Creating, Refining, and Reporting <u>Clinical</u> Pharmacy Metrics

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Conflict of Interest Disclosure

- Travis Dick has no real or potential conflicts of interest related to the subject matter in this presentation.

Additional Disclosures

- Majority of presentation will have a focus on acute care activities

- I work at an Epic™ institution – adapt to your electronic health record

- I will focus on our journey to clinical metrics, do not have all of the answers about metrics, and will learn from you during this session

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Pharmacist Learning Objectives

1. Differentiate different types of metrics

2. Illustrate examples of clinical pharmacy metrics that align with institutional, professional, or stakeholder needs

3. Describe how workflow designs can contribute to evaluating metrics

Technician Learning Objectives

1. Define three different types of metrics

2. Identify different examples of clinical pharmacy metrics

3. Describe different methods of presenting pharmacy metrics to stakeholders

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Metrics

- Defined as "a standard for measuring or evaluating something"

- Cornerstone of six sigma and other quality improvement programs

- Most pharmacy systems unable to capture and account for clinical services

- No standardized metrics have been described across systems

Metrics – Three Main Types

- Structure = *ability* to provide high quality care
  - Agency for Healthcare Research & Quality (AHRQ) defines a structural measure as "capacity, systems and processes to provide high quality care"

- Process = *how* things are done
  - AHRQ defines a process measure as "a health care-related activity performed for, on behalf of, or by a patient"

- Outcome = evaluation of the *results* of an activity
  - Commonly includes a comparison with intended or projected results
  - AHRQ defines outcome measure as "a health state of a patient resulting from health care"

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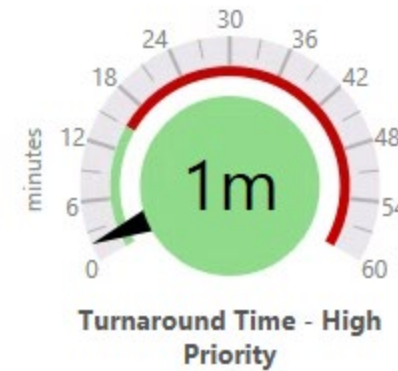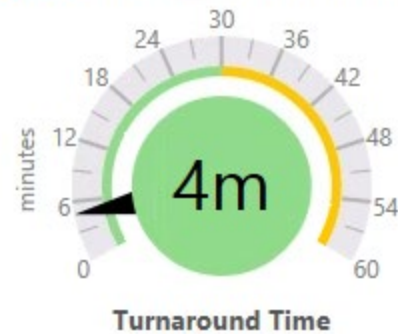UR MEDICINE

Metrics – Two New from AHRQ

- Access
  - Attainment of timely and appropriate health care

- Patient Experience
  - Report of observations of and participation in health care, or assessment of any resulting change in health

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Dashboard

- Defined as a graphical summary of various pieces of important information

- Clinically, this could be any process or outcome measure

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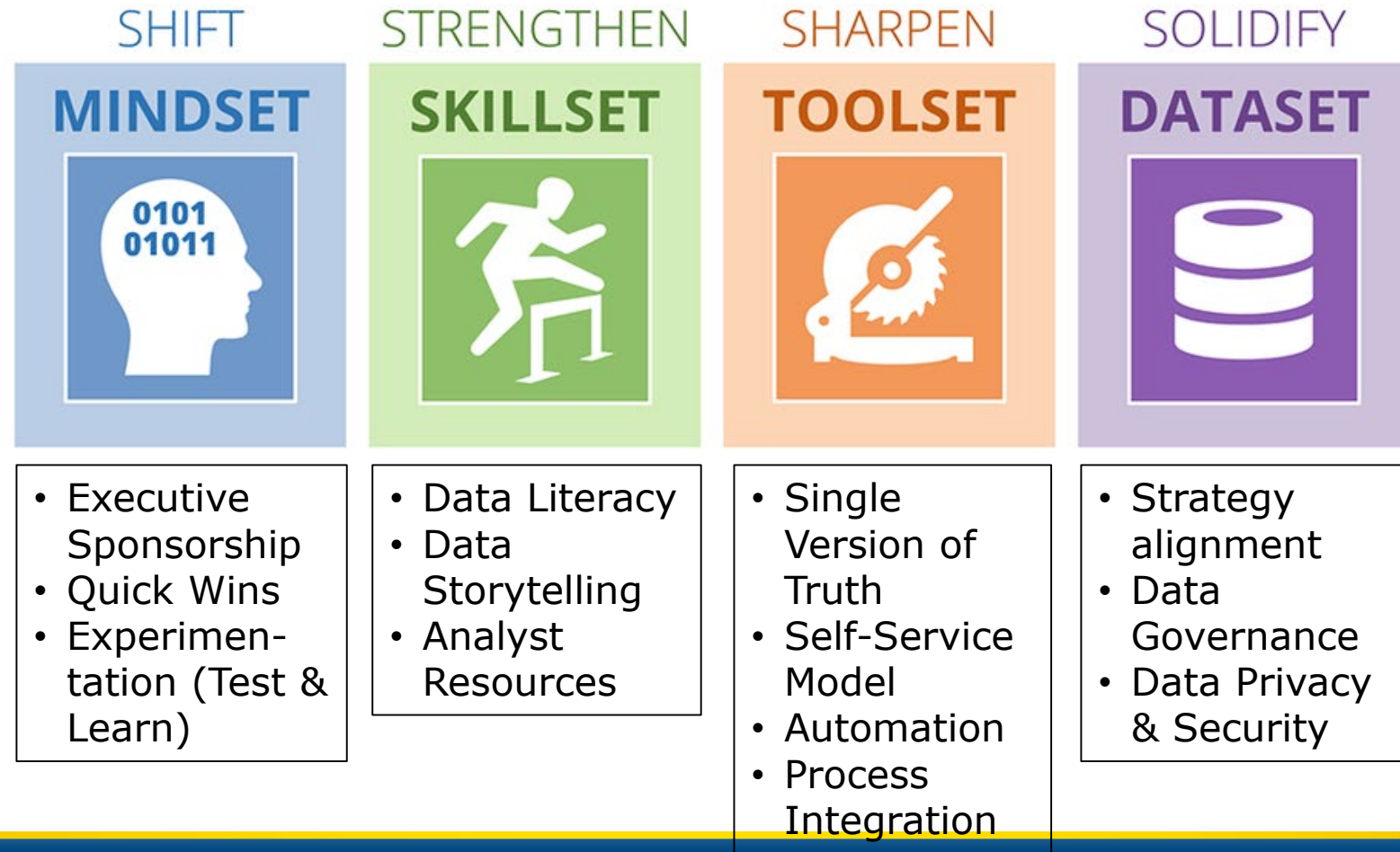# MANY "Standard" Operational Dashboard Reports

Overall Goals of a Clinical Dashboard

Big data and analytics in healthcare can change how departments and organizations operate if they have the necessary data available and organized in a way that clinicians and leadership can act

The Shift to Data-Centric Pharmacy

SHIFT	STRENGTHEN	SHARPEN	SOLIDIFY
MINDSET	**SKILLSET**	**TOOLSET**	**DATASET**
• Executive Sponsorship • Quick Wins • Experimentation (Test & Learn)	• Data Literacy • Data Storytelling • Analyst Resources	• Single Version of Truth • Self-Service Model • Automation • Process Integration	• Strategy alignment • Data Governance • Data Privacy & Security

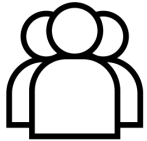UR MEDICINE

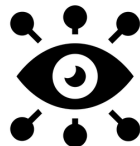# Key Ingredients - Building a Reporting Process

Strategic Prioritization

Qualified Team/Dedicated Resources

Data Analytics Capability/Structure/Access

Analytics Plan

Data Visualization/Report Authoring Tools

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Strategic Prioritization

- Decisions related to Data Analytics and Reporting (Dashboards) have to align with overall strategic plan

