Radiology Posters - 2019

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Hamed Jalaeian, Bertrand Janne d'Othee MD, Pouya Aghajafari MD, Daniel Hynes MD, Amy Oliveira MD, Seth Andrews DO, Christina Duffin MD, and Daniel Kowal MD
Development and implementation of technology downtime simulations at Baystate Medical Center
A. Rock; A. Pesaturo; S. Illig; Baystate Medical Center, Springfield, MA

BACKGROUND

Limitations
• Number of staff trained and assessed (small numbers for analysis)
• Training causes interruptions in workflow
• Difficulty in capturing entire staff

Future Implications
• Downtime protocols should be implemented for all complex technology.
• The initial mock simulation based training of these protocols should occur during pharmacist and pharmacy technician training/orientation.
• Periodic planned mock simulations should be planned and additional staff scheduled to prevent workflow interruptions should be provided to accommodate these trainings.

METHODS

A gap analysis was performed to identify areas with and without downtime protocols in place. BD Pyxis™ Logistics Carousel was identified as an area without comprehensive downtime standard operating procedures.

METHODS

B – Point Assessment

Describe
• Where to find resources, to help triage carousel down time problems.

Explain
• How to forward labels from this carousel printer A to carousel printer B or C.
• What order you would begin to manually enter a batch fill in the event of an extended time without the batch fill dropping?
• How many hours would you wait till manually entering the fill?

Identify
• Who to contact and in what order for a mechanical obstruction.
• Where the carousel drill, clamp, downtime binder and paper inventory are.
• Where replacement batteries are for the scanners, and explain how to reset them.
• Where the key is to open drill access panel.

Demonstrate
• How to open drill access panel, and explain how the drill is attached and functions.

RESULTS

<table>
<thead>
<tr>
<th>Training</th>
<th>Score Before</th>
<th>Score After</th>
<th>Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
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<td>8</td>
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<td>3</td>
<td>1</td>
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<tr>
<td>9</td>
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<td>8</td>
<td>8</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

Average 1 8 8

Table 1: Scores before and after initial training

DISCUSSION

Limitations
• Number of staff trained and assessed (small numbers for analysis)
• Training causes interruptions in workflow
• Difficulty in capturing entire staff

Future Implications
• Downtime protocols should be implemented for all complex technology.
• The initial mock simulation based training of these protocols should occur during pharmacist and pharmacy technician training/orientation.
• Periodic planned mock simulations should be planned and additional staff scheduled to prevent workflow interruptions should be provided to accommodate these trainings.

CONCLUSIONS

• Simulated based training increases response rates and accuracy in response
• The results of this project could be extrapolated to other complex technology or operational systems

CITATIONS
1. State of Pharmacy Automation 2016 - Vol. 13 No. 8 - Page #18

No Training | Score After | Total Score | Time (m)
---|---|---|---|
1 | 4 | 8 | 20
2 | 6 | 8 | 12.5
3 | 7 | 8 | 13.3
Average 5.67 | 8.00 | 15.33
% Successful 70.83

Training | Score After | Total Score | Time (m)
---|---|---|---|
1 | 8 | 6 | 6
2 | 8 | 8 | 5.5
Average 8 | 8 | 5.75
% Successful 100
% Increase in Score 41.18 % Faster Response 66.67

Table 2: Reassessment scores and analysis of training

Figure 2: Areas of potential carousel downtime and format of simulation

Table: 30 Minute Simulation:
1. Orient staff to the protocol
2. Simulate
   • Forwarding labels
   • Running automated dispensing machine (ADM) inventory report
   • Resetting scanners
   • Opening carousel drill panel
   • Attaching carousel drill
   • Consulting emergency order

Table: Thirty Minute Simulation:
1. Orient staff to the protocol
With the continued rise in pharmaceutical drug costs, stabilizing pharmacy spend with cost-containment initiatives remain a strategic focus.

Pharmacy leaders are guiding collaborative efforts to buy, manage, and use medications as cost-effectively as possible.

Clinical pharmacy services are able to provide an important foundation for a successful high-cost medication-utilization management program.

Baystate Medical Center (BMC) participates in the 340B Program as well as group purchasing organizations (GPO).

