**Aim Statement**

This Quality Improvement initiative focuses on veteran patients undergoing total knee arthroplasty (TKA) at the Atlanta VA Medical Center from summer 2019 through March 2020. Through implementation of a multi-modal analgesic pathway, the expected measurable benefit is 50% reduction of oral morphine equivalents (OME) consumption in the operating room, the post-anesthesia recovery area (PACU) and at 24 hrs post-PACU discharge.

**Background**

The US is in the midst of an opioid epidemic. The perioperative period is a time when reducing opioid intake can make a difference in the numbers of patients who become chronic users. Emerging research indicates that 27% of chronic opioid patients first began to use them immediately postoperatively and that up to 7% of opioid naive patients become chronic users three months postoperatively. 8,000 patients undergo operative interventions yearly at the AVAMC and a significant proportion are prescribed opioids for post-op pain. Interventions designed to reduce the number of TKA patients who utilize opioids in the immediate post-op period will have beneficial effect on the health system in terms of reducing cost (by reducing length of stay and presence of side effects and pharmacy costs).

As part of our anesthesiology department-wide pain QI initiative, we initiated a multimodal analgesic pathway for patients undergoing TKA surgery. Multimodal analgesia consists of using analgesic modalities (gabapentinoids, acetaminophen, regional and neuraxial anesthesia techniques and local infiltration by the surgeon to target different pain pathways to reduce opioid utilization and related adverse effects.

**Baseline Conditions**

- **Gender TKA control data**
  - Male: 59%
  - Female: 41%

- **Race TKA control data**
  - Black: 40%
  - White: 60%

- **TKA Age control group**
  - Age 2 vs Age 3

**Methods**

- **Surgeons**
  - General/Ortho
  - Rheum
  - Spine
  - Obstet

- **Anesthesiologists**
  - CRNA
  - MD

**Problems Statement**

- Limit use of full analgesic pathway for TKA at Atlanta VA Medical Center

**Analysis**

**Difficulties/Benefit Matrix**

<table>
<thead>
<tr>
<th>Low Impact</th>
<th>High Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard</td>
<td>Easy</td>
</tr>
<tr>
<td>Pain control</td>
<td>Pain control</td>
</tr>
</tbody>
</table>

**Results – Run charts**

- **Control chart with combined baseline and QI Intraoperative OME**
  - Graph showing trends over time

**Actions/Tests of Change**

**Measures**

- **Process measures** – utilization of the multimodal analgesic pathway, consideration of all TKA patients for spinal anesthesia, patient education in the anesthesia pre-op clinic to include hand-cuts on multimodal analgesia, patient attendance at joint class, POD 1 follow-up by acute pain nurse

- **Objective measures** – reduction in intraop, PACU and 24-hour OME, reduced pain score, reduced length of stay

- **Balancing measures** - feedback on workflow impact from OR nurses with change from general to spinal anesthesia, increased PACU LOS due to spinals and post-op nerve catheter placement.

**Reflection/Follow-up**

- In reflection, we emphasize the success of our project was due to a committed multi-disciplinary team (surgery, anesthesia, preop and PACU nurses, technicians) led by a strong surgeon-anesthesiologist partnership.

- **Next steps?** SPS chart to better analyze data. Formalize (write-up) our clinical pathway for TKA patients at the Atlanta VA.

**From the above run charts we achieved our goal in the PACU with reduction of OME by 50%. We also saw a statistically significant decrease in opiate use in the operating room. While we did not see any change at 24-hours post-PACU discharge compared to baseline data, we do see a reduction of OME following introduction of the peripheral adductor nerve catheter in Dec 2019.**
Customized Music Therapy to Deprescribe Psychotropic Medications in a Skilled Nursing Facility
Hyunseok Oh, MD, Jamie Bass, DO

INTRO
• Stricter regulations limit use of psychotropic medications in skilled nursing facilities
• Novel methods needed to control symptoms

METHODS
• N = 40
• 11 on psychotropics
• NPI-Q scores pre-intervention & one month intervals
• Given customized mp3 players from 5PM to 9PM

RESULTS
• NPI-Q scores decreased from mean score of 22.4 to 21.46
• Overall facility psychotropic use decreased from 13.2% to 8.8% in 3 months

DISCUSSION
• Customized music therapy improves NPI-Q scores and augments deprescribing of psychotropics

Mean NPI-Q & Agitation Score

Pre-Intervention Post-Intervention
Month 1 Month 2
Mean NPI-Q 22.4 21.46 21.46
Mean Agitation Score 2.61 2.34 2.34

Author Disclosures: Support for purchase of mp3 players through Arthur M. Blank Foundation.
Aim Statement

1. We aim to reduce variability in implant-based breast reconstruction surgery by implementing a standard protocol of infection prevention measures, with a goal of 80% protocol compliance over the next 3 months.

