

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE
COLORADO SPRINGS BRANCH
QUALITY IMPROVEMENT PDSA WORKBOOK
CLASS OF 2021

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 2021 Quality Improvement Projects

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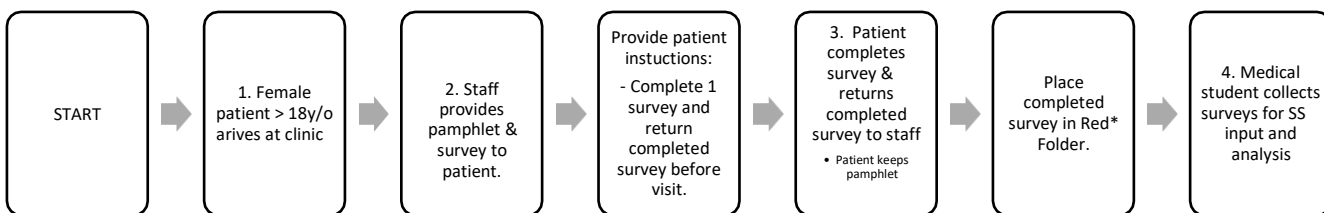
The FHVSS: a questionnaire to measure patient's understanding of Feminine Hygiene**BACKGROUND**

Feminine Hygiene is a general term that encompasses the practices that one may incorporate to maintain optimal vaginal health¹⁻⁵. This term has evolved to include the use of periodic over-the-counter intravaginal products that advertise the enhancement of vaginal pH^{4,10}. Optimal vaginal pH is typically acidic with a median pH of 4.5^{2-4,15}. The maintenance of this pH is largely attributable to *Lactobacillus*, an anaerobic bacterium. *Lactobacillus* dominates the vaginal microbiome and is typically found to constitute >70% of the microbiome. In addition, *L. crispatus*, has been identified as essential to the vaginal microbiome for maintenance of vaginal pH and health^{3,12-14}.

Intravaginal practices and periodic usage of intravaginal products is common among women in the United States³⁻⁴. Though research demonstrates an increased risk of bacterial vaginosis and candidiasis with continual incorporation of intravaginal practices³; Bacterial Vaginosis and Candidiasis are the two most common causes of vaginitis, and a frequent reason for patient visits to the obstetrician–gynecologist²⁻⁵. In addition, Bacterial vaginosis and candidiasis have been estimated to incur five to ten million clinic visits annually in the United States with a corresponding health care cost of over \$1 billion every year^{4,18}.

AIM STATEMENT: We aim to implement vulvovaginal hygiene education to all (100%) female patients >18y/o who present to the Ivy Clinic and Gynecology clinic by August 2020.

MEASURES: We will measure the percentage of patients who complete the survey.

CHANGES**PLAN**

Who: All female patients > 18 y/o presenting for an annual, complaint, or establishing care.

When: February 28th – March 22th

Where: Ivy Clinic and Woman's Health Care Clinic

What: 200 FHVSS and 200 Feminine Hygiene pamphlet (See process above)

- = Medical Student will bring 200 copies of FHVSS Survey + 200 copies of Feminine Health Pamphlet to the clinic.
- = Medical Student will bring folder (x2) to the clinic.
- = Medical Student will collect completed surveys each Monday and input survey for analysis (see step 5 above)

Feminine Hygiene and Vulvovaginal Symptom Survey

This 18-item questionnaire (see Appendix A) was adapted from the Vulvovaginal Symptom Survey (VSQ)⁷ and a Feminine Hygiene survey conducted by YouGov in a cohort of 2,010 individuals¹¹. The VSQ is a 21-item, questionnaire that measures the impact of vulvovaginal symptoms in postmenopausal women. The VSQ highlights four scales: symptoms, emotions, life-impact, and sexual impact with a test-retest reliability 0.75, 0.60, 0.55, and 0.65 respectively⁷. There is currently no gold standard for the assessment of feminine hygiene knowledge in woman. Prior to the VSQ there was not a gold standard to assess vulvovaginal skin symptoms in older women^{11-14,20}. The Feminine Hygiene and Vulvovaginal Symptom Survey (FHVSS) was created to qualify patients' knowledge of feminine hygiene and to measure the impact of vulvovaginal symptoms in patients' lives.

The Feminine Hygiene pamphlet (see Appendix B) was adapted from the Cornel Vaginal Hygiene toolkit²¹. This public informational is available in an online medium. Information was validated against publicly available resources on the American College of Obstetricians and Gynecologists platform.

DO

Problems:

- ▬ Reducing the burden of data collection on staff.
- ▬ Replicating projects in a new setting.
- ▬ Covid-19 curtailed the data collection process. Originally anticipated to last 2 weeks with the goal of obtaining ~250 patient surveys.
- ▬ Standardizing data collection in two different clinics: Ivy Clinic and Women's Health Clinic.

STUDY

The data collection was suspended by the diminished patient contact during covid-19. The current data reflects n=6.

Study Population

Six women completed the FHVSS and six women received the Feminine Hygiene pamphlet. The mean age was 46.1 years and ages ranged from 37 to 52 years. Two women (33%) identified their clinic as Ivy Clinic. Three women (50%) identified as civilians.

Symptom	N (%)
Pain	4 (67%)
Itching	3 (50%)
Irritation	3 (50%)
Dry	3 (50%)
Discharge	2 (33%)

Table 1: Vulvovaginal Symptom reported by women. (n=6).

Concern	N (%)
Worry	3 (50%)
Frustration	4 (67%)
Embarrassment	3 (50%)
Hard to show affection	3 (50%)

Table 2: Vulvovaginal Symptom concerns reported by women. (n=6).

Vulvovaginal Questionnaire

All six women were able to complete the FHVSS without assistance. 33% had complete data and 71% reported having at least one of the seven vulvovaginal symptoms in the last two weeks (Table 1). Pertaining to impact, 71% of reported having one aspect of their life affected by vulvovaginal symptom (Table 2).

Feminine Hygiene Knowledge acquisition	N (%)
Online	4 (67%)
Family	4 (67%)
Friends	4 (67%)
Middle School	1 (17%)
Healthcare Clinic	1 (17%)

Table 3: Self-reported feminine hygiene routine acquisition(n=6).

Anatomical Diagram Questionnaire

67% of women complete the Q.17 (see FHVSS below) and of those women 33% misidentified the urethra on the anatomical vulva diagram (see image 1).

Feminine Hygiene Questionnaire

67% of woman reported learning their feminine hygiene routine from their family, friends, and online mediums. 17% reported learning their feminine hygiene routine from a middle school class, and health clinic.

83% of women completed the vaginal care question with 60% of women disclosing they engaged in intravaginal practices (Table 2). 40% of women correctly identified that washing the inside of the vagina is an intravaginal practice to avoid.

ACT

Adopt

- I would adopt the methodology of data collection that was standardized in both clinics. I would use The FHVSS and Feminine Hygiene Pamphlet in a second attempt to collect information about patients' understanding of the feminine hygiene.

Adapt

- I would consider changing the answer format of the questionnaire from Yes and No to a Likert scale. This could provide descriptive information on a patient's perceived vulvovaginal symptoms.
- I would adapt the time frame of data collection from two weeks to one month to capture a true resemblance of the population at EACH.

Discard

- I would consider discarding the adapted VSQ questions in the questionnaire and focus on the feminine hygiene aspect. Given that current data supports the increase incidence of vaginitis and vaginosis is associated with intravaginal practices and therefore a limited understanding of feminine hygiene

Potential next steps

- Completing a second round of data collection to increase the population size from six to 250.
- Formulating a Post survey to qualify the efficacy of the feminine hygiene handouts.
 - o Through a follow-up phone conversation.
 - o Through an online format (Relay)

REFERENCES

1. Advances in Technical Nonwovens. (2016), 476–496. doi: 10.1016/c2014-0-03702-1
2. Miller EA, Beasley DE, Dunn RR, Archie EA. Lactobacilli Dominance and Vaginal pH: Why Is the Human Vaginal Microbiome Unique?. *Front Microbiol.* 2016;7:1936. Published 2016 Dec 8. doi:10.3389/fmicb.2016.01936
3. Fichorova RN, Onderdonk AB, Yamamoto H, Delaney ML, DuBois AM, Allred E, Leviton A, Maternal microbe-specific modulation of inflammatory response in extremely low-gestational-age newborns. Extremely Low Gestation Age Newborns (ELGAN) Study Investigators. *mBio.* 2011 Jan 18; 2(1):e00280-10.
4. Foxman B, Barlow R, D'Arcy H, Gillespie B, Sobel JD. Candida vaginitis: self-reported incidence and associated costs. *Sex Transm Dis* 2000;27:230–5.
5. Brown J, Moscicki AB. *Intravaginal practices and risk of bacterial vaginosis and candidiasis infection among a cohort of women in the United States.* *Obstetrics and Gynecology.* 2013 Apr;121(4):773-80
6. Barlow DH, Samsioe G, van Geelen JM. A study of European women's experience of the problems of urogenital ageing and its management. *Maturitas.* 1997;27(3):239–247. [PubMed] [Google Scholar]
7. Erekson EA, Yip SO, Wedderburn TS, et al. The Vulvovaginal Symptoms Questionnaire: a questionnaire for measuring vulvovaginal symptoms in postmenopausal women. *Menopause.* 2013;20(9):973–979. doi:10.1097/GME.0b013e318282600b
8. Ettinger B, Hait H, Reape KZ, Shu H. Measuring symptom relief in studies of vagina
9. Pastore LM, Carter RA, Hulka BS, Wells E. Self-reported urogenital symptoms in postmenopausal women: Women's Health Initiative. *Maturitas.* 2004;49(4):292–303. [PubMed] [Google Scholar]
10. Simpson RC, Murphy R. Consideration for disease impact and outcome measures in vulvar disease. *J Low Genit Tract Dis.* 2012;16(4):460–463. [PubMed] [Google Scholar]
11. Waldersee, Victoria. YouGov. *Half of Brits don't know where the vagina is - and it's not just the men.* 2019, March. [YouGov]
12. Ettinger B, Hait H, Reape KZ, Shu H. Measuring symptom relief in studies of vaginal and vulvar atrophy: The most bothersome symptom approach. *Menopause.* 2008;15(5):885–889
13. Wiegel M, Meston C, Rosen R. The female sexual function index (FSFI): Cross-validation and development of clinical cutoff scores. *J Sex Marital Ther.* 2005;31(1):1–20. [PubMed] [Google Scholar]
14. Bartula, I., Sherman, K.A. Screening for sexual dysfunction in women diagnosed with breast cancer: systematic review and recommendations. *Breast Cancer Res Treat* 141, 173–185 (2013). <https://doi.org/10.1007/s10549-013-2685-9>
15. McGahuey CA, Gelenberg AJ, Laukes CA, Moreno FA, Delgado PL, McKnight KM, Manber R. The Arizona Sexual

- Experience Scale (ASEX): reliability and Validity. *J Sex Marital Ther.* 2000;26(1):25–40. doi: 10.1080/009262300278623. [PubMed] [CrossRef] [Google Scholar]
16. Rouquette A, Falissard B. Sample size requirements for the internal validation of psychiatric scales. *Int J Method Psychiatr Res.* 2011;20(4):235–249. doi: 10.1002/mpr.352. [PubMed] [CrossRef] [Google Scholar]
 17. Thirlaway K, Fallowfield L, Cuzick J. The sexual activity questionnaire: a measure of women's sexual functioning. *Qual Life Res.* 1996;5(1):81–90. doi: 10.1007/BF00435972. [PubMed] [CrossRef] [Google Scholar]
 18. Pavlova SI, Tao L. In vitro inhibition of commercial douche products against vaginal microflora. *Infect Dis Obstet Gynecol* 2000;8:99– 104.
 19. Grimley DM, Oh MK, Desmond RA, Hook EW III, Vermund SH. An intervention to reduce vaginal douching among adolescent and young adult women: a randomized, controlled trial. *Sex Transm Dis* 2005;32:752–8.
 20. Simpson RC, Murphy R. Consideration for disease impact and outcome measures in vulvar disease. *J Low Genit Tract Dis.* 2012;16(4):460–463. [PubMed] [Google Scholar]
 21. Cornell Health. Maintaining Vaginal Health. Retrieved from <https://health.cornell.edu/sites/health/files/pdf-library/Maintaining-Vaginal-Health.pdf>

**2019-20 Adult Ambulatory Care (AAC)
Quality Improvement Project
PDSA Worksheet
Neil Bishop**

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?)

I am interested in pursuing a career in ophthalmology due to my experience working in a retina clinic before medical school. In this clinic, we treated many patients with poorly controlled diabetes who presented with severe diabetic retinopathy. Many people cannot appreciate a change in their vision during the early stages of the development of this disease and thus do not seek medical care. Once the vision has been impacted by diabetes, it is a serious condition that can lead to significant vision loss. It is also more difficult to reverse the process than it is to prevent the process.

As part of my internal medicine clinic's practice, they ask all patients who are scheduled for a Medicare annual visit if they are following with the eye doctor regularly. While this is a good start, I feel it would be beneficial to improve this communication such that all diabetic patients are being asked about following with an ophthalmologist and that results of the visit are communicated. Also, many patients confuse the practices of optometrists and ophthalmologists, so it would be helpful to clarify this for patients. If the PCP knew more about the status of the patients' vision, she may want to work on tighter diabetes control than normal.

AIM STATEMENT: *(This 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.)*

By February 1, 2020, we will give all diabetic patients an eye health packet that contains an educational section, a form to have the ophthalmologist fill out and the patient return to the PCP, a patient survey about eye health, and a contact list for ophthalmologists who can do diabetes exams. We will aim to increase the number of diabetic patients who have seen the ophthalmologist in the last year by 50% by May of 2020.

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

The percentage of diabetic patients who receive the eye health packet as well as the percentage of diabetic patients who have seen the ophthalmologist within the last year.

CHANGE(S):

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

When the MA rooms the patient, she will check to see if the patient is diabetic. If so, she will give them a copy of the eye health packet. If the patient has not already done so, she will go over the patient survey with them. If the patient has already received the packet at a previous visit, he or she will return the form completed by the ophthalmologist to the PCP to help guide diabetes treatment.

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.)*

I will need to create the eye health packet. To do so, I will work with a local ophthalmologist to determine what information is most important to be relayed to the patients. I will also contact local ophthalmology offices to see if they want to be listed to be contacted for diabetes screening. I will also make sure the packets are stocked and in a convenient place for the doctor and MA to distribute them. I will also create a location where the completed surveys can be collected. The MA will need to add the packet to her rooming routine. The doctor will need to increase the number of patients who are asked about their eye health.

I will collect data on the number of patients who truly are following with an ophthalmologist. I will also collect data on how much the patients understand about their eye health. I predict that significantly less patients than expected are currently seeing the ophthalmologist yearly. I would guess that it is less than 50%. It is reasonable to increase this significantly.

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

I ran into lots of problems getting this project off the ground. I found that it is difficult to be able to distribute educational material from a provider's office due to restrictions from large health groups. Once I decided to take this project out of the clinic and into the digital realm, it became much more feasible.

I found all patients that had seen my preceptor over a three-month period who had diabetes. I then called each of these patients to see if they are getting regular eye exams, when their last exam was, and if they have follow-up scheduled. I then provided educational materials via email and made follow-up calls to see if my initial communication with the patients had encouraged them to go ahead and schedule follow up. I was able to communicate with patients via telephone and email more easily than expected. It was significantly more effective than anticipated as well. Patients were open to using the communication methods and seemed to be open and honest in their conversations.

I was surprised to find that people seemed to fall into one of two categories regarding phone communication. I either could not ever connect with patients by phone or could reliably get in touch with them each time I called. While this could be a source of difficulty for providers trying to get in touch with patients via phone, it did make it more realistic for this project. I knew that the people I got in touch with once would be available for follow up calls.

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

The data collected was both helpful and interesting. It showed that only 38% of patients had future eye exams scheduled. This is lower than the national estimate of 60% of patients who get eye exams as recommended. I think that this could be because some people do not schedule the exam until close to the time they should get it; however, several patients I communicated with were overdue for an exam and used the conversation as motivation to get back on schedule. I spoke with patients who were anywhere from a couple weeks overdue to several years overdue.

This data confirmed that there is indeed a gap in patient care regarding diabetic patients seeking out the recommended eye care. If these numbers were extrapolated to represent all of the patients at this practice or even across the country, there is a huge group of patients not getting the eye exams that they should be.

At the time of my follow up calls, 69% of patients who had not had an appointment scheduled originally then took action to make an appointment. This showed that patients can be motivated to take action regarding their own health with the simple encouragement of a phone call and some educational material.

I learned that phone calls and email could be a very helpful tool for providers to use to help address gaps in care. They can be used for education and encouragement. Just as many practices use reminder phone calls to decrease the rate of no-shows at appointments, practices could also use phone calls to help encourage compliance with referrals or healthy living habits.

