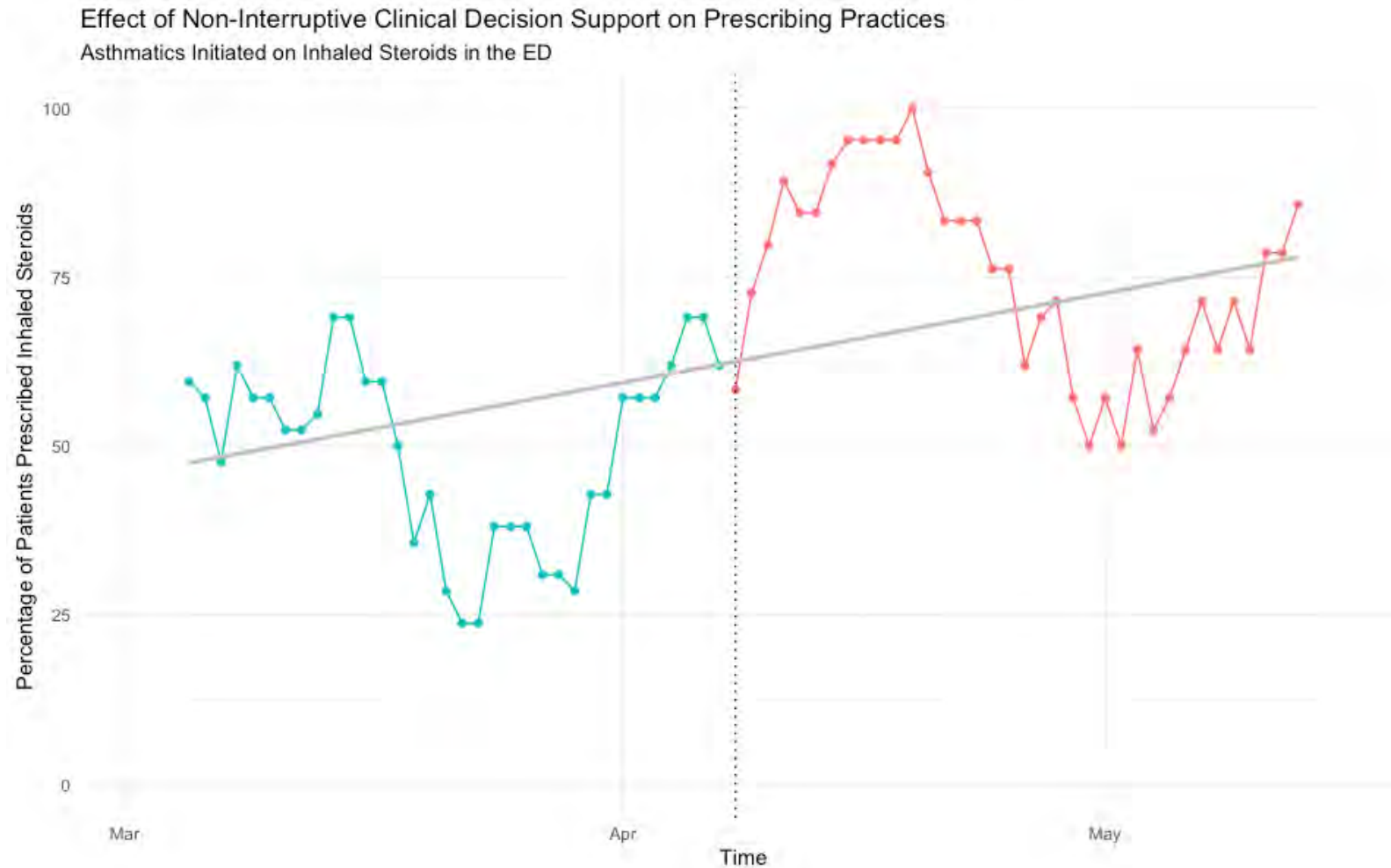
Effect of COVID on Racial Disparity in Incidence of Asthma Exacerbations



Safety of induction at standard doses of buprenorphine for inpatients with opioid use disorder



Non-interruptive Clinical Decision Support Improves Ordering of Inhaled Corticosteroids for Asthma Exacerbations



Antibiotic Standardization Smart Sets

Impressions

Suggested by Chief Complaint

Suggested by SmartSets

+ Cellulitis [L03.90]

Impressions

◆ Cellulitis, unspecified cellulitis

Prescriptions & Orders

Suggested by SmartSets

Suppurative Cellulitis

Order

Order Doxycycline

Order

Order Sulfamethoxazole-Trimethoprim

Non-Suppurative Cellulitis

Order

Order Amoxicillin

Order

Order Cephalexin (Keflex)

Order

Order Clindamycin, Severe Penicillin Allergy

Impressions

+ Add

Suggested by Chief Complaint

Suggested by SmartSets

+ CAP (community acquired pneumonia) [J18.9]

Impressions

◆ Community acquired pneumonia, unspecified

Prescriptions & Orders

Suggested by SmartSets

< 65 Years & No Comorbidities (Prescription)

Order

Order Amoxicillin

Order

Order Doxycycline

65+ Years/Comorbidities (Augmentin Plus Clindamycin)

Order

Order Azithromycin (Z-Pak)

Order

Order Amoxicillin-Clavulanate (Augmentin)

65+ Years/Comorbidities (Levaquin)

Order

Order Levofloxacin (Levaquin)

Impressions

+ Add

Associate

Suggested by Chief Complaint

Suggested by SmartSets

+ Acute otitis media [H66.90]

Impressions

◆ Acute suppurative otitis media without spontaneous rupture of ear drum, recurrence not specified, unspecified laterality

Comment

Add to Problem List

Prescriptions & Orders New Order

This section is configured not to appear but is available now because there are saved orders, signed and held orders, medication orders in the sidebar, or suggestions from a SmartSet.
 If you sign or remove saved orders, release held orders, remove medication orders from the sidebar, or remove the SmartSet, this section will be hidden the next time it saves.

Suggested by SmartSets

Adult

Order

Order Amoxicillin, First Line

Order

Order Amoxicillin-Clavulanate (Augmentin), Second Line

Order

Order Azithromycin (Z-Pak), Penicillin Allergy

Pediatric (Children < 2 Yrs Need 10 Days Treatment)