2. We aim to reduce the incidence of surgical site infection following immediate breast reconstruction with implants / tissue expanders at EUH by 50% over the next 12 months.

Background

- Infection following implant-based breast reconstruction leads to increased rates of hospital readmission, re-operation, patient and hospital expense, higher rates of reconstructive failure with attendant physical and psychological morbidity.

Baseline Conditions

- There is significant variability regarding individual surgeon protocols for prevention of implant infection.

- Infections following implant reconstruction at EUH are higher than the national average.

Analysis

- Patient, surgeon and environmental factors all contribute to increased rates of infection.

- Primary causative organisms of implant infections at EUH are MRSA and MRSA.

Actions/Tests of Change

- Evidence-based “best practice protocols” for implant-based reconstruction

  - Pre-operative Phase
  - Intra-operative Phase
  - Post-operative Phase

  - Skin Desensitization
    - Intranasal mupirocin for 5 days prior to surgery
  - Revised pre-operative educational brochure
  - P.I.G.S. Protocol:
    - P – Pocket. Mastectomy cavity irrigated with irrisept.
    - I – Implant. Implant soaked in irrisept prior to placement.
    - G – Gloves. All team members don fresh gloves prior to handling implant.
    - S – Sterile field. All unnecessary instruments / personnel off the field; incision re-draped with green towels and ioban.

  - Intra-operative Phase
    - Sterile field.
    - Operative and post-operative IV antibiotics to be continued for 24 hours and no longer.
    - Inadequate post-operative teaching compliance (checklist and signature form)
    - Uncontrolled Diabetes
    - Prolonged anesthesia time
    - Inappropriate perioperative antibiotic dosing
    - Drain removed too soon
    - Contamination during expansion
    - P.I.G.S. Protocol:
      - Prepping and draping performed by a single surgeon
      - Change in gowns following removal of gloves
      - Sterile field established with sterile surgical packs, drapes and gloves
      - Change in gloves frequently
      - No back stalls prior to incision
      - No back stalls after incision
      - Components of post-operative teaching
        - P.I.G.S. educational brochure
        - Post-operative IV antibiotics to be continued for 24 hours and no longer
      - Four-month incidence of preoperative and post-operative patient teaching compliance
      - Aims to reduce the incidence of surgical site infection following immediate breast reconstruction with implants / tissue expansions / based breast reconstruction

Measures

- Primary Outcome Measure: rate of infection following immediate implant-based reconstruction at EUH

  - # implant infections / # of immediate implant-based reconstructions

- Process Measures:
  1. Pre-operative patient skin desensitization compliance (attestation form)
  2. Intra-operative patient protocol compliance (protocol checklist)
  3. Post-operative patient teaching compliance (checklist and signature form)

- Balancing Measures:
  1. Time to procedure completion (operative time before vs after protocol implementation)
  2. Patients satisfaction with pre- and post-operation educational experience (follow-up phone calls after discharge)

Results – Implant Infection and Protocol Compliance

- Group protocol compliance averaged 91% over the course of two change cycles.

- Of 21 implant reconstructions performed under protocol, we have had 0 readmissions and 0 reoperations for infection.
**Code Seizure: Closing the Gaps in the Treatment of Status Epileptics**

**Ebtsam Alumin Osman MD, Denise Chen MD, Rhea Battle PharmD, Hiba A. Haider MD FACNS**

**Background**

Status epilepticus is a neurological emergency characterized by recurrent or prolonged seizures that fail to self-terminate. The longer seizures are allowed to continue, the harder it is to fully control them. Delay in treatment as well as underdosing administration of antiseizure drugs (ASDs) is linked to increased mortality rates and an increased need for sedative-anaesthetic agents that are accompanied by adverse effects. An advanced system developed at Emory University Hospital (EUH) to manage early ASD administration was found to be effective in reducing the risk of mortality and morbidity in patients with status epilepticus. Systematic reviews and meta-analyses of randomized controlled trials have demonstrated the effectiveness of early ASD administration in reducing mortality and morbidity in patients with status epilepticus. The EUH system is designed to ensure prompt administration of ASDs to patients with status epilepticus, thereby improving clinical outcomes.

**Aim Statement**

We aim to (1) reduce the time taken to administer antiseizure drugs (ASDs) to inpatients in status epilepticus at EUH to <1 hr in over 80% of patients and (2) reduce the incidence of underdosing by 50% over a 2-month period.

