

**CLASS OF 2020**

**UNIVERSITY OF COLORADO SCHOOL OF MEDICINE COLORADO  
SPRINGS BRANCH QUALITY IMPROVEMENT SYMPOSIUM**

**MONDAY APRIL 1, 2019  
5:30 –6:30PM  
UCCS BERGER HALL**



## Why QI?

Quality Improvement (QI) is the framework we use to systematically improve health care that is delivered to our patients. QI is a core professional value and skill for physicians to analyze what we do and try to improve.

Medical schools are attempting to bridge the gap between education and practice by providing meaningful opportunities for medical students to engage in QI. Schools using the traditional “block model” for core clinical training find this to be challenging. The Longitudinal Integrated Clerkship (LIC) model provides a unique year-long opportunity for students to fully engage in systems improvement.

Our Colorado Springs Branch students embraced the opportunity to develop, implement, perform and analyze the data from their QI projects this year. They applied the PDSA (Plan-Do-Study-Act) model for tracking the progress of their projects. This publication details their QI projects and describes their thought processes and ideas for future projects in our community.

Currently, QI education is evolving and we are proud of the accomplishments of our students. We thank the Colorado Springs Branch preceptors who have worked with our students on their projects. It’s exciting to see the Colorado Springs’ health care community engage in work that will improve the care we deliver to our patients!

-Dr. Jaime Baker, CSB Associate Director for Education

“The world as we have created it is a process of our thinking. It cannot be changed without changing our thinking.”

*-Albert Einstein*

## **Class of 2020 Quality Improvement Projects**

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## **BACKGROUND:**

There has been a dramatic increase in opioid prescriptions to control the “Fifth Vital Sign.”<sup>1</sup>

Well known opioid side effects include nausea, vomiting, confusion, constipation, addiction, overdose, and delayed recovery.<sup>1,2</sup>

It is well known that patients are prescribed an excess of opioids post-operatively<sup>3-5</sup> and that there is wide variation between providers prescription patterns at discharge.<sup>6</sup>

Published and anecdotal evidence shows patients do not properly dispose of their opioids.<sup>7</sup>

Educational interventions within surgical departments have decreased pills prescribed without increasing refill rates by 53%.<sup>8</sup>

Little is known regarding provider attitudes and prescribing practices within our practice.

## **AIM STATEMENT:**

Decrease the number of Morphine Medical Equivalents (MMEs) entering the Colorado Springs Community through the Penrose trauma group via education and discussion.

Evaluate prescription patterns within the Penrose trauma group.

## **MEASURES:**

*Primary:*

MMEs of opioid prescribed within pre and post intervention populations.

*Secondary:*

Potential demographic and clinical covariates.

Overall prescription patterns.

## **CHANGE:**

Research published within the last two years was summarized and presented to at the Penrose Trauma meeting on November 1, 2018. This included discussion of the wide acute care inter-physician prescribing variation, what interventions have been efficacious in the United States and which specialties have proven the most resistant to change.

## **PLAN:**

*Who:*

Penrose Trauma

*What:*

Review and summarize recent publications – translation into a presentation.

Formulation of discussion questions to generate “change talk” amongst providers.

Electronic distribution of presentation materials to those present and absent.

Collection of demographic data: age, sex; medical data: medications, smoking status, alcohol consumption, illicit substance use, injury severity score, procedure, hospital length of stay, pain severity score on admission, post operatively, and at discharge, discharge destination, and pain medication prescriptions at discharge.

*Prediction*

The small projected sample size, variable attendance of providers to the trauma meeting, and lack of personal authority make it unlikely that a significant decrease in prescribed opioids will be observed.

## **DO:**

Data collection and collation went smoothly. A sample size of 29, 12 pre and 17 post intervention, was obtained, which was slightly lower than anticipated. Student's T-test was used to assess the mean MMEs prescribed at discharge between both study arms. There were two outliers, one in each study group, which were removed. Student's T-test was used to compare the study groups quantitative variables; Fischer's exact test was used to compare the groups categorical variables with only two options. Pearson's Correlational Coefficient was used to evaluate the correlation of the patient's quantitative variables with the number of MMEs prescribed.

The normality of the data could not be established due to the low sample size, calling into question the validity of the analysis.

## **STUDY:**

There was a statistically insignificant increase in MMEs prescribed at discharge after the educational presentation. No statistically significant differences in patients in each study arm. No strong correlations were found between patient data and MMEs prescribed at discharge. Significant variation from the electronic medical record discharge analgesia preset was found, with the largest plurality of changes to lower MMEs.

## **ACT:**

*Why did MME's increase after our intervention?*

There are several possible explanations: there was a change in prescription patterns, but the study was underpowered to detect it; the communication of the recent research engaged too small of a percentage of the trauma group; or the providers have pre-existing personal criteria for post-operative analgesia that remained unaddressed.

*Why do prescribers choose to alter the preset discharge settings?*

This is unclear, both in published literature and amongst the group present. From the discussion generated, it seems that each physician has their own comfortable patterns that "keep patients from calling for refills" after discharge. This is a very common objection raised by providers when discussing interventions to change opioid prescribing patterns, based on both the anecdotal evidence generated by this project, and the literature.

*Going forward*

In response to these questions, several avenues for investigation and improvement lie before us. Future queries should focus on evaluating individual provider practices and concerns. This could facilitate establishment of standard group practices and targeted interventions. Additional data should be collected to allow for meaningful subgroup analysis including objective evaluation of individual provider habits. Combined, these queries could fuel more impactful intra-group discussion.

## **Citations**

1. Kharasch ED, Brunt LM. Perioperative Opioids and Public Health. *Anesthesiology*. 2016;124(4):960-965.
2. Rivat C, Ballantyne J. The dark side of opioids in pain management: basic science explains clinical observation. *Pain reports*. 2016;1(2):e570.
3. Kim N, Matzon JL, Abboudi J, et al. A Prospective Evaluation of Opioid Utilization After Upper-Extremity Surgical Procedures: Identifying Consumption Patterns and Determining Prescribing Guidelines. *J Bone Joint Surg Am*. 2016;98(20):e89.
4. Tan WH, Yu J, Feaman S, et al. Opioid Medication Use in the Surgical Patient: An Assessment of Prescribing Patterns and Use. *J Am Coll Surg*. 2018;227(2):203-211.
5. Hill MV, Stucke RS, Billmeier SE, Kelly JL, Barth RJ, Jr. Guideline for Discharge Opioid Prescriptions after Inpatient General Surgical Procedures. *J Am Coll Surg*. 2018;226(6):996-1003.
6. Hill MV, McMahon ML, Stucke RS, Barth RJ, Jr. Wide Variation and Excessive Dosage of Opioid Prescriptions for Common General Surgical Procedures. *Ann Surg*. 2017;265(4):709-714.
7. Eid AI, DePesa C, Nordestgaard AT, et al. Variation of Opioid Prescribing Patterns among Patients undergoing Similar Surgery on the Same Acute Care Surgery Service of the Same Institution: Time for Standardization? *Surgery*. 2018.
8. Hill MV, Stucke RS, McMahon ML, Beeman JL, Barth RJ, Jr. An Educational Intervention Decreases Opioid Prescribing After General Surgical Operations. *Ann Surg*. 2018;267(3):468-472.

## **Do you know your patient's end of life goals? Improving communication between patients, providers, and Electronic Health Records**

Erin Aldag MS3, Dr. Melanie Stickrath, MD, Carol Forsberg, LCSW, Tanya Biechler, RN  
University of Colorado School of Medicine, Colorado Springs Branch

### **BACKGROUND:**

Advanced directives (AD) and medical power of attorneys (POA) enable patients to make medical decisions about their end of life before they are in end of life situations. A study from NEJM stated that in the general population, patients with completion of legal documents such as ADs or POAs approaches 29%. The shift towards patient centered approach in medicine increases the importance of maintaining patient autonomy through the end of a patient's life.<sup>1</sup>

One study reported that of patients from a primary care office who were 85+ years old without dementia, 69% reported having ADs and 64.6% reported a medical POA. This study postulated that more adults may have completed end of life documents such as ADs or POAs if they received more information or support from family members or medical staff.<sup>2</sup> Another study found that among 998 patients in a university hospital, 51.3% of patients reported having a prepared document of *either* an AD or POA. Of those 51.3%, only 23% of these patients had such information documented in their hospital record. The study also reported that patients were afraid of medical overtreatment or loss of self-determination.<sup>3</sup>

Finally, a study from the Journal of the American Geriatrics Society found that of patients who were asked about advanced care planning, 76% of patients were able to complete some form of advance care planning. This was defined as advance directive, durable power of attorney, or discussion of end of life preferences with next-of-kin. The subjects who made a change in their advance care planning were less likely to die in the hospital and more likely to be enrolled in hospice, indicating improved quality of life in these patients.<sup>4</sup>

The research indicates a need for more discussion surrounding advance care planning including advanced directives (AD) and medical power of attorney (POA) to ensure that decisions are made prior to patients' admission to the hospital. With more discussion regarding advance care planning, we would expect to see an increase in the number of patients with completed advance care planning before they are admitted to the hospital unable to make medical decisions for themselves.

### **AIM STATEMENT:**

By March 2019, 90% of patients will be asked if they have a form of life care planning (LCP), and 75% of patients will have a documented form of life care planning with Kaiser Supportive Care. Forms of life care planning (LCP) include: medical durable power of attorney (MDPOA), living will including: Five Wishes®, Statement of Treatment Preferences, Colorado CPR Directive and Colorado Medical Orders for Scope and Treatment (MOST).

### **MEASURES:**

We will measure the number of patients that received information regarding LCP at their first visit by tracking half-sheet use in the supportive care clinic. Of the patients who are seen either as a new patient or follow-up, we will measure the number of patients that have a new form of LCP documented after receiving the half-sheet questionnaire.

### **CHANGE(S):**

When the patient checks-in for their appointment, the patient will fill out a three question half-sheet asking about life care planning including medical durable power of attorney (MDPOA) or living will including: Five Wishes®, Statement of Treatment Preferences, Colorado CPR Directive and Colorado Medical Orders for Scope and Treatment (MOST).

### **PLAN:**

This project was a collaboration with the Kaiser Palliative Care Supportive Care Team. To begin this project, we created a three question half-sheet questionnaire to include with the check-in paperwork. Questions were approved by all staff members. Two days a month, the half-sheets and the charts in Epic would be reviewed of patients who had appointments in the previous weeks.

We predicted that patients who are asked about advance care planning in the form of a half-sheet were more likely to complete a type of advance care planning at the time of their visit or schedule a formal advance care planning follow up visit.



## **DO:**

A chart review was completed in November of 2018 at which time every patient's chart on the Supportive Care list was evaluated for: code status on their EPIC chart top ribbon, scanned documents in the ACP/LCP tab, and scanned documents in the Demographics tab. Beginning in January 2019, patients were given a half-sheet questionnaire upon check-in about life care planning documentation already completed and their interest in talking with the supportive care team further about life care planning.

Every two weeks, it was documented how many patients on the schedule were given the half-sheet questionnaire and if any additional documents were added to their chart after their visit. In March 2019, a second chart review was performed on the patients who had had appointments between January and March, and it was noted if any changes had been made in their chart since the November chart review.

Unexpected observations included difficulty in providing this half-sheet at home visits or during telephone visits. Additionally, it was noted that if a document was uploaded, it may have been uploaded to a different part of the chart that was not being checked in the chart review.

## **STUDY:**

Approximately 82% of patients received the half-sheet questionnaire before their appointment. The largest barrier to receiving the questionnaire was telephone visits and occasional home visits. Of patients who reported on the questionnaire that they have a form of advanced life care planning, 70% had some form of documented life care planning in their EHR. But, patients may have reported on the questionnaire that they have an MDPOA form, while the document on their EHR was a MOST form. After appointments where patients filled out the half-sheet questionnaire, 10% of patients had a new DNR documented on their EPIC banner, almost 30% had a new scanned document in their "other document" section in the ACP/LCP tab, and 16% of patients added a health care agent (HCA). When comparing patient EHR documentation before and after the half-sheet questionnaire, the percentage of total patients with any form of LCP documented in their chart increased from 46% to 65%. Additionally, a large increase was seen in the percentage of patients with a listed health care agent, increasing from 73% to 91% of total patients.

Qualitatively, staff noted that having the questionnaires before each patient visit started conversation surrounding life care planning, even if a document was not completed at that visit. It was noted on many half-sheets that another appointment was scheduled for life care planning documentation. Additionally, it was noted that while there was an increase in LCP documentation uploaded from the supportive care team, the layout of a patient's chart is slightly different when the patient is admitted to the hospital. It is unclear if in-patient providers know where to find these documents, and whether they would have the time to search for potential life care planning documentation if it was unknown.

## **ACT:**

Next steps for this project are to evaluate in-patient charts for location of life care planning documentation and identify major similarities or differences between in-patient and out-patient charts. Evaluating these differences will help provide guidance on changes that can be made in EPIC to make LCP documentation more accessible in every setting. Additionally, having a standardized location for LCP documentation would help the information be found quickly when a patient is admitted to the hospital. Patients' autonomy and end of life wishes are more likely to be preserved if the patients' wishes are known early in the hospital stay.

## **References**

1. DeMartino, E. S., et al. "Who Decides When a Patient Can't? Statutes on Alternate Decision Makers." *N Engl J Med* 376.15 (2017): 1478-82. Print.
2. Luck, Tobias, et al. "Advance Directives and Power of Attorney for Health Care in the Oldest-Old – Results of the Agequalide Study." *BMC Geriatrics* 17.1 (2017): 85. Print.
3. de Heer, G., et al. "Advance Directives and Powers of Attorney in Intensive Care Patients." *Dtsch Arztebl Int* 114.21 (2017): 363-70. Print.
4. Bischoff, K. E., et al. "Advance Care Planning and the Quality of End-of-Life Care among Older Adults." *J Am Geriatr Soc* 61.2 (2013). Print.