Three of the top ten drug expenses at BMC are hemostatic agents.

Hemostatic agents available at BMC through a consignment program:

- Advate® (recombinant factor VIII)
- Bebulin® (3 factor prothrombin complex concentrate)
- Benefix® (recombinant factor IX)
- FEIBA® (activated prothrombin complex concentrate)
- Humate-P® (VWF and factor VIII)
- Kcentra® (4 factor prothrombin complex concentrate)
- NovoSeven® (recombinant activated factor VII)

Understanding the workflow of high cost medications, such as hemostatic agents, is important operationally and clinically:

- Identifying and addressing areas of improvement in the process of drug procurement through administration and charging for hemostatic agents

A gap analysis was created and performed to identify areas of sufficiency and areas of improvement for high-cost medications.

**Initial target medications:**

- Humate P®
- FEIBA®

**Date range:** Retrospective chart review of historical order data.

- FEIBA®, Jun. 2016 - Jul. 2018

**Data collected:**

- Least amount of drugs purchased from wholesale acquisition cost (WAC) account
- Drugs purchased from 340B in 340B eligible patients
- Proper stock available on shelves
- Expiration dating done correctly
- Continual monitoring of appropriate use
- Physician awareness of patients on high-cost medications to determine if still meet criteria
- Chatted on the medical administration record (MAR)
- Amount of medications charged-amount of medications re-purchased

**Areas of improvement identified:**

1. Lack of awareness of predefined criteria related to ordering, verifying, and dispensing

- Physician must be aware of criteria to address proper verification and dispensing of hemostatic agents available on the BMC formulary.

2. SOP introduces the pharmacy department through the Clinical Leadership Team

- SOP will be posted on the department’s internal webpage

3. Application form will be used at pharmacy sites

**Likelihood of orders for continued monitoring by clinical pharmacists:**

- High-Cost Medication Alert
- SOP document expectations for clinical pharmacists to evaluate the need for continuation of medication

**Inaccurate medication charting, resulting in lost charges and accuracy for medication cost:**

- New medication plan: Cost-Medication Agreement
- Agreements to use only for cost-based pharmacy purchasing
- Evaluation of proper documentation in the MAR

**Decision between cost-containment strategies: Consignment SOP**

- Humate P® cost difference: $5,460
- FEIBA® cost difference: $50,427

** Gap analysis results:** Humate P® → n20 patients

- FEIBA® → n16 patients

**Loss charges from high-cost medications, such as hemostatic agents, can be costly to the department and institution**

- Lack of awareness of clear criteria for ordering, verifying and dispensing hemostatic agents increases risk for medication errors

- Cost-containment can be complex and requires high-level strategic planning and extensive collaboration

- Successful drug cost management requires systematic attention to and integration of both clinical and operational approaches

- Total financial opportunity over 2 years = $408,533

- Cost savings using 340B: $24,655

- Revenue gained from accurate charge capture: $383,878

**REFERENCES**


**DISCLOSURE**

Authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.
Vancomycin is often considered the drug of choice for serious methillin-resistant Staphylococcus aureus (MRSA) infections, including bacteremias.

Area under the curve/minimum inhibitory concentration (AUC/MIC) ratio is the pharmacodynamic parameter best associated with vancomycin’s effectiveness in treating such infections.

Current guidelines advocate for an AUC/MIC target of at least 400 to achieve optimal bactericidal effect against S. aureus.

High trough levels have been associated with an increased risk of nephrotoxicity.

Recent literature suggests:

- Single trough levels offer little prediction of the AUC.
- The goal AUC/MIC of >400 can be achieved with trough levels much lower than the recommended 15-20 mg/L.
- At Baystate Medical Center (BMC), vancomycin AUC-based monitoring is performed for patients with identified MRSA bacteremia.
- On initiation of therapy, empiric AUC calculations are performed using population-based kinetics.
- Once the patient is at steady state, a peak and trough level are obtained and patient-specific AUC is calculated.

Vancomycin MICs were assumed to be 1 mg/L.