- Differentiate what tools can be developed for use by front end users (pull orientation) vs. those that will be managed by informaticists and delivered (push orientation)
  - Driven by data complexity, report complexity, and criticality of the application

- Establish short-, intermediate- and long-term goals for clinical dashboards
  - Consider growth in strategic planning process
  - Make sure the long-term goals do not become never goals

- "You can't boil the ocean"

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Strategic Planning - Alignment

- Clinical dashboard metrics should (and can) align with strategic plan or business plan for the institution or system
    - Value and Quality Measures
    - Value based contracting metrics
    - Clinical outcome objectives
    - Patient satisfaction goals
    - Patient safety goals

- Align with departmental business improvement plans

- Justification of clinical resources, scale up opportunities

Qualified Team/Dedicated Resources
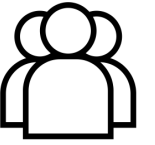
- Combination of pharmacists and non-pharmacists
  - Pharmacists with <u>both</u> clinical and informatics background are essential for "translation" between clinical intent and technical ability to gain data
  - Resources dedicated to analytics, reporting, and dashboard improvement

- Pharmacy-based team critical
  - "If you don't own the team, you can't own the process"
  - This is not the Epic™ way

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Building a Pharmacy Datamart
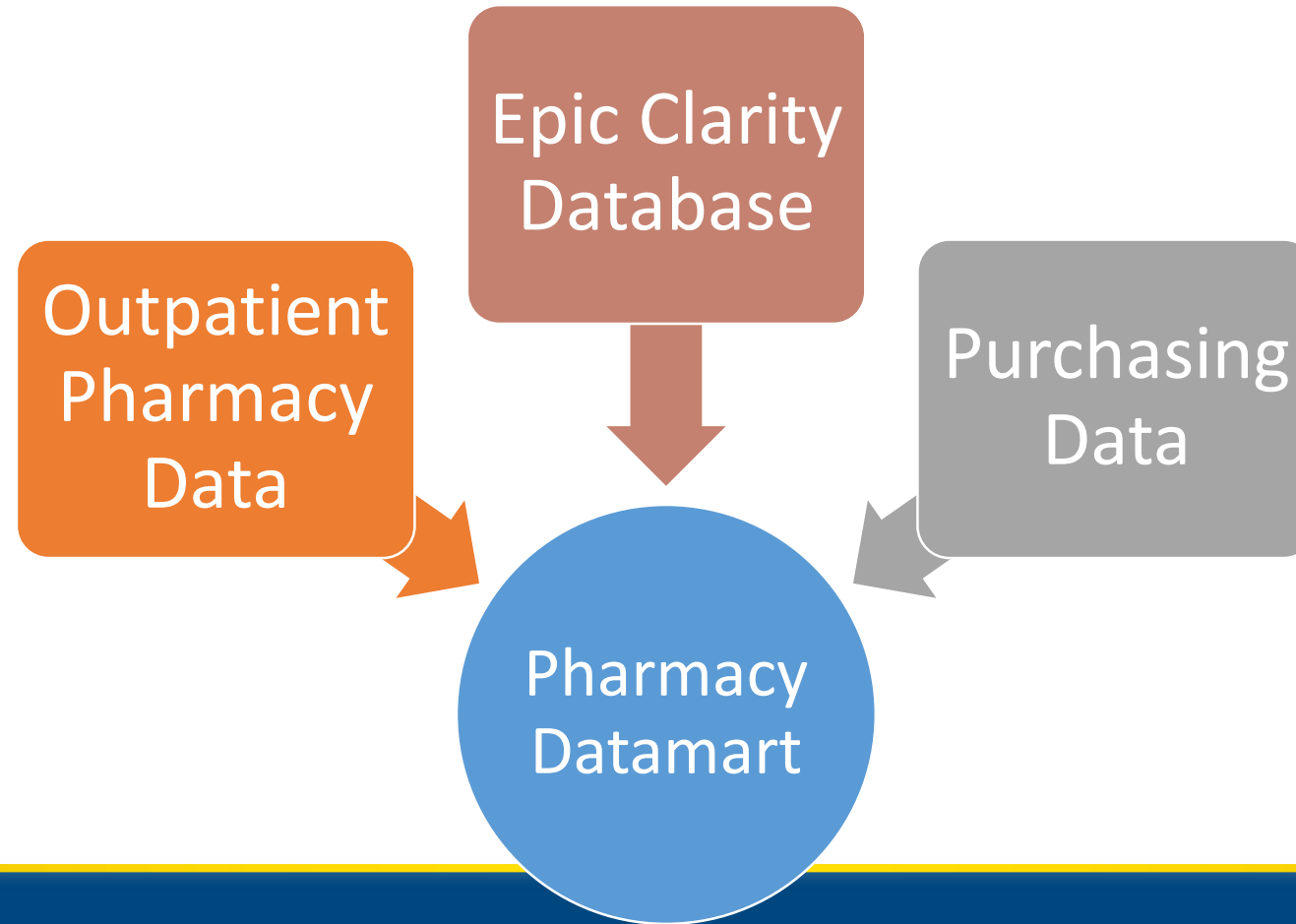
Building a Pharmacy Datamart
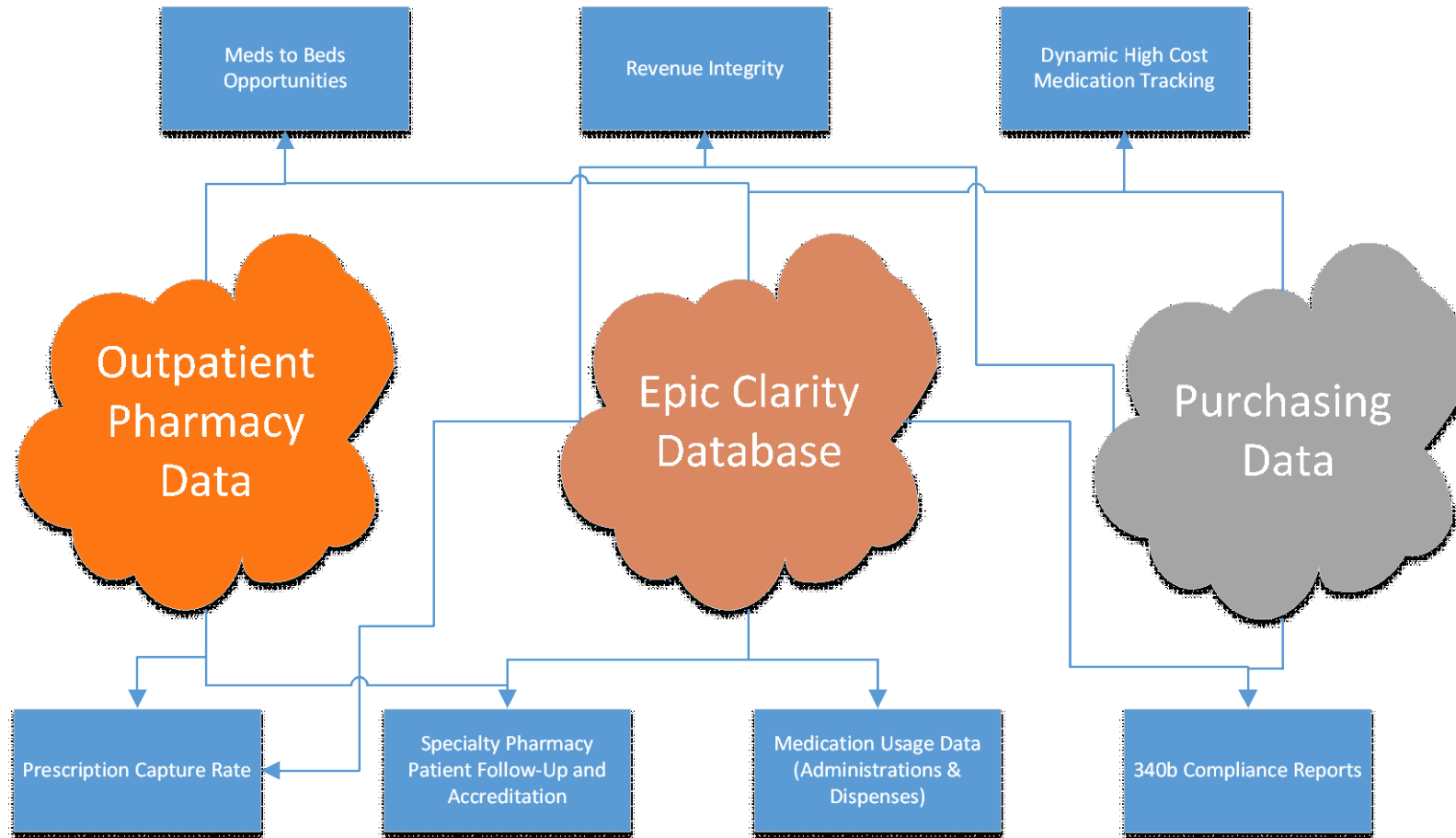
Analytics Plan

- What is needed and how often?