## **Improving Health Literacy Around Marijuana Use During Pregnancy**

A quality improvement project led by Nicholas Arlas

### **Background:**

Addressing marijuana use during pregnancy is a challenge for healthcare providers and social workers in Colorado Springs. There is a paucity of patient education materials regarding current research and recommendations. Social workers at Memorial Hospital spend a significant amount of time working with patients around this issue and have collected data showing that marijuana is the most common mandatory reported substance that is used during pregnancy. A recent study by the University of Colorado showed that 69% of dispensaries in Colorado who were contacted by researchers recommended the use of marijuana to treat nausea in the first trimester. Further research is needed to better characterize the effects of marijuana during pregnancy. Our OB ED service does not currently use any patient-focused literature specific to marijuana use during pregnancy. There is an existing flyer created by the Colorado Department of Public Health and Environment in collaboration with UC Health that we plan to use to educate patients about this topic.

### **AIM Statement**

- By January 1, 2019 100% patients presenting to the OB ED will receive a flyer disseminating information regarding marijuana use during pregnancy and lactation.

### **Measures**

- Track the percentage of patients discharged that receive the flyer
- Track the numbers of positive neonate toxicology screens for THC and compare data over time to see if the intervention of a flyer has any impact

### **Changes**

- The project will be introduced to the labor and delivery nurses through a presentation at their all-staff meeting and via email from their nurse manager
- The flyers will be placed in the OB ED triage area
- Upon discharge we will provide patients with a flyer about marijuana use during pregnancy and ask the nurses to document with a nursing note: "THC education provided"

### **Plan**

- Collaborate with social workers and clinical nurse manager of the birth center in order to get approval for the project
- Gather input from stakeholders: social work, L&D nurses, physicians
- Contact providers at Denver Health and University of Colorado hospitals to determine how they approach counseling about marijuana use in pregnancy
- Present project and flyer at all-staff meeting
- After implementation of flyer distribution track number of patients who receive information
- Compare data over time that shows the number of THC positive newborns at Memorial
- Determine areas for future improvement of outcomes and research in terms of substance use during pregnancy in Colorado Springs
- Prediction: Flyer will be included in discharge instructions more than 50% of the time.

### **Do**

- Implementing the project on time was a challenge, received approval in the middle of January
- Few flyers handed out initially, the nursing note documentation was not working as a feasible way to track data in the context of a busy OB ED and birth center

- Moved the flyer to a more visible location in the triage area and provided a reminder sign to hand out the flyer
- Presented project at all staff meeting
- Realized that tracking would be a challenge, decided to track total number of flyers in the OB ED area over a ten day period immediately following all-staff meeting, then compare the number of flyers that were handed out to the total number of patients discharged
- It is not possible to say with absolute certainty that all the flyers were distributed directly to patients, but it is a reasonable assumption that any difference in the total number of flyers in the triage area over the study period reflects flyers that were handed out, most likely to patients
- Submitted request to Epic to include flyer in discharge instructions with a click-box for tracking

## **Study**

- Over the ten days between 2/12 – 2/22/19 there were 162 patients seen in the OB ED, and 82 were discharged home undelivered.
- We started the time period with 65 flyers, and by the end of the period there were 53 flyers left in OB triage
- We assume 12 flyers were handed out during this period, so we assume 12 out of 82 patients received the flyer at discharge or 14.6% of patients
- 14.6% is a decent starting point, but also shows that majority of patients aren't receiving the flyer, most likely because the ask to distribute a flyer to all patients at discharge is a separate step in the workflow and not something that people think to do for every patient
- The data reflects that there is a need for an easy method to distribute the flyer and document that it was given in way that aligns with the current L&D workflow. This needs to be integrated into the electronic medical record

## **Act**

- For next cycle there needs to be a way to integrate the flyer information into the Epic EMR
- It was not possible due to time constraints to compare year over year data, but for next steps it would be important to see if there is any decrease in the number of THC positive newborns after the flyer becomes more widespread

## **References:**

1. Dickson, B., Mansfield, C., Guiahi, M., Allshouse, A. A., Borgelt, L. M., Sheeder, J., ... & Metz, T. D. (2018). Recommendations from cannabis dispensaries about first-trimester cannabis use. *Obstetrics & Gynecology*, 131(6), 1031-1038.
2. Ryan, S. A., Ammerman, S. D., & O'Connor, M. E. (2018). Marijuana use during pregnancy and breastfeeding: implications for neonatal and childhood outcomes. *Pediatrics*, 142(3), e20181889.
3. American College of Obstetricians and Gynecologists. (2017). Marijuana use during pregnancy and lactation. Committee Opinion No. 722. *Obstet Gynecol*, 130(4), e205-e209.

Flyer used during the project is available in multiple languages at: [https://www.colorado.gov/pacific/sites/default/files/MJ\\_RMEP\\_Factsheet-Pregnancy-Breastfeeding.pdf](https://www.colorado.gov/pacific/sites/default/files/MJ_RMEP_Factsheet-Pregnancy-Breastfeeding.pdf)

Or by searching for: "Colorado marijuana and your baby"

**Analyzing Patient Education Effectiveness for Stereotactic Radiosurgery (SRS)  
and Stereotactic Body Radiation Therapy (SBRT) Patients**

Adam Avant<sup>1</sup>, Timothy Waxweiler MD<sup>2</sup>, Daryl Yancy MBA<sup>2</sup>

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**BACKGROUND:** Directly after a patient is diagnosed with cancer, they receive an overwhelming amount of information. This may include the details of their diagnosis, what treatment options they have, what possible side effects are, and not to mention information about prognosis. For most patients, receiving a diagnosis of cancer is a life changing moment and patients can very often go into a state of shock, high anxiety, and stress after they hear the news. When patients are in such a state, a lot of what they hear after their diagnosis is not retained, including important details of their treatment. Memory for medical information is often poor and but is noted to be even worse when patient has a high level of anxiety<sup>1</sup>. The Journal of Oncology released a study in 2008 showing that patients with cancer could recall less than 50% of the medical information given to them in a patient doctor encounter, and this number was less for older patients, and those with worse prognoses<sup>2</sup>.

Radiation therapy is a critical part of treatment for many cancer patients. The goals and process of the treatment can be especially confusing for patients in such a vulnerable state of recent cancer diagnosis. Stereotactic Radiosurgery (SRS) and Stereotactic Body Radiation Therapy (SBRT) are short course, concentrated, targeted therapies which have proven as an effective treatment for specific patients. These treatment courses can be very quick, side effects can be unique to areas of treatment, and they may be only a small portion of a patient's oncologic treatment. Prior to this study, our community-based radiation oncology clinic at Memorial Hospital Central did not have any data on patient education effectiveness for SRS and SBRT patients.

**AIM STATEMENT:** The goal of this project was to first understand the educational process a patient undergoes when they receive SRS and SBRT therapy. The project also aimed to understand what portions of information about their treatments patients commonly misunderstood, or found challenging.

**MEASURES:** Measures used were patient answers to survey questions, ie. How much they remember about potential side effects, whether they were given an informational handout, whether they were given return precautions or driving precautions, and overall satisfaction.

**CHANGE(S):** Change enacted to accomplish this aim was the administration of a survey assessing patient education about their treatment, as well as their satisfaction with education to all SRS and SBRT patients within the time period who agreed to participate.

**PLAN:** First we needed to speak with radiation oncologists about the process of going through either SRS or SBRT, and figure out when patients are educated about their treatment and how they are educated. To administer a survey, I spoke with the Dr. Waxweiler as well as Daryl Yancy about patients receiving SRS or SBRT who could be contacted in order to be surveyed. We had to decide when to contact them (at appointments, after appointments, on the phone?). We also created a survey, that was not too long so it wouldn't take up too much time; and in fairly easily understood language so patients of all demographics could understand it. This survey then needed to be cleared by Dr. Waxweiler and other Radiation Oncologists and staff in the clinic.

**DO:** The survey was created, cleared, and administered to patients who have completed SRS or SBRT between October 1<sup>st</sup> 2018-December 31<sup>st</sup> 2018. There was initial difficulty getting patients to fill out surveys by hand, I had to switch to calling each patient individually and going over the survey by phone. Due to this I was unable to standardize the time from completion of treatment to administration of the survey. Many patients also did not pick up their phones which left a small sample size making results difficult to get good data from and difficult to generalize to this entire patient population.

**STUDY:** 13 patients agreed to the survey who had finished treatment in this time period. 5 patients had received SRS and 8 had received SBRT. 1/5 of the SRS patients stated they had not been given driving or return to work precautions. 69% of patients remembered going over the educational handout, 23% did not remember, 8% stated they did not receive the handout. 54% of patients surveyed could not recall one or more potential side effects of their treatment, 46% could recall one or more side effects. 15% of patients stated they were not warned about when to go to the ER or call the office, 8% said they did not remember. 84.6% of patients were very satisfied with their education about their treatment, all remaining patients were satisfied. While patients were satisfied there were definitely some gaps in education identified.

**ACT:** The next steps are to use the knowledge of where patients need more education along with the process map in order to put in place an intervention to improve patient education. Potential interventions include: to begin standardizing when patients receive educational handouts using a “check the box” system, or creating better educational materials which stand out more to patients. Currently we have formed a FAQs sheet based on the answers from the survey, this sheet has been handed out to patients by the staff during their simulation appointment. The goal is to encourage patients to ask questions about their treatment that previous patients have not understood well. Hopefully this organization of the patient experience and educational needs will lead to useful future interventions with the overall goal of improving our patient’s radiation oncology experience.

1. Jansen, J., Butow, P. N., van Weert, J. C., van Dulmen, S., Devine, R. J., Heeren, T. J., ... & Tattersall, M. H. (2008). Does age really matter? Recall of information presented to newly referred patients with cancer. *Journal of Clinical Oncology*, 26(33), 5450-5457.
2. Kessels, R. P. (2003). Patients’ memory for medical information. *Journal of the Royal Society of Medicine*, 96(5), 219-222.

**Pediatric QI Project Plan (PDSA worksheet)**  
Derek D. George, MS and Nancy Dawson, MD, FAAP, FABM

**BACKGROUND:**

Every day in the United States, 78 children ages 0-18 years are killed or injured by guns. Nationwide, 1.7 million children live in a home containing a loaded and unlocked gun. In Colorado, there are fewer than 10 unintentional gun deaths per year, with only 4.6% of gun deaths among children age 0-19 being unintentional. The largest proportion of child gun deaths in Colorado result from suicide (49.7%) and homicide (41.0%) (detail this study). Statistics aside, multiple studies support the use of home gun safety measures for the reduction of child gun injuries and deaths.

According to the American Academy of Pediatrics (AAP), the safest home is one without a firearm. This statement, while factual, often conflicts with the personal beliefs and values of many parents, who own firearms for personal protection, recreation, or other reasons. The AAP therefore provides recommendations for home firearm safety, including using gun safes and having ammunition locked separately. Additionally, the AAP insists that pediatricians have a vital role to play in screening for home firearm safety practices and providing anticipatory guidance on proper home firearm safety.

Currently, our pediatric clinic does not have a screening process for home gun safety practices, nor does the practice regularly provide anticipatory guidance on home firearm safety.

**AIM STATEMENT:**

By February 28th, 2019 we will screen 80% of families seen by Dr. Dawson during that time period for home gun safety practices.

**MEASURES:**

Percentage of families, as by number of surveys provided and refusals, who are screened for home gun safety practices.

Families will be further divided based on number and age of children.

Stratification by type of home gun safety practice(s) employed by parents.

Measurement of proportion of families with guns in the home.

Amount of time spent on screening patients

Possible balancing measures include:

Lack of time from Physician/MA for screening

Distraction by other questions

Parental refusal to participate in screening

**CHANGE(S):**

When families arrive at the clinic for a well-child check with Dr. Dawson, parents will be asked to fill out an anonymous screening questionnaire about the existence of guns in the home and home gun safety practices. These data will be recorded in a database, with possible integration into EMR at some point.

**PLAN:** *(List the tasks needed to set up this test of change. Who? What? When? Where? What data will you collect? What will you measure? Also state your prediction of what the results will be.)*

- Assessment of best practices for home gun safety screening by Dr. Dawson and Derek George.
- Development of short screening questions for home gun safety by Dr. Dawson and Derek George.
- Integration of smart text versions of screening questions into EMR system, placed appropriately with other EMR screening elements (immunizations, developmental screening, household safety screen etc.)
- Depending on simplicity of screening questions and ease of integration into EMR, possible integration into normal medical assistants' workflow to allow for increased screening
- Screening will begin on October 1<sup>st</sup>, 2018. A minimum of 30 families will be screened between October 1<sup>st</sup>, 2018 and February 28<sup>th</sup>, 2019.
- Data collected in the EMR will be anonymized and compiled in an Excel spreadsheet, updated weekly or biweekly. Monthly review of data will provide insights into the strengths and weaknesses of the intervention, unexpected observations, and necessary changes to the program, aligning with PDSA framework in so far as possible.

- **Predication:** Assuming easy integration into the EMR and clinic workflow, we should meet our goal for screening families for home gun safety. We predict that 60% of families will follow home gun safety practices. Depending on the results of the home gun safety screening, patient education intervention may be developed to educate families on home gun safety.