BACKGROUND

OBJECTIVES

Primary:

- Correlation between empiric AUC calculations and patient-specific AUCs

Secondary:

- Percent of patients who met the AUC goal of ≥400 mg/L•hr⁻¹
- Mean initial trough concentration in those that met goal versus those that did not

METHODS

- All adult patients with bloodstream infections caused by MRSA treated with AUC-based vancomycin regimens from Jan 2018 to Feb 2019 were reviewed.
- Exclusion criteria:
  - Pregnant
  - Receipt of renal-replacement therapy while on vancomycin
  - Lack of two steady-state vancomycin levels
  - Institutional review board approval was granted prior to data collection.
  - Empiric vancomycin AUC and pharmacokinetic data, as calculated via Vancomycin Initial Dosing Calculator on vancopk.com, were collected.
  - Patient-specific AUC and pharmacokinetic data were calculated using the trapezoidal equation-based approach.
  - Vancomycin MICs were assumed to be 1 mg/L.

RESULTS

Comparison of Population-Based vs. Calculated AUC

- Predicted AUC (mg/L•hr⁻¹)

Demographics & Clinical Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>25 (59.5)</td>
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<tr>
<td>CKD†</td>
<td>5 (11.9)</td>
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<tr>
<td>Active IVDU**</td>
<td>20 (47.6)</td>
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<tr>
<td>Source of infection:</td>
<td></td>
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<tr>
<td>Skin and soft tissue</td>
<td>11 (26.2)</td>
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<tr>
<td>Endovascular</td>
<td>10 (23.8)</td>
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<tr>
<td>Intraperitoneal catheter</td>
<td>6 (14.3)</td>
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<tr>
<td>Bone and joint</td>
<td>5 (11.9)</td>
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<tr>
<td>Respiratory</td>
<td>2 (4.8)</td>
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<tr>
<td>Other/unknown</td>
<td>8 (19)</td>
</tr>
<tr>
<td>Mean (± SD)</td>
<td></td>
</tr>
<tr>
<td>Age (yr)</td>
<td>56 (± 20)</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>173.5 (± 10.2)</td>
</tr>
<tr>
<td>Total body weight (kg)</td>
<td>76.2 (± 18.6)</td>
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<tr>
<td>Ideal body weight (kg)</td>
<td>65.6 (± 11.3)</td>
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<tr>
<td>Adjusted body weight (kg)</td>
<td>69.3 (± 12.2)</td>
</tr>
<tr>
<td>COCl (mL/min)</td>
<td>103 (± 54.4)</td>
</tr>
<tr>
<td>Total Daily Dose (mg/kg)</td>
<td>29.1 (± 13.3)</td>
</tr>
<tr>
<td>N (%)</td>
<td></td>
</tr>
<tr>
<td>Vancomycin-induced nephrotoxicity</td>
<td>7 (16.7)</td>
</tr>
<tr>
<td>14-day mortality</td>
<td>2 (4.8)</td>
</tr>
<tr>
<td>In-hospital mortality</td>
<td>3 (7.1)</td>
</tr>
<tr>
<td>*CKD, chronic kidney disease; **IVDU, intravenous drug use; TCDD, creatinine clearance ( Cockcroft-Gault); ICU, used on total body weight.</td>
<td></td>
</tr>
</tbody>
</table>

Significant difference in the mean initial trough concentration in patients who met the AUC goal vs. those who did not (13.9 mg/L ± 4.6 vs. 8.9 mg/L ± 2.4, p < 0.001)

AUC Distribution following Empiric Calculations; N (%)

<table>
<thead>
<tr>
<th>AUC Distribution</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;200</td>
<td>12</td>
</tr>
<tr>
<td>200-399</td>
<td>23</td>
</tr>
<tr>
<td>≥400</td>
<td>7</td>
</tr>
</tbody>
</table>

Predicted AUC (mg/L•hr⁻¹)

Data that suggest the AUC goal of ≥400 mg/L•hr⁻¹ can be attained in most patients that achieve a vancomycin trough concentration of ≥10 mg/L.

DISCUSSION

- Empiric AUC calculations through population-based kinetics did not produce a strong correlation to patient-specific AUCs.
- Regardless, following the AUC-based empiric dosing strategy, most patients met the AUC goal of ≥400 mg/L•hr⁻¹.
- These findings are consistent with prior data that suggest the AUC goal of ≥400 mg/L•hr⁻¹ can be attained in most patients that achieve a vancomycin trough concentration of ≥10 mg/L.

