

**UNIVERSITY OF COLORADO SCHOOL OF MEDICINE**  
**COLORADO SPRINGS BRANCH**  
**QUALITY IMPROVEMENT PDSA WORKBOOK**  
**CLASS OF 2022**

## 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*

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*Danielle Davis, Maggie McGing, and Adriana Buliga Stoian*

**Postpartum Depression: Breaking Down Barriers and Improving Behavioral Health Care Access**

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**Prescription Pantry: Proposed Screening & Management for Food Insecurity at Mission Medical**

*Brittany Denzer and Taylor South*

**Standardizing Follow Up and Objective Measures In Patients With Depressive Disorders**

*Eric Wagner*

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*Sanaa Ahmad*

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**Time to Antibiotics for Pediatric Open Fractures**

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**Unmasking Empathy: Bridging Quality of Care Gaps During a Pandemic**

*Ann Rowland*

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# **Barriers to Colorectal Cancer Screening Among the Uninsured and Under-insured**

## **PDSA Worksheet**

### **Michelle Vo, MS3**

**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?)

Screening tests are imperative for the early detection of cancers in the primary care setting. In the US, colorectal cancer is third leading cause of cancer-related deaths in both men and women. Thus, screening is extremely important given mortality attributed to this cancer. Unfortunately, patients continue to miss cancer screenings, which can lead to later detection and worse prognoses. In our direct primary clinic, while patients are notified of overdue or impending cancer screening dates at their visits, there is no current process to notify patients who are not being seen on a regular basis.

**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 November 1, 2021, we will screen all patients who fall within current guidelines for colorectal screenings. We will aim to increase notifications for the screenings by 50% in the 6 months afterwards.

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

The percentage of patients who are up-to-date on their colorectal screenings.

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

We will do a thorough review of screening-eligible patients in the practice. For patients with missing data, we will have staff members ask patients at the start of each visit about their last screening test. For patients with no visits in the next 6 months, we will reach out to patients via secure messaging.

**STAKEHOLDERS:** (A stakeholder is anyone who has an interest in a project and can influence its success or failure.)

All clinic staff, which includes our MAs and RNs, who communicate with patients both during visits as well as through the EMR.

**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.)

**Who? What?** I will do a preliminary chart review of patients in the clinic who are screening-eligible to determine how complete the current data is. For patients with missing screening dates, I will ask clinical staff to assist me in screening patients during their upcoming visits as well as contacting patients through the EMR with no upcoming visits in the next 6 months.

**When?** November 2020-April 2021

**Where?** Glover Family Medicine Clinic

**What data?** Collect the last dates that patients have undergone screenings, if ever

**What measure?** Percentage of patients who are up-to-date on breast & colorectal screenings

**Prediction?** I predict that the percentage of patients notified of screenings will increase through our focused intervention to increase awareness for screenings. This will be especially true for patients who are not coming in regularly for visits, as they are most likely to miss screenings.

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

Creating a process to implement in such a small practice with limited staff (one MA, two RNs, and physician) was challenging. Given the existing system involving both paper documents and a web-based EMR, it was not feasible to introduce a new notification process with such limited person-power. Instead, we decided to change course by providing new information to patients about colorectal cancer screening, including a reminder about the free fecal occult blood test they could receive in the clinic as part of the clinic membership, while also collecting survey information. The new intervention would both be informative while also alert patients of a screening tool they may not have been aware of.

One problem that did arise was that patients did not complete the entire survey, often only answering the first two questions and leaving the “fill in the blank” and last question blank (after the information on screening). The information provided on the pamphlet was in paragraph form, so it is unclear whether patients were deterred from reading it because of perceived length.

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

When surveyed about barriers to colorectal cancer screening, “no barriers” (46%, 11/24) and “not a priority at this time” (21%, 5/24) were the top 2 most common survey responses. Cost was only the 3rd most common survey response, making up 12.5% (3/24) of overall responses and 10% (1/10) of responses among those who had not yet completed a colonoscopy. The percentage of patients up-to-date on colorectal cancer screening increased from 71% to 76%. However, when surveyed about whether the information given to them about screenings changed their opinion about it, 15% (3/20) responded “yes”.

**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)*

For the next cycle, I would change how the information was provided. Using bullet points may have been more digestible, and also using enticing graphics or colors could have drawn patients in more. The information itself focused on data about how effective each screening tool was. However, based on our survey results, it appears that lack of information is not a common barrier for patients. Instead, lack of priority is. I think information in an updated pamphlet needs to speak to why this should be a priority by age 50 and beyond. My plan would be to the following: 1) print on a nice, laminated paper, 2) include pictures, diagrams, and bullet points, 3) address the timely importance of beginning screenings. Also, although most practices receive pamphlets from the manufacturers of the iFOBT kits, having a centralized resource for private practices such as this could be helpful in disseminating information.

Adapted from the Institute for Healthcare Improvement

# **Bridging the Gap: Guidelines for Planned Community Births to Hospital Transfers**

## **PDSA Worksheet**

### **Bektu Solomon, MS3**

#### **BACKGROUND:**

While the vast majority of births still occur in hospitals, over the last 15 years there has been a steadily growing upward trend in the prevalence of community births across the country. More and more women are choosing to receive their obstetric care at birth centers and from midwives in their homes. Despite this trend many hospital systems in the US have yet to implement guidelines and protocols that facilitate greater collaboration between models of care. Currently community births are associated with greater perinatal mortality in the United States. However, there several other high resource countries, such as the Netherlands, in which community births are much more common and integrated into the healthcare system and are associated with mortality equivalent to that of hospital births.

Transfers from community to hospital births in the intrapartum period are associated with significant risk (ACOG, 2017). There are currently no formal transfer guidelines for community to hospital births being used by UCHealth hospitals in Colorado Springs. The development and implementation of such guidelines would not only help decrease risk, but it would also be a step towards creating a more collaborative and integrated birthing system in the Springs.

#### **AIM STATEMENT:**

The aim of the project is to assess the perceived need for transfer guidelines and determine willingness amongst hospital providers to collaborate with community providers to execute them.

#### **MEASURES:**

The survey and focus groups will assess perceived need for transfer guidelines and anticipated barriers to implementing them. Several months to a year after the implementation of transfer guidelines, another survey and set of focus groups will assess perceived impact of the guidelines and potential areas for improvement or growth.

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

The change will ultimately be the transfer guideline itself. Additionally, the discussion the guideline will hopefully facilitate a culture of collaboration amongst the different provider groups.

#### **STAKEHOLDERS:**

- UCHealth ObGyn Hospitalists
- Community Birth Providers (CPMs, CNMs, DEMs, etc.)
- UCHealth Hospitals
- Free-standing Birth Centers
- Patients and patient families

**PLAN:**

- Needs assessment survey
- Provider Focus Groups discussions

Our needs assessment will function as a pre-intervention survey and several months to a year after the guidelines are implemented, another survey can be distributed assessing perceived outcomes. Given the evidence in other communities across the country, we expect providers to perceive transfers as being much more streamlined and effective.

**DO:**

- Conversations with providers revealed significant interest in guidelines
- The survey received a robust response and aligned with our expectations
- Significant logistical barriers to collecting baseline data regarding current morbidity and mortality in community birth to hospital transfers

**STUDY:**

- The data showed that over 2/3rds of survey respondents (ObGyns at UCHealth) see a need for transfer guidelines
- Attempts to implement some kind of consistent guideline for transfer in the past failed due to lack of buy-in
- Some community birth providers expressed openness to the possibility of guidelines
- The development of transfer guidelines needs to be collaborative to be successful. There are recommendations from national organizations that can be used as a foundational framework.
- A consensus or near consensus on the guidelines would be required to achieve the level of buy-in necessary to make a significant impact on patient outcomes.
- The possibility of increased hospital liability with the implementation of these types of guidelines might lead to some institutional pushback

**ACT:**

A series of meetings should be held that include both community birth Providers and UCHealth ObGyns that have already expressed interest in developing transfer guidelines and a willingness to collaborate. The focus of these meetings should be to: 1. establish common goals and 2. develop transfer guidelines that work to achieve those goals (with existing transfer guideline recommendations as models). The guidelines developed in these meetings would then need to be presented to the rest of the providers to present opportunities to edit and discuss.



# Colonoscopies Close to Home: Family Medicine Providers Reduce Screening Disparity

## PDSA Worksheet

Vikasini Mahalingam, MS3

**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?)*

Members of rural communities are more likely to experience colon cancer that could have been prevented were a colonoscopy performed (Chow et. al., 2015). This project aims to evaluate the quality (adenoma detection) of colonoscopies performed by primary care physicians in an attempt to improve access to colonoscopies within the context of a trusting, community relationship. The study will ultimately compare primary care provider performed colonoscopy quality against those performed by specialists. In this case, I will be contributing to a statewide study and perform chart review of my rural preceptor's scope data. In addition, as a rural-track student, I will be working with my preceptor for 8 total weeks gaining insight into and improving community literacy regarding strategies for colon cancer prevention. This project capitalizes on the unique skills/ capabilities of the family practice physician (long term relationships, trust building, preventative care) and can encourage future FM physicians to become trained in a vital skill that can improve long term health outcomes directly. Improves colon cancer prevention means literal lives saved!

**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.)*

To demonstrate an adenoma detection rate of >25% over a 4 month period of time. This data will confirm and corroborate the notion that primary care physicians provide effective and safe colonoscopies, thus meeting a need in underserved populations, and eventually incentivizing colonoscopy certification to rural family medicine residents

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

Adenoma detection rate- this is calculated by determining the total number of resected lesions determined to be adenomas and dividing it by the total number of colonoscopies performed

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

As mentioned earlier, I will be collecting data which determines the efficacy of colonoscopies performed by PCPs and will measure those data against typical ADRs in other specialties and at large referral centers. This is going to influence the medical community's notion of who should be certified in colonoscopies and ultimately, can reduce mortality in communities that have historically had reduced access to quality colonoscopies because of a shortage of specialists in their area.

**STAKEHOLDERS:** *(A stakeholder is anyone who has an interest in a project and can influence its success or failure.)*

Dr. Charles Anthony Gerk, Dr. Jaime Baker, the CUSOM COSMIC LIC, my loved ones, the town of Sterling, CO, Northeastern Colorado Family Medicine, and me!

**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.)*

Who- The 31 patients who had a colonoscopy performed by Dr. Gerk between October 2020 and January 2021. What- determining the following from their data: tubular adenoma/ tubulovillous adenoma number, sessile serrated adenoma number, total adenoma number, size of largest adenoma, if carcinoma was found, whether the indication was screening, surveillance, or something else, patient sex, and whether they were aged 45 or older at the time of their scope. I will measure the adenoma detection rate for that four-month period as described above. My prediction is that the ADR will be at or higher than the national average for family practice physicians.

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

Several unexpected difficulties surfaced while in the weeds of collecting data. I was initially unable to retrieve the right set of patient names and instead had a collection of patient names who all had zero adenomas, then I manually retrieved each name by using the calendar function in the EMR. This resulted in several missed cases who were simply not in the family medicine practice EMR, but instead in the hospital OR EMR. Eventually, I was able to gather chart information on the right patients. The reporting was less cumbersome than I anticipated. By keeping my objective simple and refined (just ADR), I could successfully report my findings without forcing myself to investigate more than time permitted while still feeling connected and committed to a project that, I believe, reflects lives saved.

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

Dr. Gerk's ADR over a 4-month period was 40.6% and demonstrates consistency with national provider averages at major referral centers and is additionally greater than all ADRs by specialty as reported by national indicators of colonoscopy quality and safety.

**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)*

Currently, I'm gathering the rest of the year's data and performing further chart review. Annual ADR data from 2020 will be reported to a national census of ADRs by PCPs. This will provide critical, updated, FP colonoscopy performance measure data to the medical community.

# Combating loneliness in COVID-19 inpatients: A novel pilot program

PDSA Worksheet

Jacob Leary, MS3

**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?)

Patients with COVID-19 are presently unable to have visitors during their inpatient stay at Memorial Central hospital as a result of infectious disease isolation protocols. This project is of interest to me because I feel that loneliness is one of the worst feelings to endure in the human experience, and a great deal of science supports the fact that loneliness and social isolation contribute to poor health outcomes. Prior studies have shown the psychological burden that prolonged inpatient stays can place on patients, and this is exacerbated when patients are placed on isolation without human contact aside from essential healthcare personnel.<sup>1</sup> Among the challenges posed by this situation are increased feelings of hopelessness, loneliness, and symptoms of depression and anxiety, as well as higher rates of medically-induced trauma and lower patient satisfaction scores.<sup>2-4</sup> It seems logical that patients with a given disease may understand the experience of that disease better than others who have not dealt with the same illness, allowing for a unique opportunity to connect with others who have gone through the same experience. This issue is important because patients may have a greater frequency of prolonged symptoms and a higher rate of adverse outcomes if they have the added burden of social isolation in addition to their struggles with the COVID-19 illness.

**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.)*

The aim of this initiative is to provide a virtual inpatient support group to COVID-19 inpatients that will reduce patient-reported feelings of loneliness, and increase patient-reported levels of social support, by 20% each between October 1<sup>st</sup>, 2020 and April 8<sup>th</sup>, 2021.

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

Before and after to participation in the support group, we will collect the following:

- Loneliness Scale
- COVID-19 Survey (designed by our team)

These measures are to be collected in order to determine pre- and post-intervention psychological status surrounding each patient's COVID-19 diagnosis and associated hospitalization. The purpose is to be able to compare these responses after patients have participated in the intervention in order to determine whether the intervention has been effective in its purpose of improving the inpatient experience.

**CHANGE(S):**

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

We will provide once weekly virtual inpatient support group sessions that will last one hour in duration, administered by myself in tandem with a member of the Memorial Central behavioral health staff. Patients will be given the opportunity to speak and connect with other patients going through the same illness with COVID-19, which they have not yet been able to do during their hospitalizations. In providing these groups, we will be giving patients a new social outlet as well as an opportunity to express their feelings about their illness, while also providing a platform for them to use to feel heard and hopefully understood by their fellow patients.

**STAKEHOLDERS:** (A stakeholder is anyone who has an interest in a project and can influence its success or failure.)

COVID-19 inpatients on floor units (not ICU), internal medicine physicians caring for these patients, nursing staff, infection control staff, Risk Management staff, Legal Department, Privacy and Security staff, medical student (myself), Behavioral Health team, patients' loved ones

**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.)*

The eligible population will include all adult patients, at least 18 years of age, admitted to the COVID-19 floor units with confirmed COVID-19 infection. Patients must be English- speaking to participate in the support group as this is the language in which the discussion will be held.