**DO:** *(Describe what happened when you ran the test or collected the data. Document problems and unexpected observations)*

- An anonymous paper survey inquiring about home firearm ownership and storage methods was distributed to parents/caregivers of patients at the start of well-child check visits.
- Data were collected from 11/07/2018-2/20/2019 and entered into an electronic Excel database at the end of every month.
- A couple unexpected challenges we faced while collecting data:
  1. The original design of the survey was such that parents/caregiver sometimes didn't provide ages of their children. The successive solutions to this problem were:
    - 1. Have medical assistants double-check that ages were filled in on paper form (less effective)
    - 2. Highlight the portion of the screening questionnaire asking for children ages (slightly more effective).
    - 3. Edit screening form to add a well-demarcated question on children ages (most effective).

**STUDY:** *(Analyze the data. Summarize and reflect on what was learned)*

In total, 306 families were screened, and 296 filled out our survey. Only ten families refused (approx. 3% of total cohort).

Only around 9% of our cohort had previously been asked about home firearm safety screening, suggesting that our intervention was much needed.

51% of families in this community own firearms, which is higher than the national average of 43%. The higher firearm ownership proportion in this community further suggests the need for such screening.

Most families utilized safer home firearm safety practices, with only 10% utilizing less safe safety practices.

Anonymous home firearm safety screening was successfully implemented among one provider at a large community-based pediatrics clinic in Colorado Springs, and well-received by families. Only 3% refused the survey.

Further investigation should be done to better assess unique needs of families served by this practice, including possible need for better storage methods, firearm safety training, etc.

Additional analyses may provide insights into needs for higher-risk populations (e.g. adolescents). Considering preteens and adolescents constituted almost 1/4<sup>th</sup> of screened children (24.2%), and this is the highest-risk population for firearm-related suicide, efforts should be made to decrease risk of suicide among this group. This includes home firearm safety practices.

**ACT:** *(Adopt, Adapt, Discard. Describe what modifications to the plan will be made for the next cycle for what you learned. Determine what modifications should be made and prepare a plan for the next test)*

- Integration of the screening questionnaire into the EMR would allow most children served at this clinic—and not just patients of Dr. Dawson—to be screened. Such a change might make it more difficult to collect further data on such screenings, as it is not known if chart reviews or chart data analyses can be done successfully with the current EMR service.
- Selection of appropriate educational materials and counseling strategies for home firearm safety counseling, with attention being paid to family values and attitudes, and with a focus on reducing firearm-related suicide should be conducted. The AAP, the University of Michigan, and other organizations listed above provide educational resources to parents and healthcare providers for these purposes. Additionally, providers at this pediatrics clinic would benefit from learning more about the specifics of safer firearm storage/safety practices (safe types, trigger locks, etc.). Having this knowledge will empower providers to provide anticipatory guidance to families while also being able to respect their preferences and beliefs. Also connecting with local entities with the common mission of safety (e.g. CSPD) could be helpful and might avail the clinic of additional resources.
  - ◇ A survey could be developed to ask if educational materials provided to families changed their understanding of gun safety/changes their gun safety practices.

**Investigating Ventriculostomy Associated Infection:  
A Challenging Task due to Documentation Variance  
Andrei Gurau, MS, Chamisa Macindoe, DO, Jaime Baker, MD.  
University of Colorado School of Medicine, Colorado Springs Branch**

**BACKGROUND:**

External Ventricular Drainage, known as EVD for short, is one of the most common neurosurgical procedures worldwide. Though their utility in managing elevated intracranial pressure is appreciated, however, they are not without their risks.

Notable is the risk of ventriculostomy associated infection, a form of hospital acquired infection. Ventriculostomy associated infections can have significant ramifications such as increased mortality and morbidity, increased hospital and ICU length of stay, as well as increased monetary cost of the hospital stay.

It has been shown that having an infection control protocol which includes standardized placement, sterile cerebrospinal fluid sampling, standardized and aseptic external ventricular drain maintenance, significantly reduces the rate of Ventriculostomy Associated Infections.

**AIM STATEMENT:**

The aim is to document which Ventriculostomy Associated Infection prevention measures have been recorded in the electronic records of patients with EVDs placed in calendar year 2018 in order to show variance in documentation practices.

**PLAN:**

First Plan do study act (PDSA) cycle is a review of literature to establish the proven ventriculostomy associated infection prevention measures in placement and management of the EVD.

The steps were as follows:

- Identify Literature in regard to ventriculostomy associated infection risk factors from last five years.
- Studies must be conducted in the United States, and have a moderate level external generalizability.
- The following hierarchy applies to the literature search: Cochrane analysis, meta-analysis/systematic reviews, randomized control trials, prospective case control trials, and finally retrospective analyses.

Second PDSA Cycle

- Utilizing the established ventriculostomy associated infection prevention factors, collect data from the electronic records
- In the device the following is documented for each patient that had an EVD in Calendar Year 2018:
  - whether the measure was documented in the first place
  - what was documented
- Determine proportion of key VAI prevention measures that were documented in the chart.

**DO:**

I identified key VAI prevention measures based on literature review:

1. Documented use of a checklist
2. Documented surgical site preparation substance (e.g. chlorhexidine)
3. Documented aseptic/sterility measures in placement of EVD. (e.g. gown and gloves)
4. Documented hair removal modality (clippers or shaving)

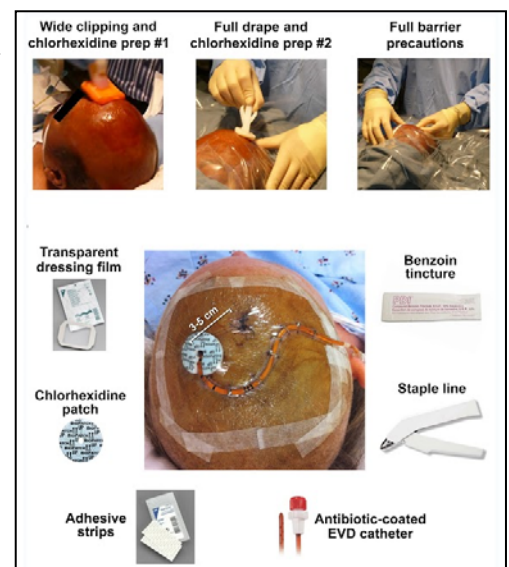


Fig. 1: EVD Placement Protocol and Bundle. [cleanbrain.org](http://cleanbrain.org).

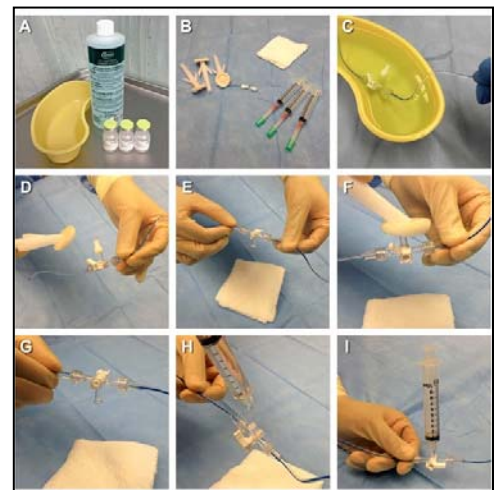


Fig. 2: EVD CSF Sampling Aseptic Technique Protocol. [clean brain.org](http://cleanbrain.org).



5. Documented type of catheter implanted through scalp, skull, brain tissue, into right, lateral ventricle of brain (e.g. anti-biotic coated catheter)
6. Documented tunneling of EVD catheter through the scalp away from burr hole in cranium
7. Documented dressing for EVD catheter (e.g. clear occlusive dressing and chlorhexidine eluting surgical site patch)
8. Documented usage of aseptic technique whenever the EVD is manipulated (e.g. aseptic technique for cerebrospinal fluid sampling)
1. Documented decision to use or not use prophylactic antibiotics to prevent Ventriculostomy Associated Infections.

## **STUDY:**

As noted in the charts below, there was a great deal of key information that was documented in the EHR, however for certain key measurements there is room for improvement in documentation. Improvement here show an even higher standard of care. Furthermore, this will facilitate retrospective analysis as part of quality improvement to reduce VAI.

Key Placement Measures documented.	Percent prevention measures documented.
Checklist Use	0
Hair Removal Modality	63.89
Surgical Field Scrub	50
Aseptic Surgical Precautions	88.89
Antibiotic Eluting or Non-Eluting Catheter	44.44
Tunneled EVD Catheter	94.44

Key EVD Manipulation/Maintenance Measures	Percentage of VAI prevention measures
Aseptic Technique for EVD Manipulation	0
Use of Prophylactic Antibiotics	13.89
EVD Dressing	30.56

## **ACT:**

Future directions

- Electronic Health Records allow for standardization of documentation and improved patient safety.
- We will comprise a task force to update current providers on best practices for EVD placement and the importance of standardized documentation which can be built into our system as a procedural template.
- We are exploring the expansion of this project to the University of Colorado Hospital at Anschutz Medical Campus in order to implement EVD placement and manipulation standardization throughout the UC Hospital System with the aim to reduce ventriculostomy associated infections.

## **REFERENCES:**

Darouiche, Rabih O., et al. "Chlorhexidine–Alcohol versus Povidone–Iodine for Surgical-Site Antisepsis." [Http://Dx.Doi.Org/10.1056/NEJMoa0810988](http://dx.doi.org/10.1056/NEJMoa0810988), 28 Jan. 2010, doi:10.1056/NEJMoa0810988.

EVD Infection Control. <https://sites.google.com/view/cleanbrain2>. Accessed 1 Mar. 2019.

Flint, Alexander C., Shahed Toossi, et al. "A Simple Infection Control Protocol Durably Reduces External Ventricular Drain Infections to Near-Zero Levels." *World Neurosurgery*, vol. 99, Mar. 2017, pp. 518–23. ScienceDirect, doi:10.1016/j.wneu.2016.12.042.

Flint, Alexander C., Vivek A. Rao, et al. "A Simple Protocol to Prevent External Ventricular Drain Infections." *Neurosurgery*, vol. 72, no. 6, June 2013, pp. 993–99. academic.oup.com, doi:10.1227/NEU.0b013e31828e8dfd.

Fried, Herbert I., et al. "The Insertion and Management of External Ventricular Drains: An Evidence-Based Consensus Statement." *Neurocritical Care*, vol. 24, no. 1, Feb. 2016, pp. 61–81. Springer Link, doi:10.1007/s12028-015-0224-8.

Lord, Aaron Sylvan, et al. "Infection Prevention in the Neurointensive Care Unit: A Systematic Review." *Neurocritical Care*, July 2018. Springer Link, doi:10.1007/s12028-018-0568-y.

## PDSA Worksheet

### Ambulatory Blood Pressure Monitors: A Game Changer in Managing Hypertension

Brittany Hartman, BS, MS3; Nathan Evans, MD

#### **BACKGROUND:**

- In 2017, the ACC/AHA released new hypertension guidelines advocating the use of ambulatory blood pressure monitors (ABPM) as the gold standard for diagnosis
- We know that the correct diagnosis and management of patients with hypertension lowers their cardiovascular risk factors, is renally protective, and contributes to lowered mortality rates overall. By adequately diagnosing and treating hypertension, we can better reduce mortality and better identify patients who truly have essential hypertension.
- ABPM is **far superior** to office blood pressure readings at predicting target-organ damage and cardiovascular events
- ABPM is a wearable device, similar to a Holter monitor, that records the blood pressure of the patient at preset intervals and transmits this data electronically for interpretation
- Hypertension with ABPM is defined as the following:
  - A 24-hour mean of 130/80 mmHg or above or
  - A daytime (awake) mean of 135/85 or above or
  - A nighttime (asleep) mean of 120/70 or above
- These readings correspond to an office blood pressure of 140/90, which is slightly less stringent than the JNC8 suggested criteria of 130/80 for hypertension
- ABPM has many indications for use, including white coat hypertension, episodic hypertension, resistant hypertension, hypotension with antihypertensives, “masked” hypertension, and early detection of pre-eclampsia in pregnant patients
- Despite these indications, ABPM were rarely used in the outpatient Internal Medicine or Family Medicine clinics at Evans Army Community Hospital

#### **AIM STATEMENT:**

The aim of our project was to:

1. Increase provider use of ABPM for
  - (a) White coat hypertension
  - (b) Hypertension despite antihypertensive therapy
  - (c) Side effects of antihypertensive medications
2. Monitor patient medication changes following ABPM

#### **MEASURES:**

- We reviewed the charts of all patients who received ambulatory blood pressure monitors from September 1, 2018 to December 31, 2018 to determine:
  - How many patients had white coat hypertension
  - How many patients with hypertension on medication required increased or reduced doses of antihypertensives
  - How many patients with hypertension were adequately managed on current antihypertensive medication regimen

### **CHANGE(S):**

- We asked all physicians in an internal medicine clinic, as well as some in a family medicine clinic, to use ambulatory blood pressure monitors for patients with the above indications.
- We provided educational materials to providers regarding both the indications for ABPM use and interpretation of the study results

### **PLAN:**

Set up meeting with all physicians in the clinic to discuss antihypertensive medication adjustments using 24 hour ambulatory blood pressure monitors, and to educate them on how to interpret results of ambulatory BP monitors

Data collected:

% of patients adequately managed on current antihypertensive therapy

% of patients requiring medication adjustments, whether that is cessation of medications or increase in anti-hypertensives

Prediction:

I predict there will be at least a 20% change regarding patients that need medication adjustments to their current antihypertensive regimen

### **DO:**

- There was some difficulty in getting patients in to the cardiology clinic to be hooked up to ambulatory blood pressure monitors. The cardiology clinic had all ABPM's at the beginning of this study, which made many patients wait a month or more before getting an appointment to receive a monitor
- There were fewer patients than expected who received ABPM in the timeframe stated. This was likely due to the limitation with the cardiology clinic.
- Providers themselves would often interpret only summaries of data provided by a cardiologist who had read the raw data from the ABPM's. This was often incomplete data, and sometimes only included average blood pressure, but not average daily or nightly blood pressures. This made it somewhat difficult to know how to manage patients at follow-up if the data provided was relatively incomplete.