Limitations

- Small sample size, inability to assess patient outcomes
- Continue to collect data to increase sample size
- Data regarding the use of concomitant nephrotoxic agents and attainment of source control were not collected
- Assess patient-specific factors that may account for differences in predicted vs. observed AUCs
- MICs were assumed to be 1 mg/L.

REFERENCES


DISCLOSURES: Authors of this presentation have nothing to disclose.
Identifying discrepancies within the discharge summary in the Acute Care for the Elderly (ACE) Unit

Kelly Sawyer, PharmD; Megan Carr, PharmD, BCPS, BCGP; Erica Housman, PharmD, BCPS (AQ-ID); Shawn Roggie, PharmD, MBA

INTRODUCTION
It is estimated that approximately 29%1 of American adults take five medications or more.
At our institution, a pharmacist has been incorporated into the Acute Care for the Elderly (ACE) Unit since July of 2018.
• ACE is an evidence-based model of care with the goal to minimize stress and prevent functional decline in older adults (≥ 65 years) during hospitalization.
• There is currently no standardized process for pharmacist-review of discharge medications at our institution, yet studies have demonstrated reduced errors when pharmacists are involved in the medication reconciliation process.2

OBJECTIVES
Primary Objective:
Identify the prevalence of medication discrepancies within discharge medication notes for patients located on the Acute Care for the Elderly Unit
Secondary Objective:
• Determine whether or not the implementation of a pilot project for pharmacist-led service is warranted to review medication lists prior to discharge
• Identify which patient populations may benefit from a pharmacist-led discharge service

METHODS
The physical discharge medication list was compared to the provider notes within the discharge summary to identify discrepancies.

METHODS

Statistics:
- Discrepancies Per Patient: # of discrepancies (total) / # of patients (total)
- Discrepancies Incidence: # patients with discrepancies / # patients in group
- Discrepancy Ratio: # discrepancies in group / # patients with discrepancies in group

Data Collection Period: January 2019 to March 2019

RESULTS

Primary Outcome Results:
- 27/50 (54%) patients had discrepancies
- Total number of discrepancies = 47
- Discrepancies per patient = 0.94
- Discrepancy Ratio = 1.7

Secondary Outcome Results:
- Therapeutic classes involved in discrepancies
- Frequency of discrepancy types
- Stratification of prevalence by subgroup
- Number of discharge medications
- Medication reconciliation status
- Chronological Age

DISCHARGE MEDICATION RECONCILIATION:

References:
Impact of antibiotic review during transition from hospital to community

Baystate Health

BACKGROUND
- Antimicrobial stewardship (AMS) programs have largely focused on inpatient care
- The transition from hospital to community may be another opportunity for AMS services when antibiotic regimens need to be completed in the outpatient setting
- According to the Center for Disease Control (CDC), about 30% of antibiotics prescribed in both inpatient and outpatient settings are unnecessary or prescribed incorrectly
- Inappropriate antibiotic use leads to antimicrobial resistance, adverse drug effects, and increased costs
- Several retrospective studies that assessed antibiotic review on hospital discharge have shown that up to 70% of antibiotics are prescribed inappropriately
- In an additional study, 70% of pharmacist recommendations were accepted, and prevented potential errors in 68% of patients
- Common errors include duration, dose, and choice of antibiotics
- There is a need to extend AMS services beyond the inpatient setting to help bridge this gap in care

METHODS
- Single center, retrospective, quality improvement initiative
- Interventions group: January 2019 – February 2019
- Control group: January 2018 – February 2018
- Inclusion criteria:
  - Admitted to general medicine floor
  - Plan for continuation of antibiotic after discharge

OBJECTIVE
- To evaluate the impact of antimicrobial stewardship review of antibiotic prescriptions upon transitions of care from hospital to community

RESULTS
- 14 interventions were made on 11 patients
- Intervention acceptance rate: 71.4%
- Any 30-day readmission: 26.7% (4/15) vs. 59.1% (13/22)
  - C. difficile: 26.7% (4/15) vs. 59.1% (13/22)
  - Any 30-day readmission: 1 severe diarrhea, 1 patient possible allergic reaction to cephalaxin