Order

Order Amoxicillin, First Line

Order

Order Amoxicillin-Clavulanate (Augmentin), Second Line

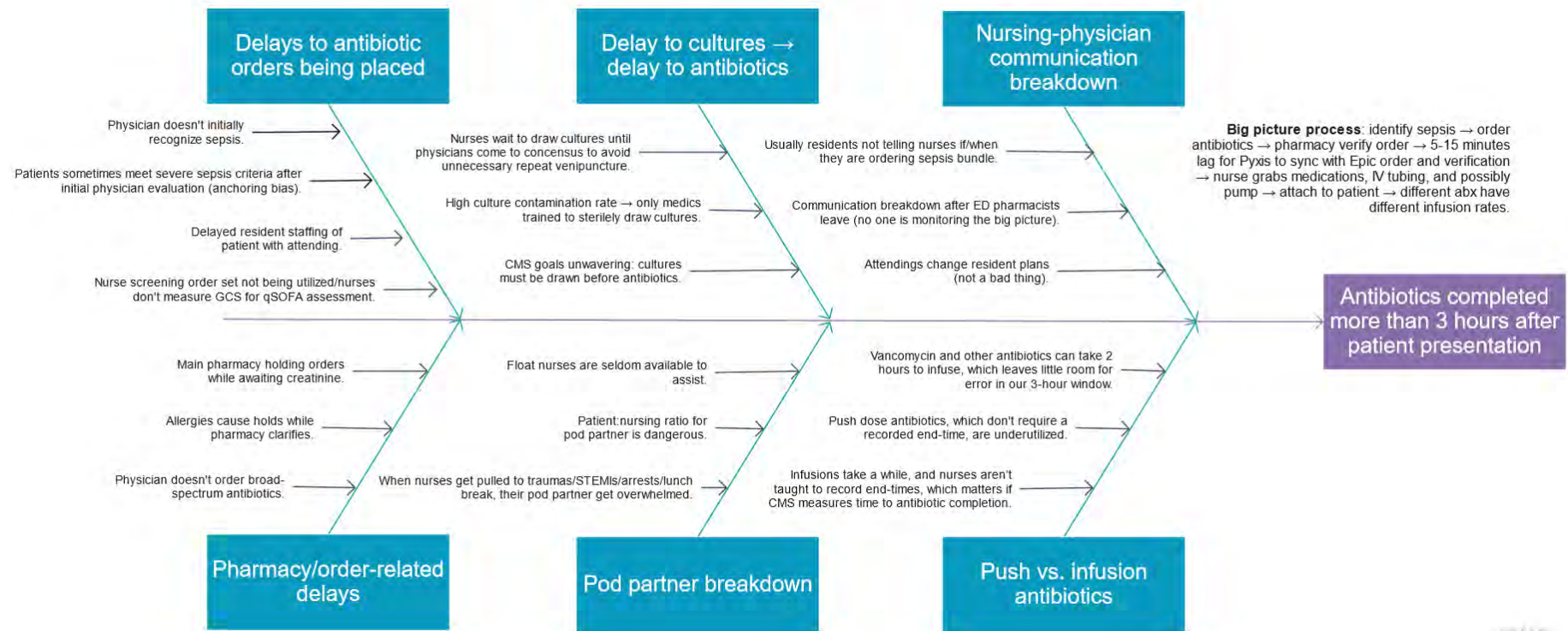
Order

Order Cefdinir (Omnicef), Mild Penicillin Allergy

Order

Order Azithromycin (Zithromax), Severe Penicillin Allergy

Improve Time-to-Antibiotics in Sepsis in the ED



Using Epic Executive Packets to Drive Meaningful System Change

EXECUTIVE PA

Monitor BestPractice Advisories (BPAs)



Pop-Up BPAs Acted On

5%

How You Compare



Frequently Presented BPAs with Lowest Acted On %

	ID	Count	% Acted On	% Acknowledged
RX MED ADMINISTERED TOO SOON BASE	1716	15,003	0.0%	0.0%
MH IP BASE MEDS 2 BEDS CC	2543	8,933	0.0%	0.0%
BASE POSITIVE MDRO SCREENING	2995	3,838	0.2%	0.0%
MH IP BASE CAREPLAN STROKE	3058	1,270	0.6%	0.0%
IPCON 174 NURSE WOUND CARE CONSULT	2741	1,401	1.4%	0.0%

Monitor BestPractice Advisories (BPAs)



Pop-Up BPAs Acted On

15%

How You Compare



Frequently Presented BPAs with Lowest Acted On %

	ID	Count	% Acted On	% Acknowledged
CCC ADMISSION REQUIREMENTS -- MALE	2145	313	0.0%	0.0%
ADULT TRIAGE HTN BPA (BASE)	1794	273	0.0%	0.0%
BASE TRAVEL SCREENING OUTCOME CLINICAL	4446	229	0.0%	1.7%
STOP-BANG ALERT	909	177	0.0%	0.0%
CCC ADMISSION REQUIREMENTS - FEMALE	2084	954	0.1%	0.0%

Project Management and Contract Negotiation



Sapphire Engage: Heart Failure

The Sapphire Engage: Heart Failure app enables clinicians to enroll patients to receive protocolized SMS messages and solicit patients to report on their weight, dyspnea and medication adherence. The RPM data acquired via SMS is structured and writes back to the EHR. Further, the heart failure app offers a visualization of RPM data in timeline view along side other native EHR data relevant to heart failure. Algorithms also support care team notifications for parameters that warrant outreach.

Self-Guided Learning



STATEMENT OF ACCOMPLISHMENT

#289,304

HAS BEEN AWARDED TO
Rubayet Hossain

FOR SUCCESSFULLY COMPLETING
Data Analyst with R Track

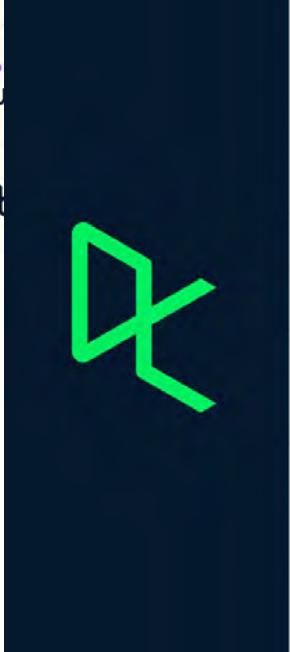
COMPLETED ON
JUN 15, 2022

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STATEMENT OF ACCOMPLISHMENT

#289,305

HAS BEEN AWARDED TO
Rubayet Hossain

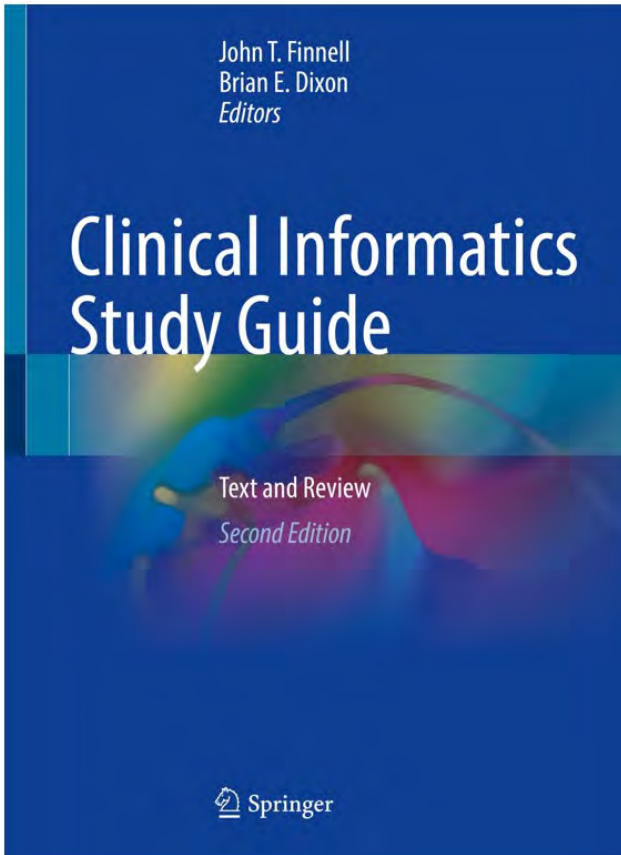
FOR SUCCESSFULLY COMPLETING
Statistician with R Track

COMPLETED ON
JUN 15, 2022

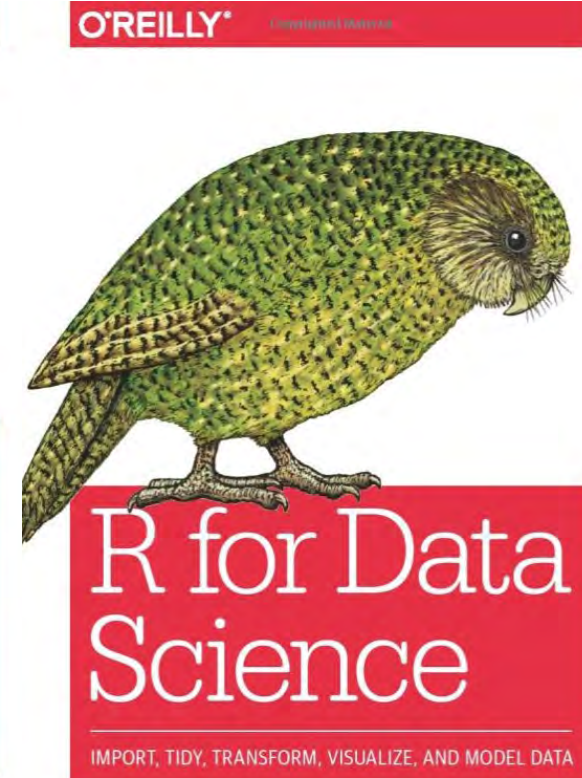
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Jonathan Cornelissen, CEO