1. Patient Consent
  - a. Patients admitted for COVID-19 infection will be informed of the support group by nursing staff at the time of their arrival on the inpatient floor. They will be offered an electronic waiver which must be signed and electronically submitted prior to any participation in the inpatient support group.
2. Inpatient Support Group Logistics
  - a. The group will run once weekly for one hour in duration, and will be co-facilitated by Jacob Leary (MS3 student) and a representative from Behavioral Health (Social Work or Psychiatry).
  - b. Patients will be asked to use their personal electronic devices to connect to the virtual support group, which will be conducted using Microsoft Teams. A link to the Teams meeting will be emailed to all interested patients prior to the start time of the group. For patients reporting that they do not have a device that can be used to connect to the Teams meeting, Windows Surface or iPad devices provided by the COVID-19 unit will be available on a first-come, first-served basis while supplies last. Additionally, headphones will be supplied to patients to facilitate

hearing the group discussion in negative pressure rooms. Established infection control protocols on the COVID-19 floor units will be used to sanitize shared electronic devices after each use.

- c. Participation is entirely voluntary.
- d. The group facilitators will use a pre-prepared list of questions to generate discussion among support group participants. Patients will have the opportunity to briefly share their personal story with COVID- 19, and the discussion will then center around the questions and talking points posed by facilitators.
- e. Groups will follow the same format each week in order to allow all members an equal opportunity to participate, regardless of length of hospital stay.

### 3. Collection of Outcome Measures

- a. Approximately 1 hour prior to the start of the inpatient support group each week, all COVID-19 inpatients who have consented to participation in the group will receive web links to the COVID-19 survey and Loneliness Scale via encrypted email. Patients will be asked to complete these measures prior to the start time of the support group.
- b. All outcome measures will be collected using the Qualtrics electronic survey tool.
- c. The same set of outcome measures will be sent to patients immediately following the end of the inpatient support group and patients will be asked to complete these within 24 hours post-group. On the day of discharge, we will again send these outcome measures to patients, to be completed prior to discharge.

### 4. Patient-to-Patient Contact Outside of Groups

- a. At the end of each session, patients will be given the opportunity to exchange contact information with one another if desired. This is to facilitate communication outside of the scheduled support group each week as some patients may wish to connect on a more personal level.

- Meet with Risk Management and Privacy teams to ensure proposed plan is in line with hospital policy and contains protections for both patients and the hospital.
- Secure Windows Surface devices from grant for COVID-19 as discussed with Lisa Kidin, and iPad devices from the neuro service line (Dr. Samer Haider) for use by patients for the support group each week.
- Secure headphones with microphone capabilities to address noise of negative pressure rooms, as discussed and planned to be ordered by Pat Robbins via the COVID-19 grant.
- Meet with Behavioral Health Friday 9/4/2020 to discuss plan moving forward for content of support group discussions and meet staff assigned to assist me in facilitating the group.
- Complete COMIRB QI proposal application within 2 weeks and submit to the IRB for approval of this project.

**Prediction for Outcome:** My hypothesis is that patients will report higher levels of feeling connected to others going through the same experience, higher levels of self-perceived

social support, and lower self-reported levels of loneliness after participating in the inpatient support group at least one time, as measured by outcome scales given immediately post-group and on the day of discharge.

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

Beginning in late October 2020, we ran two trial runs of our intended support group. Members of the behavioral health (BH) and chaplaincy teams supported the project significantly, with chaplains handing out consent forms and pre-surveys to patients and passing out iPads on which the patients would log into Zoom to participate in the virtual support group. Chaplains Rochelle Bruhn and Christopher Keith were essential as they helped to ask patients to participate and assisted them with setting up the iPads to facilitate logging into Zoom and being ready for the meeting. BH staff including Michele Armstrong and Lesley Gallacher were helpful in developing with me the 5 main questions to be asked in the support group, which were as follows:

1. How has this illness affected your life? What has been challenging or difficult?
2. How have you been coping with your illness?
3. Have you been able to stay connected to others (family and friends) or feel supported at this time?
4. What has been your experience with hospital staff?
5. What do you think will be different about your life when you are discharged? What difference might this COVID experience make in your life moving forward?

BH staff also ran the support groups during our trial runs. Michele Armstrong facilitated the group and asked patients the questions above. Open discussion was encouraged with each question and the conversation was free to go in whatever direction felt best for those patients, with the questions being asked intermittently to retain some consistency between each group. During the first two attempts at running the group, significant challenges with use of technology, especially for older patients, were encountered along with major resistance from patients toward participating at all. Many people said they were too exhausted to participate or too short of breath to hold a conversation, posing a major logistical challenge due to the illness itself. Several patients initially agreed to participate, only to become overwhelmed when they realized they had to read and sign a consent form to join. They quickly changed their minds and declined participation. There were several more patients who signed consent, but the process of getting the iPad set up tired them out and they changed their minds and didn't participate. A few more patients consented earlier in the day, and then when it came time to participate in the group, they were too fatigued and changed their minds. Finally, having multiple surveys was extremely burdensome for patients, and they would tire of filling them out and refuse to complete the rest or complained that there were too many questions. For the first trial run, we ended up having only a single patient who got on successfully to Zoom and we ended up speaking with him alone with myself and Michele from BH. This was not the intended support group format as he was unable to talk with any other COVID patients to discuss their shared experiences. In the next group, two patients successfully got on but found they were very different from one another and had nothing in common, making for what felt like an unproductive conversation. At that point, BH and chaplaincy staff voiced concerns about continuing to put in so much effort and time to consenting patients and setting up Zoom and passing out iPads

in the face of increasing clinical responsibilities with a very busy inpatient hospital during COVID.

We reevaluated how to proceed, and I suggested conducting 1:1 patient interviews at the bedside rather than holding a group format since that simply was not working. In doing so, we would be working in tandem with the chaplains' job responsibilities, which were to visit patients at the bedside anyway. We also decided to cut out the UCLA Loneliness Scale, as most of the questions did not seem directly applicable to our patients with COVID and we needed to reduce the burden of questions asked of patients. All were in agreement that this would be a good path forward. Each team member was assigned a few patients at the beginning of every week, and they were free to see them any day of the week while they were working to conduct the pre-survey and the support chat. They would leave a post-survey behind and return the following day to collect it, asking patients to fill the survey out the next morning so that some time would pass between the discussion and survey completion to allow for reflection. However, this too proved challenging as some patients were willing to complete the survey right away after the conversation but did not want to have to complete it later. Chaplains permitted this and as such, we shifted to allowing patients to complete the post-survey anytime after the group until the next morning when the surveys were collected. BH quickly became too busy with their patient load to regularly participate, so it was down to Christopher, Rochelle and myself as the primary interviewers providing support chat services for the project.

For each patient, we would introduce ourselves, ask their permission to speak with them about their experience with COVID as part of a project to better understand the COVID experience, and then would verbally consent them to participate. The pre-survey was read aloud to patients and they were asked to rate their agreement with each statement from 1 = strongly disagree, to 5 = strongly agree. Following completion of the pre-survey, interviewers were free to open discussion to topics of their choice relating to what it seemed patients needed in that moment in order to build rapport. Once rapport was established, the five questions originally designed for the support group model were asked of each patient. This generated significant discussion in most cases. On average, these visits lasted between 25-45 minutes per patient depending how talkative they were or how much support they needed. Some visits stretched to an hour in duration, but the conversations were always very meaningful. At the natural end of each chat, we asked each patient to complete a brief post-survey and ideally to wait at least a few hours to complete it to allow for some reflection and time in between surveys. They were told that the survey would be collected the next morning. In total, we had 30 patients fully complete the study. An additional 4 patients were interviewed who did not complete the post-survey and were thus excluded from the study. Data collection and patient support chats were completed by April 8<sup>th</sup>, 2021.

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

Demographic data for the project are summarized as follows:

Gender: 13 M (43%), 17 F (57%)

Average age: 63.8 years

Racial self-identification:

- White = 18 (60%)
- Black/African-American = 2 (7%)
- Asian = 2 (7%)

- Other = 4 (13%)
- Prefer not to say = 4 (13%)

Pre-survey questions and the first four post-survey questions were the same to allow for assessment of change in responses from before to after the support chats. Average responses for pre- and post-surveys were as follows:

1. I feel alone and isolated.
  - a. Before = 3.87
  - b. After = 3.33
2. I feel like I have had a good support system while I have been in the hospital for COVID-19.
  - a. Before = 3.4
  - b. After = 3.7
3. I believe that other people with COVID-19 are experiencing similar issues to what I have been going through.
  - a. Before = 3.87
  - b. After = 3.90
4. I feel a sense of connection to other people who are also dealing with COVID-19.
  - a. Before = 3.53
  - b. After = 3.72

The following questions were additional questions only asked at the time of post-survey:

How many support chats have you participated in?

- a. Average number = 1.67 (range = 1-3 with chaplains)

Do you feel like talking about your COVID-19 experience with us helped your worrying or anxiety? (Circle Yes or No)

- a. Yes = 26 (87%), No = 4 (13%)

5. I am worried about what will happen to me.
  - a. Average response = 3.77
6. I am afraid I might die from COVID-19.
  - a. Average response = 2.87
7. I am hopeful that I will fully recover without any long term problems from COVID-19.
  - a. Average response = 3.87
8. I feel that my time in the hospital has been positive while being treated for COVID-19.
  - a. Average response = 4.27

Though official statistics have not been run, there was a 14% decrease in feelings of loneliness after the support chats and a 9% increase in patient's subjective perception of good social support while suffering from COVID-19. There was also a minor increase in feelings of connectedness with other COVID patients between the before and after time points. These shifts were modest, yet indicate that patients did benefit emotionally from our intervention and it achieved the goal of decreasing feelings of loneliness and increasing perceived social support overall. It is likely that changing the format from a support group to individual support chats played a major role in failing to achieve the 20% target for change in responses over time in each of these domains, as a group likely provides more social support for patients and would have felt less lonely than having just a 1:1



conversation, one time. It was also variable as to the number of support chats that patients reported having with chaplains, which likely plays a confounding role in the overall data interpretation. It's likely that patients who had more chats felt better supported and less alone. There was a significant degree of variation between patients in terms of how alone and how supported they felt. Some had many people calling and checking in on them, but still reported feeling very alone. Others reported being more introverted or loner types and denied feeling alone despite feeling as though they didn't have significant social support. It has been reported in the literature that loneliness is a subjective perception, wherein two people could feel very differently about how lonely they are with the exact same amount of strong social support. This likely relates to personality type and the degree of social connection that each person as an individual desires.

It is also interesting that patients had very mixed feelings on whether they felt connected to other COVID-19 patients. Many reported feeling that they were "all in this together" and that they figured others were suffering similarly. However, there were several patients who felt that they must be experiencing the worst symptoms and that other people likely did not understand. Multiple patients reported that they would have no idea how other COVID-19 patients were faring because they hadn't had the opportunity to speak or connect with others suffering from the illness – this was something they hoped to be able to do at some point, even if after their hospitalization ended. In fact, many patients reported that they would love to participate in a post-discharge support group to process what they had gone through and to connect with others who had gone through the same experience. This is something we noted and will be considering for the future.

One of the most positive things to come from the initiative was that patients reported feeling less worried and anxious after speaking with our team during the support chats. Many people were very worried about their prospects for the future, even if they were faring relatively well in terms of their disease course overall. They confided significant anxiety to us as we talked, and we made an effort to ensure that we encouraged them and praised them for staying strong and resilient in the face of tremendous adversity with such a new and mysterious illness that we knew so little about as a scientific community. We validated their fears of the unknown but made sure to end every conversation on a positive note, in which we encouraged continued positivity and hope and applauded their resolve thus far in fighting through the disease. I do believe this was beneficial in making people feel stronger and a bit more hopeful overall as we strived to recognize all they had been through and reassure them that they were very brave and strong for even making it to this point.

With 87% of people agreeing that they felt less anxious about their disease after talking with us, I consider this a major positive highlight of our initiative.

Finally, it was interesting to note the near consensus on agreeing that their experience in the hospital had been overall positive with COVID-19. This question achieved an average response of 4.27, making it the most highly rated question overall. Most patients were extremely grateful for the hospital doctors, nurses, and other staff who they reported were "wonderful" and had done a great job of caring for them throughout their stay. There were only a couple of patients who had any complaints whatsoever about hospital staff – most said their teams had been amazing. Likely this mostly positive response rating is attributable to a great hospital staff team, but it is possible that since this question was asked on the post-survey, patients may have been reflecting positive feelings from having access to the support chats we provided as well. Due to the question only being asked on the post-survey, it is not possible to tease this out from the data we have available. However, since it is possible that the support chats were beneficial to overall patient satisfaction, hospitals may have something to gain by employing these types of services to benefit patient wellbeing and by association overall patient satisfaction scores. As these have

become a driver of hospital reimbursement dollars and patient choice of where to have their care provided, it is worth taking this type of intervention into consideration as a future service to ensure that patients have access to as part of their inpatient stays – especially those who are physically isolated from other patients and visitors.

**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)*

When considering what changes might be made to the plan for the next cycle, a few do come to mind. First, I would make sure to ask the question about patient satisfaction with the overall hospital experience from the post-survey in the pre-survey as well to determine how influential the support chats are on patient satisfaction. This would provide more robust information that could hopefully be used to argue in favor of implementing more of these types of services in the hospital setting, whether for COVID-19 or other disease states more generally. Another thing that I feel would be overall beneficial is if this could take more of the shape of a group, in order to allow patients to achieve and feel that sense of connection to others who are going through the same experience. From our conversations, many patients felt alone even with good social support networks checking in on them because they felt that unless someone had gone through COVID, they didn't really know what it was like. It was hard for these patients to describe just how terrible and harrowing the experience was as they were going through it and they felt poorly understood by others, including their loved ones. There was a degree of feeling "other" or ostracized, and a guilt that was reported about spreading it to one's family or other social contacts that made them want to isolate to protect the ones they loved. For this, a group could be very beneficial, but we ran into the challenge of too few people wanting to participate to make a group possible. Thus, I think for the next cycle of this project, I would continue to recommend individual support chats to provide an emotional and social outlet for patients, but would alter this by having all chaplains and BH staff, as well as hospital volunteers and medical students in the CSB program, trained to conduct these conversations and would mandate for students that they had to do at least 3 of these each in order to complete their CSB LIC requirements. The goal would be to increase access to these chats to all eligible patients. As a result of variable staff schedules and my own very busy clinical schedule, there were some eligible patients who were not given the opportunity to have a support chat because we did not get to them in time before discharge. I would love for this service to be offered to every single COVID patient who was admitted to Memorial Central, and ideally to Memorial North as well. In addition, virtual post-discharge support groups were desired by patients and are something that could feasibly be created by BH and the chaplains to help discharged patients process through the trauma of such an anxiety-provoking illness and hospital course. I would like to implement these for the next cycle to give patients another outlet through which to feel supported and connected to others, even if it is not during the direct inpatient time period which had been the initial goal of this project. Overall, my intention is to reduce the isolation and loneliness caused by a COVID-19 diagnosis, and increase patients' perceptions of social support and connection to one another, which I feel post-discharge support groups would help to continue providing.

