The Impact of Education on Inpatient and Outpatient Bowel Preparations

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Abstract

A colonoscopy is an important preventative, diagnostic, and therapeutic procedure, but its effectiveness largely depends on the adequacy of the pre-procedure bowel preparation. When bowel preps are inadequate, there are increases in missed neoplastic lesions or cancers, inconveniences to the patient with additional hospital stay, and increased risks of procedural adverse events, like perforations. Studies show that inadequate bowel preps lead to incomplete procedures and delays in care for patients. Studies conducted on educational strategies of bowel preps show a link between education and adequacy of bowel preps. This project utilizes in-person verbal and written education for inpatient participants and telephone education for outpatients. This education will reiterate the importance of drinking the entire bowel prep, answer any questions the participant may have, and identify any potential barriers preventing the participant from having an adequate colonoscopy. Data was collected from pre-intervention and post-intervention groups for both inpatient and outpatient colonoscopies using ProvationMD reports charted by the gastroenterologists. 50% of inpatient and 40% of outpatient colonoscopies had inadequate bowel preps in the pre-intervention groups. 35% of inpatient and 10% of outpatient colonoscopies had inadequate preps in the post-intervention groups. A decrease in inadequate bowel preps was noted in the inpatient groups, but it was not a statistically significant difference. A statistically significant decrease in inadequate bowel preps was found for the outpatient groups. This project aimed to increase the adequacy of bowel preps through an educational program. With knowledge gained, pre-procedure education may become a new standard practice with inpatient and outpatient populations.

Keywords: inpatient colonoscopy preparation, increasing quality of bowel preparation, colonoscopy education, patient education

The Impact of Education on Inpatient Bowel Preps

A colonoscopy is the gold standard for colon cancer prevention according to the American Society of Gastroenterologist (*Colon Cancer Screening,* 2017*).* The success of colonoscopy is dependent upon the quality of the bowel prep. For the colonoscopy to be a success, the patient is instructed to perform a bowel prep, which includes consuming a prescribed drink in order to clean out the bowel leaving the physician or gastroenterologist with a clear and unobstructed view of the colon. Research has demonstrated that hospitalized inpatients tend to have inadequate bowel preps nearly 51% of the time, resulting in increased costs to the patient related to additional hospital stay, subsequent colonoscopy procedures and missed colon polyps and cancers (Garber, 2019).

Overview

Problem Description

The GI/Endoscopy lab at a Midwest Hospital provides Gastroenterology procedures for both inpatients and outpatients. The GI Lab performs roughly 600 inpatient and 2,100 outpatient colonoscopies per year. For the past several years, according to Provation MD, the system allowing physicians to document procedural findings, the GI Lab has inadequate inpatient bowel preps nearly 40%-60% of the time. Outpatient bowel preps are inadequate roughly 30%-50% of the time.

With a colonoscopy, the physician comments on the quality of bowel prep with a description of “Excellent, Good, Fair, or Poor”. Inpatients and outpatients are considered to have an inadequate colonoscopy prep if it is rated “Fair or Poor”. If inadequate, inpatients are often rescheduled for a subsequent colonoscopy, either during the same hospital stay or as an outpatient. Following inadequate bowel preps for outpatient colonoscopies, the test is either

rescheduled for another day or the doctor decides to simply accept the results already gathered and forego a subsequent colonoscopy. With nearly 300 inpatients and 840 outpatients needing an additional colonoscopy and possible hospital stay, the costs associated with a poor bowel preps are significant.

Inpatients currently have drastically higher rates of inadequate bowel preps than those outpatient patients who are having a colonoscopy. Hospitalization alone may present a barrier to adequate bowel preparation in addition to causes such as: dehydration, pain, pain medication usage, immobility, comorbidities, and/or lack of proper education. Outpatients deal with these same barriers, although outpatients often have a better short-term health status. Better health status likely leads to lessened side effects of the prep, allowing for better adherence to the bowel prep.

Considering these barriers, education is one of the most cost effective and simple barriers to modify with the goal of increasing the quality of bowel prep. A study conducted by Rosenfeld (2010) demonstrated a significant increase in the quality of inpatient bowel preps with education prior to the procedure. Education can be written, verbal or digital. Considering this research, the problem addressed was: Did inpatient and outpatient adults at a Midwest regional hospital, who received education prior to initiating their colonoscopy prep, have better rated bowel preps versus those who did not receive education prior to their colonoscopy over a 2-week period?