Self-Guided Learning

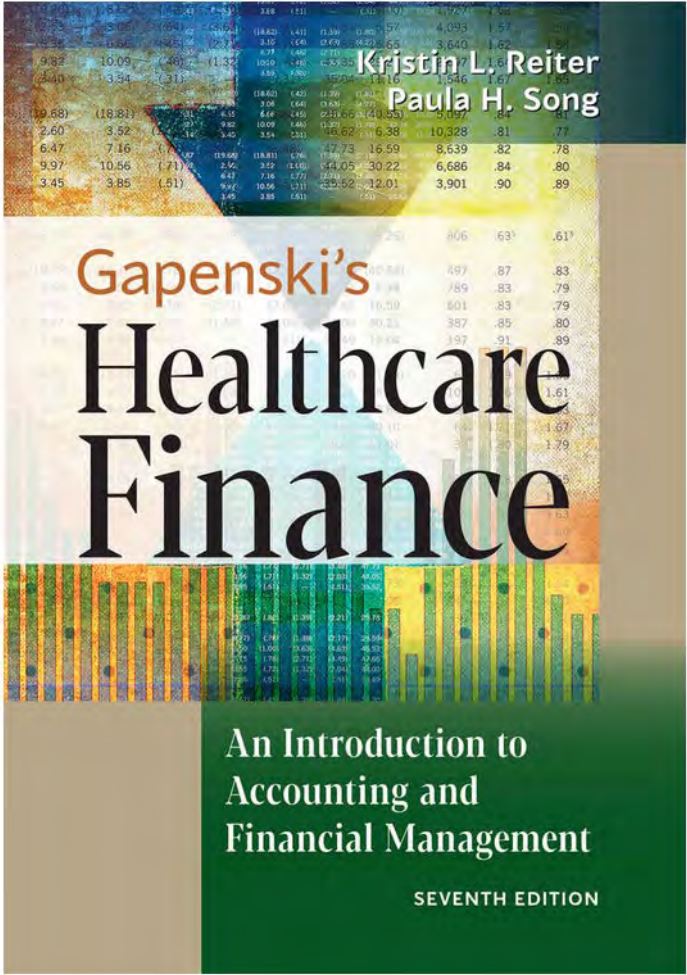
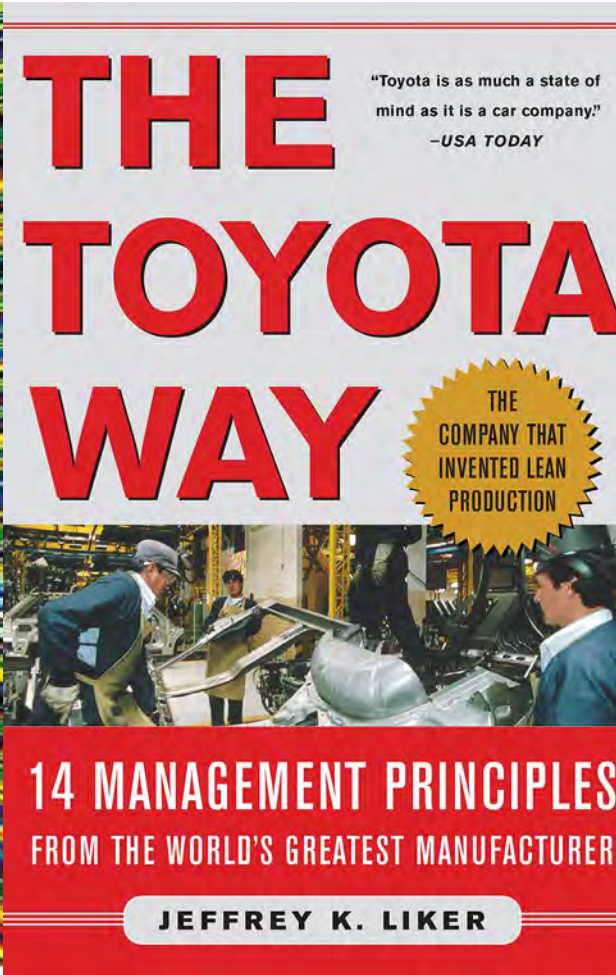
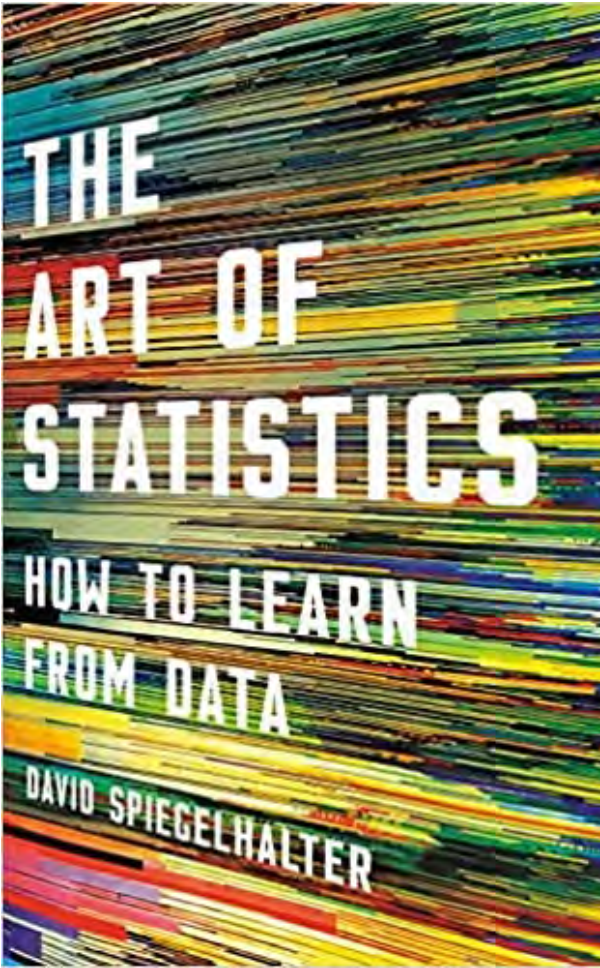


Garrett Golemund
Foreword by Hadley Wickham



Hadley Wickham &
Garrett Golemund

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Douglas Stone & Sheila Heen
of the Harvard Negotiation Project and coauthors of
DIFFICULT CONVERSATIONS