Lastly, I learned such a great deal about patients, the COVID-19 inpatient experience, and the disease itself by speaking one on one with these patients. In fact, I feel that some of the learning was significantly more than I have learned in my time in the classroom studying various diseases. I do think there may be some value in medical education incorporating 1:1 patient conversations as part of the curriculum to better understand the lived experience of

patients who have a certain diagnosis. I don't believe this would need to be limited to COVID-19, but could be generalized to any disease state being learned about in the classroom. Our clinical rotations during third year do provide exposure of this nature, but not dedicated time to sit and talk with a patient about their experience like we were able to do with this project. I think so much more can be gleaned through these uninterrupted, non- time pressured conversations about a specific disease state, and it provides patients a great service to really be present and listen to them talk about what it's like to live with their disease. I would like to pose this idea to our administration at CU and think it could be beneficial to medical education in the U.S. as a whole.

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# **Destigmatizing Suboxone: Implementing MAT (Medication-Assisted Therapy) at Evans Army Community Hospital**

PDSA Worksheet

Alyssa Hill, MS3

**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?)

My project will be to help start a Suboxone program at the Ivy Clinic at Evans Army Community Hospital. There are members of the clinic who are already interested in and would like someone else to help them figure out a treatment protocol for this program. We would like to have an initiation into the program that provides patient education about Suboxone and what the treatment will entail. This project interests me because I am very interested in addiction medicine and previously worked with a preceptor who offered medication assisted therapy at her clinic in Denver, so I've had experience working with this patient population. This program will be for both veterans family members of active duty members, who previously had a fee-for-service option for getting treated with Suboxone, which was a deterrent to many patients.

**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.)*

I aim to help start up a Suboxone clinic for non-active duty members at the Evans Army Community Hospital in the Family Medicine Ivy Clinic.

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

I will interview patients before and after they start Suboxone and also see how much Suboxone is helping with their chronic pain.

**CHANGE(S):**

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

I am going to change the options of treatment for opioid use disorder at the clinic by helping implement the Suboxone program.

**STAKEHOLDERS:** (A stakeholder is anyone who has an interest in a project and can influence its success or failure.)

Dr. OBW (my preceptor), pharmacist, psychologist, veterans, military dependents, Tricare insurance which is paying for this

**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.)*

My plan is to work with multiple providers (my attending, pharmacist, psychologist) at the Ivy clinic to help them start their Suboxone clinic. My plan is to, once patients have been identified, help initiate them into the program, by providing them with education about Suboxone and the program, and then leading their initial meeting and induction as well as follow-up meetings. Before starting the program, I will meet with my family medicine preceptor in Denver who is certified to prescribe Suboxone to discuss what Salud Clinic's treatment protocol is to give ideas to the team that is designing this program. I will potentially collect data from the patients about how helpful the education was when they started the program. I predict the program will fill a need in a population that doesn't have a lot of options for treatment of opioid use disorder. I also think that by offering education upfront about the program will increase patient's likelihood to stick with the treatment plan.

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

Something I realized was that I was hoping to make this available to active-duty members, but I learned that they aren't allowed to be prescribed Suboxone because they are non-deployable on a long-term opioid.

Being involved in the inductions was an amazing process and learning how to find the right dose for each patient and watching their improvements over time was really exciting. I also found that there was a lot of stigmatization of Suboxone coming both from the patients who were unsure if they wanted to be on it, as well as some providers whom I spoke to about my project.

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

When I helped get these patients started on Suboxone, I noticed that their chronic pain was relatively well-treated. I was wondering if Suboxone could ever be used as a safer way to use opioids for chronic pain. I also noticed that a lot of goals and hopes they had before starting Suboxone ended up working out well for them.

**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 am excited for more patients with opioid use disorder to be part of this program after I leave!

Next steps would be doing research about the prevalence of Suboxone MAT Programs in primary care clinics and attempting to provide information to primary care clinics in the area that it is possible to have this type of program in primary care.

I would also like to do further investigation into how much the stigmatization of Suboxone is prevent patients from seeking treatment, as well as more opportunities for providers to learn more about Suboxone, since, in doing this work, I learned there is also stigmatization of this medication from the provider standpoint.

Adapted from the Institute for Healthcare Improvement

# **From Plains to Peaks: Implementing a Regional QI Process for EMS Agencies in Eastern Colorado**

## **PDSA Worksheet**

Adriana Buliga-Stoian, MS3, Maggie McGing, MS3

**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?)

By state law, all EMS agencies have to have a QI process that insure that standards of care in pre-hospital settings are met, and that support and resources are provided when necessary to improve the knowledge and skills of pre-hospital healthcare providers, EMTs and Paramedics. This process is based on peer-review, but cases can be referred to the medical director for further clarification and education opportunities. However, agencies have a lot of discretion on how they set up the process. Larger agencies can hire dedicated staff for the process, while smaller agencies have hospitals to provide QI assistance. Other still, smaller, rural, volunteer services, find it difficult to dedicate the resources and people to consistently review calls and provide training opportunities. This aims to help such agencies set up a QI process that is both efficient and provides the feedback their members need in order to improve the quality of care they provide to patients in pre-hospital settings.

The project involves helping establish a unified QI process for the EMS, Fire, and Law Enforcement agencies part of the Plains to Peaks Regional Emergency Medical and Trauma Services (P2P RETAC). For this project, I will work under the supervision of Dr. Jeremy DeWall, Regional Medical Director for P2P RETAC, and collaborate with Maggie McGing, MS3 in University of Colorado, Colorado Springs Branch. Dr. DeWall and I have met several times in the past couple of months to discuss the project and I have met the P2P RETAC team who has been working on developing regional QI projects for the agencies in their jurisdiction.

**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.)*

The goal is to have at least 50% of agencies in the region use these forms to review cases and report data on standard of care rendered in pre-hospital setting.

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

1. The number of agencies that use the forms to guide their QI review of pre-hospital cases
2. We will develop a formal and informal means of gaining feedback on how well the forms serve the needs of individual agencies and how the process can be improved.

**CHANGE(S):**

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

As a first step in the larger process, we will begin by setting up a set of standard forms that peer-reviewers can use when evaluating pre-hospital cases. These fill in forms should be easy to fill out as the reviewer reads through a ambulance run report and should generate some descriptive data that can easily be reviewed by the agency in question and the medical director.

As of right now, the plan is to create forms that cover Basic Life Support (BLS) services rendered within the following areas of patient care: Chest pain/Cardiac complaints, Respiratory complaints, Trauma, Refusal in the field, Behavioral/ETOH/Psychiatric Emergencies, and COVID Regional Questionnaire.

**STAKEHOLDERS:** (A stakeholder is anyone who has an interest in a project and can influence its success or failure.)

1. P2P RETAC coordinates pre-hospital care across 5 counties (<https://www.plainstopeaks.org/wp-content/uploads/2014/04/13-P2P-Map1.pdf>). The committee itself is a major stakeholder and one of the main players that, under the direction of Dr. DeWall, are spearheading this effort.
2. Heads of EMS, Fire, and Law Enforcement agencies within each county under the leadership of P2P RETAC (<https://www.plainstopeaks.org/>)
3. Quality Management Committee members, most members of individual agencies within each district, who will be reviewing the data collected through these forms
4. Peer-reviewers within each agency who will review calls and provide feedback to individual healthcare providers involved in the cases
5. Emergency Medical Technicians (BLS level) who provide patient care in pre-hospital settings whose training will be enhanced by the feedback provided through this process.

**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.)*

- Create the forms in Microsoft Teams and make them available to agencies for review and later use:  
September 15
  - Maggie McGing: COVID Questionnaire, Respiratory complaints, Refusals
  - Adriana Buliga-Stoian: Chest Pain/Cardiac Complaints, Trauma, Behavioral/ETOH/Psychiatric Emergencies
- Present the forms and pilot data at RETAC meeting: September 21
- Collect, analyze, and present the data collected: October (date TBD)
  - The number of agencies adopting the process
  - Number of cases reviewed per agency
  - Number of compliance issues identified through the process
  - Satisfaction with the process

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

We have had 6 agencies consistently use the forms we created and others are set to adopt them.

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

The feedback we received from the agencies who adopted the project has helped us refine the forms and the process.

**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)*

Based on the feedback we received, we will be moving to adding ALS forms.

Adapted from the Institute for Healthcare Improvement

# Helping to OEND the Opioid Crisis: Naloxone Co-Prescriptions in a Military Primary Care Setting

## PDSA Worksheet

Alysa Edwards, MS3

**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?)

Opioid misuse and overdose is a widespread problem that may be prevented and treated by health care providers. As a medical student interested in Emergency Medicine, I want to learn about substance use disorders (SUDs) and the steps that can be taken to prevent SUD related emergency visits. After my experiences with the CU Urban Underserved track, I think Narcan, when provided with the appropriate education, can be a powerful tool to help patients. After discussing Narcan co- prescription, I would like to understand how or if co-prescription occurs in the primary care setting.

While opioid use and overdose in the military is low compared to civilian rates, rates are increasing and still affect a significant portion of active duty service members or veterans. In 2019, the Opioid Overdose Education and Naloxone Distribution Program (OEND) was established to increase prescription of naloxone and reduce opioid related deaths throughout the Military Health System. Unfortunately, implementation and results across military installations has varied.

**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.)*

- Increase provider comfort in prescribing Narcan to patients receiving long-term opioid therapy by 25% at the 10<sup>th</sup> Medical Group primary care clinics over a 6 month period
  - Increase the rate of Narcan prescriptions prescribed concurrently with an opioid prescription by 10% over a 6 mo period at the 10<sup>th</sup> Medical Group Internal Medicine Clinic (Secondary Aim, depending on data availability)

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

- Self-reported provider understanding of the benefits and risks of Narcan
- Self-reported provider comfort in prescribing Narcan and education patients on its use
- Number of Narcan prescriptions prescribed concurrently with opioid prescriptions (depending on data availability)

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

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

- Design and deliver a training for primary care providers at the 10<sup>th</sup> Medical Group with the following objectives:
  - Benefits and risks of Narcan co-prescription
  - Indications for co-prescription
  - Appropriate administration of Narcan (Provider Level)
  - Talking with patients about Narcan

**STAKEHOLDERS:** (A stakeholder is anyone who has an interest in a project and can influence its success or failure.)



- US Air Force
- Colorado Springs Community and EMS services
- USAFA 10<sup>th</sup> Medical Group Primary Care Providers (PCPs)
- USAFA Patients and Family Members

**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.)*

- With the help of Dr. Mudroch and the clinic pharmacy staff, identify how Narcan and opioid prescriptions are recorded in the EMR and if such information is accessible for this project (October-November)
  - Compile list of patients receiving long-term opioid therapy, type of opioid, and presence of Narcan prescription
  - Analyze current opioid and Narcan prescription practices at the 10<sup>th</sup> Medical Group
  - Compare how providers prescribe Narcan and the rate of co-prescription,
- Create a questionnaire for providers to identify barriers to co-prescription and assess provider knowledge on co-prescription (October)
- Administer questionnaire to providers in the primary care clinics at the 10<sup>th</sup> Medical Group (October-November)
  - Identify barriers to prescribing
  - Assess current provider knowledge and comfort with co-prescribing
- Prepare and deliver a presentation for providers on Narcan co-prescription at clinic monthly trainings, weekly huddles, and/or lunch meetings (November)
  - **Consider recording presentation, talk with Dr. Mudroch**
    - **Can this be done for patients- Narcan training**
  - Collect research on the efficacy of co-prescription
  - Look at other co-prescription or Narcan training resources on effective teaching styles
  - Create a Narcan “practice kit” to help providers get more comfortable using Narcan
  - Practice and refine presentation with the Internal Medicine clinic providers (Dr. Mudroch)
- Re-assess provider knowledge on co-prescription using a modified questionnaire (March)
- Collect data on opioid and Narcan prescription practices following the intervention (March)
- Analyze data (March-April)
  - Compare changes in provider knowledge and associated prescription practices pre- and post-intervention

Predictions:

- A majority of primary care providers (PCPs) at the 10<sup>th</sup> Medical Group do not currently co-prescribe Narcan for patients receiving LTOT and/or PCPs do not currently co-prescribe Narcan for a majority of patients receiving LTOT

- Barriers to Narcan co-prescription include time limits during visits, provider comfort on educating patients, and/or provider doubt in the efficacy of co-prescription
- A brief presentation on Narcan co-prescription may increase provider comfort in co-prescribing Narcan and provider personal knowledge of how to use Narcan
- Narcan co-prescriptions may increase, likely temporarily, after intervention and providers being made aware of their prescribing practices

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

- The 10<sup>th</sup> medical group has a disjointed electronic medical record with >3 distinct programs required to access a patient's complete medical record. CarePoint is the DOD program that collects data on prescription medications, including opioids. Accessing CarePoint is challenging given that few providers have access to or know how to use the system. It was therefore difficult to find personnel that were familiar enough with the program to collect naloxone and high-risk patient data in a timely manner. When we attempted to collect post-intervention data, we found that the person who had helped access CarePoint previously was no longer in his position. While a 10<sup>th</sup> medical group pharmacist did have access to the program, he was not able to collect the data in a timely manner by the deadline for this project. It was also noted that CarePoint was likely 6 months behind actual prescriptions.
- The survey was created electronically and was shared via email. With the military firewall, it was difficult to directly contact providers regarding the survey. Instead, my preceptor, Dr. Mudroch, sent those emails. While initial response rates were high, post-intervention responses were low; providers may have thought the second survey was spam, they were no longer interested in completing it, and/or the survey may have been lost in their inboxes.
- Creating the intervention presentation was an excellent opportunity to explore how the DOD has addressed the opioid crisis and narrow my presentation to my audience. The presentation itself was well-received by attendees who asked several questions and expressed excitement that a medical student was working on this project. I think it helped to have support from higher-ranking providers.