### **STUDY:**

- The number of patients who had hypertension that was not well-controlled on their current medication regimen was higher than predicted. In fact, **70%** of patients who were on antihypertensives were not well-controlled on their medication regimen.
  - This data suggests that many patients who are currently on antihypertensives may benefit from ABPM for medication management.
  - As predicted, a large proportion of patients who were hypertensive in clinic had true hypertension, but a significant portion did not, suggesting hypertension may be over-diagnosed if using only clinical measurements
  - A significant number of patients who completed the ABPM did not receive a follow-up appointment to review their results
  - Very few patients were referred for ABPM due to antihypertensive side effects, suggesting that patients are either not discussing side effects with their provider, or providers were unaware of this indication for ABPM
  - All ABPM's were placed by the cardiology tech team, as the internal medicine clinic did not have any in-house ABPM's
  - ABPM raw data was subject to some variation in interpretation dependent on cardiologist

### **ACT:**

- The clinic has purchased ABPM's to begin in-house monitoring to increase patient access to ABPM
- More providers are referring patients for ABPM – this will likely continue on an upward trend

## QI Plan

### Transitions of Care: Encouraging Patients to Take an Active Role in the Hospital Discharge Process

Clarinda Hougen, MS

**Background:** Transitions of care between different care settings, such as discharge from the hospital back to a prior living situation, are crucial points during patient care at which information is often lost or poorly communicated to patients and their caretakers. Furthermore, these events potentially symbolize a major life change for patients, encompassing new diagnoses, modifications to medications, need for additional medical equipment, referrals to specialists, additional transportation to follow-up appointments, and more. Additionally, low health literacy is estimated to affect approximately 36% of U.S. adults and has been linked to poorer health outcomes, including increased hospital admission rates, use of the emergency room, and poorer ability to adhere to proper medication use. An estimated \$17 billion in Medicare expenditures is spent on unplanned readmissions each year. However, when patients are able to participate in their own care, the rate of adverse events, and therefore hospital admissions, decreases.

**Aim Statement:** By the end of March 2019, improve patient understanding of their own health conditions and further management plans upon discharge from UCHHealth Memorial Central Hospital by 30%.

**Measures:** Evaluation of the percentage of five questions that patients are able to answer on a follow-up phone call regarding their discharge instructions at a period 5-7 days after their hospital discharge. Target population will consist of at least 30 adult patients.

**Changes:** Provision of patient handout to patients shortly prior to hospital discharge, with instructions to fill it out during or immediately after nursing discharge discussion.

**Plan:** Create patient handout with the following questions: 1) What medical conditions were you treated for in the hospital? 2) What medications are you taking and why? 3) What issues did your doctor tell you to come back to the hospital for? 4) Who should you contact if you have any problems at home? 5) When should you schedule a follow-up with your primary care physician?

Distribute this handout to 30 patients shortly before their discharge from the hospital. Make a follow-up phone call 5-7 days later to assess for retention of discharge information.

**Do:** Instructions were provided to fill it out concurrently or immediately after being instructed by their discharging nurse, and to keep it for their own reference. Verbal consent was simultaneously obtained to contact the patient after his/her discharge to follow up in the next week. This was done over the course of two weeks in mid-March 2019. Patients were excluded if they planned to be discharged to another facility, such as a rehabilitation center or skilled nursing facility; they did not have a phone number or permanent residence where they could be reached; or their diagnosis and hospital course indicated that they were neurologically impaired. Ultimately, 17 patients were identified as discharging and approached to participate. 14 of these patients agreed to a follow-up phone call. Five patients answered their phones and agreed to participate in answering the five questions. An additional three patients did answer their phones but were not willing to discuss their hospitalizations.

**Study:** Patient demographics were almost evenly split between male and female and ranged from 22-80 years old. The conditions treated ranged from SIRS, to complications of Crohn's disease, to limb fractures, to cardiac arrest. Interestingly, even though none of the contacted patients had filled out their handouts, most of them were able to answer the majority of the questions appropriately. The average number of medication changes reported by participants was 3.4. The highest number of medications taken by a single participant was 23. This was by the 22-year-old with Crohn's disease, strictures, and had just undergone a hemicolectomy. She was able to appropriately answer all of the questions.

**Act:** Repeat PDSA cycle with the following modifications:

Ensure that the patient understands that he/she is to fill out the handout during the discharge conversation.

Increase number of participants.

Obtain access to hospital discharge tracking site in order to increase efficiency in identifying discharging patients.

Eventually incorporate handout into discharge protocol with involvement from nursing staff.

## **References:**

Nicholson Thomas E, Edwards L, McArdle P. Knowledge is Power. A quality improvement project to increase patient understanding of their hospital stay. *BMJ Quality Improvement Reports*. 2017;6(1):u207103.w203042.

Coleman EA. Falling through the cracks: challenges and opportunities for improving transitional care for persons with continuous complex care needs. *J Am Geriatr Soc*. 2003;51(4):549-555.

Misky GJ, Wald HL, Coleman EA. Post-hospitalization transitions: Examining the effects of timing of primary care provider follow-up. *J Hosp Med*. 2010;5(7):392-397.

Committee on Quality Health Care in America IoM. *Crossing the quality chasm : a new health system for the 21st century*. Washington, D.C. : National Academy Press, [2001] ©2001; 2001.

Kripalani S, LeFevre F, Phillips CO, Williams MV, Basaviah P, Baker DW. Deficits in communication and information transfer between hospital-based and primary care physicians: implications for patient safety and continuity of care. *JAMA*. 2007;297:831-41. [PMID: 17327525]

**PDSA Worksheet**  
**Stopping Pneumonia Before It Happens: Improving**  
**Pneumococcal Vaccination Rates at Iron Horse Family**  
**Medicine Clinic**  
**Thatcher Houldin, Steve Lang, MD**

**BACKGROUND:** In the US, about 24,000 people die from pneumococcal pneumonia each year and another 4,000 die from pneumococcal meningitis and bacteremia each year. The large majority these infections and mortalities occurs in patients age 65 years and older. In 2014, the Advisory Committee on Immunization Practices (ACIP), a committee within the CDC, recommended that all adults aged  $\geq 65$  years of age should receive the PCV13 followed one year later by the PPSV23. Yet the CDC estimates that in 2016 just 66.9% of this population have the pneumococcal vaccination.

At the Iron Horse Family Medicine Clinic, HEDIS measures are used to gauge provider performance. The pneumococcal vaccines are not included in this measure.

**AIM STATEMENT:** To increase the average pneumococcal vaccination percentages by 5% for patients  $\geq 65$  years at the Iron Horse Family Medicine Clinic over two months.

**MEASURES:** We will measure the pneumococcal vaccination percentage in the patient population owned by each physician both prior to and after the intervention. In addition during the intervention, we will measure the number of appointments with patients who need a pneumococcal vaccine and record if those patients are vaccinated.

**CHANGES:** During morning huddles once weekly, a statement will be made to remind the physicians to evaluate patients' need for pneumococcal vaccination and give PCV13 or PPSV23 if appropriate.

**PLAN:** Select three long standing physicians at the Iron Horse Family Medicine Clinic to intervene with. Work with the Population Health Department at Evans Army Hospital, to collect pneumococcal vaccination data across civilian clinics and army clinics. Calculate the baseline pneumococcal vaccination percentage in patients  $\geq 65$  years old for each provider and as a clinic as a whole. Once weekly at physician huddles, remind providers to please complete pneumococcal vaccinations. After two months of intervention, recollect the population health data including specific dates of last clinic visits. We predict that this "reminder" intervention described above will result in a 5-10% increase in percentage vaccinations.

**DO:** We decided to collect data only on patients 65 to 72 years old because patients 73 and older may have gotten the pneumococcal vaccine when the previous recommendations were in place thereby potentially eliminating a source of error. We found out the Population Health Department was able to provide us with comprehensive data on patient vaccinations that included civilian clinic appointments. Evaluating the physicians individually revealed that vaccination percentages varied drastically from physician to physician.

**STUDY:** Before the intervention, there were 173 patients from the age of 65 to 72 years between the three doctors at the Iron Horse Family Medicine Clinic. Of these 173 patients, 81 of them were in compliance with the ACIP pneumococcal vaccination recommendations, which is a 51% vaccination percentage. According to the CDC, the 2016 national average pneumococcal vaccination percentage is 67%. Over the following two months of intervention, the three providers saw a total of 89 patients within this patient population and of these 52 had the correct pneumococcal vaccinations, which is a 65% vaccination percentage. This is a 14% increase in pneumococcal vaccinations from pre to post intervention.

Of note there is a high percentage of turnover within the army and as result patients are frequently shuffled between one then another primary care provider. In fact, during the two month intervention 8 patients left and 37 new patients joined the three patient panels. Doctor A had a net gain of 13 patients with a 62% vaccination percentage. Doctor B had a net gain of 4 patients with a 50% vaccination percentage. Doctor C had a net gain of 12 patients with a 42% vaccination percentage. This fluctuation in patients accounts for a notable part of the increase in patient vaccinations from pre to post intervention.

Over the two month intervention period, the three doctors vaccinated a combined 7 new patients. Excluding the newly arrived patients, those 7 vaccinations roughly lead to a 4% increase in the overall vaccination percentage. This implies that of the 14% total increase in vaccination percentages about 10% was due to the influx of new patients and 4% due to new vaccinations.

Another way to look at the data is to simply count the number of patients with an appointment who needed a pneumococcal vaccine and compare that to the number of vaccines actually injected.

- Doctor A
  - Pre intervention:
    - 27 appointments with patient needing the vaccine
    - 5 patients were actually vaccinated
  - Post intervention:
    - 21 appointments with patient needing the vaccine
    - 3 patients were actually vaccinated
- Doctor B
  - Pre intervention:
    - 6 appointments with patient needing the vaccine
    - 4 patients were actually vaccinated
  - Post intervention:
    - 0 appointments with patient needing the vaccine
    - 1 patients were actually vaccinated
- Doctor C
  - Pre intervention:
    - 35 appointments with patient needing the vaccine
    - 3 patients were actually vaccinated
  - Post intervention:
    - 18 appointments with patient needing the vaccine
    - 3 patients were actually vaccinated

From the above data one can see that Doctors A and B actually worsened in the number of patients they saw needing a vaccine and the number they actually gave a vaccine to. Only Doctor C improved on this measure. The data set is rather small, so sweeping conclusions about the effect of the intervention based on this information cannot reliably be made. Still one take away from this information that not enough patients are vaccinated. Combined Doctors A and C missed out on the opportunity to vaccinate a whopping 33 out of 39 patients in two months.

Based on the estimated 4% increase in vaccination percentages and the large amount of patients appointments with missed vaccination opportunities, the intervention of reminding physicians during morning huddles likely has mild efficacy at best to increase vaccination percentages.

**ACT:** The next step of the PDSA will begin with a process evaluation of the steps that occur from when a patient schedules an appointment to when they receive a vaccination. The goals will be to first find steps that be eliminated to increase efficiency and second survey participants to elicit new idea on how to improve vaccination percentages. Two ideas that healthcare providers have already mentioned include having nurses be responsible for giving the vaccines without needing an order from a physician or to give a print out of physicians each day with vaccines due for each patient on the schedule.

**2017-2018 Adult Ambulatory Care (AAC)  
Quality Improvement Project  
PDSA Worksheet  
Hepatitis C: Improving Rates of Screening in Adults Born Between 1945-1965  
Armela Makas, Sara Martin, MD, Mackenzie Hayes, MA**

**BACKGROUND:**

Hepatitis C is currently the number one indication for liver transplant in the US and is also the number one chronic bloodborne pathogen. Individuals can be asymptomatic for decades before developing liver disease and hepatocellular carcinoma. The cohort of Americans born between 1945 and 1965 are more likely to test positive for Hepatitis C. The USPSTF recommends that individuals born between 1945-1965 receive a one-time screening for Hepatitis C, and lists this as a grade B recommendation. There is evidence to support that a one-time screening has a net benefit in clinical outcomes through opportunity for early intervention to reach a sustained viral response and in behavior modification to decrease risk of spread of Hepatitis C to others. The Peak Vista Clinic is a community health center serving a diverse population in Colorado, and our clinic currently does not routinely screen this cohort born 1945-1965 for Hepatitis C.

**AIM STATEMENT:**

Between October 1, 2018 and March 1, 2019, we will have a 50% increase in the number of patients screened for Hepatitis C who were born between 1945-1965.

**MEASURES:**

The percentage of patients born between 1945-1965 screened for Hepatitis C will be determined via chart review, and will be compared from the beginning to the end of the PSDA cycle, October 1, 2018 to March 1, 2019. The percentage increase in the total number of patients screened in that time will be determined.

**CHANGE(S):**

Between October 1, 2018 – March 1, 2019, the medical assistant will look at the DOB of every patient that comes into the office, and if that patient is born between 1945-1965, the MA will write “Hep C Screen” on intake form as a reminder for the provider. The provider will ask the patient whether or not they have had Hepatitis C (HCV) screening, and if not, or if they are unsure, ask them to have a one-time screening. If patient agrees to HCV screening, the provider will put in orders for HCV lab test.