Thanks for the Feedback

THE SCIENCE AND ART OF
RECEIVING FEEDBACK WELL *

**even when it is off base, unfair, poorly delivered,
and, frankly, you're not in the mood*



NEW YORK TIMES BESTSELLER

Measure What Matters

How Google, Bono,
and the Gates Foundation

Rock the World with OKRs

John Doerr

WITH A FOREWORD BY LARRY PAGE

OVER
A MILLION
COPIES
SOLD

OVER 2 MILLION COPIES SOLD

EXPANDED THIRD EDITION

LEADERSHIP

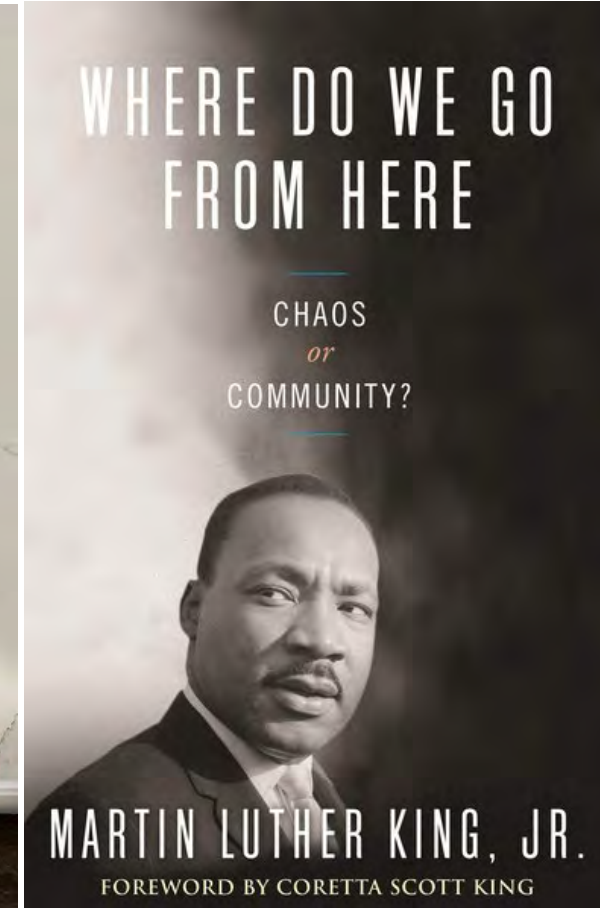
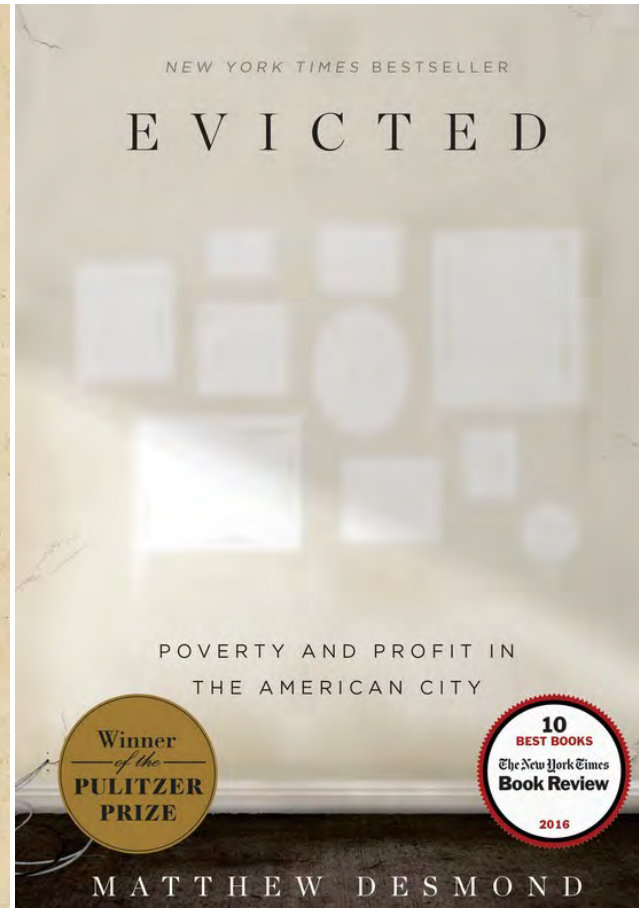
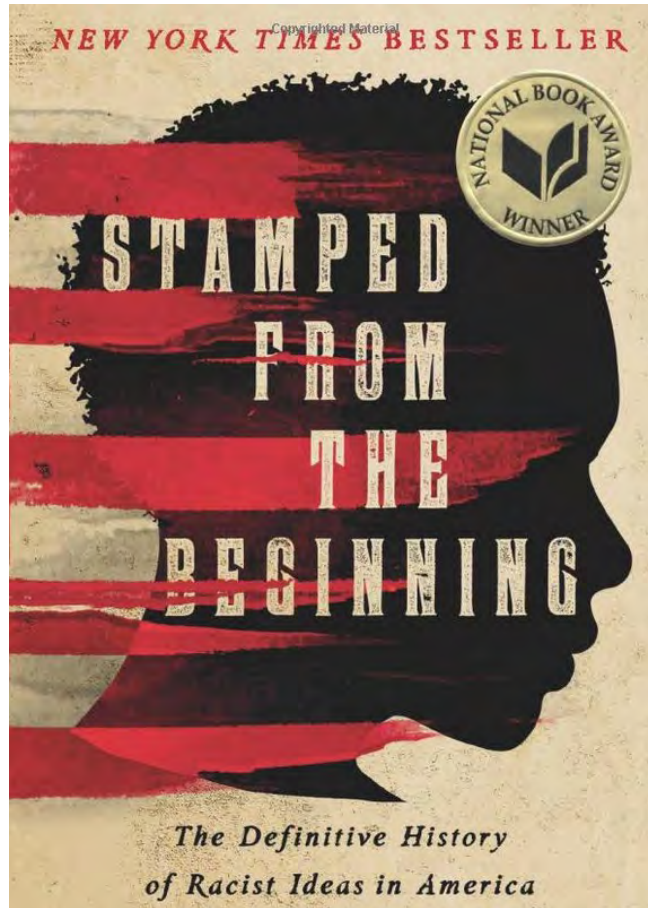
AND SELF- DECEPTION

*Getting Out of
the Box*

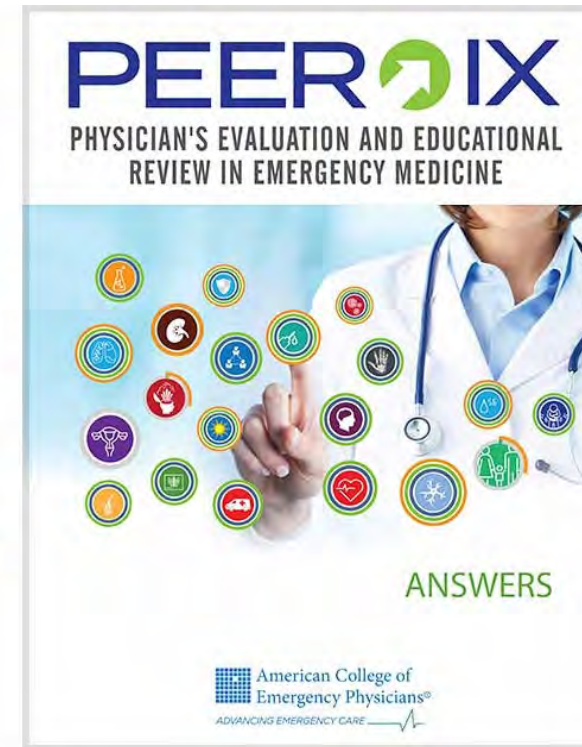
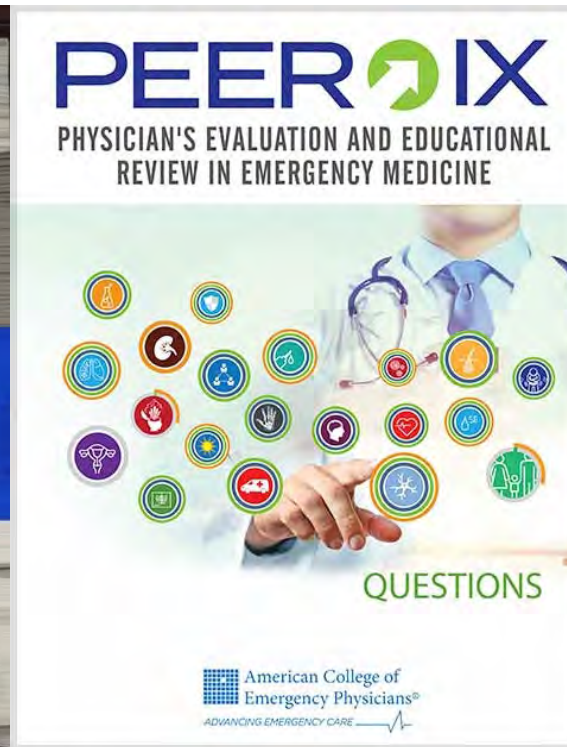
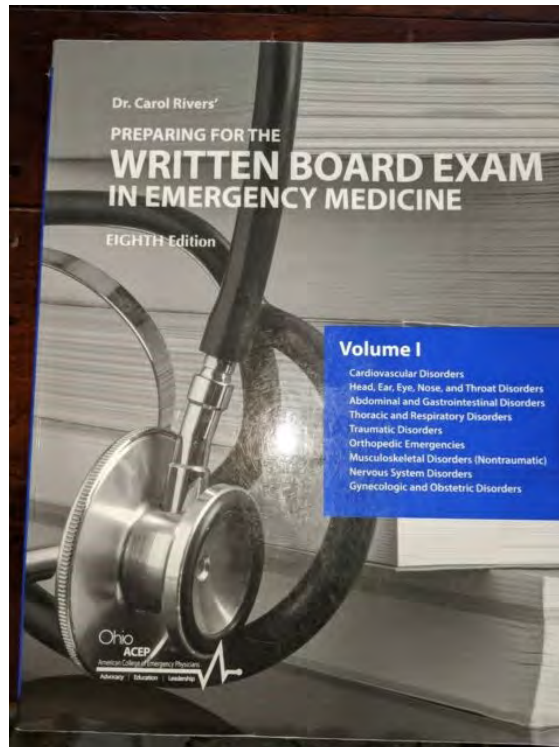
THE
ARBINGER INSTITUTE

Authors of *The Anatomy of Peace* and *The Outward Mindset*

Self-Guided Learning



Emergency Medicine Board Certification



Next Steps



JOHNS HOPKINS
CAREY BUSINESS SCHOOL



**Mount
Sinai
Hospital**



Thanks For Listening!