- What is the format – workbench tools or final report?

- Clearly defined goals and objectives
  - Key Performance Indicators (KPIs) vs. Actionable data
  - Push vs. Pull

- Build discrete data points and standardized data elements into EHR documentation from the outset
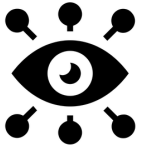
Data Visualization and Report Authoring

- Business intelligence software can transform data
  - Tools can transform data to visual analytics, build dashboards, conduct ad hoc data analysis, handle large amounts of data.
- Need a tool that is easy to use by non-technical, or minimally technical, staff
  - Minimal, intuitive end-user manipulation only
- We considered two options:
  - Tableau®
  - Microsoft® Power BI®

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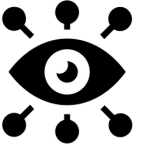
Why Power BI®?

- Easy to use

- Microsoft®-esque look and feel

- Easy security and integration with Active Directory

- Easy Deployment

- Low Cost of Entry
  - Power BI® Premium
  - SQL Server Enterprise Edition

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Summary – Lessons Learned

- You will need all of the key ingredients to succeed

- The most important ingredient is the Team
  - Make sure your clinicians and your informatics team are speaking the same language – meet frequently to share perspectives

- Reporting structure is absolutely critical
  - Fight for broad data access
  - Create a level of clinical staff independence relative to dashboards

- Prioritize, have a long-term plan, and "keep the end in mind"

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Application – Case Study

The Beginning: Transitions of Care

- Two pharmacist FTEs grant-funded through separate grants
  - Different programs with similar, but different goals
  - Grant funding expired at similar times in late 2016 and subsequently funded through the Delivery System Reform Incentive Payment (DSRIP) Program
- DSRIP goals were to reduce hospital use by 25% over 5 years
  - Emergency Department encounters
  - Hospital readmissions
- Medicaid targets very different than the grant funded initiatives

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Transitions of Care (continued)

- DSRIP leadership wanted the following:
  - Single TOC program that met DSRIP goals (i.e., consistent practice)
  - Define pharmacist activities as part of the healthcare team
  - Effective medication list refinement and communication
  - Anticipating medication related problems (e.g., prior authorization, etc.)

- Things we did not ask at the time
  - What data (specifically) would you like to see?
  - How is the program going to be assessed and over what timeline?

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Defining the Program

- Two pharmacist FTEs Monday to Friday

- Goals: "decrease hospital readmissions and improve HCAHP scores"

- Geographically based pharmacists on 3 units each with higher readmission rates

- Stratified higher risk patients based on published literature

- Transition care managers could engage pharmacist if appropriate

Patient Stratification

- Identification of need from patient care team
  - Later: a consult order was added = 25 points
- High risk medication (e.g. anticoagulant, hypoglycemic, opioid, antiarrhythmic, etc.) = 10 points
  - Later: new start high risk medication = 10 points
- Greater than or equal to 10 medications = 10 points
- Previously readmitted to the hospital = 5 points
- Greater than or equal to 2 ED visits in previous 6 months = 10 points
- Discharge on an antibiotic = 5 points

Integrating into Electronic Medical Record

TOC Acuity Score ▲
75
35
35
35
25
25

75   Discharge Medication Reconciliation Acuity

10	>/= 10 Discharge medications
10	Insulin, anticoag, ARV, antiepileptic or antiarrhythmic
10	2 or more ED visits in past 6 months
5	Discharged on an antibiotic
25	Patient has TOC consult order
5	Previously readmitted to the hospital
10	New Start High Risk Med
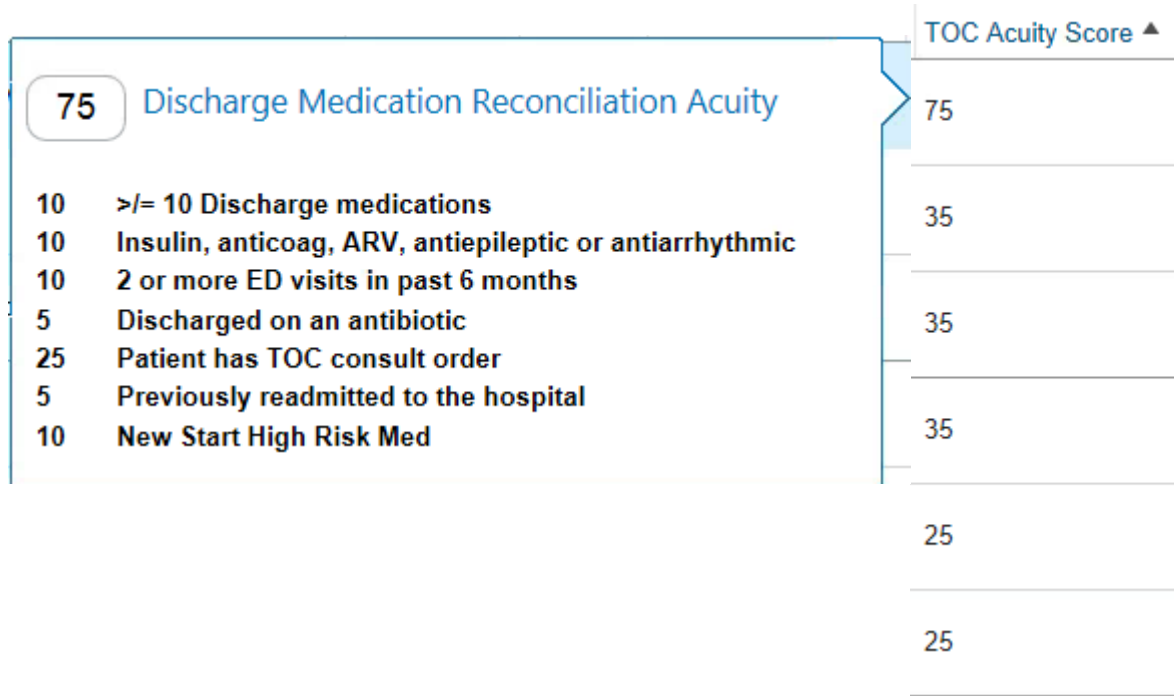
- Pharmacists stratify higher acuity patients

- Engage and educate patients and families

- Assess and ensure medication access

- Document activities and follow-up needs

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Interactive Session

Assume you are charged with presenting the results of this great work you did over the course of one year.

- What data elements would you present?

- In what format would you present the data?
  - Tables? Figures? Other?

- Are there any other elements you would include in your report?