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 learned that some plans take much more time than expected. If one wants to distribute educational material from a doctor's office, this may take months to get approved. It also could be ultimately denied. In future cycles, I think that it would be worth pursuing the opportunity to distribute printed materials. This was not feasible for my project.

To continue from this starting point, I would want to go in two different directions. Regarding diabetic patients not getting eye exams, I would want to continue the project by covering a larger population. This would be helpful because it would determine if the gap in care spreads equally across all providers. If there is a discrepancy in the rate at which patients get eye exams based off of who their primary-care provider is, this would show how impactful education and motivation surrounding the topic can be.

Regarding email and telephone communication, I would want to reach out to patients in a similar manner regarding a different gap in care. This could help confirm the use of electronic communication as a helpful tool or could show that this avenue may not be worth pursuing at this time.

**2019-2020 LIC
Quality Improvement Project
PDSA Worksheet
Zach Blea**

BACKGROUND:

EMT-Basics have different scope of practice while working in the hospital vs. working in out-of-hospital settings (ie. Ambulance). The majority of the scope of practice overlaps between their license and the hospital, however, there are some limitations the hospital places on EMTs, while on the other hand there are some procedures they are given permission to do outside of their state scope. Recently there was an incident of a EMT working outside of their scope of practice that led to an adverse event. Since then, there has been confusion among EMTs of their scope-of-practice, specifically if and when they can practice outside of their scope. At this point, there has not been a clear and detailed guide outlining their scope of practice.

AIM STATEMENT:

The aim of this quality improvement is to define and elucidate the roles and scope of practice for EMT-Basic working in the Emergency Department within Penrose-Saint Francis Health System.

MEASURES:

Our measures will consist of self-reported comfort level and understanding of the scope of practice and a quick assessment testing their comprehension of scope of practice.

CHANGE(S):

Over the next few months, we will develop a clear and explicit guide for the scope of practice for EMT-Basics within the Emergency department. After the scope has been defined and clarified, EMTs will go through orientation to acquaint them with the newly defined scope of practice. Orientation will consist of real life application and presentations over common confusions within their scope.

PLAN:

My plan is to administer a pre-test with 10 questions to determine their comfort level and understanding of the scope of practice in the Emergency Department. Subsequently, they will go through orientation that defines their scope of practice and how it differs in the hospital compared to the state. Afterward, I will administer a post-test to determine their post-orientation comfort level and understanding of the scope of practice.

Follow-up will be based on the results of the post-test compared to the pre-test.

My prediction is that EMTs working within the ED will score higher in both their comfort level and knowledge of the scope of practice on the post-test vs the pre-test after orientation.

DO:

One of the first problems we ran into was getting people scheduled to do an orientation. This required us to have people come in on off days or do a small orientation during their shifts. Due to this variability in training, it will be harder to determine who received what type of training if there is inconsistency in the post-tests.

STUDY:

Unfortunately, at this point we do not have all the post-test data yet. I am currently working on gathering the data to start my analysis.

ACT:

Again, at this point we do not have definitive data to draw conclusions if the orientation was successful. If it proves to have worked, this would then be implemented for all new hire ED techs. If it was not successful at improving the comfort level and knowledge of their scope of practice, more needs to be done to understand the specifics behind the post-test answers that would suggest the orientation did not work. Apart from the data collection, I would have streamlined the pre-test in a standardized electronic version to prevent all the data from coming in on paper at different times from various people. In addition, the orientation was also not standardized, which could possibly make the results a bit challenging to interpret if there are discrepancies.

Adapted from the Institute for Healthcare Improvement

Implementation of a Collaborative Care Integrated Behavioral Health Model at a Local Clinic

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BACKGROUND:

Access to psychiatric services is limited, and patients with behavioral health disorders experience more chronic medical conditions with worse medical healthcare outcomes compared with the general population. Integrated behavioral health (IBH) models have been widely implemented across large-scale systems in response to these needs.¹⁻¹⁴ These models involve treatment of both medical and behavioral health problems in one primary care setting with collaborative input from behavioral health specialists and specialty referrals as needed. Research has demonstrated the advantages of such models in better treatment outcomes, decreased remission time, fewer medication side effects, easier and faster access to care, decreased healthcare costs, better chronic medical disease outcomes, and decreased burnout among physicians.^{8-10,15-21}

Recognizing the benefits, Matthews-Vu Medical Group, in consultation with IBH expert Dr. Lori Raney, implemented a co-located collaborative Care Model (CoCM), a type of IBH. A critical component of IBH includes continual assessment of efficacy.²²⁻²⁸ This quality improvement project examines the efficacy of the newly implemented CoCM.^{1,22-24,29}

AIM STATEMENT AND MEASURES:

By March 1, 2020:

1. 30% of patients with mild to moderate anxiety and/or depression will have 3 point improvement in their GAD-7 and/or PHQ-9, respectively.
2. 50% of patients referred to behavioral healthcare will have their first appointment within 30 days of referral
3. 50% of patient survey responses to Likert-scale questions will be strongly agree or agree, with an anticipated survey response rate of 30%

CHANGES: CoCM DESCRIPTION

In this model, the treatment of patients with mild to moderate anxiety and/or depression is managed by the Primary Care Practitioner (PCP), Behavioral Health Case Managers (BHCM), and consulting Psychiatrist. During preventative primary care visits, patients are screened yearly for anxiety and depression through GAD-7 and PHQ-9. Patients meeting criteria for mild to moderate anxiety and/or depression will be initiated into the Collaborative Care Model.

PCPs provide initial pharmacological treatment for patients. BHCM proactively tracks patients for follow-up and treatment response using a registry; performs regular screening patients with GAD-7 and PHQ-9; supports medication management through adherence and side effect monitoring; provides brief behavioral interventions; refers patients to as needed psychotherapy and/or other resources; facilitates treatment plan changes; and facilitate relapse prevention plans for patients who achieve treatment goals. BHCM will review caseloads with the Psychiatrist, particularly reviewing new cases and cases in which improvement is not progressing as expected. Psychiatrist provides diagnosis and treatment plan recommendations to PCP and BHCM.

PLAN:

- Matthews Vu Medical Group collaborated with Dr. Lori Raney to design a CoCM for their clinic and hired a BHCM with planned start date in mid-October, 2019.

- Student, BHCM, and Psychiatrist to design a survey to send out to patients to gauge their perspective on the CoCM; IT to set up automated system that emails survey to patients in the CoCM following a visit.
- Data collection on March 1, 2020 following initiation of CoCM from BHCM registry and electronic medical records

DO:

The CoCM was implemented October 15, 2019. The survey was designed and emailed automatically to patients after behavioral healthcare appointments. Data was extracted from BHCM registry and from electronic medical records March 1, 2020.

Challenges:

- Billing managers, unfamiliar behavioral healthcare billing, made errors in billing, misapplying models where physicians oversee advanced practice providers in the medical setting to the BHCM and therapists.
- Significant up-front costs of CoCM Implementation; CoCM has not yet broken even for costs in a quarter. Discrepancies in expectations between behavioral healthcare faculty and clinical managers about when CoCM would become a cost benefit to the clinic.
- PCPs referrals were initially slow. BHCM and Psychiatrist advertised on the CoCM through emails, meetings with the PCPs, and flyers posted around the office.
- Psychiatrist and BHCM struggled to meet with PCPs to answer questions and relay new information due to large number of PCPs and conflicting schedules.

STUDY:

59 unique patients had at least one appointment with BHCM. 43 patients are currently in CoCM Model, and 16 patients either had a one-time appointment or were referred to psychiatry. 38 out of the 43 CoCM patients have >1 appointment with BHCM.

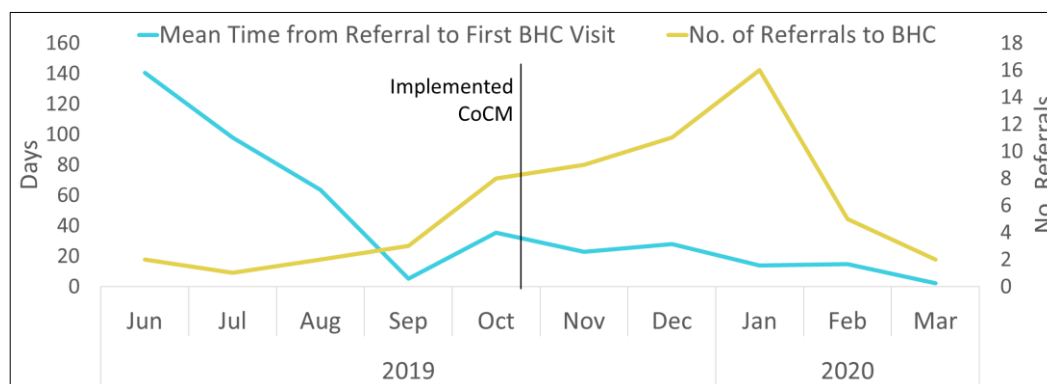


Figure 1. Mean time from referral to first behavioral healthcare (BHC) visit per month and total number of referrals made per month. Data points grouped based on date of referral. Following CoCM Implementation, 76% (34/45) of BHC visits to occurred within 30 days of referral.

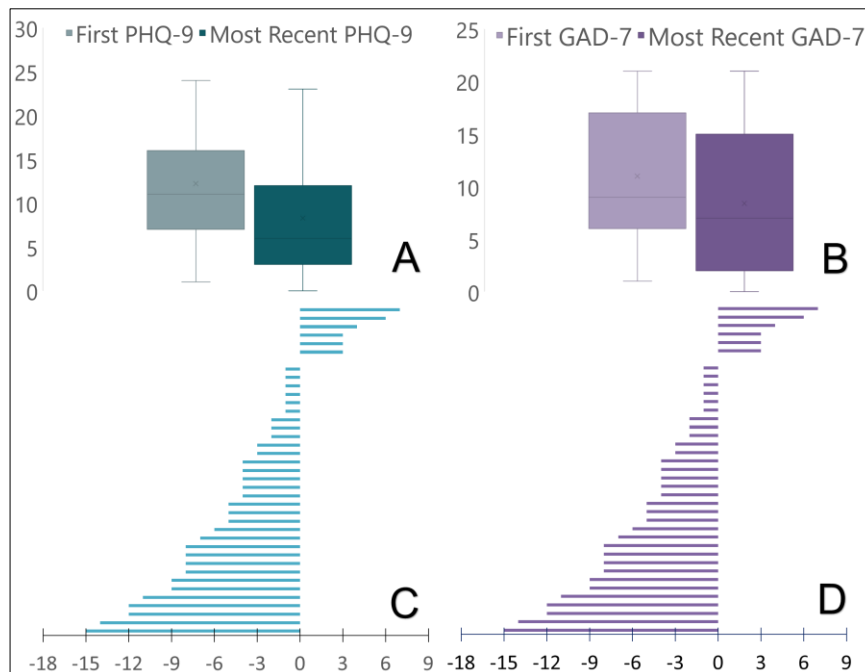


Figure 2. PHQ-9 and GAD-7 results. N=38. A&B: PHQ-9 (A) and GAD-7 (B) scores at initial PCP screening and most recent BHCM visit. C&D: Change in PHQ-9 (C) and GAD-7 (D) scores from initial screening to most recent visit. Each bar represents a unique patient; negative change represents an improvement in score. 63% (24/38) PHQ-9 scores and 53% (20/38) GAD-7 scores improved by 3 points or more.

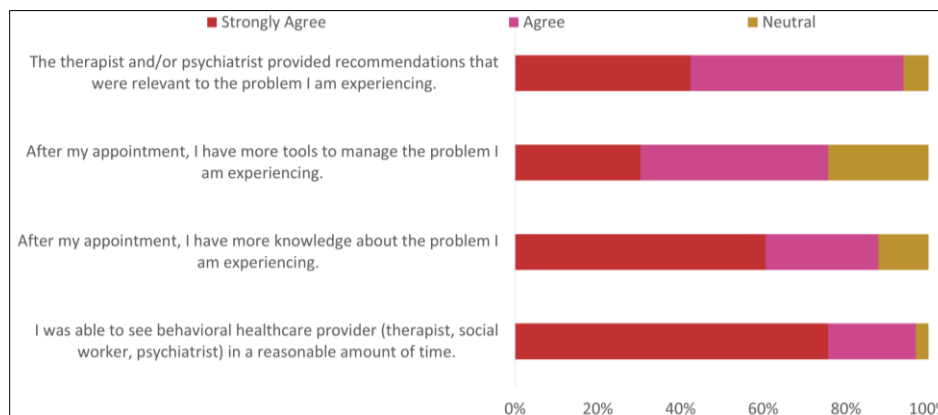


Figure 4. Survey responses to Likert scale questions. N=33, response rate 33%.

ACT:

1. New billing director with experience in BHC and CoCM billing is being hired.
2. Psychiatrist to switch to a shared work-space model, as PCPs do, and relinquish her private office. Goal is to increase ability to collaborate by having PCPs and the psychiatrist in same work-space. Once implemented, we plan to survey PCPs and patients about the new clinic flow.

REFERENCES:

1. Behavioral Health Integration and Collaborative Care Registry Strategies in Medical Settings. 2018; aims.uw.edu. Accessed Aug 18, 2019.
2. Behavioral Health Integration Services. MLN Booklet 2019; <https://cms.gov>. Accessed Sep. 1, 2019.
3. Coleman KJ, Magnan S, Neely C, et al. The COMPASS initiative: description of a nationwide collaborative approach to the care of patients with depression and diabetes and/or cardiovascular disease. *General hospital psychiatry*. 2017;44:69-76.
4. Collins C, Hewson DL, Munger R, Wade T. Evolving Models of Behavioral Health Integration in Primary Care. In: New York: Milbank Memorial Fund; 2010. Accessed Aug 18, 2019.

5. Engel CC, Bray RM, Jaycox LH, et al. Implementing collaborative primary care for depression and posttraumatic stress disorder: design and sample for a randomized trial in the U.S. military health system. *Contemporary clinical trials*. 2014;39(2):310-319.
6. Healthcare TWPGoIB. Joint principles: Integrating behavioral health care into the patient-centered medical home. *Families, systems & health : the journal of collaborative family healthcare*. 2014;32(2):154-156.
7. Jacobs C, Brieler JA, Salas J, Betancourt RM, Cronholm PF. Integrated Behavioral Health Care in Family Medicine Residencies A CERA Survey. *Family medicine*. 2018;50(5):380-384.
8. Kwan BM, Valeras AB, Levey SB, Nease DE, Talen ME. An Evidence Roadmap for Implementation of Integrated Behavioral Health under the Affordable Care Act. *AIMS Public Health*. 2015;2(4):691-717.
9. Nielsen M. Behavioral health integration: a critical component of primary care and the patient-centered medical home. *Families, systems & health : the journal of collaborative family healthcare*. 2014;32(2):149-150.
10. Ramanuj P, Ferencik E, Docherty M, Spaeth-Rublee B, Pincus HA. Evolving Models of Integrated Behavioral Health and Primary Care. *Current psychiatry reports*. 2019;21(1):4.
11. Raney L, Pollack D, Parks J, Katon W. The American Psychiatric Association response to the "joint principles: integrating behavioral health care into the patient-centered medical home". *Families, systems & health : the journal of collaborative family healthcare*. 2014;32(2):147-148.
12. Smith TE, Erlich MD, Sederer LI. Integrated care: integrating general medical and behavioral health care: the New York State perspective. *Psychiatric services (Washington, DC)*. 2013;64(9):828-831.
13. Snelgrove N, Sunderji N. Training specialists as consultants integrated into primary care. *Medical education*. 2018;52(11):1204.
14. Vanderlip ER, Rundell J, Avery M, et al. *DISSEMINATION OF INTEGRATED CARE WITHIN ADULT PRIMARY CARE SETTINGS: THE COLLABORATIVE CARE MODEL*. American Psychiatric Association, Academy of Psychosomatic Medicine;2015.
15. Why Practice Collaborative Care? 2017. Accessed Aug 18, 2019.
16. Druss BG, Chwastiak L, Kern J, Parks JJ, Ward MC, Raney LE. Psychiatry's Role in Improving the Physical Health of Patients With Serious Mental Illness: A Report From the American Psychiatric Association. *Psychiatric services (Washington, DC)*. 2018;69(3):254-256.
17. Garrison GM, Angstman KB, O'Connor SS, Williams MD, Lineberry TW. Time to Remission for Depression with Collaborative Care Management (CCM) in Primary Care. *Journal of the American Board of Family Medicine : JABFM*. 2016;29(1):10-17.
18. Raney L. Integrated care: the evolving role of psychiatry in the era of health care reform. *Psychiatric services (Washington, DC)*. 2013;64(11):1076-1078.
19. Teresa J. Hudson, Pharm.D. ,, John C. Fortney, Ph.D. ,, Jeffrey M. Pyne, M.D. ,, Liya Lu, M.S. ,, Dinesh Mittal, M.D. Reduction of Patient-Reported Antidepressant Side Effects, by Type of Collaborative Care. *Psychiatric Services*. 2015;66(3):272-278.
20. Unutzer J, Katon W, Callahan CM, et al. Collaborative care management of late-life depression in the primary care setting: a randomized controlled trial. *Jama*. 2002;288(22):2836-2845.
21. Zubatsky M, Pettinelli D, Salas J, Davis D. Associations Between Integrated Care Practice and Burnout Factors of Primary Care Physicians. *Family medicine*. 2018;50(10):770-774.
22. FIVE 2012 QUALITY AIMS. *MHIP for Behavioral Health 2012*; aims.uw.edu. Accessed Aug 18, 2019.
23. COLLABORATIVE CARE: A step-by-step guide to implementing the core model. 2014; aims.uw.edu. Accessed Aug 18, 2019.
24. Principles of Effective Integrated Health Care. 2014; aims.uw.edu. Accessed Aug 18, 2019.
25. CoCM Behavioral Health Care Manager: Sample Job Description, Typical Workload & Resource Requirements. 2017; aims.uw.edu. Accessed Aug 18, 2019, 2019.