MetroHealth

Graduating Fellow's Presentation

Fang Zhao, MD, PhD, FCAP

Clinical Informatics Fellow (Class of 2022)

June 16, 2022



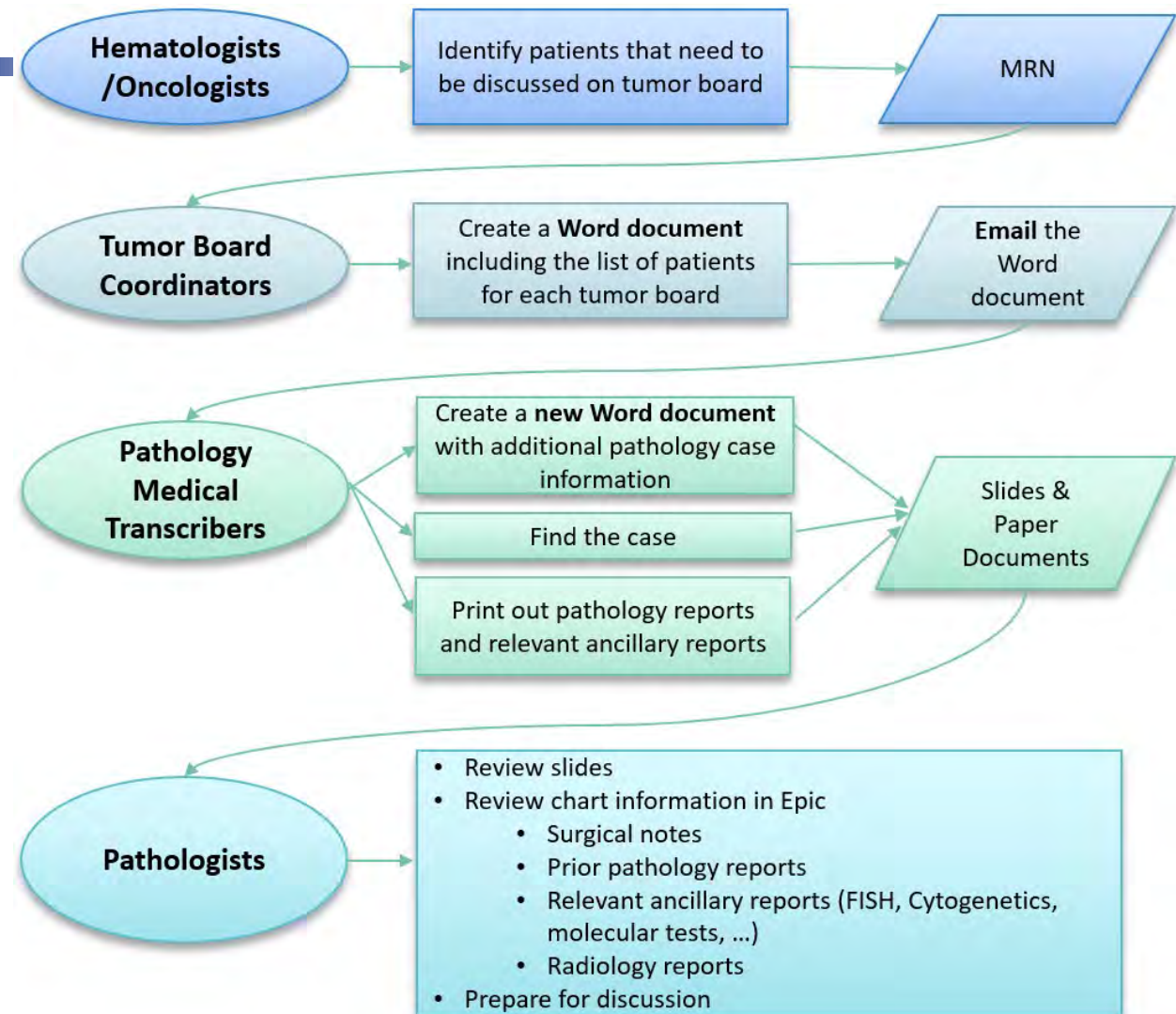
Capstone projects

- Epic solution to streamline tumor board workflow
- BPA intervention for hemoglobin A1c testing

Epic solution to streamline tumor board workflow

Background

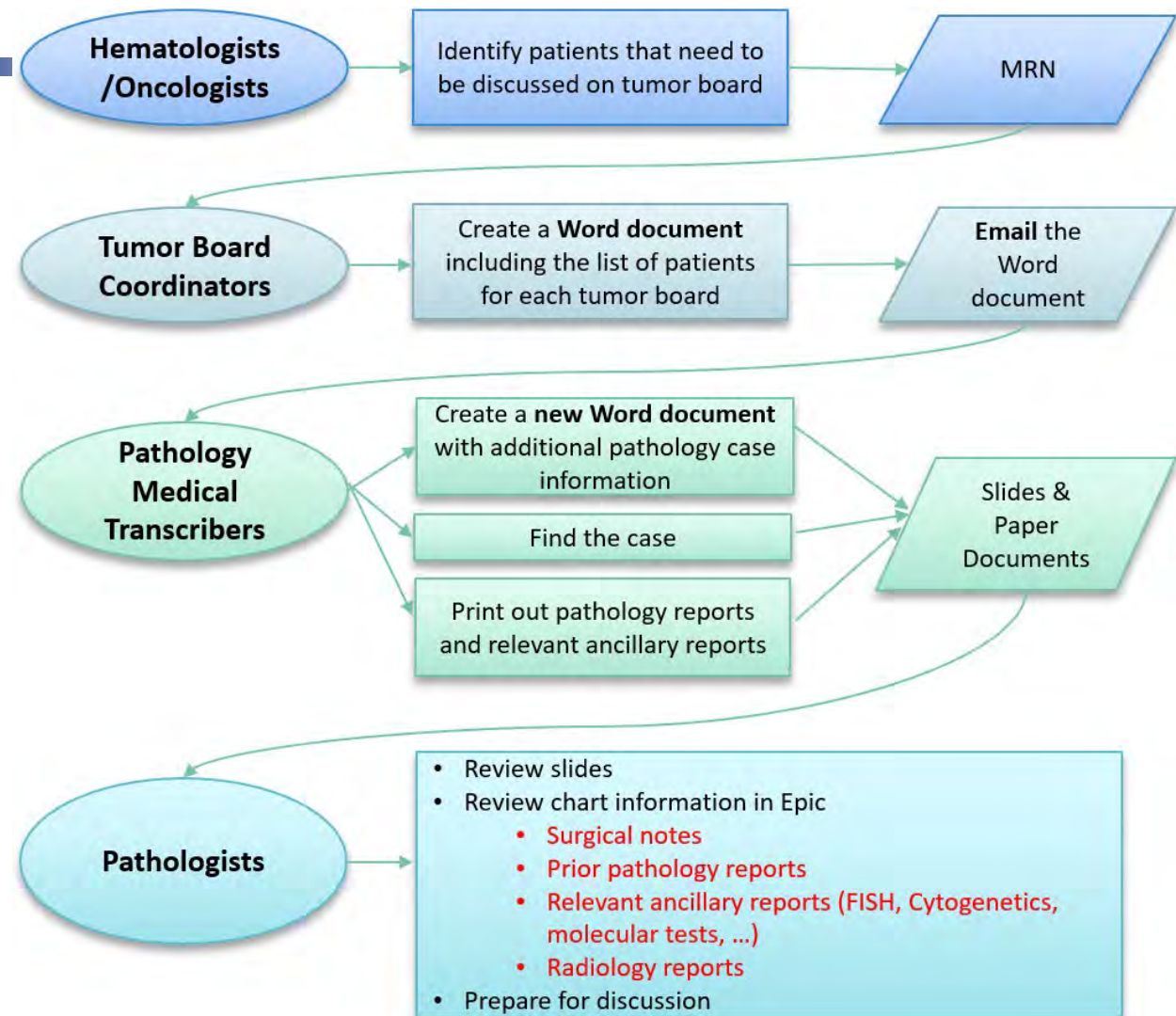
- Current tumor board workflow from a pathologist's view