DISCUSSION
- Clinical impact: AMS pharmacists can have a positive impact on the transitions of care (TOC) process as seen by the 71.4% intervention acceptance rate
- Future Directions:
  - Continuation of AMS TOC interventions as time permits
  - Potential role for care team pharmacists outside of AMS team to have an impact in this initiative with appropriate training
- Develop better strategy to identify patients
- Continue to offer PGY2 ID TOC elective rotation

LIMITATIONS
- Single medical unit in single institution
- Sustainability:
  - AMS pharmacists have many other tasks throughout the day
  - Time frame from discharge ordered to patient being discharged is variable
  - Weekend and evening discharges
  - Discharge unit open January and February

REFERENCES
Based on studies looking at emergency department (ED) prescription noncompliance, the need for a transitions of care (TOC) pharmacist within this specialized area has been identified as a means to help address gaps in medication therapy and patient knowledge. The results are as follows:

- New medications are prescribed for 2 out of every 3 patients discharged from the ED.
- Up to 35% of patients are noncompliant with their ED discharge medications.
- Medication noncompliance has been shown to be the major contributing factor for as many as 22% of return ED visits.

**METHODS**

The pharmacy resident, working as the TOC pharmacist, joined the fast track team consisting of doctors, midlevel practitioners, nurses, patient care technicians and scribes. The resident spent one day per week in fast track for 6 weeks; Monday was identified as the day with the highest patient census.

Inclusion Criteria:
- Patients seen in fast track and pharmacist consulted for TOC services
- English and non-English speaking patients

Exclusion Criteria:
- Patients seen in fast track without TOC pharmacist intervention
- Patients seen outside of fast track

**RESULTS**

- The TOC pharmacist spent a total of 37 hours in fast track
- During this time, 138 patients were seen by the fast track team
- 55 patients (40%) out of these total patients received an intervention by the TOC pharmacist

**DISCUSSION**

Addition of the TOC pharmacy resident to the patient care team within the fast track area of the ED lead to:

- Increased access to care
- Increased medication compliance
- Decreased fast track revisits

**LIMITATIONS**

- High patient turnover
- Application of TOC services in the ED
- Single pharmacist operation
- Expand TOC services in fast track
- Medical team rotation
- Retail ED dispensing pharmacy
- Sustainability of TOC services
- Mandated d/c prescription review

**DISCLOSURES**

Authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have direct or indirect interest in the subject matter of this presentation.
INTRODUCTION

• Pain, agitation, and delirium (PAD) stewardship could be considered a coordinated program aimed at promoting evidence-based prescribing of opioids and sedatives.
• Critical care pharmacists in a stewardship-type role can optimize an appropriate level of sedation and pain control in critically ill patients.
• Retrospective evaluation of patients admitted to MICU from February 2018 to June 2018 (n=879).

METHODS

Primary Endpoint: to study the impact of the pharmacist’s intervention on DOT/1000 Patient Days and unique administration of opioids and sedatives in mechanically intubated patients.
• Development of an institutional practice guidelines in line with SCCM PADIS guidelines.

RESULTS

Characteristics Pre Intervention (n=217) Post Intervention (n=66)
Age, yr, mean ± SD 62 ± 17 58 ± 14
Male (%): 112 (52) 61 (92)
Race (%): Black 24 (11) 6 (9)
Hispanic 14 (6) 7 (11)
White 142 (67) 40 (61)
Not Specified/Discontinued 17 (8) 6 (9)

Propofol Dose Distribution

Distribution of CPOT >2 Per Intubated Patients (n=96)

Pharmacists’ interventions in n (%) Pre intervention Post intervention
Increase the opioid continuous infusion 16 (76) 16 (78)
Decrease the infusion rate of opioid 1 (1) 1 (1)
Add/Intensify opioid bolus 22 (102) 8 (21)
Add/Intensify fentanyl/opioid non-opioid agents for pain 1 (4) 1 (4)
Start opioid/infusion of opioid 3 (13) 3 (13)
Discontinue opioid/medication 18 (21) 18 (21)
Decrease the infusion rate of sedative 3 (1) 0 (0)
Add sedative agent 2 (2) 0 (0)
Stop infusion/infusion of typical antipsychotic agent 1 (1) 0 (0)
Discontinue antipsychotic 1 (1) 0 (0)

Dexmedetomidine Dose Distribution

Distribution of CPOT >2 Per Intubated Patients (n=96)

Dexmedetomidine

Fentanyl

Propofol

DISCUSSION

• Daily interventions by a critical care pharmacy resident who implemented the institutional PADIS guideline led to a 50% reduction in the number of unique doses of fentanyl administered over the duration of this study.