**PLAN:**

This PSDA cycle will take place at the Peak Vista Clinic at the Lane center for patients coming to see Dr. Martin. Via chart review, we will collect data on the number of patients on the provider patient panel born between 1965-1945, and determine the number of patients on her panel in that age cohort who are already screened. Between October 1, 2018 and March 1, 2019, MAs working for the provider will look at the DOB for each patient who comes in for an office visit and write "Hep C screening needed" on their intake form. The provider will then ask the patient if they would like one-time Hep C screening, and if so, put orders in for the lab. At the end of the cycle, a chart review will be conducted to determine the number of patients newly screened and the percentage increase in number of patients screened. The predicted increase in screening is 50%.



## **DO:**

During this PDSA cycle, some issues became apparent. One thing that became evident is that the method used in this PDSA cycle placed too much burden on the medical assistants. During the typical, busy day in clinic, it is easy for both MAs and providers to forget to assess need for HCV screening in addition to their other responsibilities. Another issue noted is that there is no method to record which patients had been asked to receive an HCV screen, but declined. In terms of patients agreeing to screening, it seems that those who are already having labs drawn that day for other reasons are more likely to agree to and receive the HCV screen.

## **STUDY:**

- Of the patient panel for this provider, 285 patients were born between 1945-1965.
- During the time from October 1, 2018 to March 1, 2019, 169 patients out of the total 285 came into the office.
- Prior to the start of this PDSA cycle, 35 of those 169 patients were already screened for Hepatitis C, for a total of 21% screened.
- At the end of the PDSA cycle, an additional 25 patients were screened. This increased the percentage screened to 36%. Overall, there was a **15% increase** in HCV screening for the 169 patients that came into the office during this PDSA cycle. The goal of a 50% increase in screening was not met in this cycle.

This means that 109 other eligible patients who came to the office from October 1, 2018 to March 1, 2019 were not screened, and this seems mostly due to the excessive burden placed on the MAs to remember, among all of their other responsibilities, to check DOB of every patient coming into clinic and to write a reminder on the intake form for the provider. Also, a limitation of this PDSA cycle is that there was no way to keep track of patients who declined Hep C screening.

## **ACT:**

For the next PDSA cycle, there need to be changes to the method that put less burden on any individual MA or provider, and standardize the screening process of patients. One change that could be made is to add the following questions to the patient intake form:

- 1) Were you born between 1945 and 1965? Yes/No
2. Have you ever been screened for Hepatitis C? Yes/No
3. If you have not been screened for Hepatitis C, or you are unsure, would you like to be screened for it? (it is a simple blood test that can be ordered by your doctor at any time). Yes/No

The provider then will simply look at the intake form and see if the patient would like the screening and can order the labs that day. This change takes the burden from the MA, is more standardized, and is a way to record patients who decline the HCV screening.

Another modification that can be made, but may be somewhat more difficult, is the addition of chart alerts to the charts of patients born 1945-1965 so that whenever the MA or provider opens the chart, a reminder pops up.

## Improving diabetic foot screenings in the primary care setting

### Background

Diabetes is a growing health problem in the United States. More than 30 million adults in the US (or 9.4% of the U.S. population) are living with diabetes and the prevalence of this disease continues to increase<sup>1</sup>. By significantly increasing the risk of cardiovascular disease, retinopathy, nephropathy, and neuropathy, diabetes places a large burden on an already overwhelmed healthcare system. One example of deleterious consequence of diabetes is foot ulceration, which can ultimately lead to leg amputation. This sequela has major impacts on quality of life, morbidity, and mortality. The lifetime risk of a person with diabetes developing a foot ulcer may be as high as 25%<sup>2</sup> and in the US, foot ulcers precede 84% of amputations<sup>3</sup>. The incidence of lower extremity amputations ranges from 2.1 to 13.7 per 1000, thus placing amputation as an important cause of morbidity in diabetic patients<sup>3</sup>. However, with appropriate screening techniques and risk stratification, as well as appropriate patient education, providers can decrease the incidence of this deleterious lower extremity morbidity in the diabetic population<sup>2</sup>. Our clinic does not currently have a process for ensuring adequate or timely diabetic foot checks. Therefore, the aim of this project is to detect neuropathy and foot ulceration via routine diabetic foot exams in order to prevent amputation.

### Aim Statement

By March 2019, we, Peak Vista at Fountain, will increase the number of foot screenings for patients with diabetes to 80%.

### Measures

The percentage of patients who have documented diabetic foot checks (via Peak Vista score card system).

### Changes

When a patient with diagnosed diabetes comes to the clinic for an appointment, MAs will ask them to take off their shoes and socks as a part of the rooming protocol. Providers will do a diabetic foot exam per ADA guidelines (attached) and document this in their note.

### Plan:

- 1) With medical assistants (MA), discuss the idea of asking patients to take off their shoes and socks as a part of their rooming protocol. Do this by October 1, 2018.
- 2) Discuss appropriate and timely diabetic foot checks with providers. Review proposed diabetes foot screen (attached) and ask for feedback. Change the handout as needed. Do this by October 1, 2018.
- 3) By November, begin providing foot screens at diabetic patient visits. This will be done by MAs.
- 4) The results of the diabetic foot screen will be recorded in the EMR and providers will receive information on how many diabetic patients are undergoing diabetic foot screenings.
- 5) In December, reconvene with medical assistants and providers to elicit feedback and restructure the plan as needed.
- 6) By February 1, 100% of diabetic patients will be receiving foot exams at their visits.

**DO:**

In February 2019, a mass email was sent to medical assistants detailing the proposed plan. The email asked medical assistants to do a foot screen on all diabetic patients and document on the EHR. I asked that the MAs perform and document visual inspection of both feet as well as a monofilament exam on all patients with diabetes. I also added my contact information for MAs that had questions. This was also discussed at the team MA meeting the same week. MAs then began performing foot screens on all diabetic patients and documenting on the EHR. This intervention has thus been in place for a 24-day period. The data from the EHR from the 24- day period prior to the intervention was then compared to the 24-day intervention period.

**STUDY:**

Data prior to the intervention from January 27-February 19, was compared to data from the intervention period, February 20-March 15. In the pre-intervention period, 205 patients with diabetes were seen in the Peak Vista Fountain clinic, whereas 164 patients with diabetes were seen in the intervention period. Prior to the intervention, 23.9% of patients had foot exams. During the intervention period, this decreased to 18.9%. Conversely, prior to the intervention, 0% of patients had monofilament exams which increased to 6.1% during the intervention.

**ACT:**

The intervention led to a slight increase in monofilament testing; however, visual foot screenings decreased during this time period. Shortcomings of this study included lack of Peak Vista staff involvement in planning the intervention, lack of standardization of procedure, and inadequate cycle time. In the next iteration of this project, I will create a survey to distribute to MAs involved in the project to determine why implementation was not successful. Next, I will convene with the medical staff at Peak Vista to discuss potential ways of ensuring patients undergo regular diabetic foot screens. This would also be an opportunity to observe staff perform diabetic foot screenings to ensure the process is standardized. A handout will be created with a how-to for MAs to follow while performing and documenting the exam. Prior to implementation of the new plan, I will meet with the MAs again at their monthly meeting to elicit questions. The final cycle time will be at least 3 months to ensure adequate time for data collection and trouble shooting.

**References**

1. More than 100 million Americans have diabetes or prediabetes. (2017, July 18). Retrieved from <https://www.cdc.gov/media/releases/2017/p0718-diabetes-report.html>
2. Boulton, A., Armstrong, D., Albert, S., Frykberg, R., Hellman, R., Kirkman, M., ... & Sheehan, P. (2008). Comprehensive foot examination and risk assessment. *Endocrine Practice*, 14(5), 576-583.
3. Marn Pernat A, Peršič V, Usvyat L, et al Implementation of routine foot check in patients with diabetes on hemodialysis: associations with outcomes *BMJ Open Diabetes Research and Care* 2016;4:e000158. doi: 10.1136/bmjdr-2015-000158
4. American Diabetes Association. (2017). 10. Microvascular complications and foot care. *Diabetes care*, 40(Supplement 1), S88-S98

**2018-2019 Adult Ambulatory Care (AAC)  
Quality Improvement Project  
PDSA Worksheet  
Patient Self Hygiene Practices in the Hospital: A Quality Improvement Investigation  
Eric Montgomery, Jaime Baker, MD**

**BACKGROUND:**

Hygiene is a critical component of the safety of hospitalized patients. According to the CDC, in 2015 there were 687,000 hospital associated infections (HAI) in acute care hospitals in the United States and 72,000 patients with HAIs died while in the hospital. There has been a lot of pressure on healthcare workers to appropriately practice hand hygiene with every patient interaction in order to reduce the risk and the burden of hospital associated infections. There has been very little attention focused on encouraging and empowering hospitalized patients to provide self-care and to practice self-hygiene while hospitalized. An article published in 2017 by the Journal of Antimicrobial Resistance and Infection Control described a list of nine recommendations for patients to participate in the prevention of HAI and surgical site infections (SSI). The fourth recommendation focused on patient hand hygiene. Their recommendations were for patients to participate in hand hygiene after using the bathroom, prior to meals, and before and after touching any IV lines. I want to educate, enable, and empower patients to pursue these recommendations. These self-hygiene practices will improve the patient experience and have the potential to decrease the burden of HAI/SSI. There is not a lot of data surrounding inpatient hygiene and self-care.

**AIM STATEMENT:**

The aim of this project was to evaluate differences between self-hygiene performed by hospitalized patients compared to their normal home routine as well as investigating patient routines regarding hygiene.

**MEASURES:**

Patients on the medical and cardiovascular floors at Memorial Hospital were given a 12-question survey assessing their self-hygiene routines at home compared to the hospital. Three specific aspects were addressed which were showering/bathing, hand hygiene, and oral care as well as the overall importance to the individual patient.

**CHANGE(S):**

A patient hygiene campaign would be expected to increase the patient participation in the self-hygiene activities and other recommendations outlined in the journal article. The intervention would be primarily dependent on patient involvement as well as the encouragement and support by the healthcare team. The intervention will be dependent on the data from the patient survey.

**PLAN:**

I will design a survey that will be given to patients admitted to the medical and cardiovascular units at Memorial Hospital. It will assess the importance of overall self-hygiene practice as well as specific components of hygiene to include showering/bathing, hand hygiene, and oral care. The survey will also assess the home routine of these three components as well as the routine while admitted to the hospital. I anticipate a change in routine from home to hospital.

### **DO:**

I administered the survey to 34 patients. I found that most of the questions that I wrote were appropriate, however, one of my questions was not well written and caused a lot of confusion. I asked whether or not patients felt supported in the hospital to perform their normal level of self-care/hygiene. Patients assumed that I meant the nursing staff. Most patients responded positively, stating that the nursing staff were excellent. A better way to word that question would be, “how able are you to maintain your normal level of selfcare/hygiene while in the hospital?” Another unexpected problem that I encountered was surrounding oral care. My survey asked specifically about brushing teeth when a number of patients did not have teeth and instead have dentures or other hardware. I began to include cleansing of dentures in my question regarding oral care, however, patients with dentures have a very different routine than those with their natural teeth.

### **STUDY:**

According to my survey results, most patients regard self-care/hygiene as very important to them (79.4%). However, the frequency and routine of the three aspects of self-hygiene that I included in my survey decreased upon admission to the hospital. 67.6% of patients stated that they were not able to maintain their normal level of self-hygiene while hospitalized. There are some confounding factors that need to be considered such as restrictions while in the hospital such as IV lines, fall restrictions, and surgical sites preventing “normal” bathing. Another consideration is the average length of stay. The average length of stay for all the patients I surveyed was 3.6 days. The metrics on my survey were not entirely appropriate for this length of stay and may have skewed some of the results. For example, a patient who may routinely shower once a week but has only been in the hospital for three days may not have showered and marked “never” on the survey which would not be a deviation from their normal routine. In terms of individual aspects and their metrics, 100% of patients shower/bath every day or a few days a week. While hospitalized, 41.2% replied that they never bathed/showered. 100% of patients surveyed wash their hands at least once a day but while hospitalized 11.7% of patients stated that they never washed their hands. 5.9% of surveyed patients never routinely perform oral care practices at home but while in the hospital 32.4% of patients replied that they had not practiced oral hygiene. There is a definite decrease in frequency of self-hygiene practices while in the hospital. Some of that difference could be contributed to overall state of health or other restrictions.

### **ACT:**

An easily accessible and visible bedside patient checklist listing daily hygiene activities and education could increase patient experience and participation in these activities. The list could include all nine recommendations listed in the journal article. The healthcare team which includes the patient, nursing staff, providers, housekeeping, and nutrition could all support and advocate for the daily completion of the checklist. This would be a patient hygiene campaign created for the providers and entire healthcare team. Another intervention would be to include hand sanitizer with every meal or place hand sanitizer that is easily accessible at the bedside. After implementing these interventions, patients would be given the same survey and the results would be studied, analyzed, and compared to the previous data. The survey could be modified to include the changes that were discussed above regarding the questions surrounding the ability of patients to provide their own self hygiene. The next step would be to follow and study the rates of HAI and SSI following these interventions.

Adapted from the Institute for Healthcare Improvement

**2017-2018 Adult Ambulatory Care (AAC)  
Quality Improvement Project  
PDSA Worksheet  
Use of Flowcharts to Improve Understanding, Reporting, and Coding of  
Patient Safety Indicators  
Joe Morales, Shalou Herrera-Puno, BSN RN, Jaime Baker, MD**

**BACKGROUND:** Patient Safety Indicators (PSI) are a set of eighteen quality measures established by the Agency for Healthcare Research & Quality (AHRQ) to evaluate hospital performance in various patient safety domains. PSI 90 is a weighted composite of 11 PSI that is required by the Centers for Medicare and Medicaid Services (CMS) for reporting. This information is available to the public through the Inpatient Quality Reporting Program (IQRP) and CMS Hospital Compare program. It also has a significant impact on CMS payment to hospitals in two separate Pay-for-Performance (P4P) programs including the Hospital Value Based Purchasing Program (HVBP) and the Hospital Acquired Condition Reduction Program (HACRP). PSI 90 is a component of both which are strongly linked to hospital compensation for their services.