26. Piña IL, Cohen PD, Larson DB, et al. A framework for describing health care delivery organizations and systems. *Am J Public Health*. 2015;105(4):670-679.
27. Ratzliff A, Phillips KE, Sugarman JR, Unützer J, Wagner EH. Practical Approaches for Achieving Integrated Behavioral Health Care in Primary Care Settings. *Am J Med Qual*. 2017;32(2):117-121.
28. Wray LO, Ritchie MJ, Oslin DW, Beehler GP. Enhancing implementation of measurement-based mental health care in primary care: a mixed-methods randomized effectiveness evaluation of implementation facilitation. *BMC health services research*. 2018;18(1):753.
29. Goldman ML, Spaeth-Rublee B, Nowels AD, Ramanuj PP, Pincus HA. Quality Measures at the Interface of Behavioral Health and Primary Care. *Current psychiatry reports*. 2016;18(4):39.

PDSA for the Standardized Documentation in Rectal Cancer Surgery to Improve Patient Safety

Tim Browne

BACKGROUND: Colorectal cancer is the third leading cause of cancer-related death and is projected to cause 53,200 deaths in the United States in 2020.¹ The incidence of colorectal cancer has been in decreasing, likely due to increased screening and removal of polyps during colonoscopy.² Despite this decline, the American Cancer Society projects 147,950 new cases of colorectal cancer in 2020.¹

The treatment of rectal cancer is dependent on the stage at diagnosis but surgery is the mainstay of treatment.³ Rates of serious complications and recurrence as well as overall survival are significantly affected by the characteristics of treatment institutions.⁴ It is, therefore, important to standardize the approach to the treatment of rectal cancer and critically examine each institution's approach to provide the best outcomes.

Checklist implementation is credited with significant reductions in rates of inpatient complications and perioperative mortality.⁵ A checklist for rectal cancer surgery has been developed by the Society of Colon and Rectal Surgeons (ASCRS) as a guide to enhance safety and quality care for patients with rectal cancer undergoing surgery. ASCRS identified twenty critical elements for operative notes and encourage synoptic operative reports in favor of narrative reports.

The elements ASCRS identified as critical elements for synoptic reports are: ASA score, operative urgency, operation, modality, location of tumor within the rectum, height of tumor from anal verge, mobilization of splenic flexure, level of ligation of IMA, level of ligation of IMV, level of distal rectal transection, type of reconstruction, anastomosis testing methods, creation of stoma, en bloc resection, metastectomy, completeness of resection, intraoperative complications, blood transfusion, TME photograph, and a brief operation narrative.⁵

Automated chart extraction is a common method for obtaining data to assess the quality of surgical care and track long-term outcomes. This is limited by the ability of software to obtain important information from the EHR. Narrative reports are difficult to extract information from due to the subjective nature of information reported and the organization of narratives.⁶

AIM: By April 1, 2020 100% of patients who are treated for rectal cancer with surgery at Penrose Hospital will have a standardized synoptic operative note to describe critical elements of their surgery.

MEASURES: The percentage of patients with rectal cancer who have narrative versus synoptic operative notes will be identified with EHR review. We will compare the completeness of narrative notes to those following the implementation of the standardized synoptic note.

CHANGES: This project will fill a significant gap in rectal cancer surgery treatment at Penrose Hospital by implementing standardized synoptic operative reports that will allow future quality improvement to patient safety and also treatment outcomes. We will implement a standardized smart phrase in the Epic EHR to be used in the operative report following surgical treatment for rectal cancer. The elements will follow the guidelines established by the ASCRS recommendations for synoptic documentation.

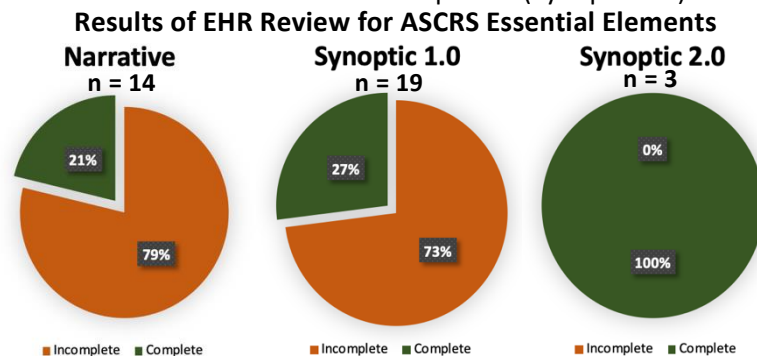
PLAN: We will perform a retrospective EHR review of all patients treated for rectal cancer in Penrose Hospital from January 2018 until April 2020. Systematic review of these records will assess for the presence of essential report elements in the operative note. We will also record what elements were missing from the operative notes.

Next, we will implement the EHR smart phrase with each critical element listed in table format. We will then perform a second chart review in April 2020 to assess for the presence of essential report elements. We will then compare the rates of compliance with documentation elements in the pre-implementation to post-implementation cohorts.

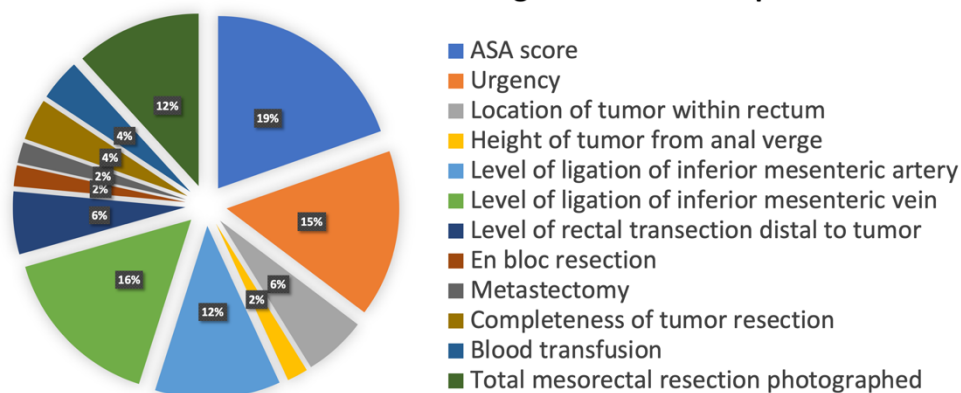
We predict that the majority of essential report elements will be present in the narrative form, however the elements will be more challenging to identify than the standardized table format.

DO: A total of 36 patients were identified for chart review who had surgical treatment for rectal cancer between January 1, 2018 and April 1, 2020. Systematic chart review was performed to identify the number of narrative operative reports versus synoptic reports. We then assessed for the presence or absence of essential surgical elements and identified missing elements from each group.

STUDY: Results of EHR review of 36 operative reports from January 1, 2018 to April 1, 2020. During PDSA cycle 1 of this project, the synoptic report was manually entered into the chart through dictation (Synoptic 1.0), then cycle 2 utilized the standardized EHR smart phrase (Synoptic 2.0).



Most Common Essential Elements Missing From Narrative Operative Note



The EHR review identified missing components in 78% of narrative notes and 73% of dictated synoptic notes. The smart phrase synoptic note intervention was effective in increasing the ASCRS critical surgical elements included in the operative notes for patients undergoing rectal cancer surgery. In the future, this will allow us to effectively track surgical procedures, and ideally improve outcomes for our patients via automated chart extraction and analysis.

ACT: The implementation of standardized synoptic reporting was successful because this increased the documentation of ASCRS critical elements. Not only did it improve that documentation when compared to narrative notes, it also improved over dictated synoptic reports. This will allow for future research by improving automated extraction from operative notes for analysis of patient safety and clinical outcomes.

One significant strength of this study is that it allows for the analysis of the standardized operative note implementation in a surgery that has little variation that cannot be captured through synoptic documentation. This study does, however, have several limitations. The synoptic operative note was implemented with only 3 rectal cancer surgeries prior to the suspension of all elective cases due to the COVID19 pandemic. Further analysis would be very beneficial once elective surgeries resume.

1. American Cancer Society. Cancer Facts and Figures 2020. Atlanta, Ga: American Cancer Society. (<https://www.cancer.org/cancer/colon-rectal-cancer/about/key-statistics.html#references>)

2. Howlader et al. SEER Cancer Statistics Review, 1975-2013, National Cancer Institute. Bethesda, MD, http://seer.cancer.gov/csr/1975_2013/

3. National Comprehensive Cancer Network. Clinical Practice Guidelines in Oncology (NCCN Guidelines®), Rectal Cancer, www.nccn.org/professionals/physician_gls/pdf/rectal.pdf.

4. Sigurdson ER, Benson AB, Minsky B. Cancer of the rectum. Abelloff's Clinical Oncology. 5th ed. Philadelphia, Pa. Elsevier: 2014: 1336-1359.

5. Archampong D, Borowski D, Wille-Jørgensen P, Iversen LH. Workload and surgeon's specialty for outcome after colorectal cancer surgery. Cochrane Database Syst Rev. 2012 Mar 14;(3):CD005391.

6. Eryigit, Ö., van de Graaf, F.W. & Lange, J.F. A Systematic Review on the Synoptic Operative Report Versus the Narrative Operative Report in Surgery. World J Surg 43, 2175–2185 (2019).

Additionally, this documentation template is not easily scalable to other surgeries such as to exploratory laparotomy for small bowel obstruction where the operational parameters are not as clear.

In the next cycle, we plan to implement improved Epic Smart Lists to allow the surgeon to document elements more precisely and quickly. For example, instead of the surgeon documenting 'High,' 'Mid,' or 'Low' for the level of ligation of the mesenteric artery, the documentation will allow the more precise options of '1-2 cm from aorta,' 'at the pelvic brim,' or 'at the level of the superior rectal artery.' The improvement in the precision of language used in documenting critical elements will not only more accurately document the events in the operating room but will create a more robust knowledge base to improve care in the future.

1. American Cancer Society. Cancer Facts and Figures 2020. Atlanta, Ga: American Cancer Society. (<https://www.cancer.org/cancer/colon-rectal-cancer/about/key-statistics.html#references>)
2. Howlader et al. SEER Cancer Statistics Review, 1975-2013, National Cancer Institute. Bethesda, MD, http://seer.cancer.gov/csr/1975_2013/
3. National Comprehensive Cancer Network, Clinical Practice Guidelines in Oncology (NCCN Guidelines®), Rectal Cancer, www.nccn.org/professionals/physician_gls/pdf/rectal.pdf.
4. Sigurdson ER, Benson AB, Minsky B. Cancer of the rectum. Abelloff's Clinical Oncology. 5th ed. Philadelphia, Pa. Elsevier: 2014: 1336-1359.
5. Archampong D, Borowski D, Wille-Jørgensen P, Iversen LH. Workload and surgeon's specialty for outcome after colorectal cancer surgery. Cochrane Database Syst Rev. 2012 Mar 14;(3):CD005391.
6. Eryigit, Ö., van de Graaf, F.W. & Lange, J.F. A Systematic Review on the Synoptic Operative Report Versus the Narrative Operative Report in Surgery. World J Surg 43, 2175–2185 (2019).

**2019-2020 LIC
Quality Improvement Project
PDSA Worksheet
Scott Christenson**

BACKGROUND: Physicians have an increasing burden of patients and must find ways to improve the efficiency they operate as well as the efficacy of their communications. Patient provider relationships that are positive improve patient adherence and have a chance of decreasing patient visits as well as improving overall morbidity of disease for the patient.

It may be possible to have a long term gain in reducing patient visits if a physician spends an extra minute or two in order to help assure the patients concerns are addressed and that the patient feels like they have agency over their healthcare treatment

AIM STATEMENT: By April 1, 2020 we will use a communication strategy to improve patient adherence by 5% and patient satisfaction by 10% at a possible cost of lengthening patient visits by 2-3 minutes

MEASURES: Patient satisfaction with their healthcare provider and the patients ability to adhere completely to a plan will be measured.

CHANGE(S): At the end of each clinical visit the patient will be specifically asked if they foresee any problems with their treatment plan, if they would like to change anything about their treatment plan, and if they think they can follow the treatment plan

PLAN: There will be a control group whose clinical visits are closed out by asking them if they have any more questions or need clarification about the treatment plan. The test group will be asked specific questions (stated above in changes section) which are meant to build a team relationship between the physician and patient as well as give the patient increased agency over their care.

I expect the test group will have greater satisfaction with their care and increased adherence to their treatment plan.

DO: Patients from three different clinical settings (FM, IM, Psych). Collecting the follow-up information via telephone led to what I think are biases. Because I acted as the patient's healthcare provider and I was also interviewing them to assess their satisfaction and adherence; it's likely to put the patient in an uncomfortable spot and honesty may have been impacted.

STUDY: Ability to adhere to the plan was the same between groups which was 75%. There was a slight increase in both patient satisfaction with their care and patient happiness with their medical provider in the test group. The results were not statistically significant

ACT: Future improvements to this project would come from increasing the amount of patients used as well as the number of control patients. Follow up would be better carried out if done through a mailer that the patient could mail. This would hopefully improve the validity of information obtained. The downside may be it would garner decreased response rates and there would be greater loss to follow-up.

Adapted from the Institute for Healthcare Improvement

**2019-2020 LIC
Quality Improvement Project
PDSA Worksheet
Casey Dolen**

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?)

Obesity is a serious medical concern and has been described by some as a public health crisis. Currently, there are recommendations to screen all patients for obesity and provide intensive behavior, exercise and dietary interventions. Obesity is a comorbidity for many diseases and strongly effects a patient's ability to sustain and recover from illness.

Currently, our facility has no formal process for intervening in obesity. This is a gap in care. We do have a dietician, physical therapist and social worker that can be brought together to intervene.

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.)*

By January 1, 2020 we will implement a new process for obesity intervention. Those with obesity (defined as a BMI >35) will be eligible to get a consultation and intervention by the medical student, physician, physical therapist, and dietician. This intervention will use motivational interviewing techniques to identify potential weight loss goals and strategies.

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

Success will be measured by the number of patients identified and number of interventions performed. Pt weight can also be measured over time.

CHANGE(S):

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

When a patient is admitted, their BMI is calculated. A BMI >35 will trigger a consult for obesity intervention. This intervention will take place within 3 days and include the physician or medical student, physical therapist, and dietician. Social work or behavioral health may also be consulted depending on the situation.

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.)*

- Nursing staff will need to collect the weight and height of newly admitted patients (I believe this is already being done, but will need to check)
- The physician or midlevel admitting the patient will need to check the patient's BMI
- A consult should be placed for the dietician
- The physician, midlevel, medical student and dietician should meet with the patient for an intervention

- The intervention should identify weight loss goals and develop a plan using motivational interviewing techniques
- The number of interventions and the weight loss or gain of these patients will be tracked

I believe these steps will increase the number of patients identified as obese and increase the number of patients receiving physician consultations and dietary consultations for obesity. I hope that we will see weight loss in these patients, at least while they are in the facility.

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

When I did the medical record screening for BMI, I was most surprised by the number of patients who had a BMI >35. We had to ultimately reduce screening to those with BMI >40. Also, we found that not all patients with BMI >40 were appropriate for weight loss intervention. For example, we initially included one patient who was on dialysis and had significant edema. Their weight fluctuated greatly each time it was measured. This was especially true after dialysis appointments. In addition, there were others who were in cognitive decline and unable to remember weekly goals. There were others with medical conditions that made them unable to participate in any weight loss activity.

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

We ultimately found 6 patients to intervene on. We rounded on them as a team with a medical student, physical therapist, and dietician weekly. Some patients missed a week due to appointments or other unforeseen absences. No patients refused participation. Data was collected on team member perceptions of the intervention. No data was able to be obtained on patient attitudes. We found an average decrease in weight among study participants. All participants lost weight during the trial period.

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)*

If I were to continue this project, I would expand the interdisciplinary team to include social work or behavioral health. I think the behavior modification was the most difficult part of working with patients to lose weight. Also, I would include a control group to better understand our data compared to others. Expanding the panel size would be a beneficial for the next cycle.