**Baseline Conditions**

We studied a baseline condition at Emory University Hospital when patients with status epilepticus were administered with status epilepticus or acute recurrent seizures and received an initial loading dosage of ASDs. We compared the time to administration, the number of patients who received prompt administration, and the mortality rates in patients who received prompt ASD administration. We also evaluated the effectiveness of early ASD administration in reducing mortality and morbidity in patients with status epilepticus.

**Actions/Tests of Change**

1. **Screening and Selection of Patients:** All patients with status epilepticus or acute recurrent seizures were administered with status epilepticus or acute recurrent seizures and received an initial loading dosage of ASDs. We compared the time to administration, the number of patients who received prompt administration, and the mortality rates in patients who received prompt ASD administration. We also evaluated the effectiveness of early ASD administration in reducing mortality and morbidity in patients with status epilepticus.

2. **Monitoring Compliance:** The number of patients who received prompt ASD administration was monitored, and the mortality rates in patients who received prompt ASD administration were compared to those who did not receive prompt ASD administration. The effectiveness of early ASD administration in reducing mortality and morbidity in patients with status epilepticus was evaluated.

**Results**

- Trends toward improvement in time to administration of ASDs were noted (50% of patients received a timely ASD in cohort 1 compared to 30% in cohort 2 and 21% in cohort 3).
- Delays in ASD administration were linked to an increased risk of mortality.
- There is a signal that delay in ASD administration is linked to a delay in use of AEDs.
- Underdosing was prevalent across all patients, mostly seen with LEV and VPA (and to a much lesser extent with PHN).

**Reflection/Follow-up**

- Testing whether delays and dosing are associated with:
  - Length of ICU stay and length of hospital stay
  - Increased rates of readmission (based on readmission rates of patients who received prompt ASD administration)
  - Number of ASDs at discharge

- Next steps:
  - Code Seizure intervention with automated dosing
  - Create a standardization point in the process of using ASDs for patients with status epilepticus or acute recurrent seizures
  - Changes to patient care and medication administration
  - Changes to pharmacy practice

**Tables and Figures**

- Table 1: Cohort characteristics and median times to ASDs and median dosages
- Figure 1: Time to ASD administration (Koirala et al., 2019) and mortality rates in patients who received prompt ASD administration
- Figure 2: Total time to ASD administration (Koirala et al., 2019) and mortality rates in patients who received prompt ASD administration
- Figure 3: Total time to ASD administration (Koirala et al., 2019) and mortality rates in patients who received prompt ASD administration
- Figure 4: Dosing of weight-based ASDs (LEV, PHN, VPA, and PHN) in patients with status epilepticus

**Suggested Reading**

- Koirala et al., 2019: Time to ASD administration and mortality in patients with status epilepticus
- Emory Healthcare: Status epilepticus protocol
- American Epilepsy Society: Guidelines for the management of status epilepticus
- National Institute of Neurological Disorders and Stroke: Guidelines for the management of status epilepticus
Improving Guideline Adherence and Antibiotic Stewardship Through Order-set Rationalization

**Problem Statement:** Clinical practice guidelines (CPGs) and coupled order sets standardize patient care and disseminate evidence-based practices, leading to higher value patient care 1-3. However, at our institution we identified several CPGs where the appropriate order set was used in <50% of encounters deemed eligible for the CPG.

**Figure 1:** Overall guideline order set usage for eligible encounters

Integrating Clinical Practice Guideline (CPG) order bundles into general admission order-set may increase CPG adherence.

**Figure 2:** Higher rates of migraine medication bundle use and higher rates with appropriate order set used.

**Figure 3:** Higher rates of Depakote discharge prescriptions when CPG-OS used.

**Aim Statement:** Increase pre-determined (Asthma, Heavy Menstrual Bleeding, Musculoskeletal Infection, Community Acquired Pneumonia and Migraine) CPG-specific order set usage for guideline-eligible patients 0-18 years old admitted to Children’s Healthcare of Atlanta-Egleston on the general pediatrics service by 20% from July 2020 to June 2021 through implementation of an single, CPG-integrated general pediatrics admission clinical decision support tool.

**Analysis:**

- Figure 4: Fishbone analysis of barriers to CPG adherence.
- Figure 5: Pareto chart of reasons for order set non-adoption.

**Bottom Line**

The most common reasons for Clinical Practice Guideline (CPG) order set non-use were lack of awareness of or forgetting the order set.

**Interventions To Date:**

- Review and add synonyms to all understated guideline order sets.
- Identify and retire commonly misused order sets (i.e. mimic order sets).

**Future Interventions:**

- Integrate CPG orders into more commonly used order set.
- Migrate guidelines to public facing website with search engine optimization.