It is also important component for surgery teams to evaluate cases within their own department. A retrospective study observing the degree to which a hospital system identified adverse events found that traditional surgical M&M and PSIs are both important for a comprehensive review. Out of the 6,563 surgical hospitalizations in the study, there were 112 instances in which a PSI defined adverse event occurred. Of the 112, 88% were only identified by Surgical M&M because the others were eventually excluded by PSI exclusion criteria. This leaves only 12% were identified by both the surgical M&M and the PSI criteria, highlight the fact that it should be used together from a quality and safety standpoint (Anderson *et al.*, 2016)

**AIM STATEMENT:**

By March 2019, I will have created one flow chart module for use by surgeons and hospital staff with the aim of increasing understanding, reporting, and coding of Patient Safety Indicators.

**MEASURES:**

Does the module result in more detailed documentation, appropriate coding, and fewer adverse outcomes. In the short term, this lacks quantitative data as implementation and results would be evaluated next fiscal year as compared to prior years.

**CHANGE(S):**

Creation of flow charts detailing the PSI with information and links to recommendations of documentation.

**PLAN:** I will evaluate the diagnosis codes, inclusion, and exclusion criteria and create a simplified flow chart to serve as framework for understanding of patient safety indicators. This is the first step of the larger project which would be a compilation of flow charts for every patient safety indicator. I will use this one to apply it to cases from the current fiscal year. Approval from staff members will be sought. With completion of the larger project, more formal education can be performed.

**DO:**

I created a flow chart and had initial input from staff members about the clinical utility of this. Further work and more input should be obtained.

**STUDY:** Through this project, I learned the complexity of medical coding, quality measures for hospitals, and the impact on hospital ratings and compensation. Quality measures are very important going forward as compensation is being moved toward pay-for-performance models. This information is readily available to the public and impacts the reputation and success of the hospital. With more awareness surrounding these quality measures, we can work to reduce adverse events and improve patient outcomes. Appropriate documentation is vital to achieving the correct diagnosis codes and more accurate reporting.

**ACT:** Several versions of this flow chart were made to create a simple yet all-inclusive way to depict patient safety indicator 15. With continuation of the project and the rest of the indicators, it is important to have complete understanding of the inclusion and exclusion criteria. I will also look for outside resources and guidelines as to how to best make quality improvements for the given measure and include them in the flowchart. A plan for dissemination of this information should be established and identification of ways to best educate our staff about these measures.

Adapted from the Institute for Healthcare Improvement

**Sources:**

Anderson JE, Utter GH, Romano PS and Jurkovich GJ. "Surgeon-Reported Complications vs AHRQ Patient Safety Indicators: A Comparison of Two Approaches to Identifying Adverse Events." Journal of American College of Surgery. 2018. **227**(3):313-320.

Newell, S. (2015) PSI 90: the Impact of Clinical Documentation Improvement and Coding on Organizational Financial Performance. [1-78]

**Quality of Life on the Problem List**  
*Frailty identified in a geriatric population*  
Darin Sisneros, MS3  
Mentor: Dr. Michael Banker

**BACKGROUND:**

What makes a quality primary care physician? Is it somebody who treats to the recommended A1C, blood pressure, and cholesterol guidelines? Or is it somebody who increases the quality of life of their patient? The answer is probably a physician that does a little of both. Physicians' performance and salary are determined based on health metrics like A1c, blood pressure, readmission rates, and other patient outcomes.

How should quality of life (QoL) play into the picture? A provider with patients that are satisfied with their care, have formed trusting relationships, and endorse an optimal quality of life, may be considered by some to be performing exceptional medical care. Quality of life is hard to measure and hard to standardize, but it is an important aspect of health care that deserves attention. Quality of life may be measured by important necessities such as: amount of sleep, energy, quality of relationships/interactions, ability to continue hobbies and interests, stress level, ability to work, etc.

My project quantifies QoL of the patients of the Sangre de Cristo Family Medicine Clinic, with the ultimate goal of improving QoL over time. This project interests me because there comes a point when treating the geriatric population, that quality of life needs to be discussed. This project may shed light onto ways patients' QoL can be improved. It is my hope that a project like this can influence future measures by which physicians are scored, while improving the lives of the patients that are treated.

**AIM STATEMENT:**

To gather quantitative information about elderly patients' quality of life. This information will be used to develop targeted interventions to assist the geriatric population in maintaining the highest QoL possible.

**MEASURES:**

Using the Frailty Index questionnaire to determine frailty and those at risk of frailty at the Sangre de Cristo Clinic.

**CHANGE(S):**

Utilize the Frailty Index questionnaire to identify patients with frailty in different age categories. Patients will receive standardized information on how to improve their quality of life.

**PLAN:**

- Target patients >65 years old at the Sangre De Cristo Family Practice.
- Administer to them a Frailty Index questionnaire which identifies patients with frailty.
- The results of the survey will be used to identify areas needing improvement.
- Patients will then receive standardized information on how to improve their quality of life.
- The survey can be administered over time to see if frailty can be decreased with standardized interventional guidance.

**DO:**

- The frailty survey was administered to a total of 44 patients aged 65 and older.
- Some patients filled out the survey independently while others filled it out in the presence of an observer.
- The survey was read to some patients due to issues with vision. The questions were paraphrased at times to make



them more understandable.

- Some people misunderstood survey questions and answered the best they could.
- Acute illness may affect the results of the survey.

#### **STUDY:**

- 16 males and 28 females, for a total of 44 patients, were surveyed.
- Of the 44 patients, 32% had no signs of frailty, 54% were at risk, and 14% were determined to be frail.
- On the survey the problems that were endorsed most were fatigue (34%), visiting an emergency room in the past 3 months (25%), and 10-pound changes of weight within the last 6 months (25%).
- In general patients at risk for frailty and those with frailty increased with age, as expected.
- The 85-94 age group had a slightly greater percentage of non-frail patients and a slightly lower percentage of patients at risk for frailty than the 75-85 age group.
- This unexpected finding can be confounded by the lower sample size of the 85-94 group which is subject to more variation from actual frailty. A larger sample size would need to be collected to establish a higher power that is more representative of the actual population frailty.

#### **ACT:**

With this information it can be concluded that frailty increases with age. It is clear that patients struggle with weight changes, fatigue, and visits to the emergency room. The next step would be to provide guidance and information on how to stabilize weight and improve energy. Also, there can be discussions about patients' goals of care which can better define the desired amount of medical intervention. Having these discussions may decrease unnecessary emergency room visits for unwanted care. These interventions can be used to help those already affected and for prevention for others not yet affected. The frailty index can be administered over time to look for changes in frailty with interventional guidance.

To increase plan of care discussions within the clinic, "quality of life" can be placed on the problem list which would help to provide time and focus to addressing quality of life issues. Also, there are billing codes which can be used to compensate physicians for addressing quality of life issues. Billable codes for advanced care planning are: 99497 for the 1<sup>st</sup> 30 minutes and 99498 for each additional 30 minutes of discussion.

#### **References:**

Rockwood K, Song X, MacKnight C, et al. A global clinical measure of fitness and frailty in elderly people. CMAJ. 2005;173(5):489-95.

**2017-2018 Adult Ambulatory Care (AAC)  
Quality Improvement Project  
PDSA Worksheet  
All the Cool Kids Get Vaccinated: Addressing Non-Vaccination in a Nursing Home  
Drake Sisneros, David Duncan, MD**

**BACKGROUND:**

A report was ran to evaluate the influenza immunization status and the status of immunization education provided to residents at Union Printers Home. There were a number of residents that refused the influenza vaccine that were not provided education on the importance of the vaccine. Without education, individuals are not as equipped to make an informed decision.

Colorado's nursing home influenza vaccination coverage is 75.9% for the 2016-2017 season<sup>1</sup>. Influenza poses a serious threat to older adults. Adults older than 65 are generally more vulnerable to severe flu illness—requiring hospitalizations; experiencing complications from the flu, including death. This is partly due to the decrease in T-cell function that occurs with aging, as well as certain long-term medical conditions that tend to plague this population. The CDC (Centers for Disease Control and Prevention) estimates that between 71 percent and 85 percent of seasonal flu related deaths have occurred in people 65 years and older<sup>2</sup>. Additionally, between 50 percent and 70 percent of seasonal flu-related hospitalizations have occurred among people 65 years and older. CDC recommends that everyone greater than 6 months of age get vaccinated against influenza every year. Special emphasis should be placed on vaccinating residents at Union Printers Home, because there is a large percentage of patients that are at risk for serious flu illness.

**AIM STATEMENT:**

The goal is to have 100% of residents at Union Printers Home receive influenza immunization education if they refuse the vaccine, by February 2019.

**MEASURES:**

The total influenza vaccination coverage will be measured.

**CHANGE(S):**

Residents of Union Printers Home will be informed of the importance of the influenza vaccine and provided the appropriate education to make an informed decision

**PLAN:**

The status of vaccine education can be gathered in a report generated by the electronic medical record. I will educate residents about the importance of influenza vaccination, if they choose to refuse it. I will measure the influenza vaccination rates of last year between October-December 2017 and compare it to vaccination rates between October-December 2018. I predict that 100% of residents will be educated on the influenza vaccine if they deny it. I predict that the vaccination rates will improve with increased education.

**DO:**

I generated a report using the electronic medical record, that listed the influenza immunization status of all the residents of Union Printers Home. I recorded why nonvaccinated residents refused the vaccine and recorded the information. There were a lot of misconceptions and myths about the vaccine. I addressed residents' individual beliefs and highlighted any evidence that supported or refuted their beliefs using information found on. <https://www.cdc.gov/flu/about/qa/misconceptions.htm>. Some residents had poor health literacy and could not understand the importance of the vaccine. Others had strong personal experiences that were challenging to dispute.

**STUDY:**

Before my intervention, 49 of 69 residents were vaccinated at Union Printers Home. This was a 71% vaccination coverage; just below the 2016-2017 Colorado's nursing home influenza coverage of 75% . A total of 9 patients out of 20 patients were consented and vaccinated due to my intervention. This resulted in an 84% vaccination coverage. This is above the Colorado average, but was less than UPH's 2017-2018 vaccination coverage of 86%.

**ACT:**

A reference note will be made for nurses to use when they are asking residents about influenza immunization, so they can be more effective in consenting for the vaccine. It will contain common reasons why patients refuse the vaccine, and information that can be provided to support or refute various conceptions.

**REFERENCES:**

1. 2016-17 Influenza Season Nursing Home Vaccination Coverage Report. (2018, November 1). Retrieved March 20, 2019, from <https://www.cdc.gov/flu/fluview/nursinghome/report1617/reporti/index.html>
2. Influenza (Flu). (2017, October 30). Retrieved September 1, 2018, from <https://www.cdc.gov/flu/toolkit/long-term-care/importance.htm>
3. Misconceptions about Seasonal Flu and Flu Vaccines. (2018, September 25). Retrieved March 20, 2019, from <https://www.cdc.gov/flu/about/qa/misconceptions.htm>.

2017-2018 Adult Ambulatory Care (AAC)  
Quality Improvement Project  
PDSA Worksheet  
Joshua Smith  
Assessing Function & Medication Changes in Patients on Chronic Opioid Therapy

**BACKGROUND:**

In 2016, there were 214 million opioid prescriptions made in the US alone. This number has been decreasing over time due to stricter practices. In 2013, there were 247 million prescriptions per person. Oftentimes, a key goal of opioid therapy is overlooked: overall function. This is because the focus is typically on pain, but one of the most impactful aspects of pain is a decrease in function.

**AIM STATEMENT:**

The aim of this project was to analyze documentation of function-assessment in patients on chronic opioid therapy at the Kaiser Internal Medicine Clinic. If documentation was not at a statistically significant level, a "dot phrase" in EPIC would be created to increase documentation. Finally, one year after implementation of the dot phrase, a re-analysis of all patients on chronic opiate therapy would occur to see if more than 80% of the relevant questions are being documented.

**MEASURES:**

Review the charts of all patients receiving opioid therapy at the office. Either the most recent annual wellness visits or visit related specifically to their pain control will be analyzed. Will track the following questions related to the last visit:

Was functional capacity addressed?

Was the dosing of pain medications addressed?

Was the severity of pain addressed?

Was the patient asked if they would like to try a non-opiate pain control modality?

Will also track if the last UDS was performed in the last year and if long-term opiate use was an item on the problem list.

If necessary, the same questions will be asked in 1 year to assess improvement

**CHANGE(S):**

The relevant change will include a "dot-phrase" in EPIC containing the following questions:

The diagram illustrates the modification of a medical history form. On the left is the original form with standard questions. On the right is the modified form with specific data fields highlighted in blue boxes. Arrows indicate the mapping from the original questions to the modified fields.