First Report

- Data extraction challenging and first report made approximately 1 year after program started

- Report excerpt below

	Patients	Technician Involved (Y/N)	Student Involved (Y/N)	Readmission (Y/N)	Seven Day Readmission (Y/N)	Thirty Day Readmission (Y/N)	Readmission Percentage
Month A	199	106	52	32	13	19	16.1%
Pharmacist 1	95	30	52	11	4	7	11.6%
Pharmacist 2	104	76	0	21	9	12	20.2%
Month B	150	92	23	34	15	19	22.7%
Pharmacist 1	68	24	23	12	4	8	32.4%
Pharmacist 2	82	68	0	22	11	11	26.8%
Month C	124	68	6	16	5	11	12.9%
Pharmacist 1	88	43	6	10	4	6	11.4%
Pharmacist 2	36	25	0	6	1	5	16.7%

Action Plan Pivot

- Aligned medication history technicians with TOC program

- Defined metrics up front and agreed upon the measures

- Created standard operating procedures for both technicians and pharmacists
  - Built iVents to support workflow to capture data
  - Engaged information technology support early
  - Ensured buy-in to process and measures

- Implemented as soon as build was completed

- Much more frequent communication

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Data Plan
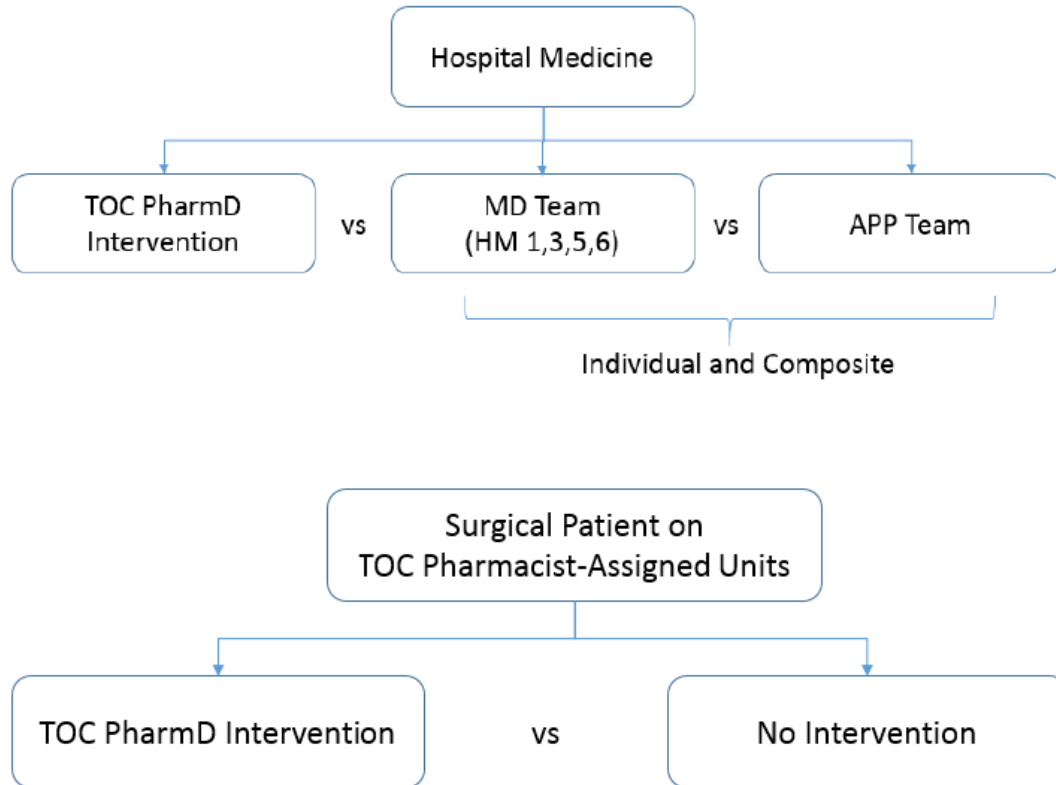
Metrics
1. Reports of good catches, feedback from multidisciplinary team, and/or patient stories
   a. Quarterly report
2. Transitions of care consult orders
   a. Inpatient orders
   b. Outpatient orders
3. Changes to medication list made at 1st PCP visit
   a. Number of changes
   b. Any changes made for patient taking differently than ordered
4. Ivents entered
   a. Number of Ivents
5. Encounter notes written on discharge
   a. Number of encounter notes
6. Compare 30 day readmission rate for patients seen by TOC pharmacist vs non-intervention group – report data in bands of 5 points
   a. All cause
   b. ED utilization
   c. ICD10 for medication adverse event for both a and b

Next Report

Patients Touched (e.g., Ivents entered)

Ivents Entered
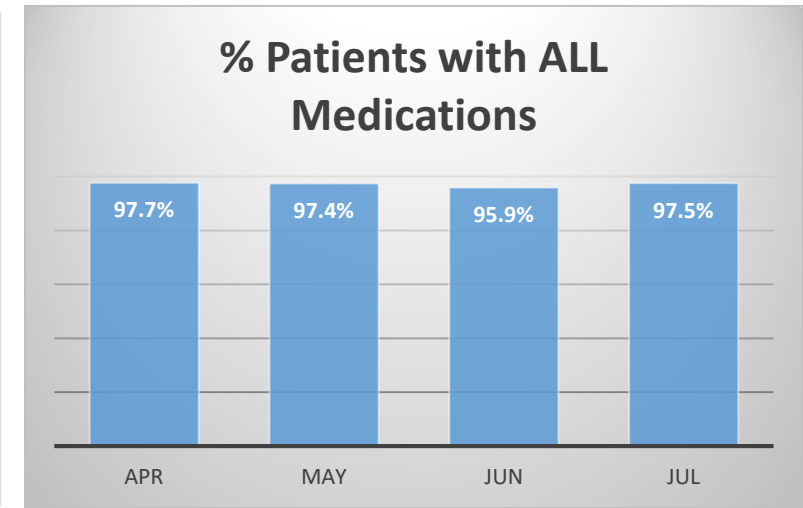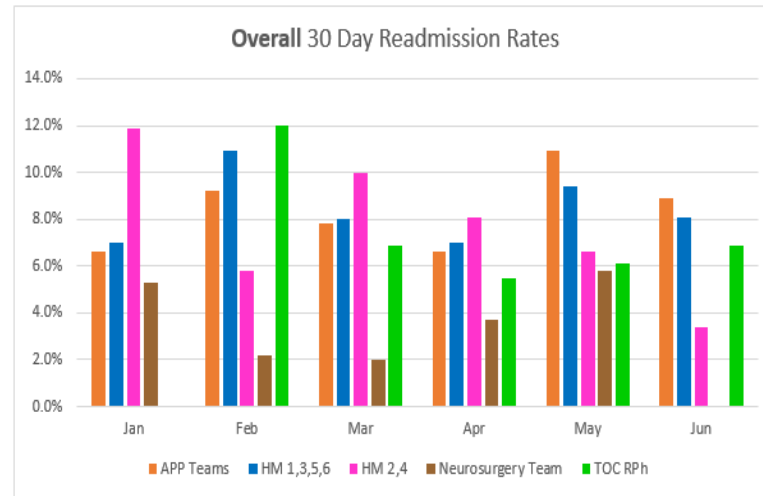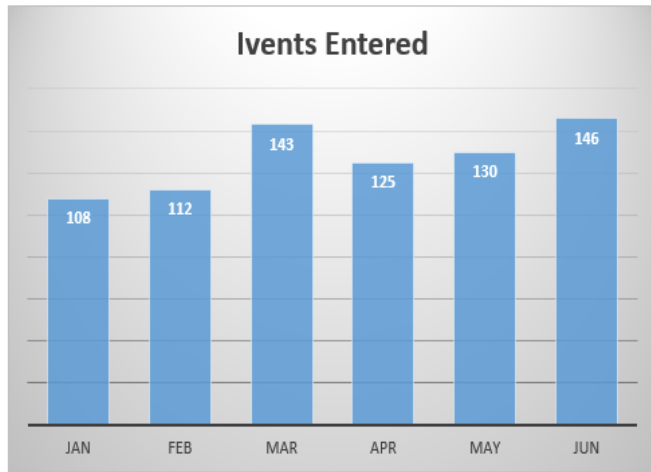
Encounter Notes on Discharge

Notes Written

Note: Workflow changed in February to include discharge notes for patients that were transitioned back into the ambulatory setting. Notes are not written for patients that go to other inpatient units, expire, etc.