Adapted from the Institute for Healthcare Improvement

Quality Improvement Project PDSA

Sanju Garimella, Class of 2021

BACKGROUND:

Per the CDC's National Center for Health Statistics, 79.9% of Americans visit emergency rooms for non-emergent conditions due to lack of access to another provider, this is in contrast to 66.0% of patients who visited the emergency department due to a serious condition [1]. The CDC also states that chronic diseases that are avoidable through preventive care measures account for 75% of the nation's healthcare spending. Furthermore, it lowers economic output in the US by \$260 billion dollars per year. In Colorado, 7 in 10 deaths can be attributed to chronic disease: heart disease, stroke, cancer, and diabetes. All of which are manageable or screened for in the context of an adult wellness visit. [2]. Finally, Centura Health has a goal to increase total number of preventative care visits as they predict that over 100,000 lives in the US can be saved through preventative visits. It is clear that chronic diseases are not only negatively impacting the health of many in our society, but are also causing financial hardships on a personal level as well as a national and societal level. Given that preventative care can help reduce the severity of these diseases, it is important to increase overall preventative care visits for the population. These visits include annual physicals and health management visits to closely monitor changing lab values. The purpose of this project is to increase overall preventative care-type of visits in efforts to better manage non-communicable chronic disease with a long-term end goal of reducing mortality from these causes. Importantly, by increasing these visits, physicians will be able to continue education patients and thereby increase overall health literacy in a community level. The most important barrier to overcome, however, is access to care and ensuring that patients are not lost to follow up.

AIM STATEMENT:

By March 2020, the overall percent of health preventative visits (including annual physicals, Medicare annual physicals, health management visits, and well child checks) will increase by 10%.

MEASURES:

Epic, the online medical record system used at Centura Health Broadmoor Physicians Group, already tracks the number of visits by the type of visit and the provider. Thus, I plan on utilizing Epic and running a new report that will compile the data on a monthly basis.

CHANGE(S):

There are multiple changes that are included in this intervention. First, the medical assistants will be told to ask about annual physicals at the end of every patient encounter, even if the encounter is for an acute issue or hospital discharge follow up. Then, every workstation will have a reminder pasted to the bottom of the computer screen. An on-going change is to incorporate this reminder into Epic in the check-out screen.

PLAN:

- Medical assistants will need to be educated on the new QI project prior to January 2020
- Printed reminder must be pasted to every computer screen in January 2020 (12 exam rooms total)
- Data is being recorded in EPIC by provider and visit type through "BRNH Primary Care" report
 - 5 providers: 2 MDs, 2 DOs, and 1 NP
 - Types of visits: acute, ED hospital follow up, established patient new problem, new patient, pre-operative, procedure, MediCare annual physical, annual physical, established patient health management, and well-child check
- Predicted results include an overall increase of annual physical and health management visits, particularly because the beginning of the year allows patients to re-focus on health.

DO:

In this project I ran six reports that documented the number of total visits for a given month and this was then filtered for each provider and the types of visits they encountered. The pre-intervention reports included the months of October, November, and December and the post-intervention months include January, February, and March. Specifically in terms of data collection and results, there were no problems. An unexpected conflict, however, was that an MA at the office also began a QI project in January and utilized a reminder on the computer as her intervention method as well. This may have caused MAs to be overloaded by the reminders.

STUDY:

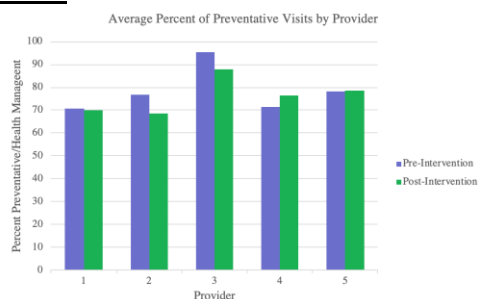


Figure 1. *Average percent of preventative-type visits pre and post intervention*

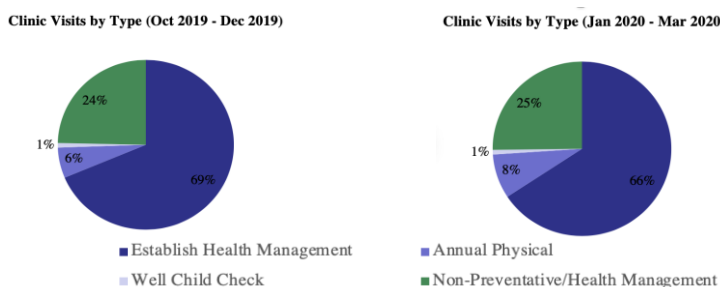


Figure 2. *Clinic visits by type of visit pre and post intervention*

In total, 2429 patients were seen pre-intervention and 2326 patients were seen post intervention. Notably, one provider did not see any patients in the months of November and December, thus the pre-intervention total number of patients is likely lower than an average total over the course of 3 months at this clinic. On average, by provider, there was a 2.2% decrease in number of preventative visits post intervention (figure 1). Of the visits conducted, 24% were non-preventative prior to the intervention compared to 25% after (figure 2). Of note, in March of 2020, COVID-19 swept across the USA which resulted in the cancellation of many patient encounters. At Centura Health Primary Care Group Broadmoor, patients with non-emergent conditions were asked to not come into the clinic. Though some visits were conducted via telehealth means if chronic diagnoses were not adequately managed, most of the visits were either cancelled or re-scheduled.

ACT:

Unfortunately, a majority of the project goals were impacted by the national pandemic. However, there are still other modifications that can be made for a future PDSA cycle with the same goal. Tracking when the MAs actually schedule an annual physical during check-out would ensure that the intervention is working and also identify which MAs were asking and what may be preventing others from asking. Additionally, though I had verbal 'buy-in' from the MAs, I think an additional incentive to increase total number of appointments being scheduled would also help. Implementing an EPIC check list that MAs can fill out would also ensure that appointments were being made, if necessary. Another possible change is involving another stakeholder: the patient. If patients were given a list of everything to be done for the year, including screening, immunizations, and an annual wellness visit, perhaps the patient can remind the MA to schedule an appointment. Lastly, it would be beneficial to determine how many annual wellness visits are either cancelled by the patient or are marked as no-shows; this can evolve into another root cause analysis and future PDSA.

References

1. Emergency Room Use Among Adults Aged 18-64: Early Release of Estimated from the National Health Interview Survey. *Center for Disease control and Prevention*. May 2020.
https://www.cdc.gov/nchs/data/nhis/earlyrelease/emergency_room_use_january-june_2011.pdf

2. Measuring the Health of Adults Aged 18 to 64 in Colorado. *Colorado Cross Agency Collaborative*. December 2016. <https://drive.google.com/file/d/1cF-uMOKeqI1VqjIGSBcSmAQkMzatO2dN/view>

**Caitlan Hinton Quality Improvement Project
PDSA Worksheet**

BACKGROUND: Pain is a primary presenting symptom in 45% of ED visits and 17-21% of ED discharges including an opioid prescription. While prescribing short-term opioids is indicated in select clinical settings and may improve quality of life, there is the potential for misuse and abuse. Opioid overdoses have become a major public health concern. 67,000 people died of a drug overdose in 2017. 70% involved an opioid and prescription opioids accounted for 36% of those. ED visits for opioid overdoses have risen 30% and the ED is recognized as a critical point for prevention of opioid abuse. There have been declines in opioid prescriptions recently due to increasing provider awareness, implementation of programs to change prescribing practices, and use of the PDMP. Total national opioid prescriptions peaked in 2012 at 255 million (81.3 per 100 persons) and declined to 168 million in 2018 (51.4 per 100 persons), the lowest rate in 13 years. Colorado opioid prescriptions were 45.1 per 100 persons in 2018 and El Paso county had a 51.9 per 100 persons prescription rate. From the ED, rate of opioid prescribing peaked in 2010 at 21.5% and declined to 14.6% in 2016. There has also been a change in the type of opiates being prescribed, with a decline in prescription of stronger opioids and an increase in prescription of weaker opioids. Despite these decreases in prescribing, CDC reports show an increase in opioid overdoses from 2018 to 2019. This indicates that, though significant improvements have been made, there is still considerable ground to cover. Thus, it is important to take a close look at each ED individually in order to recognize what is being done well and identify areas for improvement. This project was of interest to me because, as a future EM physician, I have the responsibility, now and in the future, to reduce patient suffering but also act as a steward for safe opioid prescribing.

AIM STATEMENT: Determine the appropriateness of opioid prescribing practices in a large, community-based emergency department in Colorado Springs during the month of October 2019.

MEASURES: The percentage of narcotic prescriptions given on discharge that are felt to be appropriate given the encounter documentation and discharge diagnoses, as well as the general appropriateness of opioid prescribing practices taking place as compared to CDC guidelines.

CHANGE(S): No changes will be made during this initial PDSA cycle, but the hope is that findings will identify weakness and/or strengths that will prompt the implementation of changes in future PDSA cycles.

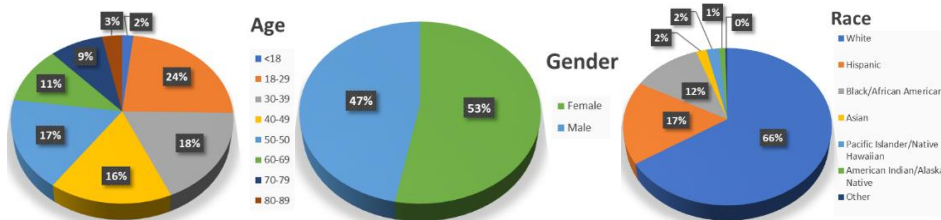
PLAN:

- Request the list of narcotic prescriptions from the appropriate person.
- Conduct chart review for each prescription and document: patient demographics, discharge diagnosis, reason stated for prescribing, drug prescribed, quantity prescribed, ED visits within 30 days of index visit including discharge diagnosis and narcotic prescriptions given.
- Use data found in the chart, UpToDate, CDC Guidelines, etc. to assess the appropriateness of prescribing an opioid in that setting.
- I predict that data will show generally good prescribing practices.

DO: Conducted a retrospective chart review of all patients who received a narcotic prescription on discharge from a large community-based emergency department in Colorado Springs during October 2019. No problems were encountered.

STUDY: 292 narcotic prescriptions were written in October 2019. 11 patients were excluded due to on limits placed on entering the chart or chart documentation indicating the prescription was not given to the patient. Data was then abstracted and analyzed from the remaining 281 patient charts. In total, 2537 pills were prescribed.

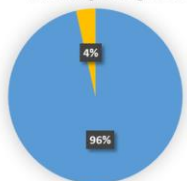
Patient Demographics:



Narcotic Prescriptions (n=281):

Appropriate Narcotics Prescription Given

Discharge Diagnosis



Days:	# of Rx	Drug Given	# of Rx	ED Visit Within 30d of Index Visit	# of Pts
≤ 1 Days	16	Percocet	57	ED Visit Within 30 Days	82
≤ 3 Days	231	Norco	212	For Same Complaint	54
≤ 7 Days	31	Tylenol #3	4	For Distinct Complaint	28
> 7 Days	3	Roxicodone	8	Given Opioid Rx	8
				Admitted for Pain Control	7

It appears that excellent opioid prescription practices are occurring in this ED. They are generally appropriate for the clinical setting, written for short duration and for the lowest daily dose, and none were for long-acting formulations, thus aligning well with CDC recommendations. The question then becomes, has the figurative pendulum swung too far towards opiophobia and are EDs still managing pain effectively at discharge? Whether it's fear of the potential consequences of opioid or restrictions placed on prescribing, physicians may now be failing to appropriately treat acute and chronic pain while simultaneously contributing to stigmatization of pain patients. ED providers should continue to exercise good opioid prescribing practices, while screening patients for risk of abuse and counseling patients on risk and benefits of these medications. It may also be beneficial to have a discussion with patients about what pain control has worked in the past. A patient who has been on Oxycodone for chronic pain, will likely not respond to Norco for an acute injury. ED practitioners should also discuss pain expectations with patients and review non-narcotic options for controlling pain after discharge.

ACT: As a next step, it would be beneficial to work with the hospital system to create a document that details appropriate pain expectations, reasons for limiting prescription of narcotic medications, and alternative pain techniques and resources that can be given to patients upon discharge, with or without the addition of an opioid prescription. This document would serve as a talking point at discharge, as well as a resource to review to help patients feel as though they are able to manage their pain after discharge. It would be valuable to mail surveys to patients to evaluate for a difference in post-discharge pain control between patients who received the document and those who did not. It would also be valuable to conduct a chart review to identify differences in bounce-back rates for patients who received the document compared to patients who did not.

References:

- Hoppe JA, Kim H, Heard K. Association of Emergency Department Opioid Initiation With Recurrent Opioid Use. *Annals of Emergency Medicine*. 2015;65(5). doi:10.1016/j.annemergmed.2014.11.015.
- Houry DE, Haegerich TM, Vivolo-Kantor A. Opportunities for Prevention and Intervention of Opioid Overdose in the Emergency Department. *Annals of Emergency Medicine*. 2018;71(6):688-690. doi:10.1016/j.annemergmed.2018.01.052.
- Jeffery MM, Hooten WM, Hess EP, et al. Opioid Prescribing for Opioid-Naive Patients in Emergency Departments and Other Settings: Characteristics of Prescriptions and Association With Long-Term Use. *Annals of Emergency Medicine*. 2018;71(3):326-336. doi:10.1016/j.annemergmed.2017.08.042.
- Opioid Overdose. Centers for Disease Control and Prevention. <https://www.cdc.gov/drugoverdose/index.html>. Published March 19, 2020. Accessed April 1, 2020.

Obstetrical Hemorrhage Simulations and their Impact on Use of an Obstetrical Hemorrhage Risk Assessment Tool
2019-2020 LIC
Quality Improvement Project

BACKGROUND:

From 2003-2014, rates of maternal mortality in the United States increased by almost 27% [1]. In 2017, a report on pregnancy-related mortality in the US determined that for years 2011-2013 the pregnancy-related mortality ratio was 17 deaths per 100,000 live births, with hemorrhage causing 11.4% of cases [2]. Multiple factors may be contributing to this rise, including lack of preventative care, increasing prevalence of chronic conditions, better record keeping and reporting mechanisms, racial disparities, and the inherent risk of pregnancy and childbirth [3, 4]. California is the only state to demonstrate decreases in maternal mortality, due in part to efforts to identify preventable contributors to maternal death, such as pre-eclampsia and postpartum hemorrhage [1]. This disparity between California and the rest of the United States demonstrates that there are preemptive measures that can be addressed on labor and delivery units across the country in order to prevent a continued rise in maternal deaths.

UCHealth Memorial Central and UCHealth Memorial North have recorded increased cases of mortality and severe morbidity related to maternal hemorrhage. Efforts are underway to identify system gaps in order to implement new processes that will address preventable contributors toward maternal mortality. One is the inconsistent use of an ***Obstetrical Hemorrhage Risk Assessment Checklist*** that has been available to Labor and Delivery (LD) providers since 2017. The varied, and at times inaccurate, use of this checklist represents an ideal starting point in addressing maternal mortality in Colorado Springs, Colorado.

AIM STATEMENT:

Our primary aim will be to increase 90% of providers and staff confidence with utilizing the ***Obstetrical Hemorrhage Risk Assessment Checklist*** for postpartum hemorrhage to 'very comfortable'. Our secondary aim will be to increase the accurate use of the risk assessment tool following the simulations.

MEASURES:

Qualitative: Pre-/post-simulation surveys

Quantitative: Chart review of patients with blood loss >1000 mL from 4 months prior, and following the OB hemorrhage simulation education (May-August 2019, October 2019-January 2020)

CHANGE(S):

Following continuing education, Birth Center RN's will accurately assign patient risk using the ***Obstetrical Hemorrhage Risk Assessment Checklist***. This will identify high risk patients for postpartum hemorrhage, thereby, decreasing poor outcomes and ultimately, maternal mortality.

PLAN:

<i>Who?</i>	<i>What?</i>	<i>When?</i>	<i>Where?</i>	<i>What Data?</i>
Registered Nurses from: Birth Center, OB-ED, Mom/Baby, Women's Pavilion, Nursery OB providers: MD, DO, Certified Nurse Midwife OB Tech Respiratory Therapist Anesthesiology L&D CNA staff	Obstetrical Hemorrhage Workshop A Obstetrical Hemorrhage Risk Assessment Checklist	Workshop A: August 16 th – October 23 rd 2019 Chart Review: May-August 2019, October 2019-January 2020	UCHealth Memorial Central and North Hospitals	Pre-/post- simulation surveys assessing provider and staff confidence. Simulation demographics. Pre-/post-simulation accuracy of <i>Obstetrical Hemorrhage Risk Assessment</i> tool through chart review

DO:

Simulation workshops were run from August 16th – October 23rd, 2019 and the pre-/post-surveys were administered and recorded. Next, a chart review was conducted of 78 L&D patients with blood loss exceeding 1000 mL at UCHealth Memorial Central and North Hospitals. A total of 5 patients were randomly selected from each hospital from May-August 2019, and October 2019-January 2020. An audit of recorded OB hemorrhage risk was conducted and compared to this researcher's calculated score for the patient on admission.