Justine Mrosak MD, Swaminathan Kandaswamy PhD, Claire Stokes MD, David Roth MSPH, Evan Orenstein MD
Family Medicine Resident Wellness Improvement Through an App-Delivered Mindfulness Meditation Intervention

Project Leaders: Mascaro J, Moore M.
Interprofessional Team Members: Aguilar-Alvarado M, Ajijotutu O, Ghose N, Patel P, Villalon-Gomez J.
Trainee Team Members: Baker, B. Holder, A.

Aim Statement

Through the use of a Mindfulness App, there will be an increase in Family Medicine Residents' sleep quality, social wellbeing, overall mindfulness, and subcategories of mindfulness (including describing and nonjudging of inner experience) by the end of a 8-week intervention period.

Background

- Higher workplace burnout reported among family medicine residents and physicians than other medical trainees and physicians
- Research shows mindfulness meditation helps reduce stress of medical training and practice
- Smartphone-delivered mindfulness apps offer an intervention to improve well-being and reduce the likelihood of burnout

Baseline Conditions

Emory FM residents report higher than national average on the Mini-Z Burnout Survey

Measures

- Acceptability / Interest in the App
- Job Satisfaction
- Stress
- Burnout Level
- Sleep

Actions/Tests of Change

- EFMRP trainees were randomized to either receive a phone-based mindfulness meditation application (10% Happier) or to a waitlist group that received the application at the conclusion of the study
- Residents were provided protected time in didactic lecture to complete the self-assessment pre- and post-surveys.
- The randomized participants received the app and an email inviting to participate.

Analysis

- We believe the factors influencing resident well being include:
  - Electronic medical record burden
  - Poor sleep quality and quantity
  - Interpersonal relationships with work colleagues
  - Stress over educational requirements (testing and clinical encounter numbers)

Results

- 26 Residents eligible
- 23 completed at least 1 survey
- 10 completed all study activities

Acceptability

I am interested in using the app...

<table>
<thead>
<tr>
<th>1 = Strongly disagree</th>
<th>2 = Disagree</th>
<th>3 = Neither</th>
<th>4 = Agree</th>
<th>5 = Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Don't agree at all</th>
<th>Completely agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=20 of 23 residents</td>
<td></td>
</tr>
</tbody>
</table>

Burnout

Using your own definition of “burnout,” please select one of the answers below:
1 = I enjoy my work, I have no symptoms of burnout
2 = Occasionally I am under stress, and I don’t always have as much energy as I once did, but I don’t feel burned out
3 = I am definitely burning out and have one or more symptoms of burnout, such as physical and emotional exhaustion
4 = The symptoms of burnout that I’m experiencing won’t go away. I think about frustration at work a lot
5 = I feel completely burned out. I am at the point where I may need some changes or may need to seek some sort of help.

N=10 of 23 residents

Reflection/Follow-up

- Most residents were interested in the app (80% of respondents agreed that they were very interested in using the app)
- Only one resident randomized to receive the app reported downloading it.
- Low uptake of program although need and desire exists
- Residents need protected time to engage in wellness activities
- Next Steps
  - Explore reasons for limited resident participation
  - Evaluate how to feasibly incorporate activities for wellness into resident work activities
In emergency department patients (age 28 days to 18 years) who are being admitted with maintenance intravenous fluids (at a rate greater than 10ml/hr) to the inpatient ward, we aimed to increase use of isotonic fluids to >80% by December 2019 from baseline of 18% in January 2018.

**Aim Statement**

**Background**
- Maintenance intravenous fluids (MIVF) are commonly used in the emergency department (ED) to provide critical supportive care for children who are acutely ill or when sufficient fluids cannot be provided enterally.
- Hypotonic MIVF have been the standard of care in pediatrics, but concerns about the high incidence of hyponatraemia have been raised.
- The American Academy of Pediatrics (AAP) released a clinical practice guideline (CPG) in December 2018 recommending that patients age 28 days to 18 years requiring MIVF receive isotonic solutions with appropriate potassium chloride (KCl) and dextrose (D).

**Baseline Conditions**
- ED physicians share an unfounded fear of potential risk of hypernatremia in children receiving MIVF.
- The standard prescribing process of hypotonic MIVF is not supported by scientific studies.
- There is no national benchmark for MIVF orders.
- There is high variability in MIVF prescribing practices among ED physicians.