To measure success in this project, the project facilitator reviewed physician documentation surrounding bowel prep ratings. It was expected the rating for bowel preps would improve to “good” or “excellent” because of this project. Success of the interventions would be acknowledged with an increase in quality of inpatient and outpatient bowel preps rated “Good or Excellent” by the physician.

Available Knowledge

A colonoscopy is an important preventive, diagnostic, and therapeutic procedure, but its effectiveness largely depends on the pre-procedure bowel preparation. When bowel preparation is inadequate, there is an increase in missed neoplastic lesions or cancers, inconvenience to the patient with additional hospital stay, and increased risk of procedural adverse events, like perforation. In a study conducted at Virginia Commonwealth University Medical Center, most inpatient colonoscopy preparations were rated as suboptimal, leading to incomplete or aborted procedures. These procedures needed to be rescheduled and delayed the patient's discharge from the hospital (Chambers et al., 2016).

A quasi-experimental study conducted by Chorev et al. (2007) aimed to identify factors that affect inpatient bowel preparation success and examine the differences in preparation quality between inpatients and outpatients. A total of 303 outpatient and 104 inpatient colonoscopy medical records were retrospectively reviewed. The hospitalized patients were significantly older, had lower levels of activity, and higher rates of severity of illness than outpatients. The hospitalized patients had more incomplete or repeated colonoscopies and poorer quality of preparation (Chorev et al., 2007).

Barriers

Hospitalization is a barrier itself for inpatients completing a bowel prep. For inpatients and outpatients, a lack of education, dehydration, opioid medications, pain, lack of mobility, and additional health comorbidities are barriers to receiving an adequate bowel prep. Many strategies have been implemented to address these barriers by various studies. Hernandez et al. (2020) examined how different types of bowel preps used for inpatient colonoscopy preps have different

efficacies. It was discovered that GoLytely, a large-volume bowel prep, tends to have lower success rates for inpatients.

Gu et al. (2019) found this to be true for outpatient colonoscopies as well. GoLytely ranked lowest of the 7 bowel preps used. Other preps like Moviprep, Miralax with Gatorade, Preponik/Clenpiq, Suprep, Magnesium citrate, and Osmoprep ranked higher due to factors such as lower volume amounts, better taste, and enhanced tolerability.

Typically, large volume bowel preps, like GoLytely, are the standard order for both inpatient and outpatient colonoscopy preps. Often patients cannot tolerate the volume of fluid, 4 liters. If they are unable to finish the bowel prep, their procedure can be delayed as their bowel may not be completely clear. Newer, small volume bowel preps are becoming increasingly popular and they are better tolerated and consist of smaller amounts of fluids. This barrier was explored by the writers at the Midwest regional hospital, and it was discovered that the cost associated with the newer bowel preps is higher, roughly $60-$100 for the hospital's cost versus $10 for the GoLytely bowel prep.

Several studies have addressed the inadequate inpatient bowel preps with implementing a standardized order set for those inpatients receiving a bowel prep. At Virginia Commonwealth University Medical Center, an evidence-based practice model was used to implement an electronic colonoscopy order set. This resulted in improved quality of colon preparation and reduced canceled procedures. The potential savings for the hospital attributed to improvements in the bowel preparation processes for inpatient colonoscopies were calculated to be $418,200.00 annually (Chambers et al., 2016).

Educational Intervention

Educating inpatients and outpatients on the expectations of completing a bowel prep can be done via verbal, written, or digital instruction. Many studies have been conducted to investigate different educational strategies that influence the outcome of bowel preps. Ergen et al. (2016) found that the proper use of educational booklets almost doubles the rate of quality bowel preps. The authors used a randomized, single-blind, controlled trial and found that 62% of those receiving an educational booklet had adequate bowel preparations compared to 35% of those not receiving the booklet.

According to the service leader at a Midwest regional hospital's GI endoscopy unit (personal communication, July 1, 2020), inadequate bowel preps have been continuing to increase and have been an issue since she has worked in the field the past 20 years. She states that 30 to 50% of bowel preparations performed on an outpatient basis are rated as poor or fair, which is considered inadequate on the unit.