STUDY:

Overall, the participation was diverse with the majority of attendees identifying as Registered Nurses. Combined, the simulation attendees experienced an increase in comfort using the ***OB Hemorrhage Risk Assessment*** tool following the workshops to a level of 'comfortable' or 'very comfortable'. Birth Center RN's, who are the responsible group for assigning risk, did not have a significant change in comfort using the risk assessment tool. Possible explanations for this include the following: nurses overestimated their abilities in the pre-survey or this is a true reflection of their abilities and the workshops had little effect on the accuracy of the risk designations or assigning risk is not a clinically relevant factor in reducing postpartum hemorrhage. While the chart review shows improved accuracy of the tool following the workshops at UCHealth Memorial Central there were several limitations of this study including: Alterations and edits were made to the risk assessment tool during the time period of the chart review, risk may change throughout a patient's admission but this study limited it to the risk assigned at admission, there are inconsistencies in documenting risk and blood loss, and there was only one reviewer.

ACT:

Future steps include developing and implementing workshops that will provide further training and practice in related skills, as well as recertification. It would be beneficial to develop guidelines on language and documentation in order to increase ease of data collection from the health record. It would also be worthwhile to repeat the chart review after the next workshop given that the risk assessment tool has been finalized.

Bibliography

1. MacDorman, M.F., et al., *Recent Increases in the U.S. Maternal Mortality Rate: Disentangling Trends From Measurement Issues*. Obstet Gynecol, 2016. **128**(3): p. 447-55.
2. Creanga, A.A., et al., *Pregnancy-Related Mortality in the United States, 2011-2013*. Obstet Gynecol, 2017. **130**(2): p. 366-373.
3. Carroll, A.E., *Why Is US Maternal Mortality Rising?* Jama, 2017. **318**(4): p. 321.
4. International, A., *Deadly delivery: The maternal health care crisis in the USA*. 2010: London.

**2019-2020 LIC
Quality Improvement Project
PDSA Worksheet
Akaysha Joiner**

BACKGROUND:

SURPAS, a surgical risk calculator feature of Epic EHR, is a tool that can be used to provide patients improved risk information, making them more confident and informed about their surgical procedure. It can also assist surgeons by providing more accurate risk assessments personalized for each patient and procedure-specific. Previous research shows that SURPAS decreases pre-op anxiety and improves patient satisfaction, which is directly linked to surgeon reimbursements. Currently, this tool is not regularly being used or seamlessly integrated into clinic flow. The project would be to develop surgeon buy-in, determine provider satisfaction scores/reimbursement factors, assess clinic flow, troubleshoot implementation, and compare patient satisfaction and anxiety levels with and without the use of this tool. Additional components include measuring the SURPAS use rate, surgical plan changes, and post-op complication rates.

AIM STATEMENT:

By December 2019 we will use SURPAS for 25 surgical patients, 5 from each ASA category, in the clinical setting. We will aim to increase SURPAS use by 60% in a single-provider clinic by April 2020. Pending results in this single clinic, we will aim to increase SURPAS use by 50% in additional clinics.

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

1. Patient satisfaction scores
2. Surgical plan changes as a result of the risk assessment/shared decision-making during procedure consent
3. Provider satisfaction scores and subsequent reimbursement
4. Post-op complication rates
5. SURPAS implementation rate

CHANGE(S):

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

1. Surgeon buy-in
 - a. Dr. Berson
 - b. Other providers?
2. Integrate tool-use into clinic flow

PLAN:

1. Talk to Dr. Berson
 - a. Still using SURPAS?
 - b. What would make it better/easier to use?

- c. Willing to continue/increase use?
- 2. Assess clinic flow and determine best practices
 - a. Who would use SURPAS (Dr. Berson vs. MA)
 - b. When is the best point w/in clinic to implement SURPAS
 - c. Measure time impact on clinic
- 3. Pre-op appt data points (prospective)
 - a. Measure pt anxiety level via survey (predict a decrease)
 - b. Measure pt satisfaction via survey (predict an increase)
 - c. Surgical plan changes based on risk assessment discussion (document)
- 4. Post-op appt data points (prospective)
 - a. Measure pt satisfaction via survey (predict an increase)
 - b. Measure post-op complications/morbidity (predict a decrease)
 - c. Measure surgeon satisfaction rating (predict an increase)
 - d. Measure surgeon reimbursement (predict an increase)
 - e. Compare to stratified retrospective pt satisfaction ratings/surgeon ratings and reimbursements
- 5. Determine feasibility in expanding use to other clinics
 - a. Measure use rates in Berson clinic
 - b. Propose use to other Memorial Central gen surg/trauma doctors
 - c. Propose use to private practice groups w/in UCHealth (i.e. Steadman Hawkins)

DO:

I discussed with Dr. Berson the use of the SURPAS tool for his patients. He stated that a downside of the application is that it is not available as a pre-charting function. Medical students also don't have access to the tool, so integrating it into clinic flow easily proved to be difficult. Dr. Berson didn't have a specific protocol for deciding which patients he used the SURPAS tool with, so we initially decided to try to get 5 patients per week for 5 weeks. Due to the rapid pace of clinic, it was difficult to get that many patients. We then changed it to a goal of 5 patients, and we were able to get 4. These were compared to 5 patients whom I saw in clinic without the use of the SURPAS tool. Once I collected the patient demographic information for both groups, I reached out to patients post operation via telephone to conduct a 5-question survey regarding the consent process. Unfortunately, some patients from both groups were difficult to get ahold of, and some surveys were not administered.

STUDY:

There was no significant difference between the SURPAS and non-SURPAS groups. Given the small sample size, the data could be skewed. Even still, the lack of differences incites the question of whether or not patient comprehension and/or satisfaction are impacted more by risk calculator statistics or physician bedside manner/demeanor.

ACT:

If physicians wanted to implement this tool within their clinics, it would be ideal for either the physician, a resident, or a medical student to use this in the pre-charting function, which would be a system change. In order to not lose patients in follow-up, having a device in clinic at their first post-op appointment on which they could fill out the survey would work better than trying to contact patients later. Given that this was a small sample size, a larger study need to be conducted for validity. Another interesting study would be to look at patient satisfaction and if

patient confidence is based on patient's perception of physician bedside manner/demeanor or risk statistics presented at a pre-op appointment.

**2019-2020 LIC
Quality Improvement Project
PDSA Worksheet**

BACKGROUND:

It is well known that exercise is a component of healthy lifestyles, and lack of exercise can contribute to negative health outcomes. Exercise not only benefits cardiovascular and metabolic health, it has also been shown to improve mental health and overall wellbeing. Time spent in nature additionally has been shown to have health benefits including blood pressure reduction and reduced rates of anxiety and depression (Shanahan et al 2019). Furthermore, Cohen-Cline et al (2015) has shown a dose-response relationship with amount of time spent in nature and the benefits in physical and mental health.

Current exercise patterns and outdoor recreation are often unknown to providers after an initial new patient visit. Without knowing patient's baseline exercise regimens and needs, we are unable to appropriately counsel patients on ways to augment their mental health.

Therefore, in hopes of ultimately improving physical and mental health through exercise and time in nature, we are engaging in a quality improvement project to identify gaps in care regarding exercise counseling and multi-modal mental health care within a family medicine clinic, with first identifying patients' current activity.

AIM STATEMENT:

I hope to discover the current exercise and outdoor recreation routines in patients with mental health conditions (mood disorder, ADHD) in order to discover their needs. By doing this, I hope to have more detailed knowledge on current exercise regimens of 30% of patients with mental health conditions by January 31, 2020. This fits into a longer-term goal of improving exercise and outdoor recreation counseling in hopes of improving exercise as mental health treatment in 50% of patients by December 31, 2020.

MEASURES:

I measured:

- Reported exercise frequency, duration, and type within last week
- Reported outdoor recreation frequency, duration, and type within last week
- Open-response question to health goals
- Open-response question of goals for exercise regimen and outdoor recreation

Documentation of this data will help us know our patient population and their baseline needs, and therefore address gaps in care for multimodal approach to mental health care.

CHANGE(S):

Administering surveys to collect data listed above will help us learn our patient population better and identify current needs for physical health and mental health.

PLAN:

1. Create survey that will grant accurate depiction of patient's current exercise and outdoor recreation regimen by asking about activity type, frequency, and duration over last week as well as general health along with exercise and outdoor recreation goals.

2. Ask MAs to distribute and collect survey to patients in family medicine clinic with mental health diagnosis including anxiety, depression, adjustment disorder, and ADHD. Surveys are distributed to patients at check-in for appointment and collected prior to appointment.
3. Analyze average frequency and duration of exercise and outdoor recreation. Perform qualitative analysis on themes of health goals and exercise/outdoor recreation goals.
4. Predictions: I predict that patients will document little exercise and outdoor recreation, and have a goal of increasing exercise by a certain amount of time per week. Specifically, I expect patients will document approximately 30 minutes 2 times a week of light to moderate exercise like walking. I also expect that outdoor recreation will be similar. I predict that patients will write a goal of increasing their moderate exercise time by an average of 15 minutes per week, in addition to one longer hiking session (or similar) once a week. I also recognize that current outdoor recreation responses will vary according to the weather the week the patient took the survey.

DO:

Patients stated non-specific health goals, such as exercising more, stopping smoking, eating healthier, eating less sugar, and having less screen time. They also responded with non-specific goals for altering their exercise or outdoor recreation routine, including spending more time outside, increasing amount of time for exercise, “any”, “I just need time and motivation”, not liking exercise.

A problem I ran into is that patients scratched out their phone number, precluding my ability to follow up with them.

STUDY:

Patients reported an average of 43 minutes of exercise 2.5 days per week, with the majority patients engaging in walking (44.8%, 13 patients), weightlifting (28.6%, 8 patients). 14.3% (4) reported no exercise. For current outdoor recreation engagement, patients reported an average of 54 minutes of outdoor recreation 1.41 days per week. The majority of patients participated in walking (41.4%, 12 patients) and hiking (44.8.2%, 13 patients), while 34.5% engaged in no outdoor recreation.

Regarding health goals, 35% had exercise-related goals, including “more exercise, weights, and treadmill”, “consistent exercise”, “start hiking again!”. 26% had diet or general health related goals, including “eat healthier”, “eat balanced meals”, “lose weight, eat less sugar, less screen time”, “drink more water”. Nearly 30% had goals related to stress and mental health, including “meditation, positive thoughts”, “reduce stress levels and improve rest”, “sound therapy, reading”, “down time”. 9% of responses followed an outdoor theme, including “be at one with nature more often”.

Regarding exercise and outdoor recreation goals, 41% of goals included outdoor activities like hiking, walking, horseback riding, mountain biking, and snowshoeing. 26% of reported goal activities revolved around indoor cardiovascular or gym activities, including “cardio”, “gym”, row, workout class, resistance training. 10% of reported activities were team sports-related, including racquetball and tennis. 4% reported no desire to change current routines, and 4% reported needed more time and motivation. This data helps us learn our patient population better, as well as integrate current knowledge on exercise and goals into future discussions surrounding health and mental health.

ACT:

At this point, I would document current exercise regimens in patients’ EHR so that it can be used for future conversations with patients. I would encourage a follow-up appointment with each patient. In this appointment, I would:

- Engage in motivational interviewing discussion to further elicit current barriers. If a patient seems to be in the action stage within the transtheoretical model of change, I

would encourage them to establish a specific goal, including activity type, frequency, and duration.

- Discuss with the patient their perceived importance of change in exercise or outdoor recreation, and provide handout on data of mental benefits of exercise and outdoor activity, including options for exercise and outdoor recreation that interests them.
- Establish check-in call or appointment with patient in 1 month following initial follow-up appointment.

References

1. Cohen-Cline, H.; Turkheimer, E.; Duncan, G.E. Access to green space, physical activity and mental health: A twin study. *J. Epidemiol. Community Health* 2015, 69, 523–529.
2. Coon JT, Boddy K, Stein K et al. Does participating in physical activity in outdoor natural environments have a greater effect on physical and mental wellbeing than physical activity indoors? A systematic review. *Environmental Science & Technology* 45. 3 February 2011. 1761-1772.
3. Den Jeffer AE, Groen Y, Tucha L et al. Sweat it out? The effects of physical exercise on cognition and behavior in children and adults with ADHD: a systematic literature review. *J Neural Transm* 124. S3-S26.
4. McIntyre, KM, Puterman E, Scodes JM et al. The effects of aerobic training on subclinical negative affect: A randomized controlled trial. *Health Psychology* 39. 9 January 2020. 255-264
5. Mutz M, Juller J. Mental health benefits of outdoor adventures: Results from two pilot studies. *Journal of Adolescence* 49. 31 March 2016. 105-114.
6. Picton C, Fernandez R, Moxham L et al. Experiences of outdoor nature-based therapeutic recreation programs for persons with a mental illness: a qualitative systematic review protocol. *JBI Database of Systematic Reviews and Implementation Reports* 17. 2019. 2517-2524.
7. Shanahan DF, Astell-Burt T, Barber EA et al. Nature-Based Interventions for Improving Health and Wellbeing: The Purpose, the People and the Outcomes. *Sports* 141. 10 June 2019. doi:10.3390/sports7060141

Appendix:

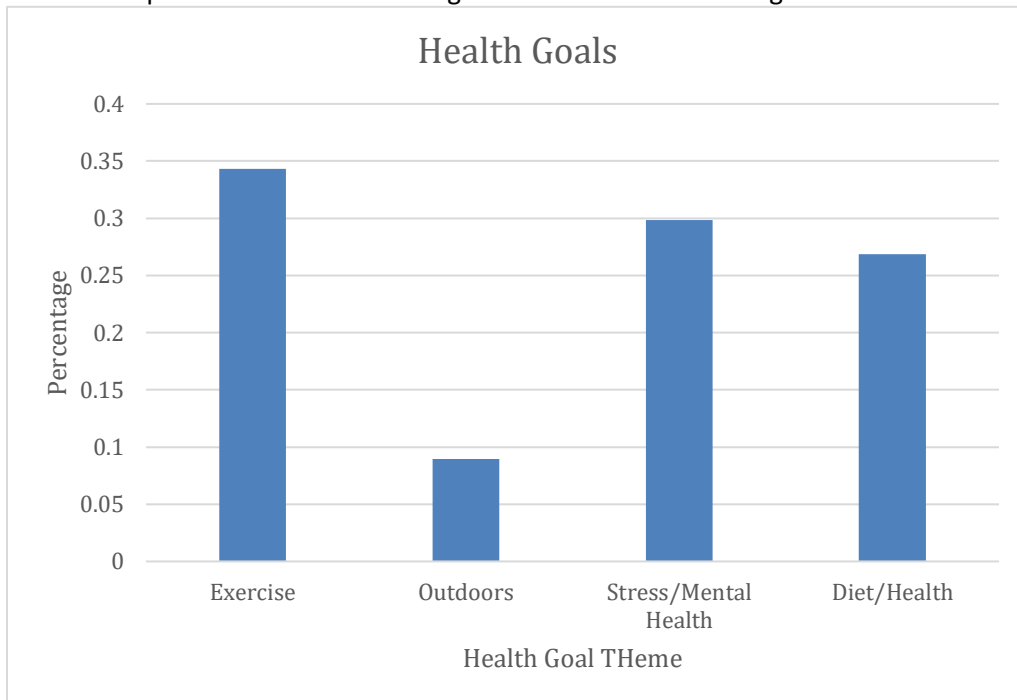
1. Survey questions listed below:
 - a. Describe your current exercise regimen in the last month.
 - i. Days per week: _____
 - ii. Amount of time per day: _____
 - iii. Describe activity type: _____
 - b. Describe your current nature recreation or time spent in nature:
 - i. Days per week: _____
 - ii. Amount of time per day: _____
 - iii. Describe activity type: _____
 - c. Describe specific actions you can do to improve your health:
 - d. Describe alterations in your exercise routine or nature recreation that you would be interested in:
2. Initial data on exercise:

Exercise reported (percentage of patients)							
Walk	Weights	None	Strength training	Cardio	Run	Upper body strength	Treadmill
44.8%	27.6%	13.8%	13.8%	6.9%	6.9%	6.9%	6.9%
Bike	Stair stepper	Pilates	Stairs	Gymnastics	Stretching	OT, PT	
6.9%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	

3. Initial data on outdoor recreation:

Outdoor recreation reported (percentage of patients)					
Walk	Hike	None	Hunt	Fish	Archery
41.4%	44.8%	34.5%	6.9%	6.9%	6.9%
Camp	Run	Ski	Photo art	Eat meals on deck	
3.4%	3.4%	3.4%	3.4%	3.4%	

4. Patients responded with the following themes related to health goals:



5. Patients responded with the following themes related to exercise and outdoor recreation goals:



Erectile Dysfunction screening in patients with diabetes

Colton Leavitt

BACKGROUND:

The CDC reports that in 2015, 15.3 million men in the US had diabetes, and nearly 34% of the adult population had pre-diabetes. Along with routine glucose management, screening for complications makes up a large portion of the care for patients with diabetes. Screening primarily focuses on preventing microvascular complications including neuropathy, nephropathy and retinopathy as well as preventing large vessel complications using lipid-lowering drugs and controlling hypertension to reduce the two-fold increased risk of vascular disease [1-3]. However, little thought is given to the organ in which neuropathy, microvascular and macrovascular disease overlap arguably the most.