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

- Pre-intervention collection of high risk patients vs naloxone co-prescriptions demonstrated that there were over 200 high risk patients but fewer than 50 naloxone prescriptions given to these patients. This suggests that while the DOD has created OEND, an incredible resource for the military, implementation has varied and there is still room for improvement.
- When naloxone prescriptions were given, 50% were prescribed to retirees, 36% to family members, and 7% (1) to an Active-Duty service member. This is consistent with previous research on naloxone co-prescriptions.
- Physicians were more likely to report feeling extremely or moderately comfortable co-prescribing naloxone compared to physician assistants or nurse practitioners. This suggests that advanced practice providers may benefit from further training on naloxone.
- 86% of all respondents reported being extremely or moderately likely to prescribe naloxone in the future.
- When asked about barriers to naloxone co-prescription, 50% (6) moderately agreed or were neutral on the statement: "I am unaware of which of my patients are on chronic opiates or may otherwise benefit from naloxone". This may result from unfamiliarity with the OEND criteria for co-prescription and/or difficulty accessing this information via the electronic medical record as discussed above.
- Military primary care providers may experience distinct barriers to co-prescription compared to civilian providers who traditionally identify cost and time as the largest barriers to prescription. This is likely a result of longer appointment times at military

centers and insurance coverage through Tricare for all patients.

**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)*

- In a future iteration of this project, it may be helpful to personally learn how to use CarePoint to ensure that data can be collected as needed. Utilizing CarePoint/the EMR was the biggest barrier. A new EMR is being introduced as this project concludes which may make data access easier in the future.
- I think it would be great to try to shorten the survey and try to provide personal links that would anonymously link pre- and post-intervention responses. I think this could reduce survey fatigue (completing the demographics info only once vs twice) and encourage completion. It would also help to personally send the emails to individual providers (distinct links that would allow the above) which may not be entirely possible given the military's firewall/email security.
- The in-person presentation was well-received. I think having more than one session could improve attendance. It was essential to have buy-in from higher-ranking providers and I think meeting with each commanding officer ahead of time could also help. The presentation should also include a more thorough outline of my project.
- It would be interesting to apply this project in different military settings, including the emergency department (ED). Implementation of the OEND program is variable and I think this could be a simple way to prevent opioid overuse across facilities. Given that providers in the ED see a significant amount of opioid misuse and overdose, I would be interested to see how naloxone is prescribed in that setting compared to the outpatient primary care setting.

Adapted from the Institute for Healthcare Improvement

# **Improving ADHD Education in Medical School**

## **PDSA Worksheet**

### **Reilly Quist, MS3**

#### **BACKGROUND:**

ADHD is the second most common pediatric diagnosis after asthma and the most common pediatric psychiatric diagnosis with an estimated prevalence between 8.7% to 15.5%. Due to the shortage of pediatric psychiatrists, primary care physicians are responsible for most of the diagnosis and treatment of children with ADHD. Despite this, adequate training in this topic is lacking. Many pediatric and family medicine residencies focus on inpatient rotations and receive less training in areas like developmental, behavioral, and mental health. Studies show that many primary care physicians continue to believe in common misconceptions about ADHD etiology, diagnosis, and treatment. Up to 2/3 of children who meet criteria for ADHD aren't diagnosed and therefore don't receive treatment or beneficial school services. This is important because untreated ADHD is associated with lower levels of end educational achievement, increased rates of depression and anxiety, divorce, and substance abuse while early and consistent treatment is associated with decreased risk of these comorbidities later in life. By improving education about ADHD we have the opportunity to improve the lives of many children and the adults they'll one day become.

#### **AIM STATEMENT:**

By the end of third year, we aim to improve medical student comfort with and understanding of the assessment, diagnosis, and treatment of ADHD as shown by an increase in score on the pre/post-test following the didactics session.

#### **MEASURES:**

Create a pre/post test/survey to assess improvement in knowledge of ADHD

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

Pre-created ADHD pre-reading materials with additional resources to fill in gaps (medications and their side effects) followed by a virtual didactics session with a short overview of important points followed by a reflection session on interactions with patients who have ADHD, case study discussion, and Q&A session.

#### **PLAN:**

- Determine if a clinical year ADHD curriculum had already been created or if one is needed.
- Identify written pre-session teaching materials
- Prepare case studies, pre/post-surveys, session powerpoint
- Send out pre-session materials (survey and pre-reading)
- Present ADHD didactic session
- Collect post-survey
- Analyze data

Prediction: these interventions will result in some improvement in student knowledge about ADHD, though I think improvement will be varied between students depending on how much time they take to view all materials vs some vs none.

### **DO:**

I was able to follow most of the plan outlined above. It was difficult to connect with faculty to determine whether they already had a 3<sup>rd</sup> year/clinical year ADHD curriculum for students doing their psychiatry clerkship on the main campus. We ended up using an online resource made to educate physicians in the UK about ADHD and supplemented that with ADHD practice guidelines to round out information on treatment options as that was not well covered in that particular resource. The didactic session itself was well received, the students participating ended up asking a lot of questions and as such there was only time to do one of the case studies together with the time allotted. There was also a decreased number of responses to the post-survey compared to the pre-survey .

### **STUDY:**

Overall the didactics session was well received. The students rated the session overall either as 4-5/5. Their perceived knowledge and comfort with diagnosing and treating ADHD increased overall. The two strengths of the session identified by students were the case studies and the Q&A discussion. The most common area for improvement identified by students was more time to go over cases and more time spent reviewing medications.

The questions in the pre/post-survey could be split into two main types – classic step 2 vignette style questions with multiple choice answers and true/false questions targeting common misconceptions about ADHD. The average percent of students correct for the vignette questions increased by 10% after the session (58.7% correct before to 68.8% after). The average percent of students correct for the misconception questions increased by 14% after the session (66.7% correct before to 81.5% after).

The reflective writing piece of the session had fewer participants than other areas of the session, but those who submitted reflections highlighted key points discussed during the session. One student spoke about an interaction with a patient whose pediatrician discontinued their medication when they began college. The patient described feeling guilty for using medication to treat her ADHD as her pediatrician talked about it very negatively. Without medication the patient struggled during the first years of college both academically and with her self image. After seeing this new physician and being restarted on medication, she returned for a follow up visit and “came in gleaming” “for the first time in years got a 95% and felt like herself”. This students story highlighted how physicians lack of knowledge of ADHD continues to negatively impact patients and why sessions such as this are truly important.

### **ACT:**

The next cycle of this QI project could focus on improving this education session for CU CSB students using the feedback gathered in course surveys. We could look at increasing the time allotted for the session overall to allow time for two case studies as well as a Q&A session as the students overall found these pieces of the session the most valuable. We could also work on creating our own online teaching materials as the ones used for this session were created for physicians in the UK so some information was not applicable in the US. These resources also needed supplementation to their coverage of treatment options, questions focusing on treatment were the most difficult for students before and after the session so this area of the course could use some improvement.

Other next steps could include bigger picture changes like creating CME credit opportunities in ADHD and pediatric mental health overall, increasing integrated medical clinics with behavior health providers, and creating incentive for pursuing pediatric psychiatry.

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# Improving Postpartum Hemorrhage Management Through Simulation-Based Obstetrical Hemorrhage Workshops

## PDSA Worksheet

Jessica K. Hall, MS3, Brittany M. Denzer, MS3

### **BACKGROUND:**

The American College of Obstetricians and Gynecologists defines postpartum hemorrhage (PPH) as at least 1,000 mL total blood loss or loss of blood coinciding with signs and symptoms of hypovolemia within 24 hours after delivery. According to the CDC, postpartum hemorrhage led to 11% of pregnancy related deaths in the US between 2011-2016. Up to 5% of obstetric patients will experience postpartum hemorrhage. There are a variety of tools to define individual patient risk of postpartum hemorrhage to allow for increased vigilance, however up to 20% of postpartum hemorrhage occurs in women with no risk factors. Antepartum preparation, risk analysis and appropriate knowledge of interventions are essential in management of postpartum hemorrhage. Simulation-based PPH workshops have been shown to improve provider comfort and patient outcomes in PPH scenarios at other institutions. Our community based, academic affiliated hospitals have recorded increased cases of mortality and severe morbidity related to maternal hemorrhage. Two simulation-based OB Hemorrhage workshops have been created in an effort to improve identification and management of PPH within our system. Workshop A was initiated in August 2019 and Workshop B was completed by August 2020. Workshops focused on risk assessment, team member communication and appropriate PPH workup and interventions.

### References:

1. ACOG Practice Bulletin #183. October 2017
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3. Creanga, A.A., et al., Obstet Gynecol, 2017
4. Shah, M., Wright, J. Semin Perinatol, 2009
5. Lutgendorf, M., et al., Mil Med. 2017

### **AIMS and OUTCOME MEASURES**

**AIM1:** Through implementation of OB Hemorrhage simulation workshops, we aim to improve early identification of postpartum hemorrhages, defined as over 1000mL total blood loss or loss of blood with signs and symptoms of hypovolemia 4 months after the end of workshop B.

#### Outcome Measures:

- We will specifically look for the *number of code white and OBET calls vs. the number of cases with over 1000mL of EBL or QBL* 4 months before, between, and 4 months after implementation of hemorrhage workshops. (March-July 2019, August 2019-July 2020, August - December 2020). We will also identify the number of cases in which more than 4 units of blood were transfused

**AIM2:** Improve management of PPH in 90% of cases with over 1000mL blood loss after workshop implementation.

#### Outcome Measures:

- Response to OB Hemorrhage (as defined above) will be evaluated by investigating Laboratory orders (*CBC, Type and Cross, Lactate, ABG, ISTAT (base deficit)*) Fluid Resuscitation orders (*MTP calls, volume of crystalloid given, volume of blood products given*) and surgical intervention (*rates of use of Bakri balloons, B-lynch sutures, O-Leary*

*stich, hysterectomy, and uterine artery embolization*) during the time frames stated above (March-July 2019, August 2019-July 2020, August - December 2020).

**CHANGE(S):**

Implementation of OB Hemorrhage Simulation workshops for all providers and staff involved in code whites (OB-ED RNs, Birth Center RNs, HAWKS RN, OB/Gyn providers, CNAs, Anesthesia Providers, Nursery RN, RT etc.). Workshops focus on early identification and proper management of PPH as well as teamwork and communication skills.

**STAKEHOLDERS:**

- Laboring Patients
- Patient families
- OB-ED RNs
- Birth Center RNs
- HAWKS RN
- OB/Gyn providers
- CNAs
- Anesthesia Providers
- Nursery RN
- RT

**PLAN:**

1. Implementation of Workshops for all providers and staff completed at the end of August.
2. Obtain IRB approval to collect patient level data for outcome measures
3. Create an EPIC report for patient inclusion criteria (patients with documented PPH/blood loss >1000mL)
4. Perform chart review to collect data on above outcome measures

**DO:**

Two simulation-based workshops were developed and implemented at our institution to improve appropriate identification and management of PPH. Workshop A was initiated in August 2019 and Workshop B was completed by August 2020. Workshops focused on appropriate risk assessment, team member communication and appropriate PPH interventions. Over 180 individuals (including OB providers, RNs, Anesthesiologists, and support staff) completed both workshops. A chart review of a sample of 150 patients who delivered at Memorial Central and Memorial North with blood loss >1000 mL from March 2019-July 2019 (N=60), Aug 2019-July 2020 (N=60) and Aug 2020-Dec 2020 (N=30) was conducted and data for the above outcome measures were collected.

**STUDY:**

Workshops A and B were successfully implemented and saw participation from over 180 providers and staff involved in peri-partum care at our hospitals. Chart review revealed increased rates of Code White activations indicating improved identification of severe PPH after implementation simulation workshops. This may be due to changes in institutional culture surrounding Code White Activations after the workshops as well as improved knowledge of indications for Code White activations. Additionally, the overall number of cases with documented blood loss >1000mL decreased in September 2021. This may have been due to a



transition from use of estimated blood loss to quantitative blood loss as well as implementation of Neptune suction devices which aid in accurate quantification of fluid loss. We also demonstrated improved rates of orders for each indicated lab test, including Type/Screen, Lactate, ABG and Base Deficit after implementation of workshops. Type and screen orders reached 100% after both workshops and percent of patients with Lactate ordered nearly doubled. The percentage of MTP activations also increased, indicating improvement in fluid resuscitation. Finally, rates of surgical/interventional hemorrhage management such as placement of Bakri balloons, D&Cs, hysterectomies and hemostatic stiches decreased after implementation of workshops, suggesting more effective early medical management of PPH. Initial robust improvements during the workshop implementation phase were followed by a more modest effect after workshop completion, possibly indicating diminishing response over time and need for continued education.

#### **ACT:**

Overall, review of the data suggests that the OB hemorrhage simulation workshops were successful in improving management of Postpartum Hemorrhage. Future directions will include expanding chart review to include all patients who delivered during this time frame. It will also be essential to develop continued education plan to ensure maintenance of knowledge and skills. Creation of systematic protocols to automatize lab orders or code white calls based on concrete values such as blood loss and patient vitals would also represent a powerful next step in improving PPH management.

# Investigating Loss to Follow up for Outpatient Burn Care PDSA Worksheet Allison Moore, MS3

**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?)

*We aimed to investigate the barriers of outpatient burn care follow up for patients seen at regional Emergency Departments that are large geographic distances away from an ABA Burn Center. We know that there are national geographic disparities for verified burn care. Additionally, the recent expansion of use of technology appears to be helpful in the coordination of cohesive care for patients with burn areas across large geographic areas in the form of telehealth and consultation apps.*

*Lack of access to care leads to rates of morbidity and mortality including infection, sepsis, disfigurement, reduced function, disability, and death. In Colorado Emergency Departments, use of the app on the providers phone is utilized to connect with Burn Surgeons at the ABA Burn Center in Aurora, CO to ascertain transportation and treatment needs of patients across the state. For patients in Colorado Springs there has historically been difficulty with follow up after outpatient recommendation without understanding as to why.*

1. Carmichael, H., Dyamenahalli, K., Duffy, P. S., Lambert Wagner, A., & Wiktor, A. J. (2020). Triage and Transfer to a Regional Burn Center—Impact of a Mobile Phone App. *Journal of Burn Care & Research*, 41(5), 971-975.
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**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 March 01, 2021 we aim to categorize all burn patient consults from the Memorial Emergency Departments to the AMC Burn center based on follow up status, burn injury features, and demographic characteristics.*

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

*Using data abstraction from the EHR we are going to assess if patients scheduled appointments and were able to comply with their appointments after recommendations for outpatient follow up at the Regional Burn Center at Anschutz Medical Campus in Aurora, CO. Additionally, we will collect demographic characteristic information, features of the burn injuries, and documented reason for difficulty following up in the outpatient setting.*

**CHANGE(S):**

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

*Patient charts will be reviewed to ascertain if they scheduled an appointment and out of those who scheduled an appointment, who was able to attend their appointment when outpatient burn care was indicated after use of the Burn App at the Memorial Emergency Departments.*

**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.)

*We completed a retrospective review over 2 years in 2 Emergency Departments 60-75 miles away from the Anschutz Medical Campus Burn Center (Memorial Central and Memorial North). Patient included in our cohort had outpatient recommendation for burn injury after consultation with burn surgeons via the Burn app. Data abstraction occurred via medical record review (determination of follow up; demographic characteristics; burn size, location, etiology).*

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

*Overall, less than one half of the patients follow up at the regional burn center as recommended and almost ¼ followed up at local Emergency Departments and clinics for further burn care. Identified barriers to follow up included male sex, burn etiology, insurance status, being institutionalized, and likely resource access such as transportation. Further investigation is needed because specific barriers to follow up were difficult to identify due to lack of documentation in the HER.*

**STUDY:** (Analyze the data. Summarize and reflect on what was learned) Through our initial phase of our study we learned that Emergency Department recommendation of burn outpatient appointment alone is **insufficient** for comprehensive burn care from a regional burn center. Also, enhancing telemedicine and assistance with scheduling/transportation may better care for burn patients otherwise lost to follow up.