Overall 30 Day Readmission Rates

Emergency Department Encounters within 30 Days

% Patients with ≥ 1 ED Encounter

% Patients with ALL Medications

Acuity Score Stratification

Refining Reports
Medication Histories

Date Technician completed Med Rec

| 1/1/2019 | 10/21/2019 |

Age (years)

| 0 | 500 |

Readmission <30 Days?

Yes 12.38%

No 87.62%
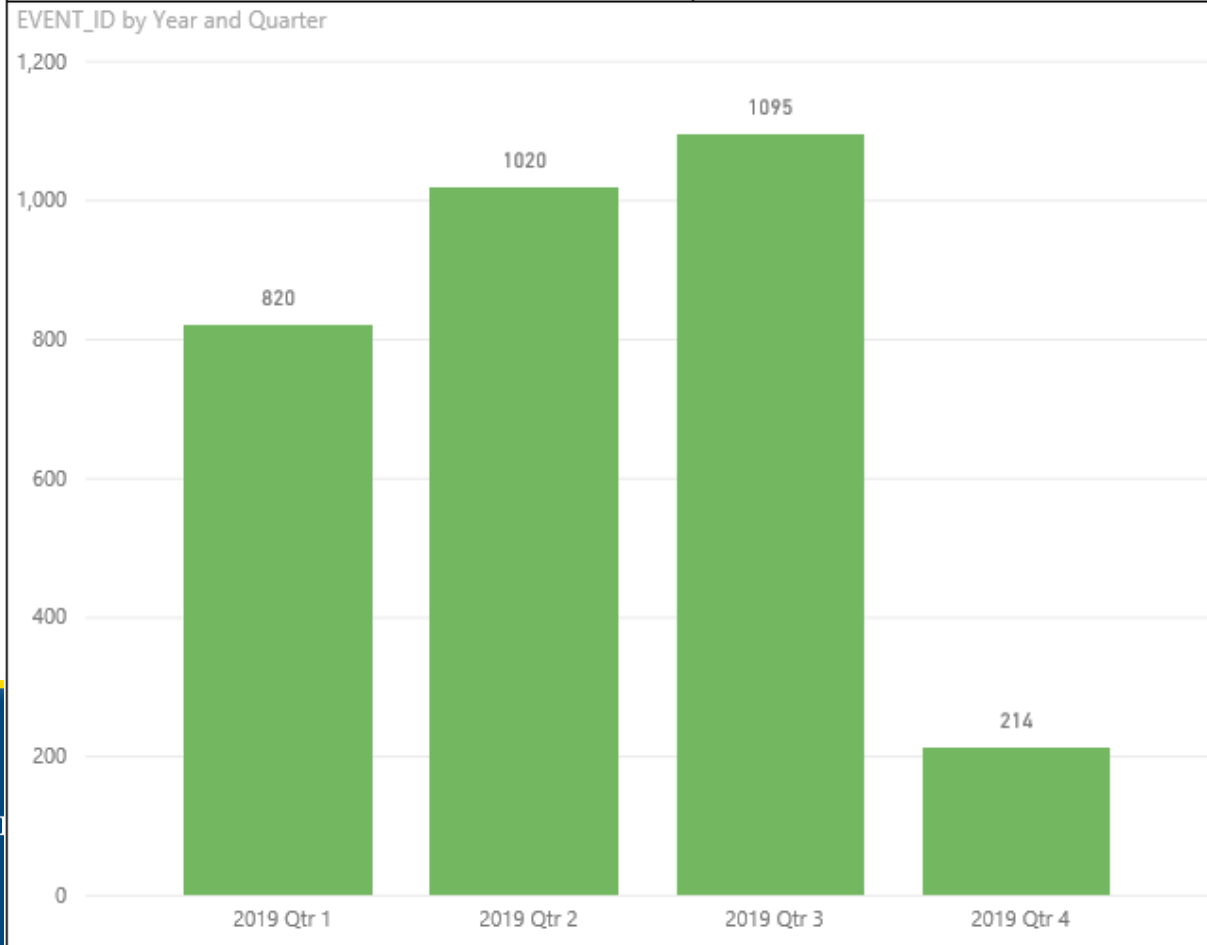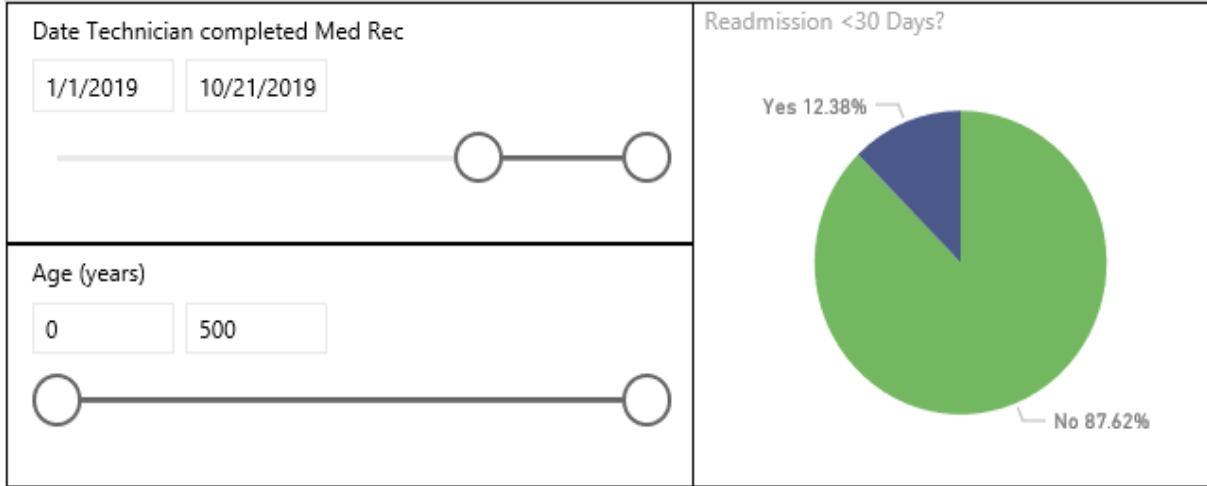
3149
Med Reconciliation Completed

217
Distinct Days Med Rec completed

2457
Median of Minutes from admission ...

2736
Median of Minutes from admission to "Pending Pharmacist"

213
Median of Minutes from "In Progress" to "Pending Pharmacist"

75
Median of Minutes from "Pending Pharmacist" to "Acknowledged by Pharmacist"

EVENT_ID by Year and Quarter

Quarter	Value
2019 Qtr 1	820
2019 Qtr 2	1020
2019 Qtr 3	1095
2019 Qtr 4	214

Transitions of Care (TOC) Experience – Additional Data Refinement

17,856 encounters met entry criteria

↓

13,104 encounters had acuity score

↓

1,349 received intervention
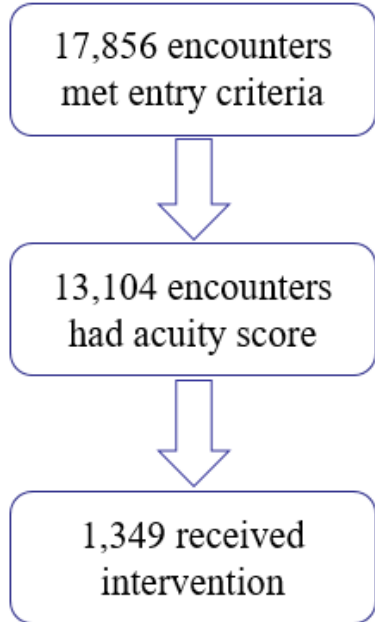
Overall Readmissions and ED Encounters