Erectile Dysfunction (ED) is a highly underdiagnosed condition that affects millions of men in the US with the potential for dramatic impacts in both social and personal interactions and relationships. Its prevalence is expected to continue increasing both in the US and worldwide as the rates of obesity and other chronic disease including diabetes continue to climb, and as the population gets older. One recent meta-analysis estimates that overall, 52.5% of men with all types of diabetes are affected by ED [4]. Although age is a risk factor, it is not a limiting factor, as men with diabetes likely experience ED 10-15 years earlier than men without diabetes [5], and earlier diagnosis of ED is becoming increasingly prevalent, but under-reported [6], with approximately 37% of men with Type 1 Diabetes aged 18-35 experiencing some degree of ED [7].

Primary care providers are integral in the screening, care and follow-up for both diabetes and ED. Although many people likely have diabetes without a diagnosis, excellent screening recommendations and protocols are in place to screen at-risk but undifferentiated patients. The same cannot be said for ED despite the recommendation from multiple publications [4, 8] and organizations.

It has been proposed that primary care providers test for underlying chronic disease in patients with ED, as hypertension, diabetes, hyperlipidemia, hypercholesterolemia, obesity, depression and anxiety can all contribute. This is practice-dependent though, and likely implemented at varying degrees in primary care clinics throughout the country. However, from personal experience, screening patients with known diabetes for underlying ED is done rarely, if ever, and could lead to simple treatments to improve patients' quality of life.

Erectile Dysfunction is a common problem but is rarely discussed in primary care visits. If broached, the topic is almost always quickly addressed, a prescription is written, and the topic is infrequently discussed further. Additionally, the ability to obtain an erection is a great barometer of overall health for a primary care physician as a proper erection is the culmination of a biologically healthy body, healthy interpersonal relationships, and a healthy mental state. If any of these is not balanced, erectile dysfunction may be the only presenting symptom from a male who otherwise may not have presented to the

clinic for workup. Furthermore, as diabetes is rapidly increasing in prevalence, learning to treat the entire disease and all its complications has never been more important.

AIM STATEMENT:

By February 29, 2020, all male patients with diabetes presenting to the USAFA clinic under care of Dr. Grillo will be screened for erectile dysfunction using SHIM (IIEF-5), a validated short 5 question screening questionnaire.

MEASURES:

Pre-intervention:

- The charts of patients scheduled to present for diabetes follow-up appointment will be reviewed to determine whether they have been screened for ED in the past.

Post-Intervention:

- After the intervention, we will measure the number of patients who were eligible for screening and those who were screened using the SHIM.
- The chart of each screened person will be reviewed to see if positive screens were addressed in the appointment, and if negative screens were noted in the chart.

CHANGE(S):

When a male patient presents for a diabetes follow-up appointment, a SHIM screening form will be provided by either the rooming personnel or the physician. After completion, the provider will quickly score the screening form and enter the results into either the diabetes management template or the plan section of the note and address the results and treatment options with the patient. If negative, note negative in the chart and no further action needed.

PLAN:

To-Do:

- Determine which physicians are interested in participating. Participation in the preliminary stages must be completely voluntary.
- Discuss plan with Dr. Grillo and adjust as necessary to accommodate clinic practices.
- Discuss goals and screening eligibility criteria with medics who will be rooming and distributing the surveys.
- Create a central location to deposit both new and completed screening sheets.
- Print a sufficient number of copies of the SHIM questionnaire.
- Standardize a location within the EHR for documenting the results of screening.

- Identify and learn a method to quickly filter patient charts to those who fit the criteria for screening.
- Establish a fixed endpoint and a time to review charts after screening to analyze follow-up and treatment.

Prediction: I predict that 0% of patients with diabetes are currently being screened for ED. Once the plan is implemented, I predict a success rate of about 60-70%. The anticipated difficulties in achieving 100% is the ability of the medics to accurately and consistently identify which patients have diabetes, and which among those are eligible for screening. I also anticipate that some people will not receive a questionnaire if the rooming medic is hesitant to provide a document about such a sensitive topic. Additionally, time constraints may limit the physician's ability to address the screening during the appointment.

DO:

Upon starting the intervention, the rooming personnel were hesitant to provide the screening form to each patient who qualified. We quickly adjusted the plan and the physician started providing the form during the appointment. There was enough time in most appointments for each patient to complete the short 5 question form and to address the results. After that adjustment, there were no further barriers encountered.

STUDY:

At completion of the intervention, 57% of eligible patients were screened, 11% were noted to have been deferred to the next appointment, and 32% were not screened or addressed. Approximately half of patients who were not screened were seen during the time that we had difficulty getting the rooming personnel to provide the screening form. The remaining half of patients who were not screened were excluded due to patient preference, well-treated pre-existing ED or a comorbid condition such as dementia.

Among the patients who were screened, the average a1C was 7.95 (standard deviation 2.2), and 63% of patients did not have a known diagnosis of ED. Of those who did have a previous diagnosis, only 16% were currently treated. Of all patients who were screened without known ED, 88% had some degree of ED (SHIM score <22); 46% severe and 53% somewhere on the spectrum of mild to moderate. Not surprisingly, more patients with a known diagnosis had severe symptoms (66%) than patient without a known diagnosis (33%).

All patients who screened positive despite their current diagnosis status were offered treatment. 60% agreed to treatment, 33% denied treatment as they didn't feel their life was impacted by ED and 6% were already being treated.

Through the first cycle of this quality improvement project, we discovered that there is likely an overwhelming majority of diabetes patients with undiagnosed erectile dysfunction. In our cohort, this number was 88%. Unfortunately, there seems to be a barrier to care for these patients. Patient comfort discussing these topics is likely the biggest barrier, and as physicians, we have little control over this. However, physicians in general are also uncomfortable initiating

conversation about sexual dysfunction. The combination of these two factors creates an environment where neither person is comfortable broaching the topic. It is certainly our role as physicians to create an environment where patients feel comfortable discussing these issues, and this probably begins with a standardized screening question or form for patients at high risk of sexual dysfunction.

ACT:

Moving forward to the next stage of this project, several changes will be implemented. The first change will be to implement a simple screening questionnaire prior to administering the SHIM. A simple question such as “One major complication of diabetes is erectile dysfunction. Do you feel satisfied with your ability to get or maintain an erection?” or “I know that this topic may be uncomfortable, but a large percentage of men with diabetes struggle with erectile dysfunction or sexual performance. Do you feel that your sexual performance is as good as it could be?”. If the patient says that they don’t have a problem, providing the SHIM will likely not be beneficial. However, if the patient wavers or answers that there is a concern, the SHIM could be administered to quantify the severity of their ED. Additionally, if this question is enough to prompt discussion about sexual performance with the patient, the SHIM can be skipped and traditional diagnostic questions could be used. By using one of these simple questions, the physician is opening up the space to discuss other common causes of sexual dysfunction including premature ejaculation. By using the SHIM as the only screening device, we are only capturing those with ED, and the patient still may not feel comfortable bringing up other forms of sexual dysfunction. Additionally, providers and clinical staff may feel that another screening form is a burden on their already-limited time. By introducing one standardized question into the physician encounter, it relieves the burden from anyone else in the clinic and helps to decrease the amount of time spent on the topic if the patient doesn’t have sexual dysfunction.

The second change will impact those already diagnosed with ED. If a patient already has a known diagnosis of ED, the physician will ask a simple question such as “We know that there is often a link between diabetes and erectile dysfunction, so I’d like to take a minute to address how treatment is going for your erectile dysfunction.” This question acknowledges that the physician is aware of the patient’s sexual dysfunction, and that they are willing to talk about it with the patient. Most patients with known ED have tried first line medications like PDE-5 inhibitors without success. However, many don’t present back to the clinic for further treatment options or referral. By opening the door to these patients, they will be more likely to talk about the success or failure of previous treatments.

The final change will be to incorporate ED screening into the standard diabetes template which is present on the EHR at Air Force Academy. This will act as a reminder to screen patients annually for sexual dysfunction just as they would screen for symptoms of retinopathy, nephropathy or neuropathy.

References:

1. Sarwar, N., et al., Diabetes mellitus, fasting blood glucose concentration, and risk of vascular disease: a collaborative meta-analysis of 102 prospective studies. *Lancet*, 2010. **375**(9733): p. 2215-22.
2. Deshpande, A.D., M. Harris-Hayes, and M. Schootman, Epidemiology of diabetes and diabetes-related complications. *Phys Ther*, 2008. **88**(11): p. 1254-64.
3. Afroz, A., et al., Macro- and micro-vascular complications and their determinants among people with type 2 diabetes in Bangladesh. *Diabetes Metab Syndr*, 2019. **13**(5): p. 2939-2946.
4. Kouidrat, Y., et al., High prevalence of erectile dysfunction in diabetes: a systematic review and meta-analysis of 145 studies. *Diabet Med*, 2017. **34**(9): p. 1185-1192.
5. Malavige, L.S. and J.C. Levy, Erectile dysfunction in diabetes mellitus. *J Sex Med*, 2009. **6**(5): p. 1232-47.
6. Cohen, S.D., The Challenge of Erectile Dysfunction Management in the Young Man. *Curr Urol Rep*, 2015. **16**(12): p. 84.
7. Maiorino, M.I., et al., Erectile dysfunction in young men with type 1 diabetes. *Int J Impot Res*, 2017. **29**(1): p. 17-22.
8. Brien, J.C. and J.C. Trussell, Erectile dysfunction for primary care providers. *Can J Urol*, 2008. **15 Suppl 1**: p. 63-70; discussion 70.

2019-2020 LIC Quality Improvement Project: PDSA Worksheet
Abigail Leibowitz

BACKGROUND:

Patients with complex social conditions account for a dramatic percentage of overall healthcare costs. Readmission within 30 days of hospital discharge is just one example of the adverse and costly outcomes more frequently faced by this population. Previous studies have demonstrated that interventions aimed at addressing social needs such as housing, food insecurity, and transportation can improve management of chronic conditions while also decreasing hospitalizations and overall costs. The shift towards value-based payment has made addressing these social factors a top priority for many healthcare systems in order to provide higher quality, lower cost healthcare. However, most medical providers do not routinely ask patients about their financial and social situations and only engage with available resources such as social work when obvious barriers are encountered. This project is of personal interest because the Emergency Department similarly must determine how to best address the complex medical and social needs of its high-utilizing patients.

AIM STATEMENT:

Starting October 15th 2019, Kaiser Permanente (KP) hospitalists at Memorial Hospital Central (MHC) will systematically screen for social determinants of health using the NECTR screening tool in 75% of new patient H&P's, with the end goal of decreasing length of stay, ED utilization, and readmission rates.

MEASURES:

I will compare the following variables for patients Nov 1 - Dec 31 2018 (without NECTR screening) versus Nov 1 - Dec 31 2019 (with NECTR screening): length of hospital stay, readmission rate to Memorial Hospital Central within 30 days of discharge, and the number of Memorial Hospital Central ED visits within 30 days of discharge. An audit of 20 random H&P's from KP hospitalist patients at MHC Nov-Dec 2019 will also be performed to determine the rate of H&P's with documented NECTR screening.

CHANGE(S):

KP hospitalist team has met & agreed to utilize the NECTR screening questions when completing H&P's for patients being admitted to Memorial Hospitals starting October 15, 2019. KP hospitalists will be advised to consult social work if any needs or barriers are encountered. The NECTR survey questions include nutrition support, exercise and socialization, caregiver support, transportation, and resources/finances.

PLAN:

- Kaiser hospitalists have already indicated their willingness to move forward with these changes and utilize the NECTR screening tool.
- Dr. Kelly Foley will incorporate NECTR screening tool into the electronic KP H&P template.
- Dr. Kelly Foley will provide access to Kaiser data regarding hospital admissions & length of stay at Memorial Hospital Central.
- I will utilize Epic access to evaluate readmission rates and ED visits at Memorial Hospital Central for these same patients.
- I will utilize Epic access to sample H&P's when assessing for NECTR screening completion.
- Prediction: Hospital readmission rate within 30 days of discharge and number of ED visits within 30 days of discharge will be reduced in 2019 compared to 2018. Length of hospital stay may be

increased due to longer time spent addressing identified issues or decreased due to early identification of discharge barriers.

DO: There were no unexpected challenges accessing or collecting the data.

STUDY:

Finding #1: Only 45% of patients discharged by KP hospitalist team had NECTR screening completed upon admission, compared to an initial goal of 75%.

- Since many KP patients are admitted to non-KP services initially (eg. ICU), consistent application of any screening tool would require collaboration with UCH physicians.
- Many MD's do not use the standard KP H&P template, so any screening tool must also be added into personal H&P templates.
- NECTR screening tool is likely not optimized for the social determinants of health relevant to an inpatient setting. For instance, lack of exercise is unlikely to be a priority or an actionable item in this setting. This mismatch may have contributed to its limited usage.
- Screening for social determinants of health may be perceived as an added burden on physicians. It may be performed more consistently if targeted only for high-risk patients (eg. geriatric patients or significant comorbidities).

Finding #2: Use of NECTR Screening was associated with decreased ED utilization, but was not associated with fewer readmissions or a notable change in length of stay.

- Limited NECTR implementations makes it difficult to draw any strong conclusions regarding the effect on patient outcomes, but decreased ED utilization is promising.
- It may be useful to track more proximal outcomes of screening, such as the number of social work consults placed, in addition to distal outcomes such as readmission rate.

Additional Findings:

- Many screenings were completed with yes/no answers. Completion of NECTR screening therefore did not necessarily indicate an in-depth conversation of social needs, although it is also possible that in-depth conversations did take place and they were not thoroughly reflected in the documentation.

ACT:

- Results will be formally discussed with KP Hospitalists on 4/22/2020. Discussion should include the barriers physicians encountered in utilizing this screening tool (takes too long, forgot to use it, not perceived as relevant to some or all patients, etc) as well as what social determinants of health they think would be most relevant for an inpatient setting.
- Future screening tools may benefit from collaboration with non-KP physicians' and integration into personal templates in order to increase usage.
- Future H&P templates should include documentation of whether social work was consulted in order to track the direct effect of screenings.
- Future iterations should explore creation of two distinct H&P's: a "high risk H&P" which includes a screening tool for social needs and a "low-risk H&P" without a screening tool. Since previous studies have shown that physicians are poor at assessing individual patients' risk of readmission, the decision of when to use the "high-risk H&P" should be based on an objective cut-off (such as age or presence of certain comorbidities) instead of physician intuition.

**2019-2020 Adult Ambulatory Care (AAC)
Quality Improvement Project
PDSA Worksheet
Dallin Milner**

BACKGROUND: As of 2015, Colorado had over 300,000 residents with Limited English Proficiency (LEP). Over 230,000 spoke Spanish as their primary language, that being around 5% of the population with some counties having rates much higher than that. LEP patient populations need special considerations as they have been shown to have more adverse events, suffer more harm to such events, and more likely to have those events be caused by a failure of communication. Interpreters help diminish those risks and have been shown to reduce ER visits, increase access to primary care, improve understanding of plan of care, and they can lead to higher levels of patient satisfaction.

Peak Vista is a community health partner in Colorado Springs and sees over 94,000 patients in the El Paso county area. While El Paso county has around 14,000 Spanish speaking only residents, Peak Vista sees many of those patients as well as their children. Providers at the International Circle clinic will see multiple Spanish speaking patients every day. For Spanish interpretation, Peak Vista uses a phone interpreter. The interpreter is a medically certified Spanish and English speaker who is employed directly by Peak Vista. They interpret via phone at the corporate office. It is important to understand if our patients are understanding their care, if they are satisfied with communication, and if there are any other methods of interpretation that they would prefer.

AIM STATEMENT:

To understand the effectiveness of provider communication to Spanish speaking patients as compared to English speaking patients, to evaluate the satisfaction of communication of care plan for both Spanish and English speaking patients, and to understand patient preferred method of interpretation.

MEASURES: Via a survey of five questions for English speaking patients and seven questions for Spanish speaking patients we will see what percentage of patients felt their main concern was addressed, understood the plan of care for their child, had all their questions answered, and which method of interpretation Spanish speakers would prefer.

CHANGES: If we find that patients are not understanding their plan of care, are unsatisfied with, or desire different methods of interpretation, we will ensure that interpreters are being used appropriately and will accommodate to those preferred methods of interpretation where possible.