*We have produced a call script to call patients with recent burn injury that will serve two functions. One, it will help connect patients with Burn Center/resources and to see how the wounds are healing. Second, it will collect further data regarding barriers to accessing care for the Colorado Springs/Southern Colorado population that we were limited in gathering during the initial phase of our study,*

**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)

*In the next cycle of this project, patients will be called shortly after their injuries to help with scheduling their appointment with the Burn Center at AMC and setting up MyHealth Connection.*

Adapted from the Institute for Healthcare Improvement

# **NAT On My Watch: Universal Child Abuse Screening in Colorado Springs Pediatric Emergency Department**

## **PDSA Worksheet**

Kelly Wigglesworth, MS3

### **BACKGROUND:**

Non-accidental trauma (NAT) is a tragic and preventable cause of morbidity and mortality in children. Specifically, Abusive Head Trauma (AHT) is the leading cause of death from physical abuse in children. In one study, 31.2% of children with AHT had a prior missed opportunity where they were seen by a medical provider and with signs or symptoms that were suggestive of abuse in retrospect. Of course, the main aim of screening for these sentinel or less severe injuries is to prevent fatalities. However, there is also a large financial burden associated with high The estimated 4,824 incidents of AHT cases in 2010 had an estimated lifetime cost of \$13.5 billion. Many other organizations and hospitals have developed standard NAT screening tools, such as University hospital ED at Anschutz. Many screening protocols include standardized tools like TEN-4 FACES, a pneumonic for NAT injuries, or ESCAPE, a set of questions to address signs of NAT.

### **AIM STATEMENT:**

To provide standardized, consistent care to all patients and improve identification of children at risk for NAT. Specifically, by April 2021, we will increase utilization of a standard NAT screening tool from 0% to 90% in the CHCO Colorado Springs Emergency Department

### **MEASURES:**

Our primary outcome is to assess the number of NAT screens completed, with the number positive, and the percent eligible patients screened via tool. Our secondary outcomes are the of referrals made to DHS or social work, number of cases determined to be NAT (true positives), number of children with likely NAT with prior ED visits (missed opportunities), and survey of provider/RN knowledge, attitude, beliefs around utility of universal NAT screening via monthly provider and nurse surveys. We also want to measure balancing measures of ED length of stay, percent of positive screens determined unlikely to be NAT (false positives), and provider/RN report of disruption to workflow.

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

Prior to the start of the screening, we provided provider and RN education on NAT and the screening tool we developed. Our first change is to incorporate the screening tool into EMR during triage and create a way to alert the provider in real time about positive screens and their portion of the screen. We will then send out nurse and provider surveys monthly to identify areas for opportunity/barriers to implementation. We also wanted to create a standard process to facilitate comprehensive skin exam and develop standard workflow to address positive screen via NAT order set in EPIC.

### **PLAN:**

- ❖ Develop NAT Screening questions and standard skin exam
- ❖ Implement record of this into EPIC, provide education for RNs and providers
- ❖ Children presenting to Colorado Springs ED will undergo standard screening for NAT.
  - Complete skin exam for children < 4 years

- All children under 5 years old undergo RN screen via ESCAPE or other screening tool currently in use at adult and pediatric centers
  - Provider component including physical assessment for sentinel injuries
  - Potential spread to CHCO COS direct admits
  - Screening to be documented in the EMR and positive nurse screen to trigger an alert to the provider
- ❖ Record rates of positive screen and likelihood of NAT

### **DO:**

Developed the following survey, and implemented it into the ED on January 25, 2021

1. For children presenting for evaluation of a possible injury, was there a possible or definite delay in seeking medical attention given the severity of the injury/injuries?
2. Are you concerned that the history may not be consistent with the injury or illness?
3. Are there findings that might reflect poor supervision, care or nourishment?
4. Are there any additional comments or concerns related to child abuse or neglect?
5. Any TEN-4 FACES injury? Bruising to the Torso, Ears, or Neck in a child, any bruise in a child <4 months old, bruising or injury to the: Frenulum, Angle of the jaw, Cheeks, Eyelids, Sclera, Patterned bruising or injury

Monthly nurse and provider surveys about attitude, impact, and barriers sent on March 1, April 1, and scheduled for every month.

### **STUDY:**

February—521 completed screens, 17 positive

March—147 completed screens, 2 positive

Unable to measure it as a percentage of the eligible patients, given the complexities of gathering this data from EPIC. Also, we were unable to measure if the positives were “true positives” or “false positives” and if there were any missed opportunities with false negatives.

Two months of data on provider and nurse perspective yielded an over neutral to positive perspective of the screening itself, with saying that is “worth it” and that it has mostly no impact to a strongly positive impact on the emergency department as a whole. However, there are still areas of growth in helping to improve flow and allow for all children <2 years old to get undressed for a full skin examine. There are also opportunities to provide education on any legal implications of conducting routine screening.

### **ACT:**

1. Implement baby gowns in every room and have triage ask parents to undress every child <2 years old for full skin exam.
2. Make the screening pop up and more visible in EPIC for nurses and providers
  - a. Reminders
3. Better ways of gathering data
  - a. Recurring data pulls from EPIC committee
  - b. Percentage of the eligible patients
  - c. Gather data on DHS/social work consults and “true positives” or “false positives” and missed opportunities/false negatives.
4. Continue to gather and address provider and nurse concerns with the screening

# **Patient Education in the time of COVID-19: Educational Videos in the Inpatient Setting**

## **PDSA Worksheet**

Danielle Davis, MS3, Maggie McGing, MS3,  
Adriana Buliga-Stoian, MS3

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

The COVID-19 pandemic presented numerous challenges to the healthcare field, among them was educating patients and families on the continuously changing and evolving treatment of COVID-19. Furthermore, spikes in the number of new cases and thinning resources have reduced the amount of time doctors and nurses can spend with patients explaining their care.

There is growing literature on the psychological effects of the pandemic, such as social isolation, anxiety and depression, especially among those hospitalized for a COVID-19 infection. While in the hospital these patients have ample time to worry about their diagnosis with little resources to understand their treatment. Educational patient videos have been previously shown to improve health literacy, patient satisfaction and decrease the time spent by providers answering questions. Therefore, educational patient videos in the inpatient setting on topics related to COVID-19 are potentially a valuable resource to address these challenges to providing high quality patient care.

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

The objectives of this study were to increase patient education on topics related to COVID-19, decrease patient stress and anxiety related to their illness and decrease the workload of nurses during the height of the COVID-19 pandemic

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

Pre-video surveys and post-video surveys contained knowledge-based questions on topics related to COVID-19 that were taught in the videos. The surveys also contained questions about comfort with treatment and experiences with stress/anxiety while in the hospital.

A nurse survey was also distributed to nurses on a COVID unit at a large community hospital. This survey was distributed before the implementation of the patient education videos and after 3 months of having these educational videos available to patients.

**CHANGE(S):**

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

Our intervention is to create educational videos on lovenox, convalescent plasma, evaluating readiness for discharge and a medications overview video discussing remdesivir , dexamethasone and hydroxychloroquine. Handouts containing a QR code linked to the videos as well as a pre-survey and post-survey were distributed to the rooms of floor patients hospitalized with COVID-19, allowing patients to access the videos on their own devices.

**STAKEHOLDERS:** (A stakeholder is anyone who has an interest in a project and can influence its success or failure.)

Stakeholders in this project include: the three medical students who created and implemented the intervention, nurses on the COVID unit who have the most interaction with hospitalized COVID-19 patients and who answer the majority of their questions. Stakeholders also include patients who are hospitalized for a COVID-19 infection and the hospital these patients are admitted to.

**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.*)

The first step in this project is to design and create videos and surveys that deliver information at an appropriate level and measure if patients are able to learn from these videos and if the videos influence their feelings towards their care. The next step is attaching the videos/surveys to a QR code. We hope to gain buy in from the nursing staff on the COVID unit to help us encourage sustained patient participation in the project.

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

We found that educational patient videos on COVID-19 in the inpatient setting can increase understanding of care, comfort with care and improve anxiety/stress related to care. However, no substantial reduction in the amount of time nurses spent educating patients on these topics was seen. One of the major limitations of this study was the ability to deliver the videos to patients in a format that was easy and accessible for everyone. Unfortunately, the QR code format proved to be a hurdle for many patients. Another major limitation was difficulty sustaining participation from patients and nursing staff.

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

Educational videos in the inpatient setting has the potential to improve various aspects of patient experiences related to their care. However, in order to be successful, there needs to be institutional (in the format of video delivery), staff and patient buy in.

**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*)

Future steps for this project include working with hospital leadership to adapt a more effective video delivery format. Possibilities include an app on iPads provided to each patient room or the ability to watch these videos on the television in the patient room. Additionally, working with nursing staff to understand how these videos can fit into decreasing their workload is an important step that will make the implementation of patient videos more successful in the future.

Adapted from the Institute for Healthcare Improvement

# Postpartum Depression: Breaking Down Barriers and Improving Behavioral Health Care Access

## PDSA Worksheet

Anika Suddath, MS3

**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 depression (PPD) is a national problem that has lasting impacts on the mother, the baby as well as the mother-child relationships. The 2019 review article on consequences of maternal postpartum depression reported numerous poor outcomes categorized into three specific domains. Maternal postpartum depression was associated with more negative maternal physical and psychological health and with worse quality of life. As for infants, the studies indicated significant and negative associations between maternal postpartum depressive symptoms and infant cognitive development, language development, infant behaviors and overall infant concerns and quality of sleep. There were also shown to be poor outcomes with mother-infant bonding.

Depression screening of postpartum women is strongly recommended by the American College of Obstetrics and Gynecology (ACOG). In the ACOG committee opinion number 757 on Screening for Perinatal Depression, it is recommended that obstetric care providers screen patients at least once during the perinatal period for depression and anxiety symptoms using a standardized, validated tool. The Edinburgh Postnatal Depression Scale (EPDS) is the most commonly used screening tool. In the committee opinion, there was evidence that screening alone can have clinical benefits, although initiation of treatment or referral to mental health care providers offers maximum benefit. It is also recognized that screening by itself does not dramatically improve outcomes. It is necessary to implement screening follow up as well as a standardized referral process to behavioral health resources.

The current practice of our community OB includes screening and tracking patients' scores on the Edinburgh Postnatal Depression Scale during patients' 2-week to 6-week postnatal visits. For patients who screen positive, an additional discussion is had with the OB provider. For patients who are diagnosed with postpartum depression, or for patient who feel like they need additional mental health support, they are referred to the psychologytoday.com website to establish care.

Screening for Perinatal Depression. (2018). *ACOG committee opinion 757*. Washington, DC: American College of Obstetricians and Gynecologists.

Slomian J, Honvo G, Emonts P, Reginster JY, Bruyère O. Consequences of maternal postpartum depression: A systematic review of maternal and infant outcomes [published correction appears in *Womens Health (Lond)*. 2019 Jan-Dec;15:1745506519854864]. *Womens Health (Lond)*. 2019;15:1745506519844044. doi:10.1177/1745506519844044

**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 December 15, 2021 we will screen all patients for postpartum depression at their first postpartum visit (usually 2 to 6 weeks post-delivery) and schedule close follow up with women who screened positive on the Edinburgh Postnatal Depression Scale and are diagnosed with postpartum depression. We aim to increase our depression screening follow up and referral to mental health resources by 60% by April 2021.



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

- Patients' scores on the Edinburgh Postnatal Depression Scale.
- Number of patients given behavioral health resources and referrals.
- The number of patients who have established care with behavioral health providers.

**CHANGE(S):**

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

When a patient has a positive depression screen (score higher than a 10 on the EPDS), our community OB provider will attach a list to their after-visit summary of mental health providers in El Paso County, CO who work with women experiencing postpartum depression. Our community OB provider will schedule close follow up to determine if the patient was able to establish care with a behavioral health provider.

**STAKEHOLDERS:** (A stakeholder is anyone who has an interest in a project and can influence its success or failure.)

- The patients.
- The medical assistant who will administer the EPDS and ask about mental health resources.
- The OB provider who is responsible for chart documentation and attaching the dot phrase of resources in their after-visit summary.
- The community OB practice to scheduling close follow up visits.
- The El Paso County behavioral health providers.

**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.)

- Perform a chart review of patients who delivered in the past year to collect current data on postpartum EPDS scores, how many patients were previously referred to behavioral health and how many patients previously established care with behavioral health providers.
- Perform a comprehensive online search on mental health providers in El Paso County, CO.
- Call behavioral health provider offices to confirm if they work with patients who have postpartum depression, their current availability, and types of payments accepted and compile the list into a dot phrase in Epic.
- I predict that when patients have easier access to mental health resources, they will be more likely to use them and establish care.

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

Colorado Springs and greater El Paso County, CO is a very resource limited region with a lack of behavioral health providers. When attempting to collect an accurate list of providers, there were several challenges and barriers I ran into. Often providers did not have accurate information on comprehensive search websites including their availability, contact phone number/email or the types of payments accepted. Therefore, collecting an accurate list of providers took more time than originally anticipated.