Epic solution to streamline tumor board workflow

Background

- Current tumor board workflow from a pathologist's view



Epic solution to streamline tumor board workflow

Background

- Current tumor board workflow from a pathologist's view

Tumor board request process

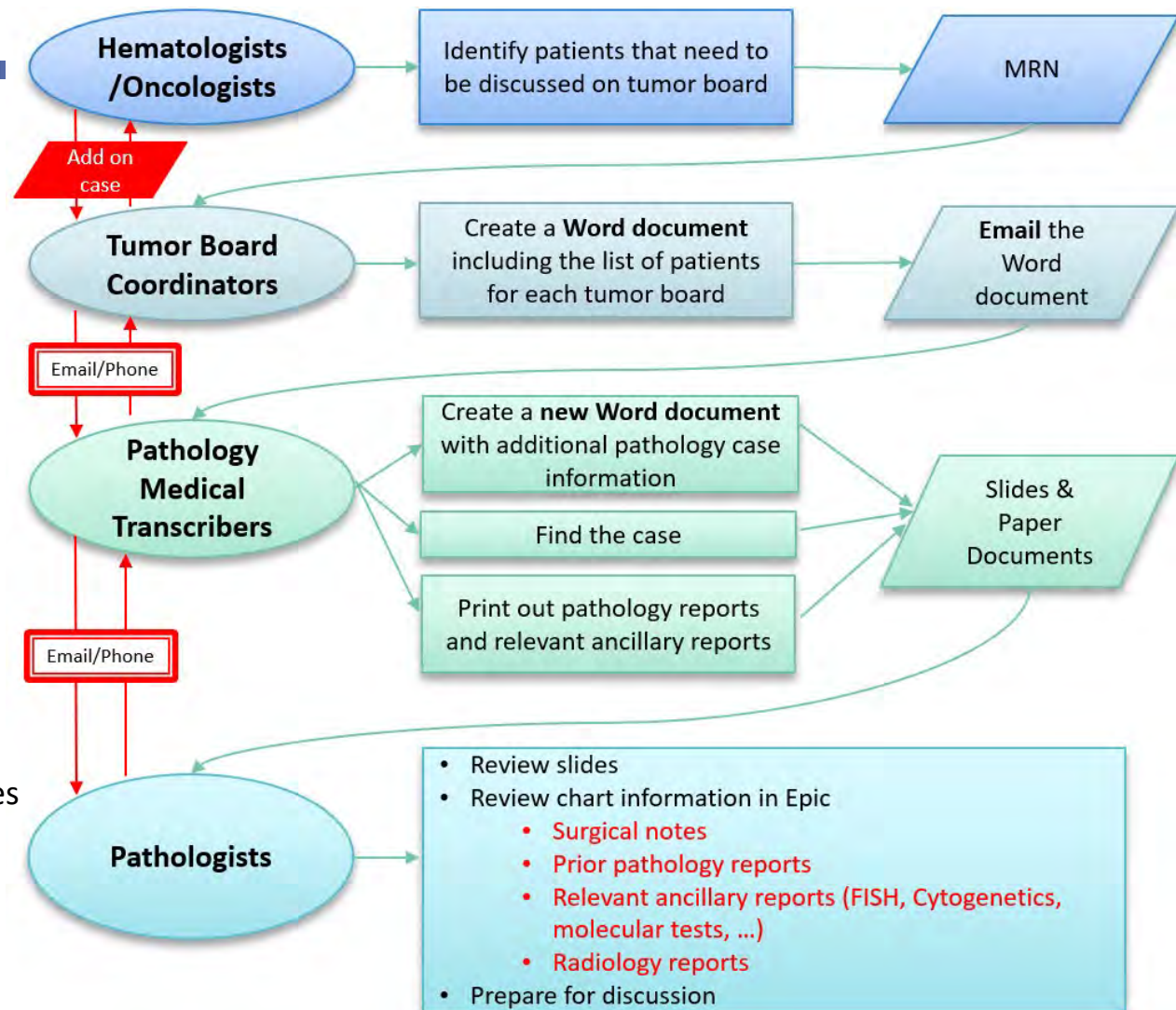
- Is not an electronic request process
- Involves communication between many people
- Communication tools (email, phone call, word documents) are not efficient
- Lack of consensus regarding the number of cases can be discussed during each tumor board conference
- Lack of consensus regarding the deadlines for requesting add on cases

Various tumor board conferences

- Currently there are 13 active tumor board conferences that include pathologists

Information required for tumor board preparation

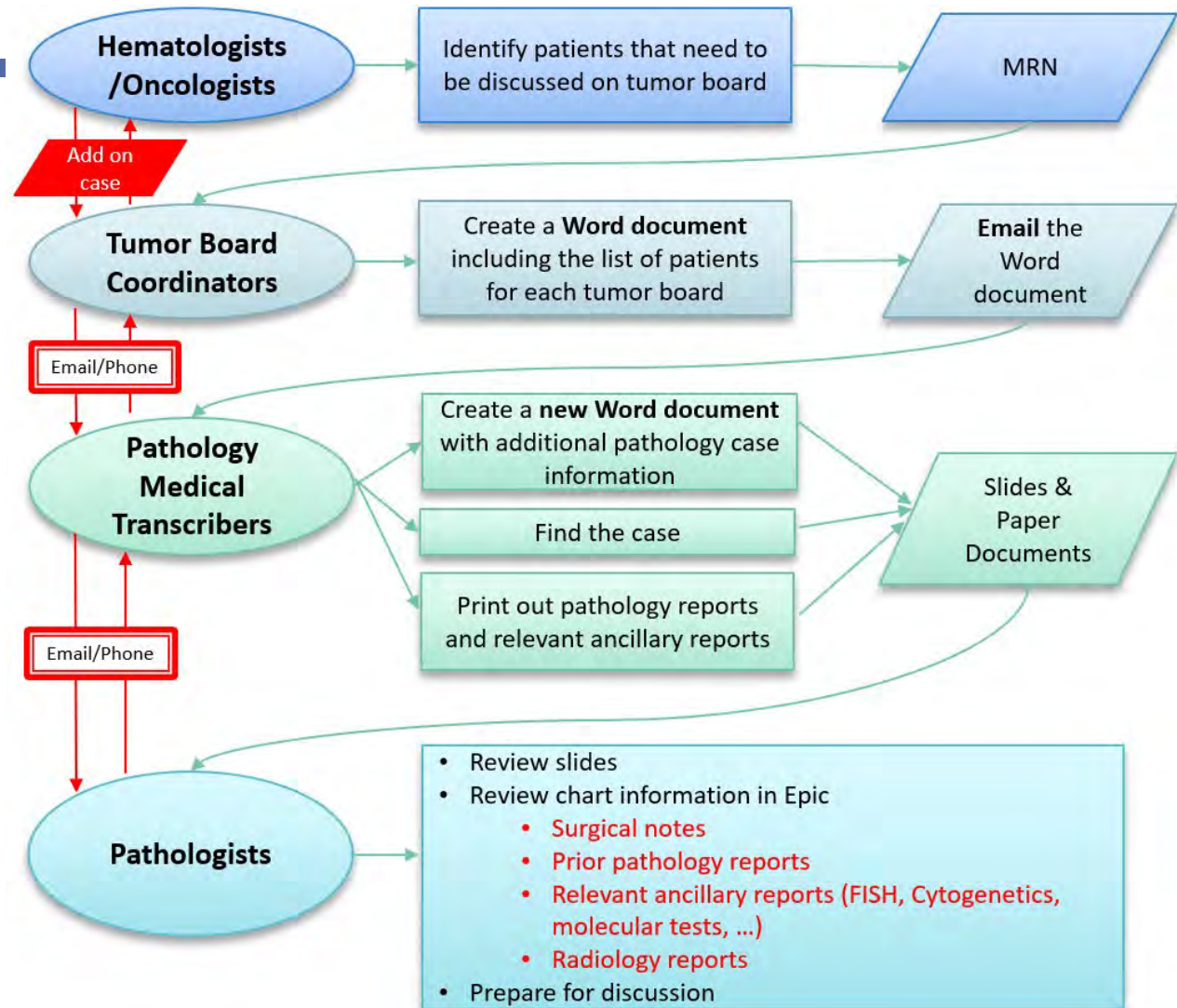
- Reside in many places within Epic
- Takes time to look for useful information



Epic solution to streamline tumor board workflow

Goals

1. To streamline the tumor board request process so that pathologists can have a timely/automatic access to the list of patients who will be discussed on the tumor board.
2. To create a place where pathologists can find all the relevant/useful information while reviewing slides during tumor board preparation.



Epic solution to streamline tumor board workflow

Solutions

- Streamline tumor board request process
 - Epic Beacon Tumor Board Function**

Snapboard: Multidisciplinary - Tumor Board (Thu 8/13/2020 - Shift Assignments from 06:00 AM to 11:00 AM)

Needs [icon] [icon]

Search [input]

Medical Oncology [icon] [icon]
Beacon, Fellow, MD
Beacon, Physician, ... Tumor Board

Radiation Oncology [icon] [icon]
Radiation Oncology...

Surgical Oncology [icon] [icon]
Plastic Surgery, Ph...
Surgery, Physician, ... Tumor Board

Pathologist [icon] [icon]
Pathology, Physicia... Tumor Board

8/13/2020 [calendar icon] 1 Day 2 Days [dropdown]

Aug 2020 [calendar icon]
Su Mo Tu We Th Fr Sa
26 27 28 29 30 31 1
2 3 4 5 6 7 8
9 10 11 12 13 14 15
16 17 18 19 20 21 22
23 24 25 26 27 28 29
30 31 1 2 3 4 5

Multidisciplinary - Tumor ... [input]

	BEACON, GENERA... EMC TUMOR BOARD	BEACON, BRAIN M... EMC TUMOR BOARD	BEACON, BREAST... EMC TUMOR BOARD	BEACON, LUNG M... EMC TUMOR BOARD
7a	1 Tumor Board			
8a	1 Tumor Board			
9a	1 Tumor Board			
10a	1 Tumor Board			

ONCBCN BASE TUMOR BOARD with BEACON, GENERAL MDT CONFERENCE [close icon]

Scheduled Visit Type: Multidisciplinary Tumor Board

 **Camila Beacon**
Female, 28 y.o., 12/27/1991
MRN: 203577

08:00 AM - 08:15 AM Thu 08/13/2020 (15 min)
EMC TUMOR BOARD (Oncology)

ONCBCN BASE TUMOR BOARD 119779

Staff (4 requested, 1 unassigned)

Medical Oncology Physician Beacon, MD ✕	Pathologist Physician Pathology, MD ✕
Radiation Oncology Unassigned	Surgical Oncology Physician Surgery, MD ✕

[Move icon] Move

Order Date Ordering Provider

Multidisciplinary Tumor Bo...