- 30-Day Readmissions
- ED Encounters

	APP	MD Resident	MD + Embedded RPh	TOC RPh
30-Day Readmissions	7.8%	8.3%	7.5%	7.5%
ED Encounters	26.6%	29.5%	28.7%	25.5%
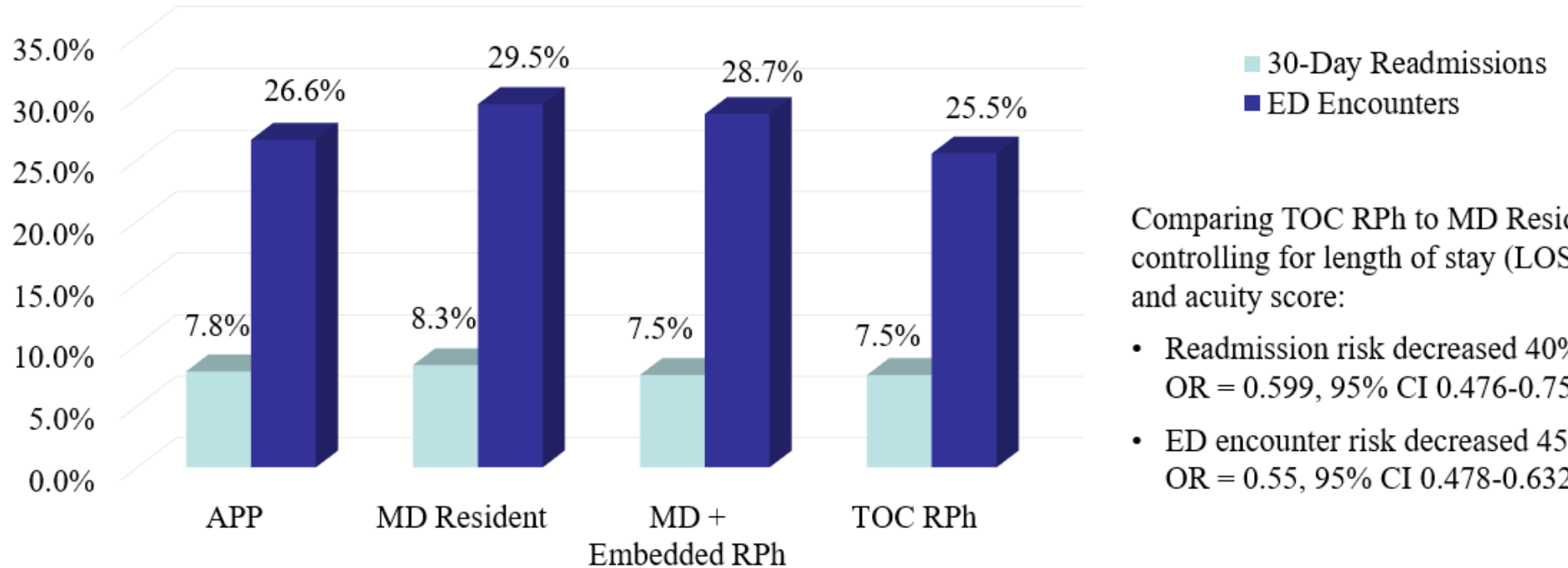
Comparing TOC RPh to MD Resident controlling for length of stay (LOS) and acuity score:

- Readmission risk decreased 40% OR = 0.599, 95% CI 0.476-0.752
- ED encounter risk decreased 45% OR = 0.55, 95% CI 0.478-0.632

Lessons Learned

- Identify and agree upon endpoints up front
  - Relevant data to you may not be important to others
  - Align your needs with others'
- Build workflow to achieve endpoints
- Engage information technology experts early
- Graphs are better than tables
- Balance data with qualitative stories
- Failure hurts

Additional Refinement – 5 Contacts Program to Prevent Readmission

Inpatient Pharmacist

Inpatient Discharge Coordinator / Nurse

Primary Care Care Manager / Office Nurse

Primary Care Care Manager / Office Nurse

Primary Care Care Manager / Office Nurse

CONTACT 1
Prior to Discharge

CONTACT 2
1 Business Day After Discharge

CONTACT 3
Within 48 Hours After Discharge

CONTACT 4
7 Days After Discharge

CONTACT 5
Approximately 21 Days After Discharge

Review medication list, educate patient and/or document discharge note

Document & route discharge note to Care Manager

Call patient to assess stability, confirm follow up appointment and transportation, taking medications as prescribed, and answer questions

Confirm patient completed follow up visit with Primary Care physician **or** call patient in place of provider visit

Review chart for Risk of Hospital or ED Readmission – if patient scores 70% or higher, call patient to follow up on Primary Care visit plans and current status

Additional contacts should be made at Care Manager's discretion if patient's status causes concern with care team

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Goals and Opportunities

- Define and create a *patient-centered*, *comprehensive* approach to providing **high quality** pharmaceutical care

- Demonstrate and characterize *value-based* clinical pharmacy services

$$\text{Value} = \frac{\text{Quality} + \text{Service}}{\text{Cost}}$$

- *Innovate* a clinical pharmacy model that can be scaled to all services in the health-system

- Create a *sustainable* model and continue to be the *employer of choice* for pharmacists and technicians

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Simplified Inpatient Pharmacy Practice Model Vision

Patient Admitted → **Hospital Stay** → **Patient Discharged**

- Best Possible Medication List *oversight*

- Interdisciplinary care
- Optimize therapy
- Order verification
- Patient education
- Documentation

- "Flipped", interdisciplinary discharge orders
- Access assessment
- Visible documentation and select warm transitions

Provide education, technician oversight, policy/guideline support, stewardship, research, etc.

- Geographically-based, hospital medicine units
  - Six units ultimately selected

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Interactive Session

Assume you are charged with further explaining the impact of medication historians and the pharmacists in this program. For the purposes of this exercise, focus only on the collection of the best possible medication list.

- What data would you collect and present?

- In what format would you present the data?
  - Tables? Figures? Other?

- How would you design the workflow to collect these data?

- Would you present any other data?

Medication History Review Workflow

Date | Time

Where did the patient come from?

| Home | Assisted Living Facility | Skilled Nursing Facility | Group Home | Shelter | Independent Living Facility | Other (Free Text Option) |

Does patient/ caregiver know their medications well?

| Yes | No | ← If no, details provided via free-text box

Sources of Rx Information

| Patient | Family | Caregiver | Dr. First | Pharmacy | Medical Record | Other (Free Text Option) |

Any compliance packaging?

| Yes | No |

Interventions

| Added Med | Removed Med | Increase Dose/Frequency | Decrease Dose/Frequency | Refills Needed | Change in Dosage Form | Change in Route |
| Currently Taking, but Should Have Run Out | Rx on File Patient Never Picked Up | Change in Strength | Adherence Concerns | Updated Missing Information |

Field Opens to Input Interventions Number and/or Comments

Is the patient taking any of these?

| Warfarin | Buprenorphine/ Naloxone | Methadone | ← Confirmation of Managing Office and Visits

Enter Note

Free Text Comments

Best Possible Medication List Activity Reporting

▪ June 1, 2020 to March 31, 2021

4132	4116	3527	91.62%
# of Entries	# of Encounters	Patients	% of Encounters requiring intervention

68.87%	13.22%
Med Rec Involvement in Encounter	Readmission % with Med Rec Involvement

Med Rec Completed by Pharmacy Tech in Encounter?

Yes	No
68.87%	31.13%

0.07	0.52	
Average Number of Dosage Form Changes per Encounter	Average Number of Doses/Frequencies Decreased per Encounter	0.22
1.21	0.43	Average Number of Tablet/Capsule Strength Changes per Encounter
Average Number of Meds Added per Encounter	Average Number of Doses/Frequencies Increased per Encounter	
1.49	1.21	
Average Number of Meds Removed per Encounter	Average Number of Meds with Missing Information updated per Encounter	5.35
0.16	0.03	Average # of tallied interventions per encounter
Average Number of Non-Compliant Meds per Encounter	Average Number of Route Changes per Encounter	

Add discharge activities/involvement and other works in progress

56.35%	3381	6000	3716	61.93%
Technician Involvement in Disch...	Discharges w/ Technician Involvement	# of Discharges	Discharges w/ Pharmacist Involvement	Pharmacist Involvement in Disch...