PLAN: I will first need to contact the medical director of the Peak Vista's Pediatrics' International Circle Office and review with her the questions. Once those are approved, I will begin interviewing patients immediately after encounters with the following questions: To make sure that we addressed your needs today, could you please tell me if the provider addressed your main concern? What was that main concern today? To ensure that we communicated effectively, can you please, in your own words, state the plan for your child's care? If prescribed

medications, to ensure that we were clear in our communication, can you tell me how your child should be taking their medication? Did you have any unanswered questions? For Spanish speaking patients they will also be asked if they felt we communicated effectively and what their preferred method of interpretation is of the following: in person, video chat, or phone interpretation. The questions, except for the last one, will be assessed by YES/NO or CORRECT/INCORRECT to be able to compare across the groups of patients.

DO: Surprisingly, and fortunately for the clinic, we quickly found that patients were highly satisfied with their care. Both English and Spanish speaking patients were reporting 100% satisfaction. Additionally, both English and Spanish speaking patients understood their child's plan of care 100% correctly. Spanish speaking patients were 100% satisfied with communication as well. At was at this point, that we decided to ask Spanish speaking patients which method of interpretation that they would prefer in person interpretation, video conference, or phone interpretation.

STUDY: The 100% satisfaction and understanding by both English and Spanish speaking patients is a great accomplishment by the providers of the pediatric clinic. While 100% understanding was great for the clinic, it was unexpected. It was thought that this was due in part to provider's effective communication but also could be due to the relatively simple plan of care for most outpatient pediatric cases. Additionally, it is important to note that 100% of Spanish speaking patients prefer in person interpretation. While in person interpretation is prohibitive from a cost stand point, video conference is a potential viable option that was preferred by more than 60% of patients.

ACT: For the next cycle, we would like to implement a few changes. First, we would like to ask over 100 Spanish speaking patients what their preferred method of communication would be. We will simplify the survey to video conference vs phone interpretation with an example of the video conference to ensure that patients understand what video conference interpretation would entail. If patients continue to prefer video conference, it would be feasible for Peak Vista to buy several iPads for their clinics and have their inhouse interpreters use them for patient interpretation within the clinic. Second, we would like to apply the same survey to patients in the Family Medicine clinics where patients tend to have more complicated plans of care. Finally, we would like to do a chart review of 50 known LEP patients to see if proper documentation of primary language and use of interpreters during visits has been recorded.

**2019-2020 LIC
Quality Improvement Project
PDSA Worksheet**

BACKGROUND:

According to the National Survey on Drug Use and Health (NSDUH), in 2017 an estimated 3.2 million (13.3%) youth aged 12-17 experienced at least one major depressive episode and 31.9% of adolescents aged 13-18 had any anxiety disorder.^{1,2} While these data on their own are alarming, the importance of screening for depression and anxiety is magnified when considering they are known risk-factors for suicide, which as of 2017, is the 2nd leading cause of death of youth aged 10-24.^{3,4}

In 2017, the American Academy of Pediatrics (AAP) published updated guidelines recommending annual depression screening of youth 12 and older. In contrast, the AAP and USPSTF have not released official guidelines for the screening of anxiety in youth, even though the AAP has supported validated screening tools such as Pediatric Anxiety Rating Scale (PARS) and Screen for Child Anxiety Related Disorders (SCARED).^{5,6} From April 2017-May 2018 researchers at the Penn State Children's Hospital initiated universal anxiety screening using a 9-question Generalized Anxiety Disorder (GAD) subset of the larger SCARED survey.⁶

The Optum (formerly DaVita) outpatient pediatric clinic hoped to improve screening of adolescent anxiety and depression, as well as improve patient access to and utilization of local mental health resources. In 2018, medical student Margaret Teets and Dr. Caroline Rowlands implemented a quality improvement initiative in which all patients with a PHQ-A score ≥ 10 (minimum threshold for moderate depression), were recommended behavioral health follow-up and were provided an updated handout on local pediatric mental health services.

In 2019-2020, the project was expanded to include screening for both depression *and* anxiety, and distribution of a further updated behavioral health (BH) resource handout. This handout included a brief introductory text on the importance of mental health care for teens and offer of subsequent follow-up call from a clinical team member in order to improve the likelihood that patients/families would pursue mental health care. This was based on principles of the Health Belief Model, which posits that perceived benefits, perceived susceptibility, and cues to action among several other factors, are important elements for behavior change.⁷

AIM STATEMENT:

- (1) To screen all Optum (formerly DaVita) Southwest Pediatric Clinic patients aged 12-18 for depression and anxiety using the PHQ-A and SCARED GAD subset screening questionnaires respectively, between December 1, 2019-February 1, 2019.
- (2) To provide all patients with a PHQ-A score ≥ 10 or SCARED GAD subset ≥ 9 a list of teen BH resources including local psychologists, psychiatrists and emergency/crisis services.
- (3) To achieve follow-up success rate $\geq 50\%$ for patients who were provided the BH handout.

MEASURES:

- (1) Behavioral health follow-up rates during the 2019-2020 intervention compared to the 2018-2019 intervention
- (2) Percentages of positive depression (PHQ-A ≥ 10) and anxiety (SCARED GAD subset ≥ 9) screens during study period

CHANGE(S):

- (1) Screen Dr. Rowland's patients aged 12-18 for both depression and anxiety
- (2) Update existing mental health handout to reflect accurate and up-to-date information
- (3) Provide all patients with a positive depression and/or anxiety screen with the updated mental health resource handout
- (4) Conduct follow-up phone calls with patients to determine success/barriers in accessing services

PLAN:

Based on the above changes I predicted that:

- (1) In this patient population, we may identify more adolescent patients with anxiety disorder compared to major depressive disorder/depression.
- (2) The introductory text on teen mental health and planned follow-up will serve as important health behavior influences and improve mental health follow-up/utilization rates

DO:

- December 2019–March 12, 2020 – Adolescent patients of Dr. Caroline Rowlands and Dr. Elizabeth Colvin presenting for their annual health maintenance visit were screened for depressive and anxiety symptoms using the PHQ-A and SCARED GAD subset screening forms
- November 2019–February 2020 – Josten use the Internet and personal phone calls to update the pre-existing pediatric mental health handout to include the most up-to-date/accurate information At least three attempts were made to reach providers, in order to obtain and verify details including (1) address, (2) insurances accepted, (3) common conditions treated and techniques utilized, and (4) minimum and maximum patient ages. The resource document was also updated to include a brief introductory text on the importance of mental health for overall teen health.
- January 2020 – Follow-up calls begin
- February 3, 2020 – Updated Resource Document is made live at clinic
- March 2020 – Follow-up calls completed with subsequent data analysis

STUDY:

- During the project: 40 teens (age 12-18) were screened for depressive and anxiety symptoms:
 - 7 patients (18%) had a PHQ-A score indicating moderate-severe depressive symptoms
 - 11 patients (29%) had a positive SCARED GAD subset screen
 - Of the 12 patient that screened positive on the PHQ-A or SCARED GAD, 6 patients (50%) screened positive on both forms
- Of the 12 patients that screened positive on either form, 8 were successfully contacted for follow up, 3 were lost to follow-up, and 1 was lost due to recording error
 - 6 patients reports no difficulty in finding mental health counseling, 2 reported difficulty due to (Cost (n=1) and Lack of patient interest (n=1)
 - 5 patients did not have mental health follow-up plans, 2 patients had follow-up plans, and 1 patient was not able to initiate follow up due to COVID-19

ACT:

- Updating/verifying information on the existing mental health resource was vital. It may be beneficial to update and revise the document as needed at least once annually
- At the Optum Southwest pediatric clinic, there was a higher prevalence of anxiety symptoms (29%) compared to depressive symptoms (18%) amongst the population screened during this QI initiative. This highlights the utility of routine anxiety screening amongst youth, despite not having official guidelines for routine screening from the AAP and USPSTF
- Dr. Caroline Rowlands will continue to utilize the newly-introduced SCARED GAD subset screening form beyond the duration of this QI initiative.
- Future initiatives may consider other methods or solutions to more directly improve BH follow-up rates

References:

1. Major Depression. National Institute of Mental Health. <https://www.nimh.nih.gov/health/statistics/major-depression.shtml>. Updated February 2019. Accessed November 27, 2020
2. Any Anxiety Disorder. National Institute of Mental Health. https://www.nimh.nih.gov/health/statistics/any-anxiety-disorder.shtml#part_155096. Updated November 2017. Accessed November 27, 2019.
3. Bennett AA, Walkup JT. Anxiety disorders in children and adolescents: Epidemiology, pathogenesis, clinical manifestations, and course. In: Brent D, ed. *UpToDate*. Waltham, MA.: UpToDate; 2019. www.uptodate.com. Accessed November 27, 2019.

4. Centers for Disease Control and Prevention. 10 Leading Causes of Death by Age Group, United States – 2017. https://www.cdc.gov/injury/wisqars/pdf/leading_causes_of_death_by_age_group_2017-508.pdf. Published 2017. Accessed November 27, 2019.
5. Mossman SA, Luft MJ, Schroeder HK, et al. The Generalized Anxiety Disorder 7-item scale in adolescents with generalized anxiety disorder: Signal detection and validation. *Ann Clin Psychiatry*. 2017;29(4):227–234A.
6. Haelle T. Universal adolescent anxiety screening is feasible in primary care. MDedge Pediatrics. <https://www.mdedge.com/pediatrics/article/200394/mental-health/universal-adolescent-anxiety-screening-feasible-primary-care>. Published May 7, 2019. Accessed November 27, 2019.
7. Rosenstock IM. Social Learning Theory and the Health Belief Model. *Health Education Quarterly*. 1988;15(2):175-17583. doi:10.1177/109019818801500203

**2019-2020 Adult Ambulatory Care (AAC)
Quality Improvement Project
PDSA Worksheet**

Curtis Pacheco
University of Colorado School of Medicine – Class of 2021

BACKGROUND:

Diabetes is a chronic illness that affects an increasing number of people each year. A quick glance at the “American Diabetes Association’s Standard of Medical Care in Diabetes – 2019 Abridged for PCP’s” is anything but abridged. There’s a plethora of recommendations for those with diabetes that includes lifestyle modifications, pharmacologic therapies with specific treatment goals, and screening/management of microvascular complications.

Suffice it to say, these interventions may be difficult to tackle in the 5-10 minutes that PCP’s have with patients, especially during a visit that’s addressing multiple complaints. However, these issues must be addressed and readdressed frequently, not only to improve quality of life for the patient; but to prevent cardiovascular disease, kidney disease, peripheral nerve damage, and retinopathy. As it is stated in the Hippocratic oath, “I will prevent disease whenever I can, as prevention is preferable to cure.” With the increasing burden on primary care physicians, it can be very easy for a number of these recommendations to fall through the cracks. I will be conducting this quality improvement project at my foundations of doctoring family practice clinic in hopes to increase the number of patients meeting ADA diabetic goals.

AIM STATEMENT:

We will address 9 diabetic specific goals including BP at goal of <130/80, patient on ACE/ARB, LDL <130, patient on statin therapy, microalbumin within past year, diabetic foot exam within past year, diabetic eye exam within past year, weekly amount of exercise, and smoking status.

By March 30, 2020 we will address all 9 of these goals with each diabetic patient (100%) at each visit.

MEASURES:

Measure the percentage of diabetic patients that meet individual goals (*ex. percentage of diabetic patients on an ACE/ARB*).

In addition to measuring number of patients meeting individual goals, I will measure how many goals each individual patient is meeting. (*Ex. patient 1 is meeting 5/9 goals*)

Lastly, I will track HgB A1C levels, weight, and BMI throughout the duration of this QI project.

CHANGE(S):

Each diabetic patient roomed will receive a form from the medical assistant that lists all 9 goals. The patient will fill out last diabetic foot exam, last eye exam, weekly amount of exercise, and smoking status while waiting for the physician. The physician will then fill out the remainder.

PLAN:

I will create the form to be given to diabetic patients by the medical assistant when roomed. In addition to the form, I will create a “dot phrase” that parallels the form to facilitate entry of data into the EHR by the physician. Both the form/dot phrase will serve as reminders for the physician to address each recommendation during the visit.

Starting in September, I will collect data on each diabetic patient I see to determine the percentage of those patients meeting each recommendation, including how many recommendations each individual patient is meeting. I will record the last Hgb A1C level (within 6 months). I will record the patient’s most recent weight.

Moving forward, I will remeasure the percentage of those patients meeting each recommendation, including how many recommendations each individual patient is meeting. I will follow the same patients as well as measure new patients. I will continue to track HgB A1C levels and weight.

I predict that the results will be favorable. Most patients are being managed medically per guidelines, however; weekly exercise goals may be lacking. I think providing a patient with structured exercise goals will help facilitate weight loss. (*ex. 30 minutes of strenuous physical activity 5 times per week. Strenuous = patient should not be able to sing*).

DO:

After reviewing the EHR used at the clinic, it became clear that printing out a sheet with diabetic goals on it would be unnecessary; as most of the goals are covered within the diabetic visit note, medications list, and recent labs. For the sake of efficiency, it made more sense to speak with the medical assistants and remind them to ask about the patient’s most recent foot exam, most recent eye exam, exercise history, and smoking history. Per a recommendation from my QI mentor, I also created a “Type II Diabetes Facts Sheet” to be placed on the walls of the exam rooms that detailed the risks of cardiovascular disease, renal disease, eye disease, and neuropathy due to diabetes. This sheet also encourages patients to schedule yearly eye exams, foot exams, follow a diabetic diet, and discusses the importance of physical activity 3-5 times weekly. Finally, I reviewed these diabetic goals with the physician of the clinic in which he agreed upon all nine. After this, I waited over 3 months to collect my data so that patients would be able to return for a follow-up visit. I then collected HgB A1C values, weight values, BMI, and blood pressure values greater than 3 months apart. I then documented how many goals a patient had accomplished as of their most recent visit (February 2020 and on).

Unexpectedly, there were many problems that lead to misleading results including patient non-compliance, allergies or intolerance of certain medications, patient refusal of medications, co-morbidities preventing inability to attain certain goals, inability to take certain medications due to concurrent pharmacotherapy, outliers, and small sample size. I also believe that stringent, “yes or no” conditions I was using to measure hurt the data analysis, as a “yes or no answer” to a goal may not

capture the nuance of why that goal is or isn't not being met. For example, a patient with benign prostatic hyperplasia and atrial fibrillation may not be taking an ACE or an ARB as they are already taking prazosin and metoprolol for BPH and AFib respectively. Therefore, the patient is meeting the blood-pressure goal of <130/80 but is not on an ACE or an ARB.

STUDY:

Of a total of 21 patients, the average age was 66 years old. The patient population was skewed heavily male, with 76% of the patients being male and 23% female. A1C values increased from 6.6 to 7.2 between visits spanning over 3 months or greater. Weight did not change significantly, with average initial weight being 124.7 kg and weight at most recent visit being 125.1 kg. BMI between visits was 34.2 and 34.4 respectively. On average, patients were meeting 5.7 out of the 9 diabetic goals measured. Over 50% of the patients were meeting each of the 9 measured goals. The goals that the highest number of patients were meeting were LDL goal of less than 130 and non-smoking status, with 95.2% of patients having an LDL <130 and 85.7% of patients not currently smoking. The goal that the lowest number of patients were meeting was exercising, with only 52.3% of patients reporting that they were exercising 3-5 times weekly.

From this data, I learned that a small sample size can greatly affect the results of data. In regard to A1C values, most patients had A1C values that slightly increased or decreased (plus or minus 0.5 points), however; there were a small number of patients whose A1C values increased over 2 points. This led to a larger overall increase in A1C values between the measured visits. As for diabetic goals that need attention; it is evident that exercising is the goal that needs the most attention, as only 52.3% of patients reported to be exercising regularly.

ACT:

As for next steps, I believe that more intervention needs to be taken to encourage patients to exercise. Exercising 3-5 times weekly for at least 30 minutes would likely lead to weight loss, lower A1C values, improved blood pressure control, and improved lipid levels. Lowering weight through diet and exercise is the most efficient step to having more patients meet a higher number of goals both individually and collectively. To do this, I would employ motivational interviewing with individual patients to increase intrinsic motivation to exercise as well as explore and resolve individual hinderances to exercising. This would likely take a large amount of time initially; but with some practice, it would become more and more efficient. I will also look into providing flyers and education on community-based health and fitness programs; in hopes that this would increase patient's intrinsic motivation to exercise. As I stated in my "plan", I would provide more structured exercise goals to patients in hopes that a more detailed goal will help facilitate weight loss. (ex. *"30 minutes of strenuous physical activity 3-5 times per week" instead of saying "get more exercise"*). To increase compliance with yearly foot and eye exams, I would like to make a "checklist" the size of a small business card that details the date of the patient's last diabetic foot and eye exams. On this card would be the reminder encouraging patients to schedule these exams yearly. This could be pinned next to a calendar or kept within a wallet or purse and would serve as another method of accountability for patients to complete yearly foot and eye exams. After these interventions, I would collect the same data, for the patient's I currently have data on, at their next follow-up exam. I would also increase my sample size in hopes that this would provide me with a more accurate assessment of the trends of the clinic's diabetic population.