**Measures**
- MIVF is defined as D5 NS +/- KCI; D5 1/2NS +/- KCI; D5 1/4NS +/- KCI; LR fluid combinations, given at a rate >10ml/hr.
- Patients with active chronic medical problems, DI, DKA, severe burns & trauma were excluded.
- Numerator defined as number of eligible patients who received isotonic MIVF; Denominator as total number of eligible patients who received MIVF.
- Compare the percentage use of isotonic MIVF before and after quality improvement (QI) initiative.
- Balancing measures; monitoring frequency of serum electrolyte check within 24 hours of admission and hypernatremia after QI intervention (Jan 2019).

**Analysis**

**Actions/Tests of Change**
- Dissemination of AAP guidelines to ED physicians.
- Education session during ED meetings to inform physicians of QI initiative to adhere to guidelines.
- Electronic medical record (EMR) change to standardize MIVF orders and flag providers when guideline not adhered to.
- Individual feedback provided to ED physicians monthly with data review to improve compliance.

**Results**

**Conclusion**
- The use of isotonic MIVFs improved to > 80% in ED patients admitted to the inpatient setting and it has been sustained.
- There was no statistically significant change in the frequency of serum electrolyte check within 24 hours of admission.
- There was no increase in occurrence of hypernatremia among patients who received isotonic MIVF.
- Rapid implementation of AAP CPG was successful in part because of institutional readiness for change at the time guideline was released.
- Hardwiring isotonic MIVF via EMR change was a key intervention to success.
- There is promise of long-term sustainability.
Opioid Prescriptions
• several strategies to prevent opioid use disorder, crisis in the United States.
• Approximately 130 Americans die every year.

Background
According to the CDC, opioid deaths rose 6 times from 1999 to 2017, and approximately 130 Americans die every year. Opioid abuse is a public health crisis in the United States. To address this crisis the CDC has recommended several strategies to prevent opioid use disorder, including:
• Academic detailing
• Quality improvement programs
• Patient education on the safe storage and disposal of prescription opioids

Baseline Conditions
- Percocet (any strength)
- Norco (any strength)
- Tylenol with Codeine #3
- tramadol 50 mg oral tablet

• Chart review at EUH revealed that over a 1 month period of time <5% of patients received written opioid discharge education.

Improving Quality of Opioid Discharge Education in the Emergency Department
Roslyn Seitz, ENP-C, FNP-C, MPH, Christele Francois, PharmD, BCPS, Lee Economy ENP-FC, FNP-C, Antoinette Ward, DNP

Aim Statement
Primary Aim: Improve utilization of printed discharge education to 50% among patients prescribed an opioid from the Emergency Department (ED) over a 4 month period of time.
Second Aim: Improve nursing and provider verbal patient education in 3 key areas of instruction including 1. safe storage 2. transitioning off opioids and 3. safe disposal of medication by self report at baseline and at conclusion of intervention.

Analysis
Patient, provider, nursing conditions, poorly written discharge instructions and political/societal factors contribute to patient discharge instruction and education.

Measures
- Primary Outcome Measure: % utilization of discharge education when provided with a new opioid prescription
- Secondary Outcome Measure: Improvement in self reported education provided with a new opioid prescription

Actions

<table>
<thead>
<tr>
<th>1. Planning Phase</th>
<th>2. Educational Phase</th>
<th>3. Chart Review/Audit and Feedback Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action 1: Opioid Discharge Instruction updated to reflect best practice and patient friendly language</td>
<td>Action 2: We engaged Patient and Family Advocate to review intervention and discuss patient perspective</td>
<td>Action 5: Chart review: We reviewed 100% of charts during the intervention for inclusion of opioid discharge education</td>
</tr>
<tr>
<td>Action 3: We performed a chart review and provider/nursing survey to determine baseline conditions</td>
<td>Action 4: Nursing and Provider Education: Presentation at faculty meeting and 1:1 nursing and provider education</td>
<td>Action 6: We completed 3 PDSA cycles with provider audit and feedback</td>
</tr>
</tbody>
</table>

Results

- Future Results: Complete 4 additional audit and feedback cycles
- Future Results: Repeat survey for provider and nursing self-report of discharge education

Reflection/Follow-up
- Quality project was stopped due to COVID-19, redeployment of resources and consideration for nurses and providers that were adjusting to information overload and process change
- Based on early data intervention appears to be improving written material for patients discharged with an opioid prescription
- Next steps: Complete audit and feedback cycles. Complete provider and nursing survey post intervention
- Consider adding QR code or video discharge education for patients
- Consider follow up phone calls to ascertain if change in patient knowledge or behavior resulting from the intervention
Will Rates of LPs, Admissions, and Empiric Antibiotic Administration Decrease with Implementation of a New Guideline Using Procalcitonin To Assess Febrile Infants?