Pharmacist Involved in Discharge

9.25	6	9.25	6	442	3716	11.89%
Average of Length of Stay (Days, All Patients)	Median Length of Stay (Days, All Patients)	Average of Length of Stay (Days) with Pharmacist Involvement at Discharge	Median Length of Stay (Days) with Pharmacist Involvement at Discharge	Distinct Count of Encounters with Readmissions	Distinct Count of Encounters	Readmission Rate

NO Pharmacist Involved in Discharge

| 6.75	4	(Blank)	(Blank)	295	2284	12.92%
Average of Length of Stay (Days, All Patients)	Median Length of Stay (Days, All Patients)	Average of Length of Stay (Days) with Pharmacist Involvement at Discharge	Median Length of Stay (Days) with Pharmacist Involvement at Discharge	Distinct Count of Encounters with Readmissions	Distinct Count of Encounters	Readmission Rate

Interactive Session - Expanding Clinical Services

Assume you are charged with justifying the clinical pharmacy services that were just described. How do you present to the C-suite the outcomes and/or value of the program?

- What would you present to your Chief Operating Officer and Chief Financial Officer?

- In what format would you present the data?

Readmission Reduction

Institutional Data of Clinical Pharmacist Impact	
Total # discharges	10,000
Discharges with Pharmacist Involved	6,000
Readmission Rate WITH Pharmacist Involvement	12.16%
Absolute Reduction	1.84%
Relative Reduction	13.14%

1.84% Absolute Risk Reduction vs Baseline
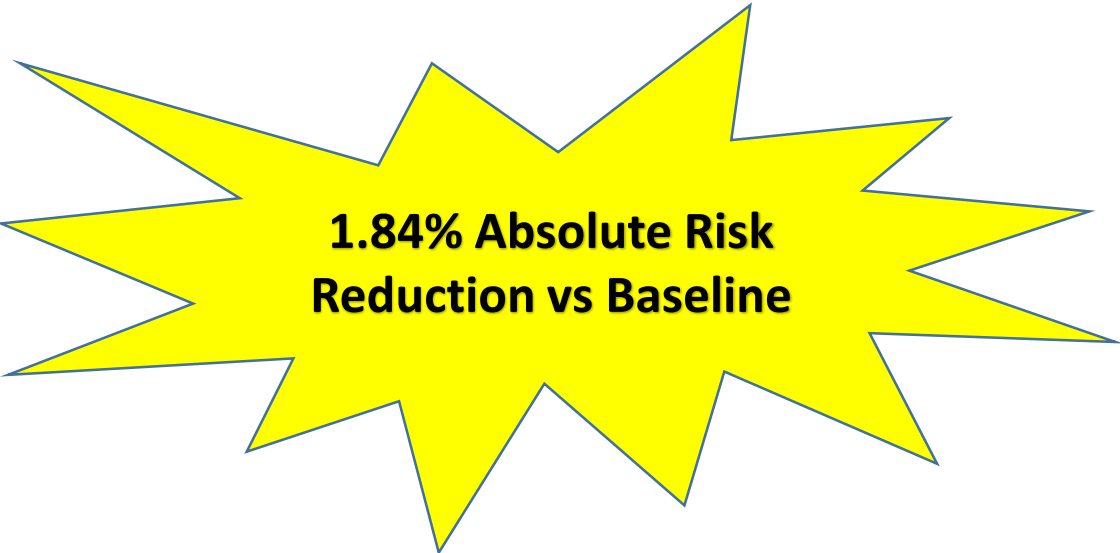
- AHRQ average readmission costs between $7,000 (pregnancy/childbirth) and $19,000 (congenital malformations) in 2016 USD
  - Assuming UR is better than national average, will assume readmission cost $7,000

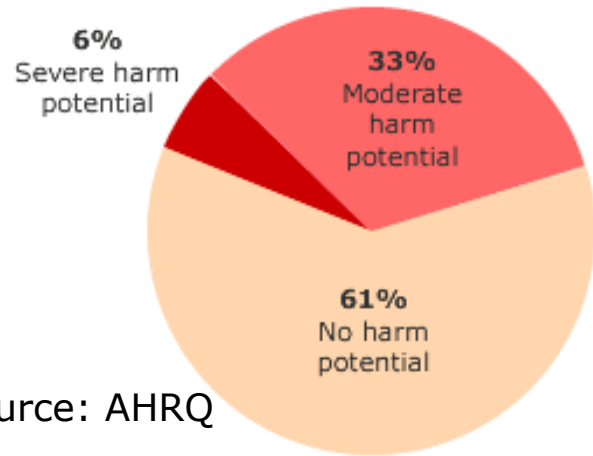| 30 Day Readmission Avoidance	
Total Discharges with Pharmacist Involvement	6,000
Absolute Readmission Reduction	1.84%
Readmissions Avoided (discharges x readmission reduction)	110
Average Cost of Readmission based on AHRQ HCUP	$7,000.00
Total Readmission Savings	$770,000.00

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Healthcare Quality – Adverse Drug Event (ADE) Preventable Costs

- Most common medical error is medication-related

- The Joint Commission National Patient Safety Goal around medication reconciliation began in 2005
  - Medication discrepancies place patients at risk for adverse drug events
    - This is one of the most common types of events after discharge

- Published data reveal pharmacists decrease medication discrepancies that translate to $227 per patient (2021 USD)

ADE Preventable Costs	
Total Discharges with Pharmacist Involvement	6,000
Net savings in Adverse Drug Events per patient	$227.00
ADE Savings (discharges x savings savings)	**$1,362,000.00**

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Quality – Improving Medication Reconciliation

- AHRQ estimated medication ADEs increase hospital costs $6,341 (converted to 2021 USD)

Source: AHRQ

Assuming 6% rate

Pie chart:
- 6% Severe harm potential
- 33% Moderate harm potential
- 61% No harm potential

4132	4116	3527	91.62% 💥
# of Entries	# of Encounters	Patients	% of Encounters requiring intervention

0.07 — Average Number of Dosage Form Changes per Encounter	0.52 — Average Number of Doses/Frequencies Decreased per Encounter	0.22 — Average Number of Tablet/Capsule Strength Changes per Encounter
1.21 — Average Number of Meds Added per Encounter	0.43 — Average Number of Doses/Frequencies Increased per Encounter	
1.49 — Average Number of Meds Removed per Encounter	1.21 — Average Number of Meds with Missing Information updated per Encounter	5.35 💥 — Average # of tallied interventions per encounter
0.16 — Average Number of Non-Compliant Meds per Encounter	0.03 — Average Number of Route Changes per Encounter	

Hospital Avoidable Cost (HAC) Savings from Best Possible Medication Lists	
Adverse Drug Events Cost Per Event	$6,341
Number of possible events (Encounters * % intervention * % Severe Harm)	226.26
Hospital Avoidable Cost (HAC) Savings	$1,434,744.79

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Return on Investment

Annualized Return on Investment (Including 6 Pharmacists AND 3 Medication Historians)	
Current Annual Investment	
6 Pharmacist FTEs (assume $150,000 ea. Including salary, benefits, etc.)	$900,000.00
3 Medication Historians (assume $60,000 ea. Including salary, benefits, etc.)	$180,000.00
Total Annual Investment	$1,080,000.00
Annual Return	
Total Readmission Savings	$770,000.00
ADE Savings	$1,362,000.00
Hospital Avoidable Cost (HAC) Savings	$1,434,745
Total Annual Return	$3,566,744.79
Net Annual Return (Total Return - Total Investment)	$2,486,744.79
Return on Investment [(Annual Return - Annual Investment)/Annual Investment]*100	230.3

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"Soft" Dollars vs "Real" Dollars

- "Soft" dollars = theoretical savings or earning
  - Most common example in pharmacy is cost avoidance

- "Real" dollars = exactly that, money that can be tracked in financial or accounting terms
  - Revenue, costs, etc.