Adapted from the Institute for Healthcare Improvement

2019-2020 LIC Quality Improvement Project PDSA Worksheet David Sabio

BACKGROUND:

- The healthy development of an infant is dependent upon the wellbeing of its mother, and postpartum depression (PPD) has been tied to children having increased rates of social and emotional difficulties, a variety of delays, aggression, and subsequent depression.¹
- Nationally, 1 in 9 women experiences symptoms of postpartum depression, for mothers with low-income the rate jumps to 1 in 4, and for teenagers with low-income there is a 50% prevalence.^{2,3}
- The American Academy of Pediatrics (AAP) recommends to screen for postpartum depression at 1, 2, 4, and 6 month well-child checks, using a tool such as the Edinburgh Postnatal Depression Scale (EPDS), with a focus on identification and referral for treatment.³ The United States Preventive Services Task Force (USPSTF) gives a grade B recommendation that mothers at increased risk of PPD be provided or referred for counseling services.⁴
- Two years ago, after extensive preparations ranging from care coordination to documentation and legal counsel to workspace logistics, the Peak Vista Pediatric Health Center (PVPHC) launched an initiative to screen for PPD with the EPDS (≥ 10 being positive) at all 4 month well-child checks.
 - The current workflow is believed to show efficacy in screening moms, but uncertainty remains in regards to how the project can evolve to most benefit the families served.
- This project interests me because there is a clear opportunity to be proactive and address the overall health of a family unit and through attending to the mental wellbeing of the very people with the most important role in the world- moms.

AIM STATEMENT:

- We endeavored to investigate, from a systems level, the workflow and data collection of the Postpartum Screening Program at PVPHC, focusing on moms who screened positive, with the goal of gaining insights as to how the effect of this already noteworthy initiative can be optimized.

MEASURES:

Primary means of assessing the change will be that a routine set of search parameters can be used by the BI specialist to pull the data pertinent to the intervention's aims. Ideally, all of the below information can be gathered readily on a monthly or bimonthly basis, on the way to that we should ensure that we go in order of accurately obtaining basics, characteristics, and follow-up data:

Basics:

- # of 4m WCCs (for babies between 3-5mo)
- # of those visits where the mom is present
- # of those moms screened with the EPDS-3
- # of those moms that screen positive
- # of positive moms who are seen by BH that day in peds
- # of positive moms who had an appt scheduled that day with PCP/adult provider
- # of moms already in treatment (how many of the positives that refuse BH are these)

Characteristics:

- score of moms that screen positive
- mom is ≤ 19 yo, hx of depression/anxiety, hx of substance use, poverty, hx of chronic illness,
- baby was born preterm, neurodevelopmental/congenital/physical deficits, twins or more

Follow-ups:

of positive moms who saw BH in PVPHC at a later visit ??

of positive moms who had some intervention between screening and f/u visit at PVPHC?

types of interventions (in-home visit, community group for new moms, individual therapy,

of moms interested in getting more care

CHANGE(S):

- The three alterations to the workflow will be, first, that if a mother has a positive EPDS, then the name of the visit's file in the EMR will be changed from '4m WCC' to '+EPDS 4m WCC' This will allow the providers of the pediatric patient to immediately see this information upon subsequent visits without any additional clicks.
- Secondly, is a consideration of the removal of a step- if the mother screens negative then we do not need to create a chart for the mom (simply document score in kids chart). The can be queried by BI and found accounted for in the total number of 4m WCCs, number of moms screened, number of moms negative, but no further details will be needed in the mom's chart. This could allow for some alleviation of the documentation burden and ensure the focus is on moms who are identified as having an increased likelihood of PPD.
- And third, if a pediatric provider then sees that a mom screened positive at the 4m WCC, the provider can then check-in with the mother, and if concerned behavioral health would be prompted to check-in again as well. These check-ins by the pediatric provider and/or BH specialist would provide information that should be documented in the mother's chart in a standardized, searchable means noting whether mom had received care in the interim (first visitor, outside therapy, new moms group at memorial, medication management from PCP, etc.) and if not whether she wants to or not.

In short, the model is to continue doing a universal screening at 4m WCCs (with a slight tweak to the note, for improved follow-up) and then ensure a check-in with moms who already screened positive at 4m (who are easily identified thanks to the aforementioned file name change), and then document at that follow up about care received/desired.

PLAN:

- The first intervention being done is to thoroughly query for data pertinent to the screening and management of mothers of patients at PVPHC in regards to PPD. This also will involve a chart review of select mothers to gain more insight as to the process for following-up with mothers flagged as having an increased likelihood of developing PPD.
- We will then work to implement a few alterations to the current workflow, cognizant of not adding to the documentation burden of providers and also storing the data in a manner that will be of greater utility going forward.
- My primary hypothesis is that with improved structure to the documentation in the workflow there will be greater ease of accessing the data, leading to more frequent updates and more accessible and useful feedback directing the evolution of the intervention, as well as creating a base of evidence that can be utilized in advocating for resources, or demonstrating benefits and barriers in a supported manner to other primary care clinics that should be addressing PPD as well, ie. Peak Vista clinics staffed by Family Medicine trained providers.

STUDY:

- 729 4m WCCs, 539 moms screened, 102 screened positive (score ≥ 10)
- EPDS scoring (≤ 8 not likely, 9-11 possible, 12-13 fairly high possibility, ≥ 14 probable)
- ≥ 10 was used as the cut-off for positive screening at PVPHC to maximize sensitivity

- In depth chart reviews were needed to find out information regarding follow-up visits, utilization of outside resources (first visitor, new moms group, individual therapy, medication management), or if already in treatment elsewhere
- In a focused chart review it was learned that the majority (10/13 moms) were already established as patients with PV, this allows for great likelihood of care navigators scheduling appointments for the moms to see an adult provider, and also improves the likelihood of a warm hand-off between colleagues of the same system (both of which should be clearly documented and easily searchable because these are key elements that could really be highlighted to demonstrate the strong work being done at PVPHC)
- Further, it was found that the rate of positive screenings (18.9%) was nearly double that of the national average, and risk factors such as being a teen mother (5/13) and not being married (10/13) both were found at higher rates in the PVPHC population.

ACT:

Next steps, if new changes are found to increase the documentation burden and lead to dissatisfaction in the workflow then we would revert back to the prior format. The key to PVPHC's current success is just that- it is part of the culture, and all team members are on board. This is why we feel confident that if able to demonstrate a likely benefit, team members will be willing to give it a try, with the understanding that this is an iterative process and their feedback will be instrumental in the shaping of the workflow.

Further, if sound data is accumulated that addresses our aims above (basics, characteristics, and follow-ups) then this can be utilized to advocate for additional resources at PVPHC, and also to demonstrate to other PV clinics that there is a proven workflow they can adopt to improve the care of their patients who are moms and the lives of their pediatric patients as well.

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REFERENCES

1. A-C Bernard-Bonnin, Canadian Paediatric Society, Mental Health and Developmental Disabilities Committee, Maternal depression and child development, *Paediatrics & Child Health*, Volume 9, Issue 8, October 2004, Pages 575–583, <https://doi.org/10.1093/pch/9.8.575>
2. Jean Y. Ko, PhD; Karilynn M. Rockhill, MPH; Van T. Tong, MPH; et al. Trends in Postpartum Depressive Symptoms — 27 States, 2004, 2008, and 2012. *MMWR Morbidity & Mortality Weekly Report* 2017;66: pp 153-158
3. Incorporating Recognition and Management of Perinatal Depression Into Pediatric Practice Marian F. Earls, Michael W. Yogman, Gerri Mattson, Jason Rafferty, COMMITTEE ON PSYCHOSOCIAL ASPECTS OF CHILD AND FAMILY HEALTH *Pediatrics* Jan 2019, 143 (1) e20183259; DOI: 10.1542/peds.2018-3259
4. US Preventive Services Task Force, Curry SJ, Krist AH, et al. Interventions to Prevent Perinatal Depression:

US Preventive Services Task Force Recommendation Statement. *JAMA*. 2019;321(6):580–587.
doi:10.1001/jama.2019.0007

**2019-2020 LIC
Quality Improvement Project
PDSA Worksheet
Delia Shash**

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?)*

- Postpartum hemorrhage (PPH) is among the top causes of maternal morbidity and mortality in the United States, accounting for 11% of total pregnancy-related deaths.
- In Colorado, PPH accounts for 15% of pregnancy-related deaths and is tied with mental health and cardiovascular complications as the top cause of maternal morbidity and mortality.
- Over the past few years, maternal mortality has continued to climb in the United States despite efforts to decrease pregnancy-related deaths.
- In California, implementation of the “Obstetric Hemorrhage Toolkit” in 2010, which introduced a proactive system for faster access to blood products, led to a 20.8% decrease in maternal morbidity and mortality.
- In January 2019, St. Francis Medical Center in Colorado Springs adopted a three-step Code White protocol based on this toolkit in an attempt to decrease maternal morbidity and mortality associated with PPH.

AIM STATEMENT: *(This 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.)*

By February 1st, 2020 I will perform a chart review of all of the documented PPH that occurred at St. Francis between January-November 2019 and document the number of Code White alerts or activations called. I will also create and distribute a survey to the OB/GYN staff to assess attitudes on the new three-step Code White protocol.

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

Number of Code White alerts or activations during this time
Attitudinal data on the new Code White protocol

CHANGE(S):

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

Bring awareness to the underutilization of the Code White protocol
Bring awareness to the reasons why there is this underutilization
Then, come up with a way to combat this underutilization in order to be proactive regarding PPH

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.)*

- A retrospective chart review of patients with documented PPH from January-November 2019.
- Data abstracted will include:
 - Estimated blood loss (EBL) of $\geq 500\text{mL}$ for vaginal deliveries and $\geq 1000\text{mL}$ for cesarean deliveries
 - Number of Code White alerts and activations
- Exclusion criteria:
 - Gestational age < 30 weeks
 - PPH delayed by > 24 hours.

- A survey will be created and distributed to the obstetrics and gynecology staff regarding the Code White protocol.

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

Results: Utilization of Protocol

- 70% of PPH are not being called as either a Code White alert or activation
- 60% of vaginal PPH have an EBL > 2x the criteria

Results: Attitudinal Data

- Physicians don't think a Code White is necessary
- Nursing fear of backlash from physicians
- Code Whites are too chaotic and they scare the patients
- Hoping the bleeding will resolve
- More education on Code White system, more training on Code White equipment, and increase comfort level with calling a Code White
- Delay in blood products/miscommunication with the lab
- Physicians are preoccupied with controlling the bleed and therefore want nurses to speak up if they think a Code White is necessary
- Repercussions of reporting PPH
- Negative cultural view surrounding PPH

Nurses Fear of Backlash from Physicians

- None = 12
- A Little = 14
- Moderate to Great Amount = 21

Provider Perceived Delay in Blood Products When Code White Not Called

- Never = 1
- Rarely = 8
- Sometimes to Always = 45

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

- PPH is among the top causes of maternal morbidity and mortality in both the United States and in Colorado specifically.
- In January 2019, St. Francis Medical Center implemented a three-step Code White protocol in order to combat this devastating complication.
- From a chart review on occurrences of PPH and implementation of the Code White protocol, it was discovered that 70% of PPH were not subsequently being followed with the proper Code White protocols.
- This represents an extreme underutilization of the Code White system.
- Additionally, 60% of vaginal PPH were discovered to have an EBL of > 2x the criteria, meaning that a potential delay in blood products could be detrimental.
- Through a survey distributed to the obstetrics and gynecology staff, it was discovered that there were various reasons behind the underutilization of the Code White process.
- Most significantly, physician hesitance to calling a Code White and nurses fear of backlash from the physicians prevented proper utilization of the protocol.

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)*

- Create a nursing protocol that states the charge nurse or bedside nurse MUST call a Code White alert when EBL is \geq 500mL for vaginal deliveries and \geq 1000mL for cesarean deliveries.
- Improve physician attendance and engagement in Code White simulations and teachings in order to have more effective multidisciplinary cohesiveness.
- Work to create a culture of safety that removes hierarchy and brings the focus back to the patient so that nurses can feel more comfortable speaking up.

Adapted from the Institute for Healthcare Improvement

**PDSA Worksheet for AAC QI Project:
Gerald Yeung**

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?)

- *In 2019, a 71-year-old male patient was admitted to UCHHealth Memorial Hospital Central after suffering an intracerebral hemorrhage (ICH). He was admitted to the acute rehabilitation unit 1 week after the event secondary to his functional deficits. On the unit, sequential compression devices were started, but the patient did not receive anticoagulation therapy for deep vein thrombosis (DVT) prophylaxis and he subsequently succumbed to a massive Pulmonary Embolism (PE).*
- *Current literature shows that less than 20% of patients with ICH receive anticoagulation for DVT prophylaxis. However, some experts add low-dose low molecular weight or unfractionated heparin after 1 to 4 days from ICH onset for patients with decreased mobility for DVT prophylaxis. The risk of hematoma expansion, which may be increased in certain settings, may weigh against the use of anticoagulation.*
- *This 71-year-old patient's discharge paperwork from the hospitalist service did not discuss anticoagulation for DVT prophylaxis. There were no recommendations for or against anticoagulation nor any relevant timeframe for starting anticoagulation.*

AIM STATEMENT: (This 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.)

We investigated what may have contributed to this 71-year-old male patient suffering a massive PE. Anticoagulation was not started and this was not addressed in the discharge paperwork. We endeavored to find how to improve this transition of care to the rehabilitation unit. This specifically entails finding the percentage of discharge communications that did not discuss prophylactic anticoagulation and establish a baseline rate of starting prophylactic anticoagulation for patients with ICH.

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

Percentage of discharge summaries that mention prophylactic anticoagulation and percentage of ICH patients with anticoagulation started.

CHANGE(S):

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

We will determine if there is an issue with discharge notes for patients with ICH in terms of discussing anticoagulation such that this is addressed in a timely manner to prevent PE's.

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.)

- 1) *I will need to go back and conduct a chart review of all patients discharged in 2019, from January through December.*

- 2) *We will review discharge notes for any discussion of anticoagulation and when anticoagulation was/will be started.*
- 3) *We will measure percentage of discharge summaries that mention prophylactic anticoagulation and the percentage of ICH patients with anticoagulation started.*
- 4) *With the specific patient case leading to this project not having anything mentioned in his discharge summary, I suspect this is not a one-time occurrence.*

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

A challenge encountered included finding all the patients with ICH. Often, patients with ICH do not have an ICD-10 code explicitly including this diagnosis, so individual charts for all patients with a discharge diagnosis that suggested a possible ICH were reviewed. Accuracy for a diagnosis of ICH was confirmed by reviewing imaging reports, progress notes from primary teams, and consult progress notes as needed. This ended up producing a sample size of 24 patients with ICH who were admitted and discharged from the acute rehabilitation unit.

We found that in the discharge summaries, 10/24 discussed anticoagulation, 2/24 discussed anticoagulation but were discharge summary from when the trauma service was the primary team of the patient, 11/24 notes did not discuss anticoagulation, and 1/24 patients with ICH did not have a discharge note because they were transferred from an outside facility. For these 24 patients with ICH, 10 of them had anticoagulation started. Of these 10 ICH patients with anticoagulation started, 7/10 of them had anticoagulation started within the recommended 1-4 days from ICH.

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

- *Patients with ICH are at high risk for DVT and PE, but anticoagulation was not discussed in 46% of the discharge notes for patients coming to the acute rehabilitation unit. This suggests that for ICH, it may be the case that there may be some uncertainty in pursuing anticoagulation with concerns about hematoma expansion, and this may lead to this discussion to be missing from these notes. However, for these patients it is crucial to consider starting anticoagulation as they are at a 4 times higher risk of DVT PE than patients with acute ischemic infarcts.*
- *Discharge paperwork for patients going to the acute rehabilitation unit should include a discussion on anticoagulation recommendations, weighing benefits and risks*
- *Per the AHA recommendations this should be pursued within 1-4 days and for the ICH patients admitted to the acute rehab unit, when anticoagulation was started, this was within the recommended time frame of 4 days for 70% of ICH patients.*
- *These suggest further investigation should be done on requiring dot phrases and setting a requirement for addressing anticoagulation for ICH patient discharges or perhaps there is a need for a specific acute rehabilitation discharge summary. These may improve outcomes for patients with ICH and generally for the acute rehabilitation unit overall.*

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)*

- *Patient's with ICH face high risks of DVT and PE. 46% of discharge summaries for ICH patients did not discuss anticoagulation, so addressing this communication gap in transitions of care may improve outcomes.*
- *Next steps include a presentation to the hospitalists reinforcing the importance of timely anticoagulation for patients with ICH as well as incorporating a dot phrase for recommending/discussing risks of anticoagulation for the primary team discharging these patients to acute rehabilitation. This may influence the decision regarding starting anticoagulation. At this point we would need to see the percentage of hospitalist discharge notes of patients with ICH and the changes in patients started on anticoagulation and occurrences of DVT's after the implementation of these changes.*
- *A further future step includes investigating the need for an acute rehabilitation unit specific discharge summary to help improve outcomes for this transition of care beyond just addressing adequately starting anticoagulation for ICH patients.*