Future Directions

• Complete the second phase of the study until May 2019 and conduct the secondary data analysis.
• Addition of the management of PADIS to an onboarding training for all incoming PGY1 and PGY2 residents in order to offer this service 7 days a week.
• Expand this practice guideline to other ICUs within the institution (surgical, neuro, cardiac).
2016: MA ↑ Drug Overdose Death Rate
- Driven by heroin and synthetic opioids
- Deaths: 23.5 per 100,000 population
- 2017: 24.5 per 100,000 (4.3% change)

BMC Pharmacy New FTE Approved
- Pain Management Pharmacist
- Anticipated to start September 2019

CDC Guidelines: Prescribing Opioids for Chronic Pain
- Clinicians should avoid increasing dosage, or carefully justify a decision to titrate dosage, to ≥90 Morphine Milligram Equivalents (MME/day)
- High Risk: May increase risk for overdose

BACKGROUND

METHODS

- Identify 50 high-risk opioid using patients using data extraction tool
- Check tool daily for eligible patients
- Retrospective Chart Review: 50 Patients ≥ 90 MME/Day
- Baseline Characteristics (age, sex)
- Prior opioid use + selected medications
- Diagnosis or history of substance abuse
- Pain + primary discharge diagnosis
- MME/Day: first 24 hrs, admission high, discharge
- Inpatient selected medications
- Naloxone orders: inpatient + discharge

RESULTS

- For 3 Months Number of patients (%)
  - Opioid 18 (36)
  - Benzodiazepine 9 (18)
  - Gabapentinoids 12 (24)
  - Muscle Relaxants 6 (12)

- In the Past 3 Months Number of patients (%)
  - Naloxone 0 (0)

- In the Past Year Number of patients (%)
  - Naloxone 0 (0)

OBJECTIVES

- Define BMC’s High-Risk Opioid-Using Patient Population:
- BMC IRB Approval to Develop a Data Extraction Tool
- Identify areas for BMC Pharmacy Pain Management Interventions

PATIENT SELECTION

- 50 Adult Inpatients

Eligibility:
- Adult inpatients administered opioids ≥ 90 MME/day

Exclusion Criteria:
- PCA pumps or continuous infusions
- ED or any ICU patients per day
- Cancer diagnosis
- Comfort Measures Only (CMO) Status

DISCUSSION

- Identifying high-risk opioid users is difficult with the current electronic system and data extraction tool. This tool will need to be adapted and refined in the near future.
- An essential responsibility of the new pain management pharmacist will be to identify high-risk opioid using patients during periods of transitions of care to enhance pain care plans.

- 66% of Patients had Discharge Prescription(s) ≥ 90 MME/Day
- 8% of Patients Discharged without Opioid Prescription(s)

- Rules for Data Extraction Tool
  - Drug Oral (mg/day) IV (mg/day)
  - Morphine ≥90 ≥30
  - Hydromorphone ≥2.5 ≥4.5
  - Hydrocodone ≥90
  - Oxycodone ≥60
  - Codeine ≥600
  - Fentanyl transdermal ≥50 mcg/hr

- Identifying 50 high-risk opioid using patients using data extraction tool

- Check tool daily for eligible patients

- Retrospective Chart Review: 50 Patients ≥ 90 MME/Day

- Baseline Characteristics (age, sex)