- Financial Officers live in the world of "real" dollars

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Financial Basics

- Expense = money that a company has to pay

- Revenue = money that a company receives

- Profit margin = Revenue – expense

- Contribution margin = selling price per unit, minus variable cost per unit
  - Sometimes referred to as dollar contribution per unit
  - Estimates how a specific thing contributes to the company's profit
  - "Shows the aggregate amount of revenue available after variable costs to cover fixed expenses and provide profit to the company"

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Expanding Clinical Services

	A	B	C	D	E	F
1	**Baseline Inputs**			**Return on Investment**		
2	# Strong Discharges - Baseline Comparitor	10,000				*Math*
3	Baseline Readmission Rate	14.0%		Number of Avoided Readmissions **(1.84%)**	110	B18 * B21
4	# Readmissions based on Readmission Rate	1,400		Projected Cost Savings/(Contribution Margin Lost)	$ (1,100,000.00)	E3 * (-)B5
5	Avg. Contribution Margin for a Readmission	$ 10,000.00				
6	Avg. Readmission Length of Stay	9		Avg. # of New Bed Days	990	E3 * B6
7	Avg. Contribution Margin from Transfer	$ 12,000.00		Additional # of New Transfers (Tertiary Admissions)	8	(E6/B8) * B13
8	Avg. Length of Stay for a Transfer	13		Additional # of New NON-transfer, NON-readmission	127	(E6/B10) * B14
9	Avg Contribution Margin from a NON-transfer, NON-readmission	$ 9,000.00		Additional Hospital Revenue	$ 1,239,000.00	(E7*B7) + (E8*B9)
10	Avg. LOS for a NON-transfer, NON-readmission	7				
11						
12	**New Admission Opportunity Inputs**			Additonal Revenue from HPIP	$ -	
13	Transfer	10.0%				
14	NON-transfer, NON-readmission	90.0%		**Net Hospital Gain/(Loss)**	$ 139,000.00	E4 + E9 + E12
15						
16	**Institutional Data of Clinical Pharmacist Impact**					
17	**Total # discharges**	10,000				
18	**Discharges with Pharmacist Involved**	6,000				
19						
20	**Readmission Rate WITH Pharmacist Involvement**	12.16%				
21	*Absolute Reduction*	1.84%				
22	*Relative Reduction*	13.14%				
23						
24	**Readmission Rate WITHOUT Pharmacist Involvement**	14.04%				
25	*Absolute Reduction*	-0.04%				
26	*Relative Reduction*	-0.29%				

AR = Baseline - New

$$RR = \frac{Baseline - New}{Baseline}$$

Note: These data are fictitious and for illustrative purposes only

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Expanding Clinical Services - Example 2 – LOS Changes

	A	B	C	D	E	F
1	**Baseline Inputs**			**Return on Investment**		
2	# Strong Discharges - Baseline Comparitor	10,000				*Math*
3	Baseline Readmission Rate	14.0%		Number of Avoided Readmissions **(1.84%)**	110	B18 * B21
4	# Readmissions based on Readmission Rate	1,400		Projected Cost Savings/(Contribution Margin Lost)	$ (1,100,000.00)	E3 * (-)B5
5	Avg. Contribution Margin for a Readmission	$ 10,000.00				
6	Avg. Readmission Length of Stay	7		Avg. # of New Bed Days	770	E3 * B6
7	Avg. Contribution Margin from Transfer	$ 12,000.00		Additional # of New Transfers (Tertiary Admissions)	7	(E6/B8) * B13
8	Avg. Length of Stay for a Transfer	11		Additional # of New NON-transfer, NON-readmission	107	(E6/B10) * B14
9	Avg Contribution Margin from a NON-transfer, NON-readmission	$ 9,000.00		Additional Hospital Revenue	$ 1,047,000.00	(E7*B7) + (E8*B9)
10	Avg. LOS for a NON-transfer, NON-readmission	6.5				
11						
12	**New Admission Opportunity Inputs**			Additonal Revenue from HPIP	$ -	
13	Transfer	10.0%				
14	NON-transfer, NON-readmission	90.0%		**Net Hospital Gain/(Loss)**	$ (53,000.00)	E4 + E9 + E12
15						
16	**Institutional Data of Clinical Pharmacist Impact**					
17	**Total # discharges**	10,000				
18	**Discharges with Pharmacist Involved**	6,000				
19						
20	**Readmission Rate WITH Pharmacist Involvement**	12.16%				
21	*Absolute Reduction*	1.84%				
22	*Relative Reduction*	13.14%				
23						
24	**Readmission Rate WITHOUT Pharmacist Involvement**	14.04%				
25	*Absolute Reduction*	-0.04%				
26	*Relative Reduction*	-0.29%				

Note: These data are fictitious and for illustrative purposes only; Only changes are LOS inputs

Expanding Clinical Services – Example 3 – Contribution Margin Changes

	A	B	C	D	E	F
1	**Baseline Inputs**			**Return on Investment**		
2	# Strong Discharges - Baseline Comparitor	10,000				*Math*
3	Baseline Readmission Rate	14.0%		Number of Avoided Readmissions **(1.84%)**	110	B18 * B21
4	# Readmissions based on Readmission Rate	1,400		Projected Cost Savings/(Contribution Margin Lost)	$ (825,000.00)	E3 * (-)B5
5	Avg. Contribution Margin for a Readmission	$ 7,500.00				
6	Avg. Readmission Length of Stay	9		Avg. # of New Bed Days	990	E3 * B6
7	Avg. Contribution Margin from Transfer	$ 8,750.00		Additional # of New Transfers (Tertiary Admissions)	8	(E6/B8) * B13
8	Avg. Length of Stay for a Transfer	13		Additional # of New NON-transfer, NON-readmission	127	(E6/B10) * B14
9	Avg Contribution Margin from a NON-transfer, NON-readmission	$ 6,000.00		Additional Hospital Revenue	$ 832,000.00	(E7*B7) + (E8*B9)
10	Avg. LOS for a NON-transfer, NON-readmission	7.0				
11						
12	**New Admission Opportunity Inputs**			Additonal Revenue from HPIP	$ -	
13	Transfer	10.0%				
14	NON-transfer, NON-readmission	90.0%		**Net Hospital Gain/(Loss)**	$ 7,000.00	E4 + E9 + E12
15						
16	**Institutional Data of Clinical Pharmacist Impact**					
17	**Total # discharges**	10,000				
18	**Discharges with Pharmacist Involved**	6,000				
19						
20	**Readmission Rate WITH Pharmacist Involvement**	12.16%				
21	*Absolute Reduction*	1.84%				
22	*Relative Reduction*	13.14%				
23						
24	**Readmission Rate WITHOUT Pharmacist Involvement**	14.04%				
25	*Absolute Reduction*	-0.04%				
26	*Relative Reduction*	-0.29%				

Note: These data are fictitious and for illustrative purposes only; Only changes are Contribution Margin inputs

Summary – Lessons Learned

- "Excellence is iterative"

- Defined workflows are critical to collect meaningful data
  - Goal is to establish mile-markers along the road to patient care—not to remove clinical judgment

- Aligning with institutional, professional, or stakeholder needs is critical
  - It is okay to think outside the box and try different measures

- Use a combination of structure, process, and outcome measures
  - Incorporate access and the patient experience

- Use qualitative stories—these can be extremely powerful

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Conclusions and Discussion

- There are no standard metrics
  - Three main types are structure, process, and outcome
  - Need to increase focus on access and patient experience

- Alignment of metrics with institutional, professional, and/or stakeholder needs increases impact

- Use figures for quantitative data wherever possible and incorporate qualitative stories wherever possible

- Build the workflow to drive the metrics

- "Do not let perfect be the enemy of good"