**Original Form (Left):**

1. Do you feel your pain is controlled at this time?  
- yes, no and \*\*\*
2. Are you able to perform most daily tasks such as putting on clothing, getting out of bed, or walking short distances without significant problems due to pain?  
- yes, no and \*\*\*
3. Out of the past week, how many days has pain interfered with or worsened your:  
- Sleep: 0, 1-2, 3-4, 5-6 and 7  
- Mood: 0, 1-2, 3-4, 5-6 and 7  
- Stress: 0, 1-2, 3-4, 5-6 and 7  
- Usual Activity: 0, 1-2, 3-4, 5-6 and 7
4. Over the past year, have these symptoms (sleep, stress, etc.):  
- **Gotten better, Stayed the same and Gotten worse**
5. Do you have a bowel-movement at least every-other-day?  
- yes, no and \*\*\*
6. Are you happy with your current pain control?  
- yes, no and \*\*\*
7. Would you be interested in transitioning to non-opiate therapies?  
- yes, no and \*\*\*

PDMP reviewed at this visit:  
- yes, no and \*\*\*

**Modified Form (Right):**

1. Do you feel your pain is controlled at this time?  
- [YES/NO:15986]
2. Are you able to perform **yes** daily tasks such as bed, or walking short dista**no** without significant p  
- (YES/NO:15986)\*\*\*
3. Out of the past week, how many days has pain interfered with or worsened your:  
- Sleep: [days of interference:223769]  
- Mood: {days of interference:223769} **0**  
- Stress: {days of interference:223769} **1-2**  
- Usual Activity: {days of interference:23767} **3-4**
4. Over the past year, have these symptoms (5-6 press, etc.):  
- {gotten better / stayed same / gotten **7** 23767}

**PLAN:**

The first step will be to determine which patients at Kaiser are on chronic opioid therapy. This can be accomplished by speaking with the Medical Assistant, who has the ability to pull this list automatically from the EHR. The next step will be to perform chart review on these patients and extract the relevant data, as described above. Then an analysis will be performed to see if the trends are significant. If necessary, the “dot phrase” will be created in EPIC, then distributed to the physicians in the clinic. We predict that the results will not be significant, indicating the need for an implementation to improve documentation.

**DO:**

Overall, there were 21 patients: 14 females, average age 68; and 61 males, average age 61. Results include: > 1 year since last UDS (4 yes, 17 no, not significant); functional capacity addressed (8 yes, 13 no, not significant); medication dosing addressed (9 yes, 12 no, not significant); pains severity addressed (10 yes, 11 no, not significant); non-opiate modalities for pain control addresses (5 yes, 16 no, not significant); chronic opiate therapy on problem list (18 yes, 3 no, significant).

Results are detailed in table 1 below, treating “yes” as a “1” and “no” as a “2.”

	> 1 year UDS?	Functional Capacity?	Medication Dosing?	Pain Severity?	Non-opiate modality?	Opiates on problem list?
AVERAGE	1.81	1.62	1.57	1.52	1.76	1.14
STDEV	0.40	0.50	0.51	0.51	0.44	0.36
95% CI	0.80	1.00	1.01	1.02	0.87	0.72
LOW-ER BOUND	1.00	0.62	0.56	0.50	0.89	0.43
UPPER BOUND	2.61	2.61	2.59	2.55	2.63	1.86

**STUDY:**

Overall, the documentation of function assessment was not routinely documented. Additionally, routine questioning about dosing, pain level, drug screening, and alternative pain-control modalities were not adequately documented. The clinic did a good job of adding chronic opioid therapy to the problem list. This means that a dot-phrase could improve documentation of these questions.

**ACT:**

The dot phrase was created and distributed to the physicians. A “job aide,” which Kaiser uses to standardize and explain workflows, will be created to ease implementation. The same data will be analyzed in 1 year on all patients on chronic opiate therapy. If > 80% of relevant questions have been asked and documented, the implementation will be deemed successful.

**2017-2018 Adult Ambulatory Care (AAC)  
Quality Improvement Project  
PDSA Worksheet  
Decreasing appointment times at a student ran free clinic in Colorado Springs  
Kate Sweeney, Heather Cassidy, MD**

**BACKGROUND:** (Provide an explanation for your project. Why does this project interest you? What is the scope of the problem or gap in care? Why is this issue important?)

The University of Colorado School of Medicine recently partnered with the Mission Medical Center to provide a free clinic one day a month to under and uninsured individuals living in Colorado Springs. We see an average of 11 patients in a half day clinic with an average of 7 medical students and 4 physicians. We could be seeing more patients, helping more individuals, and have a richer clinical community volunteer experience if we made the patient visit more efficient.

**AIM STATEMENT:** *(This is statement describes the overall goal you wish to achieve. The statement should define the goals for improving performance by a certain percentage over a defined time period.)*

The AIM statement of this project was to decrease the average appointment length by 50% by February 2019.

**MEASURES:** (What are you going to measure to assess if your change was an improvement?)

Total appointment length, time from check-in to being roomed, time from being roomed to seeing a medical student, time the medical student takes to see the patient, time from the medical student leaving the room to entering the room with a physician, time spent in the room with the medical student and physician, and the amount time spent between the MD and student leaving the room and the patient checking out.

**POSSIBLE CHANGE(S):**

What change(s) are you going to make that will lead to this improvement?

- ◇ Change the scheduling times for patients
- ◇ Change the location of the clinic
- ◇ Develop a Team A and a Team B who is in separate locations of the clinic
- ◇ Change the roles and responsibilities around between students, MAs, and check in staff
- ◇ Adjust the way pharmacy students are incorporated into clinic
- ◇ Decrease amount of paperwork filled out by patient
- ◇ The way we obtain referrals, rxs, and lab orders (where they are/ the process)
- ◇ Amount of time students have with patients
- ◇ Expedite check out process by making things simpler
- ◇ Get rid of paper charts

**PLAN:** *(List the tasks needed to set up this test of change. Who? What? When? Where? What data will you collect? What will you measure? Also state your prediction of what the results will be.)*

First, calculate the amount of time each step takes by having volunteers at the clinic recording specific times that each

step happened. Then, input the data into excel and calculate the amount of time each specific step takes and calculate averages. My prediction is that the average length of a patient visit is over an hour and a half and that the most time spent during a typical patient appointment is during the last step between the MD and student leaving the room and check out because there are usually a lot of things that need to happen during this time such as lab orders, prescription writing, referral orders, etc.

**DO:** *(Describe what happened when you ran the test or collected the data. Document problems and unexpected observations)*

We realized that it was hard to have everybody writing down these times when they have other responsibilities in the clinic and it took a few months to get enough data to access the time each step took due to lack of data (people forgetting to write down the times each step started and stopped).

**STUDY:** *(Analyze the data. Summarize and reflect on what was learned)*

Clinic Date	Time for each step (Hours:Minutes)						
	Average Appointment Time	Check in - Roomed	Roomed - Seeing Medical Student	Medical Student	Student - MD	Medical Student and MD	Check Out Process
October	1:52	0:22	0:13	0:20	0:11	0:18	0:15
November	1:50	0:19	0:16	0:23	0:09	0:16	0:15
December	2:26	0:31	0:35	0:36	0:20	0:15	0:25
January	2:02	0:18	0:20	0:16	0:20	0:10	0:44
February	1:49			0:18	0:19	0:23	0:18
Average	2:00	0:23	0:21	0:23	0:16	0:16	0:23

Reflection: The lengthiest steps were the check in/rooming and check out processes.

**ACT:** *(Adopt, Adapt, Discard. Describe what modifications to the plan will be made for the next cycle for what you learned. Determine what modifications should be made and prepare a plan for the next test)*

I found that it was a lot harder to collect complete and thorough data to find the initial times of patient appointments; it was a lot to require of my peers and fellow volunteer staff. Additionally, since the clinic only meets once a month, there is not an abundant amount of time to collect data and run PDSA cycles and there is so much change that happens clinic to clinic that making one change and trying to see a result/ change is extremely hard. Last, since we are working with an established clinic that operates 4+ days a week without us, it is hard to make small changes quickly. In the future, I think that implementing PDSA cycles will be easier since we now have several rounds of data that take into account the inherent changes within the clinic to compare new data to.

Adapted from the Institute for Healthcare Improvement

## **Connecting At-Risk Adolescents: Partnering with Pediatricians and Behavioral Health Providers**

Margaret Teets, University of Colorado School of Medicine, Colorado Springs Branch

Caroline Rowlands, MD, Davita Medical Group, Colorado Springs

### **BACKGROUND:**

- Suicide is second leading cause of death for people ages 15-19 years old.
- Over 1 million high school students are treated annually for suicide attempt.
- The youth suicide rate (ages 10-19) in El Paso County from 2005-2014 was 9.3 per 100,000 people, which is higher than Colorado (7.9) and double the U.S. (4.6).
- 66% of patients who die by suicide see a primary physician within 1 month before death.
- The USPSTF recommends screening for major depressive disorder in adolescents aged 12 to 18 years. – Category B recommendation

### **AIM STATEMENT:**

By October 1, 2018, we will provide families whose child was recommended behavioral health consult with updated information on local psychiatric services. On follow-up phone call, we hope to increase counseling by 25% in our at-risk pediatric patients by February 1, 2019.

### **MEASURES:**

On follow-up phone call, we will track the number of families who successfully connected their child with behavioral health specialists. A baseline number of families who were able to see a counselor will be calculated from July-September 2018. This percentage will be compared to our trial group of families who received updated referral information from October 2018-January 2019.

### **CHANGE(S):**

Current behavioral health referral information is outdated and limited in number. I plan on creating an updated referral sheet with psychiatrists, counselors, and emergency services.

### **PLAN:**

1. Reach out to psychiatrists and counselors within the Colorado Springs area to ensure that they are taking new patients, as well as confirming their updated insurance information.
2. With the providers' permission, create a referral sheet with this information.
3. Between October 2018 and January 2019, for any child with PHQ9 >9 or for any child who was recommended behavioral health consult, provide an updated referral sheet.
4. Compare pre-intervention and post-intervention success – defined as successful attendance to a behavioral health specialist.

### **DO:**

#### *Problems:*

1. We were unable to reach some families via follow-up phone call. This limited our sample size and likely biased our data. I hypothesize that the families who we were unable to contact through several phone calls are also the families who experienced greater difficulty in seeking behavioral health care due to social factors.
2. We were only able to contact the families who were aware of their child's psychiatric needs. Some children who



scored “moderately severe” on the PHQ9 screen did not want their parent(s) involved in their mental health care. As a result, we were limited with the kind of referral information that we could provide. We were also unable to perform a follow-up phone call to the child’s family. This also likely biased our data due to lack of parental support in seeking behavioral health or counseling services.

3. The depression screen performed at each office visit differed. During well child checks, the PHQ9 was performed. However, during follow-up appointments for depression management, the BDI-PC was often performed. This made it difficult to quantify changes in depression.

4. We did not have a standardized timeframe for performing the follow-up phone call. As a result, follow-up phone calls varied between 1 and 3 months after psychiatric care was recommended to the families. This also likely biased our data. A way to help understand this bias would have been to ask how long it took families to connect their children with counseling or psychiatric services.

## **STUDY:**

We gathered 11 participants in the pre-intervention group and 10 patients in the post-intervention group. The groups were similar in age and PHQ9 severity (pre-intervention mean age of 14.45, post-intervention mean age of 11.6, CI: -0.22 to 5.93; pre-intervention mean PHQ9 of 9.8, post-intervention mean PHQ9 of 12.5, CI: -8.49 to 3.49).

	Pre- Intervention	Post- Intervention	p = 0.3949
Successful counseling	7	4	
Total	11	10	

Our primary outcome of seeking behavioral health follow-up was not statistically different between the pre-intervention and post-intervention groups.

Our results are limited by the small n number in this PDSA cycle. We ultimately aimed to have more patients in both groups, however, multiple families in both groups were unable to be reached via phone. Our results were also limited with follow-up duration time. These results reflect 3-4 months of follow-up before and after our reference sheet was distributed.

## **ACT:**

Our next PDSA cycle should partner with school counselors. I would like to better understand the training and experience of school counselors, as well as the consistency of follow up with their students. Perhaps sharing information with school counselors would help better triage students who need more formal counseling or easier access to out-patient care. Perhaps school counselors could serve as a referral system. Or maybe our patients are being fully taken care of by school counseling, and we should refer more of our patients directly to the school system.

I would also like to standardize our PHQ9 screening so that all patients who are referred to behavioral health will have completed a PHQ9 questionnaire.

**2017-2018 Adult Ambulatory Care (AAC)  
Quality Improvement Project  
PDSA Worksheet  
Navigating Colorectal Cancer Doesn't Need to be a Pail in the Butt  
Loree Thornton, B.A. MSIII**

**BACKGROUND:**

According to the American Cancer Society's Colorectal Cancer Facts and Figures, in 2017 in the U.S. alone, it is estimated that over 135,000 people will be diagnosed with colorectal cancer and over 50,000 will die from the disease. It is the third most commonly diagnosed cancer in both men and women. Statistically speaking, one in 22 men and one in 24 women will be diagnosed with colorectal cancer in their lifetime.

With the screening, diagnosis, and treatment of colorectal cancer, a patient will have a lot of questions and be interacting with several different members of their healthcare team. These include their PCP or GI physician who will likely spot the earliest signs of the cancer or abnormal cells, pathologists who will review biopsies, and radiologist who will help stage with imaging. It may also include specialists such as a medical oncologist who help with chemotherapy, a radiation oncologist who will treat the cancer with radiation, and/or a colorectal surgeon (general surgeon or surgical oncologist) who will do the surgery to remove the cancer.

My project is to work with other health care providers who work with Dr. Delano to design the necessary steps when colon cancer is suspected on screening tests and in clinical practice, to make sure the patients have all the correct tests and imaging done before meeting with Dr. Delano to expedite their treatment and care and stop incurring unnecessary costs on multiple visits. This will allow for a smoother transition of care and more efficient process for the patient to receive the proper diagnosis and treatment in the timeliest manner.

**AIM STATEMENT:**

By February 1, 2019, we will ensure 100% of patients referred for surgical resection of colon cancer have all necessary labs and imaging finished and available before initial visit.

**MEASURES:**

To measure the success of having patients enter their initial visit with all the proper labs and imaging, we will count the number of patients who visit the office for colorectal cancer and must delay treatment while they are referred for additional imaging and labs to those who on their initial visit have all the necessary labs and imaging finished.