Epic solution to streamline tumor board workflow

Solutions

- Create a common place to host all the relevant/useful information for tumor board preparation
 - **Epic Beaker Outstanding List**

Epic solution to streamline tumor board workflow

Current stage

- **Implementation of Epic Beacon tumor board function**
 - Pilot with heme malignancy tumor board
 - Build is in progress
 - Testing, training and go-live (TBD)
- **Implementation of Epic Beaker tumor board outstanding lists**
 - **Completed**
 - Currently total of **13 tumor board outstanding lists** have been built.
 - Within pathology department, tumor board outstanding lists become the **main communication tool/worklist for all the tumor boards**.
 - Pathologists can review relevant chart information directly through OL **without paperwork** previously prepared by the front desk staff.

Epic solution to streamline tumor board workflow

Acknowledgements

- Dr. Agnes Loeffler
- Dr. Amer Khiyami
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- Dr. David Bar-Shain
- Dr. Michael Markovic
- Dr. William Tse
- Dr. Tonjeh Bah
- Dr. Yiping Wang
- Dr. Tamila Kindwall-Keller
- Dr. Gil Peleg
- Faith Lilly (Sr Clinical Informatics Analyst)
- Eric Fisher (Sr Systems Analyst)
- Michelle D'Angeli (Business Associates)
- Amy Coleman (Coord Clinical Practice)
- Brian Kovach (Service Line Administrator)
- Sherri White (Manager, Cancer Research Operations)
- Jay Koren (Manager, Clinical Informatics)
- Tammy Robison
- Patricia Mencin (former LIS Specialist)
- Karen Morningstar (Pathology Medical Transcriber)

Capstone projects

- Epic solution to streamline tumor board workflow
- BPA intervention for hemoglobin A1c testing

Background

Hemoglobin A1c (A1C)

- A1C testing provides an index of **average blood glucose levels over the past 2 to 4 months.**
- A1C testing is **the preferred test to access the glycemic control.**

6. Glycemic Targets: *Standards of Medical Care in Diabetes—2022* American Diabetes Association Professional Practice Committee*

Diabetes Care 2022;45(Suppl. 1):S83–S96 | <https://doi.org/10.2337/dc22-S006>

Glycemic Assessment

Recommendations

- 6.1 Assess glycemic status (A1C or other glycemic measurement such as time in range or glucose management indicator) **at least two times a year** in patients who are meeting treatment goals (and who have stable glycemic control). E
- 6.2 Assess glycemic status **at least quarterly and as needed** in patients whose therapy has recently changed and/or who are not meeting glycemic goals. E

A1C testing frequency at the MetroHealth System

- Between June 1, 2020 and July 30, 2021
 - **973 patients** had two or more than two A1C tests **resulted within 30 days**
 - **1165 patients** had two or more than two A1C tests **resulted within 60 days**
 - **2568 patients** had two or more than two A1C tests **resulted within 90 days**

Aims

Aim 1:

- Implement a BPA in the electronic health record (EHR) with a hope to decrease the proportion of too frequent A1C testing at the MetroHealth System

Aim 2:

- Assess effects of A1C BPA implementation
 - Does the implementation of A1C BPA effectively decrease too frequent A1C orders placed by providers?
 - Does the implementation of A1C BPA
 - reduce unnecessary A1C testing for patients?
 - reduce laboratory costs related to A1C testing?

Methods

A BPA was created within the EHR to inform providers when there is an A1C result within 90 days for the patient.

- Display

The screenshot shows a Best Practice Alert (BPA) interface. At the top, there are two buttons: "Pop-up Preview" (green) and "Navigator Preview" (light blue). Below these is a header "Important (1)" with an upward arrow. The main content area is yellow and contains the following text: "Patient has A1C result(s) in the past 90 days. Please consider not testing A1C too frequently. According to the current American Diabetes Association (ADA) recommendations, the frequency of A1C testing should depend on the clinical situation, the treatment regimen, and the clinician's judgement." Below this is a section titled "A1C Testing Frequency Recommendations:" with two numbered points: "1. Assess glycemic status (A1C or other glycemic measurement) at least **two times a year** in patients who are meeting treatment goals (and who have stable glycemic control)." and "2. Assess glycemic status at least **quarterly**, and as needed, in patients whose therapy has recently changed and/or who are not meeting glycemic goals." Below the recommendations is a text field "Last HBA1C, collected/resulted: DD/MM/YYYY = Result value" with a link "American Diabetes Association Guidelines (2021)". Below that is a section "Acknowledge Reason" with a green button "Other (comme" and a text input field "Enter Comment" with a red exclamation mark icon. At the bottom, there are two buttons: "Accept" (green) and "Dismiss" (light blue).

- Triggers:

- Enter order
- Sign order

- Procedure:

- Hemoglobin A1C
- POCT Hemoglobin A1C

- Order status:

- Normal

Methods

Randomize cohort

- Providers were randomized to control group or intervention group based on the last digit of their SER provider record as recorded in Epic.

Data collection

- Reports for BPA performance were generated by Epic Reporting Workbench.
- Reports for A1C testing frequency were generated by SQL query.

Statistics

- All calculations were performed in Excel Pivot table or RStudio
- Chi-Square test was used to compare differences of counts between groups

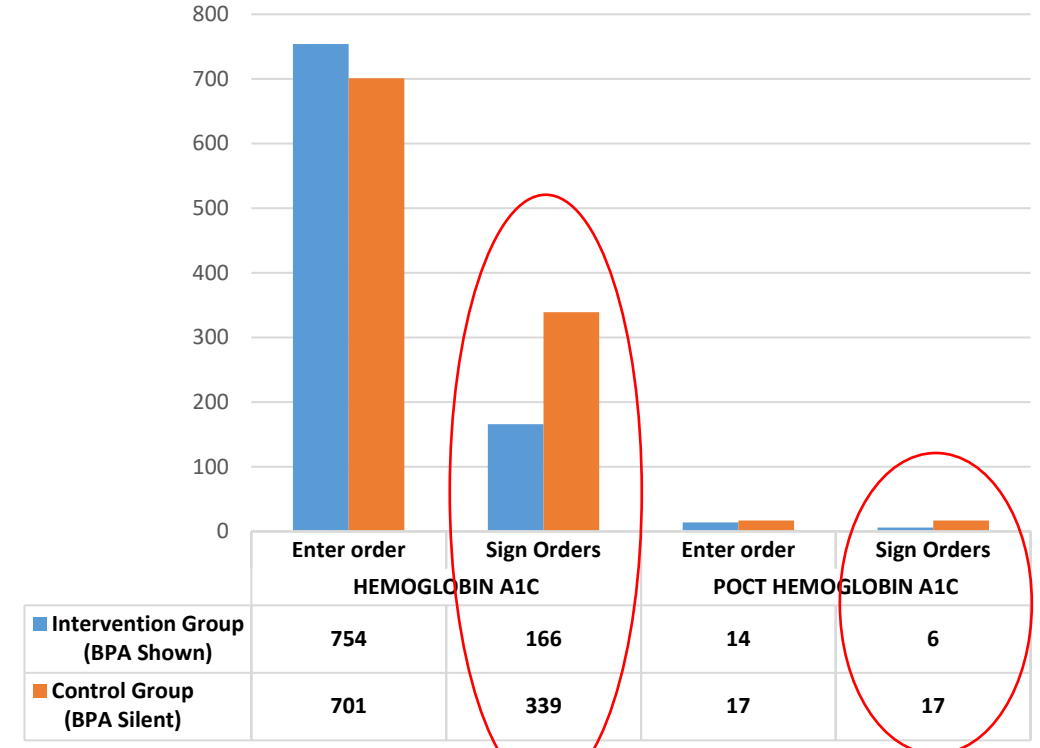
Results

Count of HBA1C BPA Alert Instant From 12/9/2021 To 3/9/2022

	Intervention Group (BPA Shown)	Control Group (BPA Silent)	Grand Total
HEMOGLOBIN A1C	920	1040	1960
Enter order ($p=0.1647$)	754	701	1455
Sign Orders ($p = 1.378e-14$)	166	339	505
POCT HEMOGLOBIN A1C	20	34	54
Enter order ($p=0.057$)	14	17	31
Sign Orders ($p=0.022$)	6	17	23
Grand Total ($p=0.003$)	940	1074	2014

Intervention group has less BPA firing at the sign order point in comparison to the control group.
→ Less number of too frequent A1C orders signed (placed) by providers within the intervention group.