BACKGROUND:
- In the U.S., about 500,000 infants ≤ 60 days old are seen for fevers in Emergency Departments (ED) yearly
- 8 to 13% are diagnosed with a serious bacterial infection (SBI)
- Due to the low specificity of our previous guideline, a larger proportion of lumbar punctures (LPs), empiric antibiotic, and admissions are ordered
- Population: Previously healthy 29–60 day old infants presenting with fever, without an obvious focal infection. Both blood and urine culture ordered in ED.

SMART AIM:
- Among otherwise well-appearing, febrile infants in the 29–60-day age group, we aim to decrease the number of LPs and hospitalizations by 20% from baseline and empiric antibiotic administration by 10% from baseline in the next 12 months.

NEW GUIDELINE:
- New Clinical Practice Guideline
- Education for ER physicians

Process Measure:
- Evaluate ED provider use of new clinical practice guideline for 29-60 day old infants presenting with fever by assessing use of associated order set.
- Use of Old Order Set – 32%
- Use of Procalcitonin

Balance Measures:
- Track patients 29-60 days old evaluated for fever to ensure that those with invasive bacterial infections are not missed and less than 2% of serious bacterial infections are missed.
- Returns to seek medical care within 4 weeks of initial visit

Future Steps:
- Release Order Set For New Guideline
- Analyze Data for Process and Balance Measures
- Continue to Track Post-Intervention Data

Table 1: The average LP rate was about 31% prior to publishing the new guideline.

Table 2: On average, infants received empiric antibiotics during 35% of encounters.

Table 3: The average baseline admission rate was approximately 30%.
**Aim Statement**

We aim to increase the vaccination rates in veterans with inflammatory bowel disease (IBD) that follow in IBD clinic over 6 months time as compared to data obtained from the prior calendar year. We anticipate to increase vaccine compliance through various methods by 20%.

**Background**

Recent data suggest that IBD patients do not receive preventative services at the same rate as general medical patients. Patients with IBD often treated with long-term immune suppressive therapies and may be at increased risk for infection, largely preventable via vaccination. By identifying current gaps in care, developing a process to determine vaccination needs and a method for delivery, as a GI clinic we could assume responsibility for this aspect of healthcare maintenance for our IBD patients.

**Outcome Measures**

- Missed opportunities - total # vaccines given/total # indicated
- Process Measures
  - Vaccine not offered
  - Patient deferred
  - Patient declined
  - Vaccine not available

**Balancing Measures**

- Office visit prolonged due to addressing HCM
- Cost
- Possibility of affecting nurse triage, bottleneck ("staff satisfaction")
- Improved patient satisfaction

**Actions/Tests of Change**

- Made IS rubric
- Familiarized users (and team) with criteria for vaccinations: ease of use
- Vaccine order menu
- Ease of ordering: Educational
- Nurse clinic
- Venue to vaccinate
- RTC order for injection series
- Allowed process for patient follow up
- Changing IBD Note template
- Ease of finding vaccine history, recording +/- missed opportunities
- Increased vaccines available in clinic
- Increased vaccination rates of select vaccines

**Results**

**Analysis**

The actions/tests of change allowed us to identify deficiencies in our system and contive methodical interventions.

Use of tally sheets to keep track of real-time data allowed us to identify progress as each change was implemented.

The cumulative effect of each intervention made an impact on reducing the percentage of missed opportunities by more than 20%.

Patients expressed appreciation for the time given to vaccine education and increasing the access to vaccination in IBD clinic.

Moving forward, we plan to sustain this process and expand this process to other VA hospitals through the IBD subcommittee of the National VA Field Advisory Committee.

**Reflection/Follow-up**
IMPACT OF ULTRASOUND GUIDANCE IN ASSESSMENT OF MATURITY AND CANNULATION OF NEW ARTERIOVENOUS FISTULA (AVF)

Niraj Karki, Forest Rawls, Rodella Broxton, Troy Walker, Vandana Dua Niyyar

Aim Statement

1. To implement ultrasound-guidance to assess maturity of all new AVF in hemodialysis patients at Emory Dialysis by February 2020.
2. To decrease the infiltration rate of new AVF to <10% in hemodialysis patients at Emory Dialysis over 6 months.

Background

- An arteriovenous fistula (AVF) is the preferred access for hemodialysis (HD) patients despite concerns of high primary failure rates and prolonged time to maturation.
- In the United States, AVF cannulation is done by dialysis staff and usually based on assessment of the access by palpation and physical examination.
- A common complication during cannulation, particularly in new AVF, is needle infiltration.
- AVF infiltration is associated with major morbidity, including additional interventions, prolongation of catheter dependence and access failure.
- Judicious use of ultrasound guidance has been successfully used in difficult peripheral as well as central venous access to reduce iatrogenic injury.
- We hypothesized that the use of portable ultrasound for cannulation of hemodialysis access would minimize infiltration during cannulation of new AVF in HD patients at Emory Dialysis over a 6-month period.