**CHANGE(S):**

The changes will take place two-fold. One will be targeting the PCP and GI clinics that refer to the surgical office the most. We will give the offices a comprehensive list of the exact tests, imaging, and labs needed when referring over a patient.

The second change will be with the receiving front desk staff of Dr. Delano's office. When patients call in to make appointments for initial clinic to evaluate the colorectal screenings, the staff will ensure that all the proper labs, imaging, and documents are obtained or let the patient know at that time, these will be needed for the initial visit.

**PLAN:** First, I will work with Dr. Delano to make a list of everything he would ideally like to have from a patient being referred for GI cancer surgery. Then I will get a list of the community partners he works with most to ensure there are clear expectations (as they may not know every lab that he is looking for.) I will make a list to give to all the offices for the providers as well as a list for the patients, so they can understand the steps towards their treatment. I will also have the list of requirements for Dr. Delano's staff to let the patient know they will need for their initial visit to make sure patients don't slip through the cracks. I would like these steps finished by Oct 1, 2018.

Once all the background information and who I will need to contact is correct, I will send all the information out to the appropriate offices and practices and staff. The new requirements should start taking place Oct 15, 2018 letting all patients know they will need all necessary information before their first visit.

I will start collecting data by logging in all patients who come in for their visits and seeing how many are referred back out to get missing labs. This will be done through the clinical side of Dr. Delano's practice by reviewing notes in patients' charts.

#### **DO:**

After gathering the information, we found patients who came in without the complete CT chest, abdomen and pelvis along with the colonoscopy and CEA had a longer delay from initial visit until surgery and also typically required additional visits with the surgeon before surgery.

We also discovered it would not be feasible to contact every provider who referred in patients to individually request the referrals for imaging. Each provider and practice were private and doing so would be time consuming and unfruitful.

Working with the scheduler, we identified the new patient packet as a way to identify new patients and get the information out in a timely manner before the initial appointment.

#### **STUDY:**

Average days from initial visit to surgery patient without either CT/Colonoscopy was 180 days, average days for patients with just colonoscopy was 47.5 days and average days with both CT/colonoscopy was 26.6 days.

Average visits with surgeon before surgery of those with just colonoscopy was 2.5, CT/colonoscopy was 1.5, and those without anything was 4.

I discovered that many patients coming in with the initial diagnosis of cancer, have a lot all at once they are required to do. With all the information, asking them to speak with their GI specialist or PCP to get imaging before the initial encounter was highly unlikely.

We also found that patient health literacy was a large barrier for this approach to work.

#### **ACT:**

Once we realized our original design was flawed and discovered health literacy was a large factor. We decided to switch the approach and make an informative flyer for new patients, giving them information on next steps, information on the imaging and labs such as what they were and what they were for, gave information on the different providers in their health team and what their roles was, and finally even gave some helpful suggestions like keeping a notebook for questions, appointment time and keeping track of providers' information.

For modifications of the QI approach, contacting the individual providers referring in would also be a largely inefficient way to make change. Looking at the options now, if we truly wanted to ensure having all imaging completed before the initial visit is to have a standing order/referral list. When patients are referred in, they are checked to see if they have their imaging completed, if not, an automatic referral is sent out for the patients and the initial appointment is delayed until after these have been completed.

After initiating this process, we would test not only if it cuts down on clinic visits but if the patient overall has less time until surgery, not just less time between first visit with surgeon and surgery.

Adapted from the Institute for Healthcare Improvement

## **Addressing Concerns About Colonoscopy: Just Start the Conversation**

### **PDSA Worksheet**

Miles Viseur, MS and Pamela Coffey, MD

#### **BACKGROUND:**

Colon Cancer is the 2<sup>nd</sup> leading cause of cancer death among men and women combined, and 1 in 20 people will be diagnosed with colorectal cancer in their lifetime<sup>1</sup>. Despite near universal endorsement for screening colonoscopy from multiple organizations, at least 1 in 3 people are not up-to-date with colorectal cancer screening<sup>2</sup>. Furthermore, a few studies have demonstrated that patients who were offered a more than one choice of Colorectal Cancer Screening (CRCS) modalities were less likely to be screened<sup>3</sup>.

The purpose of this project, therefore, is to elucidate the main concerns as to why patients do not want to have a colonoscopy. Our study will only include colonoscopy and will not address other modalities during the initial discussion. Only after the patient rejects the colonoscopy and completes the survey will other screening modalities be offered. Based on the principle results of the questionnaire, we will implement a series of PDSA cycles to directly address patient concerns and hopefully improve the clinic's percentage of eligible patients referred for colonoscopy.

#### **AIMS STATEMENT:**

By February 14<sup>th</sup>, 2019, we will increase our referral percentage of eligible patients for colonoscopy from 40% to 70% by better addressing patient's main concerns as to why they do not want to be screened.

#### **MEASURES:**

Qualitative assessment of survey results, percentage of patients who are adequately screened, and percentage of those who agree to undergo screening.

#### **CHANGES:**

When a patient is identified as eligible for colonoscopy either based on age or positive family history, the EHR has a flag that appears under the "Health Trac". When staff members recognize that a patient fits the criteria for colonoscopy screening, this will prompt them to ask the patient if they would like to have a referral made to schedule a colonoscopy. If the patient says "no", then the staff member will provide a one-page questionnaire with a few questions that will allow the patient to anonymously share their feelings as to why they do not want to have the colonoscopy referral. The physician will then review the results of this questionnaire with the patient to start a brief discussion regarding any concerns or questions that they may have regarding colonoscopy.

#### **PLAN:**

**Who?** Patients who are eligible for screening colonoscopy either within age range 50-75 without positive family history or 10 years prior to diagnosis of relative in patients with a positive family history.

**What?** Patients who initially reject colonoscopy screening will be offered a patient questionnaire which will address why they are rejecting screening. The cumulative results of the questionnaire will be analyzed to determine the most common reasons why patients are rejecting screening. This will be followed by serial PDSA cycles that specifically address the most common reason for rejection

**When?** September 2018 through February 2019

**Where?** Kaiser Permanente Outpatient Parkside Medical Offices,

**What type data will you collect?** Responses from patient questionnaires.

**What is your prediction of what the results will be?** I predict that the most common reason patients will reject colonoscopy will be because they do not fully understand the risks and benefits of the procedure and will instead focus on the transient feelings of discomfortableness regarding the prep and the procedure itself as the main reason that they do not want to have the procedure done. In other words, I predict that it is likely due to a lack of patient or staff education regarding colon cancer and a lack of discussion regarding the risks and benefits of screening during appointments.

#### **DO:**

- When we started to collect data, we realized that many of Dr. Coffey's patients are up-to-date on colonoscopy screenings. In fact, 41 percent of the patients surveyed were up-to-date on their screenings. This is approximately 8 percent higher than the

national average, where only 1 out of 3 are up-to-date on their screening.

- In total, 25 patients were surveyed. One survey was removed because it was not completed fully. Of the remaining 24 patients, the average age was 62 years old. Unfortunately, there were only 6 male patients compared to 18 female patients surveyed. There were 4 patients with a positive family history of colon cancer.
- An expected observation was that the most common response (21 percent) as to why patients did not want to undergo colonoscopy was that because they were uncomfortable with the colon prep beforehand.
- Some additional unexpected comments that were made by patients when completing the survey included that they “did not want to be violated” or that they simply “refused or did not want” to do the procedure without specifying.
- An unexpected observation while asking patients to perform this survey was that by simply asking the patient to do so, it often-times started a conversation regarding colonoscopy screening. By the end of the conversation, most of the patient’s concerns were usually addressed and the patient was willing to undergo colonoscopy screening. Because this survey was only intended for patients who *refused* colonoscopy screening, many of the patients who eventually agreed to have the screening oftentimes did not complete a survey. 12 percent of the patient’s surveyed agreed to have a colonoscopy ordered after finishing the screening questionnaire, however this percentage is likely much higher.

#### **STUDY:**

RESULTS (Total 24 pts)	# responses	% patients surveyed
Already Had Colonoscopy	10	41%
Not old Enough	1	4%
Need Ordered	3 (likely more)	12%
Uncomfortable about prep	5	21%
Refused Recommendation	2	8%
Too expensive	1	4%
Don't want sedation	2	8%
No chaperone	1	4%
Other “I didn’t want to be violated”	1	4%
Other “I don’t know”	1	4%
Other “fear”	1	4%
Other “I have been busy”	1	4%
Did not complete form	1	4%
Total options chosen	29	

**ACT: Intervention #1:** The next plan at this time is to create a one-page brochure that will be approved by Kaiser (in progress) that will be placed in Parkside Kaiser Outpatient exam rooms that will be titled “Concerns about Colonoscopy?”. It will then educate the patient on Colon Cancer and why Colonoscopy screening is recommended. Then, about halfway through the brochure in larger font, it will display some of the common misconceptions about colonoscopy (and the colon prep beforehand). These misconceptions (as evident from patient responses) will be formatted in a question-and-answer format to educate the patient about the importance of colonoscopy screening.

By addressing the common concerns among patients, this will dispel their own and make them more likely to undergo colonoscopy screening as recommended by their provider.

**Intervention #2:** Increase staff knowledge regarding Colon Cancer, colonoscopy, and other screening modalities to better initiate conversation with patients in order to dispel concerns.

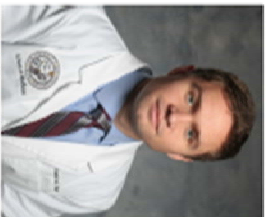
#### **Sources:**

1. “Facts and Stats.” Fight Colorectal Cancer, 2018, [fightcolorectalcancer.org/prevent/about-colorectal-cancer/facts-stats/](http://fightcolorectalcancer.org/prevent/about-colorectal-cancer/facts-stats/).
2. Centers for Disease Control and Prevention (CDC). Use of colorectal cancer tests—United States, 2002, 2004, and 2006. *MMWR Morbid Mortal Wkly Rep* 2008;**57**:253–8.
3. Lafata JE, Divine G, , Moon C, , Williams LK, Patient-physician colorectal cancer screening discussions and screening use. *Am J Prev Med* 2006;**31**:202–9.

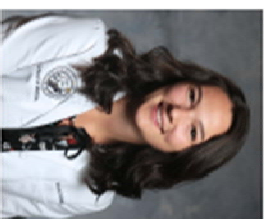
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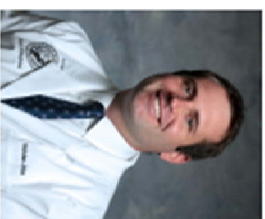
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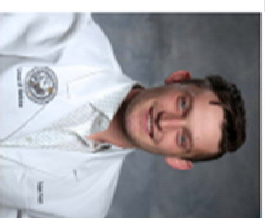
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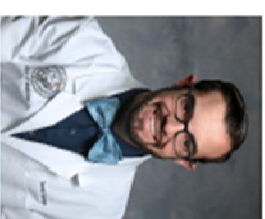
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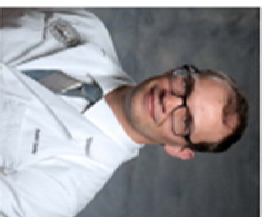
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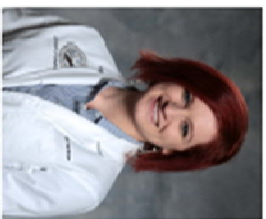
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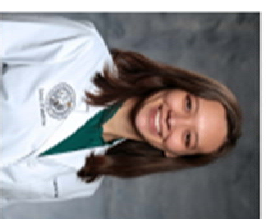
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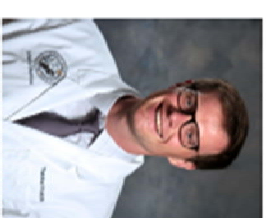
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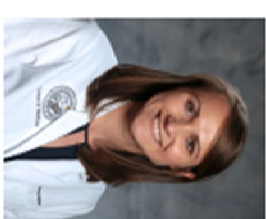
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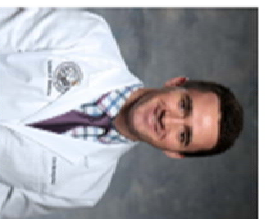
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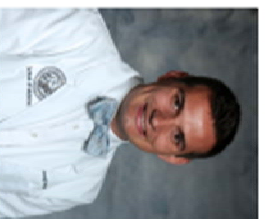
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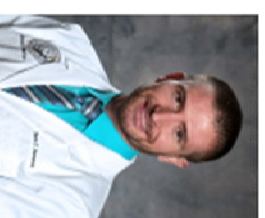
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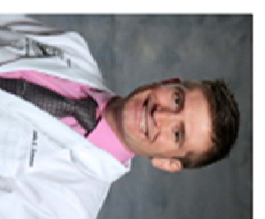
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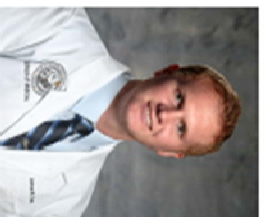
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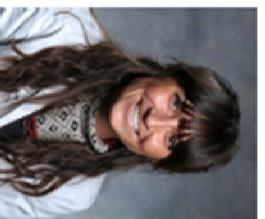
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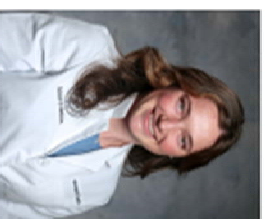
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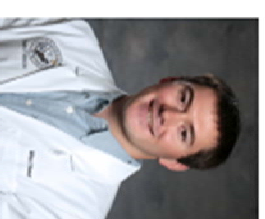
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