After an accurate list of behavioral health providers was collected, it was synthesized into a dot phrase, .ppdresources, in Epic. Then, moving forward when our community OB practice had a patient who screened positive for postpartum depression as measured by a score of 10 or more the Edinburgh Postnatal Depression Screen (EPDS), and was found to have postpartum depression, the option for attaching the dot phrase to their after-visit summary was readily accessible. It is important to note that when patients screened positive on the EPDS, there was always a follow-up conversation with the community OB providers to determine if the patient's postpartum depressive symptoms on the screening tool were consistent with a diagnosis of postpartum depression. In addition, referring patients to a behavioral health provider was always a shared decision-making process between the OB provider and the patients. While the majority of women welcomed the referral and were looking for additional supportive treatment, not all patients wanted a referral.

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

A significant number of women in our community experience postpartum depression. Out of the women who delivered between January 2020- April 2021, 20% of women in our community OB practice were experiencing symptoms consistent with postpartum depression, necessitating close follow up with the OB provider, psychiatric medication, or additional behavioral health support. Our intervention aimed at improving ease of access to accurate and patient-focused resources of behavioral health providers who treat postpartum depression. El Paso County, CO is a behavioral health resource limited region, thus creating an extensive and accurate list of providers was challenging. After implementing adding the resource list via a dot phrase in patient's after-visit summary, our community OB practice successfully improved the number of referrals to behavioral health providers for women experiencing postpartum depression. The referral rate increased from 28% pre-intervention, to 83% post-intervention. This was possibly due to increased provider confidence in the accuracy and helpfulness of the resource. In addition, women experiencing postpartum depression were more likely to establish care with a behavioral health provider. The rate of establishing care increased from 21% pre-intervention, to 67% post-intervention. This was likely due to ease of establishment via a direct referral process and the decreased barrier of finding additional providers that accept the patient's type of insurance or alternative form of payment. Increasing ease of access to behavioral health resources markedly enhanced patients' ability to establish care, hopefully improving time to resolution of postpartum depression symptoms and improving the lives of mothers and infants in our community.

**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)*

This intervention was patient-focused, in that it gave patients resources that they did not previously have access to, but the intervention was also aimed at providing a more streamlined approach and better treatment option for the community OB provider. In the next cycle, I would do a formal needs assessment of women experiencing postpartum depression to determine what other barriers they are facing in getting treatment for and resolving their postpartum depression. In addition, I would like to determine any difference in resolution of postpartum depressive symptoms between patients who established care with behavioral health providers and those who did not establish care.

Adapted from the Institute for Healthcare Improvement

# **Prescription Pantry: Proposed Screening & Management for Food Insecurity at Mission Medical**

## **PDSA Worksheet**

Brittany Denzer, MS3, Taylor South, MS3

**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?)

Food insecurity, defined as household level economic and social condition of limited access to food, is associated with higher health costs and poor health outcomes for adults and children. During the COVID pandemic, it is estimated that prevalence of food insecurity has doubled to 23% of households. Mission Medical Clinic Mission Medical Clinic (MMC) provides primary and specialty medical care to uninsured, under-served, and low income people living in the Pikes Peak community. MMC has an on-site food pantry that is available for patient use, however the prevalence of food insecurity in this patient population is unknown. There is also no protocol for referring patients to this resource. A multitude of factors contributing to a food pantry's "Clinical Nutrition Environment," including organization of food pantry stock, variety of forms and types of fruits and vegetables, educational resources, and dietary labeling, have been shown to affect selections made by food pantry patrons.

The Nutrition Environment Food Pantry Assessment Tool (NEFPAT) is a validated instrument for assessing the clinical nutrition environment of food pantries and providing recommendations for improvements.

**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.)*

This project aims to measure the prevalence of food insecurity in Mission Medical Clinic patients as well as to assess the clinical nutrition environment of it's existing food pantry using the Nutrition Environment Food Pantry Assessment Tool (NEFPAT).

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

This project used a 2-question screening survey to screen for the prevalence of food insecurity amongst a subset of patients at MMC . Of note, this data was previously unknown by clinic management and staff.

The existing food pantry resource will be assessed via the Nutrition Environment Food Pantry Assessment Tool (NEFPAT). From this validated tool, a scoring of the pantry and recommendations for improvement will be available to clinic management.

**CHANGE(S):**

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

After collecting data on food insecurity in the MMC patient population, recommendations can be made on whether or not routine food insecurity screening would be a beneficial part of patient intake. If food insecurity is high in the measured subset of the patient population, our

recommendation would be to incorporate the 2-question food insecurity screening tool into patient intake data.

After assessment of the existing food pantry with the NEFPAT, we will be able to supply MMC with specific recommendations for which they may work to improve nutritious food options, variety of food available, promotion of healthy eating patterns, nutrition and health education, and information about Community Resources.

For patients who screen positive for food insecurity, would be our recommendation to refer these patients to shop in the existing food pantry resource at MMC.

**STAKEHOLDERS:** (A stakeholder is anyone who has an interest in a project and can influence its success or failure.)

- Management and staff at Mission Medical Clinic
- Pikes Peak Community members
- University of Colorado School of Medicine/Colorado Springs branch
- Food pantry suppliers
- Colorado Springs food rescue

**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. We will need to meet with Clinic staff to discuss the 2-question food insecurity screening tool. If possible, ask them to incorporate this screening tool into the packet of patient intake forms. This will need to be done in early November, before any other steps are taken.
2. Collect data on patient food insecurity from early November 2022 the end of February 2021. Of note, MMC clinical staff agreed to administer the survey as a part of initial patient intake forms.
3. In January or early February, we will conduct NEFPAT assessment of the existing food pantry resource at MMC. Upon completion of the food pantry assessment, we will then be able to make concrete recommendations to MMC Management and clinic staff.
4. We will meet with MMC Clinic director to discuss NEFPAT findings and collaborate on a plan for improvement of the food pantry.
5. We will meet with staff at Colorado Springs Food Rescue to see if and when fresh produce could be dropped off at the food pantry.
6. We will hold a conference with MMC management and staff to discuss our findings and give our recommendations for food insecurity screening as well as food pantry Improvement.

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

The two question screen for food insecurity was incorporated into Clinic workflow from the months of November 2020 till February 2021. From that time, 47 patients were surveyed.

The NEFPAT assessment tool provides a grade of the clinical nutrition environment of food pantries based upon various objective scores. This tool considers availability of nutritious options, marketing of nutritious Foods, availability of various forms and types of fruits and vegetables, the promotion of additional resources, and information on healthy eating patterns.

During the data collection period, staff was encouraged to refer patients who screen positive to the food pantry. As stated above, the current pantry has several areas for improvement and currently is lacking a quantity of nutritious foods.

It should be noted that MMC management and staff was very open to this project and excited to implement it into their Clinic. This provides significant opportunity for future iterations of this project.

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

***Food Insecurity.*** Of the cohort surveyed (n=47), 60% screened positive for food insecurity. Although we expected to have patients screen positive for food insecurity in this community, we did not expect there to be such a high prevalence. This n number gives us a pretty good estimate of what the patient population MMC might look like in terms of food insecurity. A larger cohort will only improve our understanding of this population.

***NEFPAT.*** The existing food pantry at MMC yielded a total score of 15, which, according to the assessment tool, gives this pantry a rating of bronze, the lowest category on the scale. The pantry's relative strengths include: providing various forms of fruits and vegetables ( $\frac{3}{8}$ ), providing various types of fruits and vegetables ( $\frac{5}{10}$ ), increasing client choice for nutritious options ( $\frac{3}{8}$ ), and promoting additional resources ( $\frac{3}{8}$ ). On the contrary, the pantry's greatest weaknesses are: marketing of healthy choices ( $\frac{1}{8}$ ), and including a plan for alternate eating patterns ( $\frac{0}{5}$ ). Based on the organization provided by the NEFPAT, it is clear that there is a lot of room for improvement, but this does not mean that MMC will have to make massive changes. Reorganizing their existing food stock can help to "market" the healthier options. Harvard's healthy eating plate, serves as an excellent resource in promoting an eating pattern which is consistent with the Mediterranean diet (currently recommended by the medical profession), but also provides guidance on foods such as red meat and dairy. The plate is formatted in different languages. Distributing this resource to patients is a way of promoting an additional resource (Harvard's *Nutrition Source* website) as well as providing a plan for alternate eating patterns.

**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)*

Based upon the results of the food in security screening, it is our recommendation that MMC uses this tool as a part of patient intake data for every patient. We will then help MMC to build a protocol to guide staff when they encounter patients who have screened positive for food insecurity. Utilizing the relative strengths of the current food pantry, we will make minor changes to optimize the current food supply. This includes the positioning of healthy options on the shelves to promote healthier choices. We will increase the healthy options available by providing management with educational resources to help guide their order from the primary pantry. We will also provide patients with food insecurity with educational material, such as Harvard's healthy eating plate. The next steps should proceed as follows:

1. Meeting with MMC management and staff to discuss findings and give recommendations
2. Collaborate with MMC to
  - a. Make the 2-question survey a part of every patient intake
  - b. Create a clinical pathway for what to do when a patient screens positive

- i. The pathway ultimately should end with the patient receiving resources on nutrition and health and a referral to fill a box of food from the downstairs pantry
3. Optimize MMC's current food pantry
  - a. Reorganize, placing the healthiest options at eye level
  - b. Place educational resources, such as Harvard's healthy eating plate on the wall near the entrance
  - c. Create a pamphlet of other food resources that exist in the community - ie patients are able to obtain fresh produce for free via Colorado Springs Food Rescue
  - d. Provide educational resources and serve as support when MMC management is placing a restocking order for the pantry
4. Patient education
  - a. Provide patients with their own copy of the Harvard eating plate (in their preferred language)
  - b. Provide a one page document on the impact of food on physical and emotional health and wellbeing.

Adapted from the Institute for Healthcare Improvement

# Standardizing Follow Up and Objective Measures In Patients With Depressive Disorders

PDSA Worksheet

Eric Wagner, MS3

**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?)

According to the CDC, MDD is the most common mental disorder in the USA with 17.1 million adults over 18 experiencing at least one major depressive episode in their lifetime. Despite being such a common diagnosis, MDD is still underdiagnosed and unaddressed in particular populations like the Senior population (people over 65 years of age). Being that MDD is very treatable with medication like an SSRI, implementation of screening tools such as the PHQ9 have become critical in detecting Depression. However, more often than not once a patient is started on medication, they are not formally reassessed for efficacy of their treatment. Comparing a baseline PHQ9 to one after 6 weeks of therapy can guide clinical decisions in if a patient is being treated adequately and if further workup is needed. In addition to that, compliance with these medications is another great challenge due to the fact that these medications take 4-8 weeks to reach a therapeutic effect. Implementing a standardized process to track patient progress through PHQ9 surveys and with regular follow up can help improve patient outcomes and provides critical objective data that allows providers to assess if treatment is adequate. The University of Washington's Advancing Integrated Mental Health Solutions (AIMS) Center is a research team that has investigated this very issue and echoes similar sentiment with the follow recommendations.

"Once a patient has been identified as having a behavioral health condition and has started treatment for that condition, it is very important to re-measure the symptoms at each contact so that the treating provider has specific information about whether or not symptoms are improving and which symptoms are, or are not, improving. Some people are concerned that the concept of measuring mental health with a validated rating instrument invalidates the patient's feelings or experience or disregards the complexity of the patient's story. These measures are an important piece of information about the patient but are not meant to represent the entire clinical picture of the patient, nor are they meant to replace the clinical judgment of the provider. They are an important tool to assist the clinician and the patient with identification of the specific symptoms causing difficulty for the patient and how well those symptoms respond to treatment over time. Frequent measurement of symptoms allows the treating providers and the patient to know whether the patient is having a full response, partial response or no response to treatment. These measures also provide clues about which symptoms are improving and which are not if there is a partial response to treatment. This information is critically important in making decisions about how to adjust treatment."

The PHQ 9 is a useful tool because, as noted above, it can be re-administered as needed. There are no strict guidelines on how often to re-administer the tool; however, a common recommendation for monitoring and adjusting treatment at 4-6 weeks. Given these recommendations by the AIMS program that mirror those of the USPTF and AAFP, it makes sense to have standard processing in clinics to allow for optimal tracking of patient response given the serious risks of morbidity and mortality that follow depressive diagnoses.

The particular clinic evaluated for this new standardized processing includes the Outpatient Internal Medicine Clinic at Evan's Army Community Hospital in southern Colorado Springs. At Evan's, the population is predominantly senior with the average age of the data evaluated being 60 years. All patients

are either active duty, veterans, or dependents of the other categories. Under current practices, the medicine team has not currently implemented a standardized process for tracking PHQ9 scores, response to psychotropic medicines, or routine tracking for depressive disorders. It was a goal to evaluate how often PHQ9's were administered at a new diagnosis, follow up appointments, and with change of medicines. Once data is gathered to understand practices of the past, recommendations will be made to standardize the process moving forward as Evan's switches electronic medical records from AHLTA to Genesis.

**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 May 2021, all patients started on an SSRI, NDRI, SNRI, or atypical antidepressant medication for a new diagnosis of a Depressive Disorder will have receive an initial PHQ9 at diagnosis and be scheduled follow up appointments at 1 week, 6 weeks, and 12 weeks with a new PHQ9 being evaluated at the Week 6 appointment. These assessment tools will close the gap in care follow up to ensure that patients are being safely managed on these psychotropic medications and allow the clinic to measure patient remission with objective data. A goal of 100% of patients receiving initial and follow up PHQ9s for remaining months of 2021 shall be sought.

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

We will measure the percentage of patients who receive a PHQ9 at time of diagnosis or start of a psychotropic medication and the percentage who receive a follow up PHQ9 at the week 6 appointment. We will measure the rate of remission (a PHQ9 decrease of 5 points or more) and document compliance.

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

When a patient is prescribed an antidepressant for a depressive disorder, their chart will automatically be flagged for upload of the initial PHQ9 and at the 6 week follow up a PHQ9 prompt will be flagged for completion by the MA team. These reminders will ensure that this data is collected at both visits and will be utilized by the clinician to justify initial treatment and guide decision making at follow up.

**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.)

Conduct a chart review of the last quarter (winter 2020) at Evans Outpatient medicine clinic of every patient who had a psychotropic medication filled. These medicines will include SSRI, SNRI, NDRI, and atypical classes of antidepressants. Once this population is gathered, chart review will be initiated to review patients who have a history of a depressive diagnosis including Major Depressive Disorder, Adjustment Disorder, Dysthymia, and the old term of Recurrent Depressive Disorder. Once these patients are identified it will be calculated on how many patients need to be reviewed in that quarter to develop a confidence level of 95% and confidence interval of 5. When the needed sample size is determined patients will be reviewed to see how often they received a PHQ9 at time of their diagnosis, if they ever received a follow up PHQ9, and if so how far apart from the initial, and if new data was gathered following a medication change.