Baseline Conditions

- AVF cannulation at Emory Dialysis has traditionally been done by front-line dialysis staff and is based on subjective criteria for access maturity including physical examination.
- Infiltration data for all AVF was obtained from a retrospective database.
- There were 50 new AVF that were cannulated during a 6-month period in 2016 (1/1/2016 to 6/30/2016).
- Of these, there were 7 infiltrations of new AVF cannulations during this control period.
- The rate of infiltration of new AVF during cannulation was 14% in our dialysis units during the control period.

Analysis

- Rate of Infiltration = \( \frac{\text{Number of new AVF infiltrations}}{\text{Total number of new AVF created in that period}} \times 100 \)

Results

<table>
<thead>
<tr>
<th>Control period</th>
<th>Study period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of AVF created</td>
<td>50</td>
</tr>
<tr>
<td>Number of infiltrations</td>
<td>7</td>
</tr>
<tr>
<td>Rate of infiltrations</td>
<td>14%</td>
</tr>
</tbody>
</table>

Actions/Tests of Change

- We implemented an educational protocol to train 18 members of our dialysis staff in the use of portable ultrasound for evaluation of dialysis access.
- This included both objective criteria for assessment of maturity of AVF and readiness for use as well as simulation models for cannulation.
- 2 dedicated vascular access coordinators were trained as “access champions” and led the initiative.
- Each of the 4 HD units received their own portable ultrasound machine, which was made freely available to all dialysis staff.
- All new AVF were evaluated by US 4-6 weeks post-operatively.
- Immature AVF were sent for further evaluation/interventions.
- Mature AVF were cannulated under real-time ultrasound guidance.
- All data, including AVF infiltrations, were recorded prospectively.

Reflection/Follow-up

- Use of portable US devices for assessment of maturity and cannulation guidance is feasible even in busy HD units.
- In future studies, we will include multiple US measurements along the course of AVF as they may be more predictive of outcome.
- Infiltrations were reduced with the use of US guidance for cannulation.
- US education should be expanded to include all members of the dialysis staff involved with cannulation.
- Regular competency checks are essential to identify and supplement gaps in knowledge.
Improving Discharge Decision Making for Heart Failure Patients
Olga Turner, DNP, MSN, BSN,
Becky Dean, MSN, APRN, ACNS
Neil Bhatia, MS4

The aim of this project is to improve the determination and prediction of discharge-readiness of heart failure patients on the Heart Failure Unit at Emory University Hospital by implementing a sustainable functional assessment test for 100% of HF patients within one day prior of assumed discharge.

Aim Statement
Assessing functional capacity in heart failure patients is crucial for the determination of further interventions, the likelihood of rehospitalization, and ultimately all-cause mortality. Recent studies have shown that walking heart failure patients reduces rehospitalization rates and all-cause mortality. The 6-minute walk test (6MWT) has been proven to be effective in assessing functional status in heart failure due to its simple, inexpensive, and safe design. However, the 6-minute time parameter of the test results in significant limitations such as the increased effect on walking from comorbid conditions and the requirement of more time, physical space, and personnel to conduct the test. As an alternative, the 60-foot walk test (60FWT) is a tool that accurately assesses functional status in heart failure while potentially mitigating the limitations of the 6MWT by requiring less time, space, and resources; and by reducing confounding effects of other comorbid conditions. This project aims to implement the 60FWT in a consistent manner that emphasizes its effectiveness in assessing functional capacity in heart failure patients.

Baseline Conditions
The feasibility of implementing the 60FWT on a heart failure unit at a major academic medical center was conducted. It was noted that there were many missed opportunities to perform the test with patients prior to time of discharge. Barriers to perform the test prior to the day of discharge.

Analysis
The 60 FT Walk Test Assessment Form was used to collect vital statistics pre- and post-test and performance data for each patient completing the walk test. Vital statistics included BP, HR, O2 saturation. Time (seconds) and distance (feet) completed where also measured. Lastly, Perceived Exertion was also noted using the XX exertion scale with 6 being “no exertion at all” and 20 being “maximal exertion”.

Measures
Patients were excluded from completing the walk test based on the following criteria: refused, getting LVAD implant or OHT, waiting for heart transplant, going to SAR, non ambulatory, transferred to ICU, or death.

60 FT Walk Test completion times ranged from 60 seconds to 55.8 seconds. Most patients completed the walk test between 19 and 36 seconds.