Count of HBA1C BPA Alert Instant From 12/9/2021 To 3/9/2022



Results

User follow-up action to HBA1C BPA

1. **Accept BPA (No action taken)**

BPA fires at sign the order, the user keeps the order and does not give a reason

2. **Acknowledge/Override warning**

BPA fires at enter order, the user keeps the order and gives a reason

3. **Cancel BPA**

BPA fires at either enter or sign order, the user keeps the order, does not give a reason, and click "cancel"

4. **Remove EAP single order**

BPA fires at either enter or sign order, the user clicks Accept without changing the default action of REMOVE

user agrees with the BPA suggestions

Results

Summary of **user follow-up action** to HBA1C BPA

User Follow-up Action	Intervention Group (BPA Shown) Count (%)	Control Group (BPA Silent) Count (%)
Accept BPA (No Action Taken)	112 (11.9%)	
Acknowledge/Override Warning	210 (22.3%)	
Activity Link	3 (0.3%)	
Accept BPA (No Action Taken)		
Cancel BPA		
Cancel BPA	353 (37.6%)	
Remove EAP single order	259 (27.6%)	
Remove EAP single order	2 (0.2%)	
Acknowledge/Override Warning		
(blank)	1 (0.1%)	1074 (100%)
Grand Total	940 (100%)	1074 (100%)

Results

Summary of **override reason** for HBA1C BPA

Override Reason	Intervention Group (BPA Shown)		Total
	Enter order	Sign Orders	
Other (comment required)	204 (26.6%)	8 (4.7%)	212 (22.6%)
(blank)	564 (73.4%)	164 (95.3%)	728 (77.4%)
Grand Total	768	172	940

Results

Summary of **override reason** for HBA1C BPA

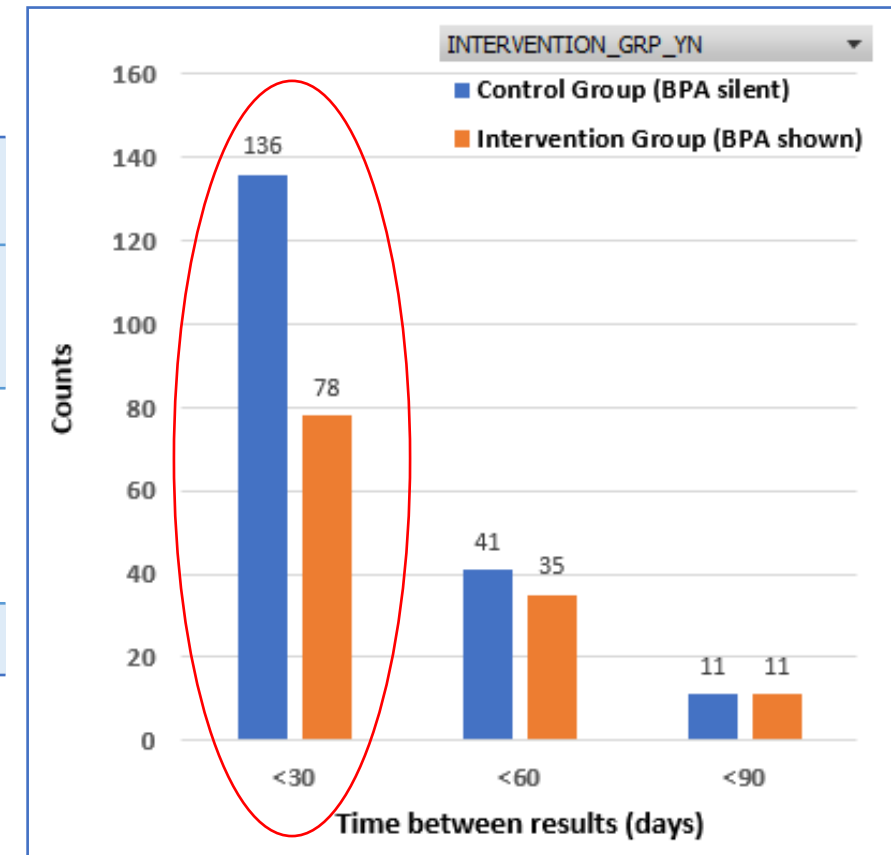
Override Comment

.	for confirmation of dx	management	predibaa
?false elevated reading	for future	medically indicated	previous test released in error
3 months ago	for future labs	near due	pt preference
3 months since last check	future	need	putting in a s future lab to be done at 3 months in January
A1c	future lab	need to know to adjust meds	q3mo
almost 3 months	future	need to verify DM dx	repeat
before next appt	future in 3 months	needs another a1c before next visit	Repeat
change in diet	future lab	needs future order	repeat in 2 month
clinically indicated	future labs	needs repeated	repeat needed
clinician	future order	needs updated	screening per hx
close enough	future test	new diabetic	standing
completed outside clinic	HbA1 C was 14.	next visit	started new meds
COVID induced DM	high readings	not done	surgery
d/c	high risk	ok	test due next week, will complete in office today
Dr. wanted	high risk medication	order	to see how sugars are after COVID
due	hosp D/C	ordered as future	travel
due jan 25, 2021	hx of prediabetes 2 years ago, family hx of diabetes	ordered for future	uncontrolled, future order
elevated a1c	if I don't do it today	orders placed to be done 3 mos from now	uncontrolled
elevated, new dosages	in 3 months	other	uncontrolled. Future order
error	in 6 months	pancreas transplant	weight change
eval	insulin regimen changed 2 months ago.	per Dr. Senthilkumar prior to April appt.	will do in 3 mos
foli	Last done 2.5 months ago, multiple medication changes at that time, lab ordered now for future	placing future order for 6 mos from now	will do later
follow up		polyuria	will order for future
		poor control	
			your alert is bogus. I'm trying to place a FUTURE order for HbA1c in 3 months.

Results

Summary of HBA1C testing frequency between control group and intervention group from **03/09/2022 to 05/31/2022**

Count of SECOND_ORDER_ID			
Time between results (days)	Control Group (BPA silent)	Intervention Group (BPA shown)	Grand Total
<30 ($p=7.346e-05$)	136 (43.6%)	78 (25.0%)	214 (68.6%)
<60 ($p=0.4913$)	41 (13.1%)	35 (11.2%)	76 (24.4%)
<90 ($p=1$)	11 (3.5%)	11 (3.5%)	22 (7.1%)
Grand Total ($p=0.0003$)	188 (60.3%)	124 (39.7%)	312 (100%)



Results

Summary of HBA1C testing frequency between control group and intervention group from **03/09/2022 to 05/31/2022**

Time between results (days)	Control group				Intervention group			
	Future order	Normal order	Standing order	Total	Future order	Normal order	Standing order	Total
<30	83	4	49	136	45	6	27	78
<60	18	7	16	41	8	13	14	35
<90	2	5	4	11	3	3	5	11
Grand Total	103 (54.8%)	16 (8.5%)	69 (36.7%)	188 (100%)	56 (45.2%)	22 (17.7%)	46 (37.1%)	124 (100%)

Results

Laboratory costs related to A1C testing between control group and intervention group from **03/09/2022 to 05/31/2022**

- Pathology Cost perA1C test - **\$10.14** (includes Reagent/QC and labor)

Count of SECOND_ORDER_ID			
Time between results (days)	Control Group (BPA silent)	Intervention Group (BPA shown)	Grand Total
<30	136	78	214
<60	41	35	76
<90	11	11	22
Grand Total	188	124	312
Laboratory Costs	\$1906.32	\$1257.36	

$$\Delta = \$1906.32 - \$1257.36 = \$648.96$$

Summary

- HBA1C BPA can effectively alert providers when patients have an A1C result within 90 days.
- Less number of too frequent A1C orders placed by providers within the intervention group in comparison to those within the control group.
- **However,**
 - Our current data does not support A1C BPA could effectively reduce too frequent A1C testing for patients.
 - Laboratory cost savings related to A1C testing were little.

Decision

Cons

- Increase alert fatigue

Implementation of A1C BPA



Pros

- Improve guideline adherence
- Decrease too frequent A1C orders placed by providers

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Thank You!



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