Due to the fact that there is no standard process at Evans, we predict that less than half of patients received a PHQ9 at time of their diagnosis, less than 25% received a follow up PHQ9, and that there will



be new data after a medication change for less than 25% of patients. In terms of follow up, we expect a broad range if multiple PHQ9s are obtained and there to be no clear pattern or reason behind those findings.

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

Upon collection of the data, the most pertinent findings included the following

Quarterly Analysis of the Winter of 2020 found that 181 patients met criteria for being prescribed a psychotropic medication due to a qualifying depressive diagnosis as stated in the plan. Of that 181 patients to obtain a confidence interval of 5 with 95% confidence 123 patient charts were reviewed.

Given the difficulty of navigating AHLTA, patient chart reviews could take up to 20 minutes to search for PHQ9s. Since there was no rhyme or reason to this data entry and no ability to search clinical encounters for key words, it was up to myself to sift through every clinical encounter following a diagnosis. This greatly increased the time dedicated to chart review throughout the year.

Upon completion of the chart review and analysis of the data, information recorded like the specific medicines prescribes and dates of diagnosis were recorded but not utilized in final evaluation. Rule out criteria on patients with Bipolar disorder and Psychotic disorders also had to be implemented to simplify analysis.

Unexpectedly, some patient charts had locked information for behavioral health encounters that could not be accessed. This meant that patients could have been tracked objectively with PHQ9s or other depression survey tools in those encounters but there was no way for the medicine team to know since encounters were private. This enabled us to focus strictly on best practices in the Medicine clinic regardless of other occurrences.

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

It was found that out of the 123 patients evaluated in our cohort of 181 that only 15.322% received a PHQ9 at diagnosis. Of those who had a PHQ9 at diagnosis only 13.710% received a follow up PHQ9. The range of days between initial and follow up PHQ9 was 4-265 days demonstrating no particular pattern or reason to this documentation. The average number of days between initial and follow PHQ9 of the ones completed was rounded to 85 days. Patient population had an average age of 60.64 years.

In collection of the data it became clear that there was no process or clear reasoning behind collection of PHQ9s. Clinicians often depended upon subjective patient narratives to track improvement of depression but many times there was no evidence to support continuation or change of a drug. Many clinical notes would have one to two sentences mentioning the patient's depressive symptoms but nothing further to demonstrate achieved remission, improvement, or failure on a particular drug. This led to much confusion as a chart reviewer on the historical progression of a patient's treatment. In discussion with the nursing team, there was an openness to implementing a standard process so long as it did not add more than 5 minutes to their task duty. When submitting the standardized procedures that we would like to implement in February, I was met with resistance due to the large changes that were coming in the medical record. In April the entire military was making an enormous transition from the outdated AHLTA and CHCS records to a new medical record called Genesis. This meant that before we could implement the new

processes of 1 week, 6 week, and 12 week follow up with PHQ9's at time of diagnosis/first prescription and at 6 week follow up we had to get the entire team acclimated to the new system. Therefore, the goal has become May 2021 to start the new process and evaluate if patients can receive consistent follow up hopefully leading to improved management.

**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)

Since no process has been in place at the clinic regarding collection of PHQ9 data, it will be important to take advantage of the new incoming electronic medical record, Genesis, and implement a standardized process to treat patients. Starting with a small and measurable goal is best when attacking an overall larger goal of better managing patients with depressive disorders. In the next year it will be critical to find a transition team to take over the project at the medicine clinic to track how well data collection is going following the implementation of a new standardized process. This will allow us to evaluate potential barriers, shortcomings, or issues with the newly proposed data collection. Looking into patient engagement, unintended consequences, and timing in change of medication could all provide interesting data that supports the new changes or warrants modification. Once a 6 month period is established in which 95-100% of patients are being tracked with PHQ9s and appropriate follow ups, deeper investigation can look at if patients are receiving appropriate remission and if there are certain medications performing better than others for depressive diagnoses. This data can be extrapolated to look into categories of symptoms including sleep, mood, concentration, and suicide. This data can provide insight into what symptoms are most prominent in this population and what medicines are doing best at treating specific symptoms. However, none of that can be investigated until a standard process is developed to ensure patients are followed appropriately. Each step is important to a greater goal.

# Standardizing Physician Approach to Disability Accommodations: Prescribing Support Animals

PDSA Worksheet  
Sanaa Ahmad, MS3

**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 was first introduced to disability accommodations when I heard of students taking tests at 1.5x time or 2x time as an accommodation for dyslexia, adhd, or other learning disabilities. I also heard about animals as disability accommodations and learned for the first time the full scope of the support they offer to people with various disabilities. Before, I had only really known about seeing eye dogs or dogs that perform elaborate tasks for patients. In the clinical setting I began to see animals being prescribed in an emotional support or service animal role and was confused about the distinction. I had also heard of therapy dogs before but didn't know where they fit in. I sought out this information from the Americans with Disabilities Act (ADA) website and discussed it with the disability coordinator on the Anschutz Medical Campus. In the clinical setting I noticed variable practices among providers and apprehension about prescribing animals due to concerns about liability and fraud. I felt it was important to make this process clearer for providers to ensure patients with disabilities get the accommodations they deserve.

**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.)*

Address misconceptions and knowledge gaps about the process of prescribing emotional support animals for those with disabilities, namely:

- Which disabilities qualify for animal support under the ADA (physical disabilities + DSM diagnoses), and which don't (i.e. personality disorders, pedophilia, etc.)
- Which animals qualify to be service animals vs support animals and the criteria to qualify for those roles
- What patients stand to gain from written documentation from providers
- What are the implications of fraudulent requests for animal prescriptions? Are providers liable? (no, patients are)

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

After distributing the handout to about 50 providers and making an oral presentation, I plan on eliciting oral feedback from multiple preceptors and their colleagues addressing a number of endpoints:

- knowledge gained from the presentation and handout
- change in confidence level of prescribing animal accommodations
- expected utility of the handout as a reference in their practice
- attitudes toward the practice of prescribing animals as disability accommodations for both physical and psychiatric disabilities

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

Create a 1-page reference handout for providers that addresses frequently asked questions and concerns about animal prescriptions for disabilities and provides guidance on prescribing service animals or emotional support animals.

**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.)*

Research the ADA guidelines thoroughly and call medical malpractice insurance lawyers to incorporate into a 1-page front and back handout addressing FAQs and prescribing guidelines. Collect verbal feedback from about 50 providers to measure outcomes that I predict will be fill knowledge gaps and instill confidence in providers to prescribe animals.

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

I gave a presentation to a team of 40+ primary care and healthcare providers at a clinic serving a large portion of the Colorado Springs Community. I had a Q&A section of my presentation to clarify further details and dispel misinformation. I also sought verbal feedback from about 10 providers about what went well and what was missing/still unclear about the topic, and how the handout could be improved. I also distributed the handout to my other primary care and psychiatry preceptors and elicited their assessment of the utility of the document based on how often they receive letter requests and whether it improved their knowledge and confidence about prescribing animals for disability accommodations.

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

The feedback and input I received from the providers I presented my handout to was positive with most providers saying it filled knowledge gaps and made them feel more informed about the value of support animals. They also shared that it was reassuring to find out that providers are not liable for the ultimate behavior of an animal they have not met and will be protected by their malpractice insurance against litigation for prescribing an animal to an individual who was fraudulently seeking it.

**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)*

One unexpected piece of information that I learned during this process is that the prevalence of animal letter requests varies dramatically among providers, ranging from once every few years to a few times per year to numerous times per year. Mental health providers received requests more often per year, indicating that animals might be serving psychiatric disabilities much more than physical disabilities. In hindsight, this information is not too shocking because psychiatric disabilities are more prevalent than physical disabilities. Inversely, most psychiatric care in our medical system is provided by primary care physicians. This inclines me to focus more on sharing my reference sheet with primary care providers in the future.

Adapted from the Institute for Healthcare Improvement

# **Stethoscope Sanitation: Current Knowledge and Practices**

## **PDSA Worksheet**

### **Kathryn Cataldo, MS3**

#### **BACKGROUND:**

The stethoscope is a necessary tool of medical care and has the potential to transmit infection from one patient to another when not properly sanitized. While hand sanitation rates are improving, stethoscope sanitation rates remain low. It is unclear whether the disparity in sanitation effort represents a lack of knowledge regarding the risks of bacterial transmission by stethoscopes or whether it is the result of a structural disparity inherent in medical facilities. Hand sanitation options are widely available inside and outside patient rooms, workstations, and hallways. Sanitation options for stethoscopes are not widely available.

#### **AIM STATEMENT:**

The aim of this project is to better understand current knowledge and practices regarding stethoscopes as a mechanism of infection transmission at two community hospitals (UC Health Memorial Central and Memorial North) and to improve stethoscope cleanliness through education and availability of appropriate cleaning supplies.

#### **MEASURES:**

I will use a cross-sectional survey at Memorial Central and Memorial North given to Attending Physicians, Resident Physicians, Medical Students, APPs, and Nurses that asks about the individual's knowledge regarding stethoscope-transmitted infection, guidelines for stethoscope sanitation, availability of education on the subject, as well as self-reported frequency and mode of stethoscope sanitation.

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

The goals of this project center around improving stethoscope sanitation between every patient through provider education and improved availability of cleaning supplies. Long-term, the hope is that improvement in this area will lead to improvement in transmission of hospital-acquired infection as was seen upon improved hand sanitation.

#### **STAKEHOLDERS:**

Stakeholders for this project include the patients, their families, the clinical staff, the support staff, local and regional UC Health administrative personnel, insurance companies, and the community at large.

#### **PLAN:**

I plan to conduct a cross-sectional survey at Memorial Central and Memorial North, which will be given to Attending Physicians, Nurses, APPs, Resident Physicians, RT, and Medical Students (CUSOM and Rocky Vista). The goal of the survey is to better understand how often patient-facing staff are cleaning their stethoscopes between every patient and whether the deficit is

primarily related to a lack of education on the infectious risk associated with stethoscopes or a lack of readily available cleaning supplies for stethoscopes as compared to hand sanitation.

### **DO:**

An anonymous nine question <1 min electronic survey was distributed in a nodal fashion to several CSB attendings in different departments, who then forwarded it broadly within their respective departments. The survey was electronically distributed to the CSB class of 2022 directly. It was also distributed and collected in person on the Memorial Central and Memorial North campuses.

As of the collection date on 4/5/21, there were 168 respondents to the electronic version and 34 responses in person. The in-person responses were then manually added to the electronic excel data.

I found it challenging to identify points of contact within several departments, including Gastroenterology, Cardiology, Oncology, and Infectious Disease. As a result, several departments were inadvertently excluded from the study. Initially, I also found it challenging to reach certain subpopulations within each department, such as the APPs and Nursing team. This barrier was overcome in at least one case where the Attending Physician was able to identify a Nursing List-Serve to which the survey could then be delivered. As a result, there ended up being considerably more Nursing respondents overall. At first, the uneven response seemed as though it might skew the data. Upon further reflection, Nursing makes up the bulk of patient-facing care within hospitals, so the distribution of responses by job title is actually more reflective of the working environment. Lastly, I was not able to reach any Residents or Rocky Vista students.

### **STUDY:**

There were a total of 202 respondents to the survey (50% Nurses, 29% Physicians, 19% Students, and remaining APPs and RT). Noteworthy values include 46% of respondents saying they do not clean their stethoscope between every patient with 25% averaging once per shift, and 6% averaging less than once per month. Of 202 responses, 201 reported they were aware that stethoscopes could transmit infection, only 17 reported they knew how to clean their stethoscopes, and 4 believed that UC Health provided education about the topic. Importantly, of the 17 individuals who indicated they know how to properly clean their stethoscopes, 12 reported cleaned it between every patient.

One major drawback to the method I used is that these data are entirely self-reported and therefore accuracy cannot be confirmed. Though the survey was anonymous, we all possess biases that lead us to portray ourselves in a more favorable light. However, I believe there is also value in elucidating how an organization feels they are performing at a task, independent of how well the task is actually being performed. For data collected in this manner, it may be appropriate to interpret the results as perceived room for improvement. These data suggest that nearly half the surveyed patient-facing staff believe there is room for improvement.

### **ACT:**

To a large extent, this type of work relied on buy-in from those who would then distribute the survey to their department. If I were to repeat this phase of the study in the future, I would ideally identify a willing point of contact within all the major departments that would be able to reach the different types of team members.

Having the survey distributed electronically was far more successful than I had anticipated it would be. For future efforts, I would preferably exclusively distribute the survey electronically.

It is possible the survey could be more well-written. Many team members work in multiple departments, both in the inpatient and outpatient setting. For ease of data analysis some departments (such as Neuro and Cardio) were necessarily lumped in with “Medicine” and I only allowed a single answer to be chosen. Wording and answer choices could be rewritten to better accommodate the realistic working conditions of UC Health employees.

Next steps on subsequent phases could include distribution of educational materials with before and after surveys analyzing effectiveness. Long-term goals include improved access to cleaning supplies (to mirror access afforded to hand sanitation), the lack of which I suspect is the major contributing factor to poor sanitation efforts.

Though it is out of scope for this particular project, it would also be interesting to investigate whether improved stethoscope sanitation ultimately leads to reduced transmission of hospital acquired infection.

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# Time to Antibiotics for Pediatric Open Fractures

## PDSA Worksheet

Naomi Kelley, MS3

### **BACKGROUND:**

Although open fractures are relatively uncommon in the pediatric population, these injuries carry serious potential for harm if they become infected. Risks for developing a fracture-related infection include fracture location, severity, timing to antibiotic administration, and time to operative management. Recent literature has suggested that prompt administration of antibiotics to open fractures is more important than emergent debridement or other procedures. In order to prevent infection, most studies recommend that patients should receive antibiotics no later than 1 hour after their injury. Prior to this QI project, Children's Hospital Colorado Springs has shown an average time to antibiotic administration for open fractures to be well above 60 minutes. Our goal is to reduce this time by providing education to Peds ED physicians about the 60 minute benchmark for antibiotic administration in hopes that we can reduce this time and prevent more fracture-related infections.

### **AIM STATEMENT:**

A multidisciplinary intervention was developed and implemented at an academically affiliated Children's hospital starting in Sep 2020 to ensure appropriate antibiotic administration within 60 minutes of patient arrival to the ED.