Results
Initially, it was thought that RTAL could be used to flag Estimated Date of Discharge (EDD). The Charge Nurse Report was used to supplement gaps in the RTAL EDD. Barriers for using RTAL and the Charge Nurse Report include:
- RTAL patient discharge readiness tool
- Unreliable: not all providers completing i.e. only HF versus HMS

Charge Nurse Daily Patient Report
This is a manual process that requires verbal update from RN: not timely or real time reporting
When the pilot was redirected to RNs determining when to perform the 60 ft walk test, better completion results were achieved.

Reflection/Follow-up
Our research has shown that although literature state that the 6MWT has the potential to alter readmission rates and all cause mortality, the real-life applicability of the test is entirely dependent upon RN participation. We have concluded from our implementation of this test that this needs to be an RN-driven process for the following reasons:
1. RNs are in the best position to know when the patients are ready for discharge as they are in daily contact with patients. Thus they know best when to administer the test. When they are engaged, sustainability of the test is optimized
2. Electronic computer automated tools such as RTAL are unreliable in their current state and depend too greatly on physician input, which was quite unpredictable

Follow-up studies may seek to do the following
1. Implement a clear protocol for nurses to be at the forefront of administering and monitoring this test
2. Re-examine other potential technical tools like RTAL that may be of aid RNs or physicians in determining discharge readiness of HF patients
3. Correlate and compare the data aggregated from further testing of the 60FWT with existing data from applications of the 6-minute walk test

References

Actions/Tests of Change

Reflection/Follow-up

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<th>Completed Walk Tests</th>
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<td>11</td>
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Procedures
- People
- Discharge not planned
- New protocol
- Missing opportunities for functional status assessment

Baseline Conditions
- Procedure
- People
- Discharge not planned
- New protocol
- Missing opportunities for functional status assessment
- Charge Nurse Awareness

Background

Analysis

Actions/Tests of Change

Baseline Conditions

Reflection/Follow-up

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Syphilis in the ED – Current State

Background
- A syphilis epidemic has emerged in the last 15 years among men who have sex with men (MSM), as well as men who are HIV-positive.
- Many of these patients present to the EUHM ED with dysuria or symptoms of a sexually transmitted infection (STI).
- ED visits are opportunities for early detection, treatment, and developing relationships with an infectious diseases care team.

Aim Statement
Increase the rate of syphilis testing for any male who presents to EUHM ED with symptoms of dysuria or an STI by 50% by February 29, 2020.

Patient Characteristics
- men with dysuria or STI symptoms (July-Sept 2019)
- ED Visits, n=245
- Known HIV+: 54 (22%)
- Documented MSM: 36 (15%)
- Known HIV+ and documented MSM: 17 (7%)

Take Home Point
Approximately 30% of encounters for men with dysuria or STI symptoms were by those at high risk for syphilis.

Baseline Data – RPR
- men with dysuria or STI symptoms (July-Sept 2019)
- ED Visits
- RPR was sent (n=245): 29 (12%)
- Reactive RPRs (n=29): 21 (72%)
- Known HIV+ with RPR (n=54): 17 (31%)
- Documented MSM with RPR (n=36): 12 (33%)
- Known HIV+ and documented MSM with RPR (n=17): 8 (47%)

Take Home Points
- Only 12% of males with dysuria or STI symptoms were tested for syphilis. Syphilis testing was not performed in 53% of HIV-positive MSM who presented with dysuria or STI symptoms.

Cause and Effect

Provider
- Syphilis not in differential diagnosis
- Misinterpreting lab data
- Not asking patient correct questions
- Incomplete physical exam
- Turn-around time too long
- No access to Grady or Fulton County Records

Laboratory
- Target syphilis being in differential diagnosis

Sample Flyer
Male with STD symptoms?
Send RPR!

Results

Take Home Points
- Overall, more RPR tests were sent on male patients with dysuria or STI symptoms. There was a decrease in the amount of RPR testing sent on HIV+ MSM patients.

Insights/Lessons Learned
- There is a syphilis epidemic in Atlanta, especially within the HIV+ and MSM populations.
- Historically, most workouts for men with STI symptoms did not include syphilis consideration or RPR evaluation.
- Providers do not regularly ask about specific sexual behaviors (barrier use, anal intercourse, etc.) or define patient sexual partners (same sex vs. different sex vs. transgender).
- Despite smaller, flyers, and verbal education, providers did not consistently order RPRs on high-risk individuals.
- Standardize data collection methods and involve statisticians early on in quality improvement process.

Future Directions
- Share these results with ED providers.
- Consider updating STI powerpoint to include RPR with guidance for high-risk individuals.
- Continue to collaborate with EUHM’s outpatient ID clinic to ensure appropriate aftercare.

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