- Prior opioid use + selected medications

- Diagnosis or history of substance abuse

- Pain + primary discharge diagnosis

- MME/Day: first 24 hrs, admission high, discharge

- Inpatient selected medications

- Naloxone orders: inpatient + discharge

- Limitations Future Directions
  - Data extraction tool cannot detect drug administrations or MME/Day
    - Build a BMC Opioid Calculator: MME/Day
  - No BMC Opioid Calculator: MME/Day
    - Add a rule for opioid-use + benzodiazepines
  - May not be capturing all patients on the eMAR.
    - Operating rooms use different eMARs
  - Identification of opioid dependence is dependent on medical coding
    - Increase awareness and access to naloxone at discharge

References:

Disclosures: Authors of this presentation have nothing to disclose.
BACKGROUND

According to the Association of American Medical College, there is expected to be a physician shortage 121,300 physicians by 2030 in the US. Coupled with the current nursing shortage, it is becoming increasingly difficult for Primary Care to manage patients disease states effectively and provide access to care in a timely manner. About 157 million Americans (48% of the total U.S. population) live with a chronic condition. We established a clinical pharmacy presence within Baystate High Street Health Center – Adult Medicine (BHSHC-AM) to accommodate medication related needs of both patients and providers. The Pharmacy Consult Clinic is available 3 days per week and assists in bridging the provider shortage gap. By providing patients with access to our Pharmacy Consult Clinic, we have been able to show great benefits while obtaining positive outcomes of chronic disease states.

METHODS

PHARMACIST INTERVENTIONS

- **Addition of therapy**
  - Identify gaps of therapy

- **Discontinuation of therapy**
  - Identify inappropriate medications or medications no longer needed

- **Dose change or change of medication**
  - Optimize therapy by decreasing all burden with combination medications, determine appropriate dosages, and identify suboptimal or supersuperoisic dosing

- **Chronic disease education**
  - Diabetes, Hypertension, Asthma

- **Recommend laboratory testing**
  - Recommended labs based on medication guidelines (A1C, liver function tests, lipid panel, TSH, etc.)

- **Nutrition education**
  - Demonstration of proper portion sizes and carbohydrate counting

- **Referred to provider**
  - Identify patients that need to be seen in clinic for an urgent visit

- **Obtain prescription refills**
  - Refill prescriptions per clinic protocol and obtain refills from provider

- **Medication Reconciliation**
  - Obtain patient history, identify duplicate prescriptions, determine adherence, and update CIS medication lists

RESULTS

The chart shows the percentage that each intervention is performed during a pharmacy consult visit. Along with addressing interventions we are able perform a complete medication reconciliation at all visits. The medication list in CIS is updated every time.

By providing this teaching and education, our results demonstrated that we were successfully able to decrease each patient A1C by an average of 0.81% after just one pharmacy consult visit.

ENHANCED PHARMACY SERVICES

Free prescription delivery service began in April 2018. The number of prescriptions delivered continues to grow. To date, over 4000 prescriptions have been delivered and patient and provider satisfaction has been enhanced. Due to this, prescription volume has increased in the pharmacy by 25%.

Prescriptions Delivered

Authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have direct or indirect interest in the subject matter of this presentation.

DISCLOSURES
The TOC pharmacy resident plays a vital role in patient-centered care and has led to improved outcomes such as:

- Increased access to follow up care post hospital discharge
- Increased medication adherence
- Decreased hospital readmission rates

**METHODS**

The transitions of care (TOC) pharmacy learning experience was newly re-designed to have the pharmacy resident complete patient-centered teaching and education surrounding the medication-use process. Pharmacy involvement throughout TOC helps to improve patient outcomes, reduce readmissions, and benefit patients’ quality of life.

**RESULTS**

Baseline Characteristics (n = 45)

- Average Age (±SD): 57.3 ± 16.3
- Male: 22 (48.8)
- Average # of Home Medications: 14.9
- Average # of Incorrect Medications*: 5.79

*Medications incorrect from home list; needed to be changed

Hospital Readmission Rate (n = 45)

- Total Population: 14
- HSHC Follow Up Patients: 17
- BWHC Follow Up Patients: 14
- Non-Follow Up Patients: 14

**DISCUSSION**

The TOC pharmacy resident plays a vital role in patient-centered care & has led to improved outcomes such as:

- Increased access to follow up care post hospital discharge
- Increased medication adherence
- Decreased hospital readmission rates

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