### **MEASURES:**

*Primary outcome measure:* Time (minutes) elapsed between open fracture presentation to ED to antibiotic administration.

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

This project involved the following multidisciplinary interventions made in September 2020.

- EM physicians were briefed on current ACS guidelines during a monthly staff meeting
- Pharmacy educated staff to prepare antibiotics within 3 minutes of a potential open fracture arrival to the ED.
- ACS guidelines were sent to all ED nurses in a monthly newsletter.

### **PLAN:**

Who: All patients with open fractures that come to Children's ED.

- Transfers and skull/face fractures are excluded

What: Reduce the time to antibiotics to be < 60 minutes to comply with national recommendations

When: May 29<sup>th</sup>, 2019 – February 30<sup>th</sup>, 2021

Where: Pediatric Emergency Department at Children's Hospital Colorado Springs

- The following data was collected: hospital arrival date/time, body region and type of fracture, time between presentation to ED to antibiotic administration.
- We predict that informing Peds ED physicians, pharmacists, and nurses about the 60 min benchmark will decrease the time to antibiotics for open fractures to meet ACS guidelines.

### **DO:**

- We were able to carry out our plan without any significant set backs.
- Some problems we encountered include:
  - In some cases (i.e. full traumas) antibiotics are given immediately even though orders are not charted and signed at that moment. Thus, inaccuracies in documentation may contribute to outliers
  - Limited sample size made some data vulnerable to skewing.



## **STUDY:**

### Results:

- 34 total open fractures presented to the ED between June 2019 – Feb 2021. 26 fractures were included in the study, 8 fractures were excluded because they were either transfers or skull/face fractures
- Ulnar fractures were most common (38%). Upper extremity fractures had an average time to antibiotics of 80 minutes (98 min pre-intervention, 41 min post-intervention)
- Fractures of the fingers and toes had the most time to antibiotics with an average of 99 minutes. However, the time to antibiotics improved from an average of 107 minutes pre-intervention to 43 minutes post-intervention.
- Lower extremity open fractures had the shortest time to antibiotics with an average of 34 minutes (51 min pre-intervention, 15 post-intervention).
- Overall, the average time to antibiotics from decreased 71% from 110 to 32 minutes.

### Discussion:

- Pediatric open fractures are considered orthopedic emergencies given their high risk of infection and associated morbidity.
- Prior to our intervention, the average time to antibiotics was well above ACS guidelines and showed large variance in time.
- Open fractures with obvious deformity are more common in the upper and lower extremities .
- Lower extremity fractures had average times to antibiotics below ACS guidelines throughout the study with minimal variance suggesting these injuries are more quickly identified by providers.
- Upper extremity fractures were the most common. The intervention resulted in a significant reduction in time to antibiotics ( $p = 0.015$ ).
- Fractures that are less obvious (i.e. fingers and toes) often require imaging for diagnosis, which delays antibiotic administration. Furthermore, some fractures may not be diagnosed as open until they are surgically debrided and reduced in the operating room. This is reflected in the pre-intervention data (mean = 107 min). While this data set is limited, the intervention appears to have decreased time to antibiotics in this subset of patients.
- Since the intervention, there have been zero cases in which antibiotics have been delayed greater than 60 minutes.
- In summary, ACS open fracture guidelines were met after briefing EM physicians, pharmacists, and nurses about the importance of early antibiotic administration.

## **ACT:**

ACS open fracture guidelines were met after briefing EM physicians, pharmacists, and nurses about the importance of early antibiotic administration.

### Future Directions:

- Recurrent provider CME on subject matter for physicians.
- Give physicians real-time feedback about their timing of antibiotic administration.
- EMR notification for physicians and pharmacy when there is a fracture in triage.
- Assess frequency of infection before and after intervention

# Unmasking Empathy: Bridging Quality of Care Gaps During a Pandemic

## PDSA Worksheet

Ann Rowland, MS3

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

The root of my QI project is based in the importance of communication in the patient experience and in healing. With the COVID 19 pandemic, masks have become a normality of everyday life. They have been strongly opposed, but the importance of mask adherence is important for limiting viral spread. Masks negatively impact comprehension of conversations, which really can be detrimental in the medical field where we are trying to get information to help our patients as well as give information and directions for our patients to follow.

Not only do masks impact comprehension, but they also impact the perception of empathy. While the eyes can convey some empathy, it is not the same as what the totality of facial expression can do for a patient. The perception of empathy can make a huge contribution to the healing process.

I think that it is very important to work to preserve both verbal and nonverbal communication during the time of COVID.

**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 January 1, 2021, we will have improved our rating of perceived empathetic care and understanding of plan of care as identified through surveys distributed to patients and nursing staff on MHC 65.

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

I am going to measure

1. Perception of empathy of the care team both before and after implementation of pamphlets to improve communication with masks
2. Perception of psychological distancing both felt by providers and patients
3. Understanding of care plan both before and after implementation of communication skills

These measures will be assessed by surveys, one given to the care team and one given to patients. The questionnaire will be directed to look at empathy, communication, and overall interaction and patient-provider experience. Then pamphlets will be distributed around the 6<sup>th</sup> floor, surgical wing to help give nursing staff and surgical staff skills and ideas to improve interactions with patients and

providers. Starting January 1-February 15, surveys will again be given on the floor to patients and providers. Then we can assess if there has been any change in the perception of empathy, communication and overall interaction before and after the implementation.

**CHANGE(S):**

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

The changes include the introduction of pamphlets in break rooms on the 6<sup>th</sup> floor and the surgical lounge. The pamphlets will give provider tips for improving communication despite the challenges posed by mask usage.

**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.)*

Who: Nursing staff in pre-op, POHA, PACU, and on the surgical floor. Will communicate with nursing educators on ways to best engage nursing staff and distribute project.

What: Distribution of pamphlets that will provide tips and education on skills to improve communication and empathy.

When: Following discussion with charge nurses and nursing educators, we plan to start pre surveys and distribution by early November, providing a few months for integration of the tools and skillset before following up with a follow up survey on empathy in January. Throughout, the plan is to provide patients another survey to identify the perception of empathetic care they receive in the hospital.

Where: The program will be initiated at Memorial Hospital Central, targeting nurses involved with surgical patients, particularly pre-op, POHA, PACU, and on the surgical floor.

Data Collection: The data collected will include pre- and post- intervention responses to the Jefferson Scale of Empathy (JSE) as well as responses from patients on the Jefferson Scale of Patient Perception of Physician Empathy (JSPPPE). This will show if there is a change in self-reported empathy scores and if they line up with any increase in scores of patient perception of empathy.

Prediction: I predict that following provision of the importance of empathy and ways to express empathy while wearing a mask, both patient rating of empathy treatment as well as self-reported empathy scores will increase.

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

The project was significantly changed from the initial plan due to time constraints as well as what was believed to be the best way to make an impact. We also were not even able to start the study until mid-February whereas we had aimed to have already implemented the change by the first of the year.

Because of the time limitation, we were not able to provide surveys to patients because this would have required going through more approval processes. While this was a loss of a valuable measure, we did reach our nursing audience in a more effective way by utilizing a prerecorded video lecture that could be watched at the staff's convenience. While it is possible that more nurses may have picked up pamphlets and looked through them in passing, it is likely that watching the video drove home the point of the project in a more meaningful manner.

When the initial survey and video were distributed, it ended up being challenging to get the target audience to participate. Despite multiple follow up emails, we only had about 30 views to the video and only 21 responses to the initial survey.

Participation in the second follow up survey was even more challenging, and again despite multiple follow up emails, only gained 7 responses, and while all responses had been completed on the initial survey, only \_\_\_\_\_ of the follow up surveys were completed.

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

By utilizing the scoring system provided by the Jefferson University who had developed the surveys that were distributed to evaluate empathy, there was a pre- intervention average based on 21 participants resulting in an empathy score of 116.3 out of a possible total of 140.

Following the intervention of the Unmasking Empathy video, the average empathy score was \_\_\_\_\_ out of a possible 140 based on \_\_\_\_\_ participants.

In the follow up survey, I also included a few additional questions about what the participants thought about the value of the project.

**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)*

For the next cycle, it would be valuable to start earlier in order to gain permission to incorporate patients into the study design. They would be a valuable way to measure if there truly is a change in the way staff are conveying empathy. We already know from prior studies that providers rate their empathy as higher than patients rate the empathy of their providers. Because the current project only was able to express their own self-reported empathy scales, and the purpose of this study was to improve empathy, it very well could be that this influenced the post- intervention survey results. Having a longitudinal evaluation by patients may show a general trend in changes in perceived empathy. Therefore, in the next cycle, it would be valuable to start earlier on getting the project approved.

Secondly, in the next cycle, it would be valuable to increase the size of the intervention so as to include all healthcare providers and all patients that were

willing to participate. This would allow for a bigger sample size which in turn would allow us to get a more accurate idea on if there was an impact made by the intervention. More responses could be collected and by having patients, we could have an unbiased mechanism to evaluate change in empathy.

While some participants rated that the session was very valuable and helpful for them and they would like to have more sessions like this, it was almost an equal amount that were indifferent or had negative feelings toward the session. Before trying to implement a follow up session on a system wide basis, it would be valuable to reach out to those that participated to identify ways to make this session more meaningful to the target audience. Nurses are very busy and stressed, particularly during the pandemic and the goal is not to increase the workload but to provide skills where healthcare workers feel there could be improvement. Therefore, it is important to learn from the feedback on this project so as to make future projects better.

Adapted from the Institute for Healthcare Improvement

# Virtual vs In-Person: an Analysis of Encounter Quality

## PDSA Worksheet

### Jacob Gabbay, MS3

**BACKGROUND:** *The world in 2020 was flipped upside down when COVID hit. Everything has changed from the way we work to the way we interact with those we love. Medicine has been no exception in this. Virtual visits have been implemented heavily to reduce risks for both the patients and their providers. This rapid adoption of telehealth has been mostly welcomed across medicine but questions regarding the quality of care that can be given during virtual visits remains. My project will attempt to determine medication adherence rates after in-person visits versus virtual visits. It interests me because I am very curious about the dynamics of patient provider relationships and I want to learn more about what it takes to establish a therapeutic alliance. This issue is important because it may help determine the strengths and limitations of virtual visits.*

**AIM STATEMENT:** *The aim of this study is to gain a better understanding of the efficacy of virtual visits. The eventual goal would be to create information that will influence providers' use of telehealth visits.*

**MEASURES:** *In order to measure medication adherence rates for telehealth visits versus office visits, the plan is to take a sample group of patients who have been seen within 14-20 days previously and measure their medication adherence rates for a new medication using a standardized adherence questionnaire.*

**CHANGE(S):** *The changes that are being made globally are the adoption of virtual visits for seeing patients. These visits have the potential to reduce costs to the healthcare system, reduce patient risks and increase convenience for all parties involved.*

**STAKEHOLDERS:** *Potential stakeholders would be: individual providers, hospitals/clinics/healthcare systems, insurance companies, telehealth companies, and patients/families.*

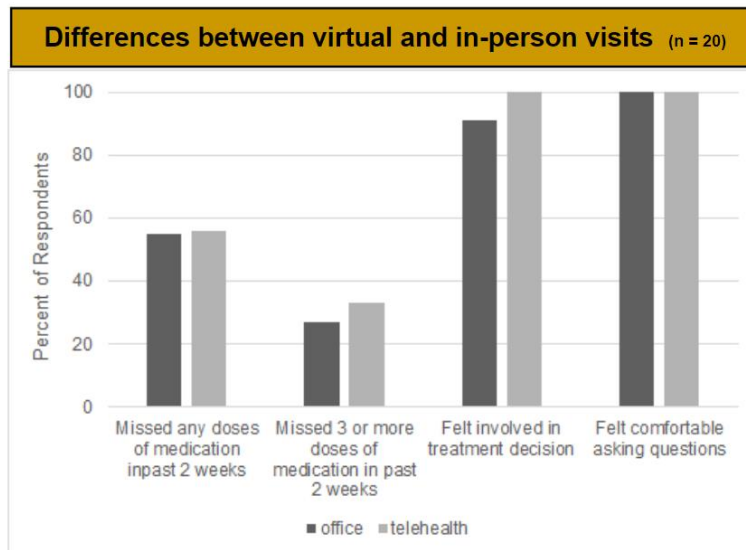
**PLAN:** *For this project we would like to collect medication adherence data for patients conducting visits through telehealth vs those seen for in-person visits. The patient population will be those who have been seen by a Kaiser provider within the past 14-20 days and were started on a new medication. The data will be collected by phone with use of a standardized script. Once this data is collected, we will use a t-test to compare survey outcomes. This survey will also give us additional information about barriers to medication use as well as risks for future nonadherence. My prediction is that in person visits will have a slightly higher medication adherence rate, likely due to the inherent, greater connection that is felt after meeting with someone directly.*

**DO:** *During data collection it was observed early on, that it would be difficult to get the proper number of data points. The original intention was to use patients only from one provider, however, this provider was working part time, and the time constraints made it too difficult to collect enough data. To work around this, we started using data from other providers in the same Kaiser office. Other issues that came up was that people were hesitant to admit missing days of taking their medication. Although people may have been honest, it seems unlikely that not a single person within the 20 people surveyed forgot a single day of medication. One last issue that*

came up, was with survey administration. There was several patients who felt uncomfortable that their health information was being accessed for research. While it was explained to them that the information was deidentified and purely academic, they still declined the survey.

**STUDY:** The main information acquired from the study was that no significant difference was found between medication compliance and perceived visit quality in this study. The most common reason for missed medication doses was limited access to the pharmacy. The absence of significant differences between virtual and in-person visits was surprising and suggests a strong indication for further research. Below is the standardized interview questions as well as the quantitative data regarding visit quality.

Interview questions	
Were there any days in the past 2 weeks you did not take your medication?	
Were there 3 or more days you did not take your medication?	
Which of the following reasons caused you to miss doses?	
-difficulty accessing pharmacy	-forgetting
-financial limitations	-side effects
-feeling better	-didn't feel appropriate
Did you feel involved in the treatment decision?	
Did you feel comfortable asking questions during your visit?	



**ACT:** While the study found an interesting absence of difference between visit types, there was many inherent flaws of the study that limited the applicability. These included a small sample size, variations in prescription type and difficulty of administration, possible hesitance to admit nonadherence, and limited providers involved. Next steps to improve these issues and gather more data would focus on obtaining more specific information. This could include rates of “no shows”, pharmacy refill rates (more objective measure), effects of duration of patient-provider relationship, nature of the chief complaint, age of the patient, and verbalized understanding of complex treatment plans.