In a broad systemic review by Kurlander (2016), 1,080 abstracts were examined for improvements on inpatient bowel preps using education. Data from 2,660 patients demonstrated a rise in the quality of bowel prep when educational interventions were initiated. One limitation, despite the significant number of studies reviewed, is that the studies themselves were relatively small and the educational interventions varied.

A meta-analysis of primarily outpatient colonoscopy procedures done by Guo et al. (2020) found that reinforced education led to significantly improved bowel preparation quality, as well as reduced adverse events, decreased colonoscopy time, and increased adenoma and polyp detection rates. For those receiving reinforced education , 87.3% had an improved quality

of bowel preparation while 74.4% of those receiving standard education had an improved quality of bowel preparation.

A common theme gained from this literature review suggests that a strong educational program can have a positive impact on the quality of bowel preparations. Effective patient education leads to increased quality of colonoscopies, which positively influences patient outcomes, including physical health and financial well-being. When it comes to education about bowel preparation, healthcare practices should recall general principles of health education, including the importance of teach-back, encouraging questions, and hands-on demonstration (Kurlander, 2016). Ideally, high quality written instructions would be combined with verbal in-person education. Rosenfeld et al. (2010) supports this position and concluded in an experimental study that providing patients with verbal and written instructions was an inexpensive and simple intervention that led to better quality of colonoscopy preps.

While many of these studies had smaller populations, a majority support the educational intervention for better colonoscopy bowel prep. Spiegel et al. (2011) analyzed a total of 436 inpatients at a VA Medical Center who were scheduled for a colonoscopy. This study concluded that a novel educational booklet considerably improved preparation quality in patients compared to those patients who did not receive any education.

Comparison

Patients who are scheduled for colonoscopies when hospitalized tend to have more comorbidities than those who are scheduled on an outpatient basis. These comorbidities contribute to the inadequacy of bowel preparation. When compared to inpatients, outpatients tend to have adequate bowel preparation 67% of the time, higher colon polyp detection, and

quicker terminal ileum intubation time. Inpatients had a higher rate of colon mass detection (Almadi et al., 2018).

Rationale

Theories and framework help to identify strengths and weaknesses in policies and standards. Regarding educational interventions to improve inpatient and outpatient bowel prep quality, the Planned Model of Change theory, specifically the "Precede-Proceed" method, provides the necessary framework for process improvement. This model of health education began development in 1968 to develop and evaluate health education programs. This model focuses more on outcomes than it does inputs. The precede-proceed model evolved to counteract the negative connotations of health education. Before this model, health education was viewed as negative, arbitrary, and ineffective (Gielen et al., 2008).

This model is based on three principles. The first principle is that the audience is actively participating in determining the health issues, defining goals, and applying solutions, there is a clearer chance of achieving success. The second principle declares that political, media, and social factors have influence on health behavior. The third principle explains that any health changes or behavior need to be voluntarily chosen. Due to this voluntary nature and the fact that personal goals and desires vary widely from person to person, there needs to be fluid criteria on most health behaviors (Gielen et al., 2008).

Precede-Proceed framework specifies the steps that precede an intervention (education) and suggests ways to proceed with its implementation and evaluation. In the *precede* stages, the problem is identified and contributing factors are identified, such as the lack of quality bowel preps among hospitalized inpatients due to factors previously listed (Shojania et al., 2004). These factors are categorized theoretically as predisposing, enabling, or reinforcing, and then rated in

terms of importance and potential to change. The key *proceed* stages are implementation and evaluation of the intervention (Shojania et al., 2004). This step in the theory includes the actual education from the GI Lab nurses to the inpatients prior to drinking their bowel prep. The evaluation stage examines the degree to which the protocol was implemented, and the effect the education had on the quality of bowel preps. This evaluation is easily done through the ProvationMD program utilized during the colonoscopies.

Utilizing the "Precede-Proceed" theory can help implement the educational intervention to the inpatients and outpatients for the capstone project. This theory lays the steps out for effective implementation and potential policy change.

Purpose

The purpose of this project was to increase the quality of inpatient and outpatient colonoscopy bowel preps by examining the relationship between patients who received verbal and written education, compared to patients who did not receive the educational intervention.

Methods

Context

The GI Endoscopy lab at a Midwest regional hospital performs numerous inpatient and outpatient adult gastroenterology procedures daily. Of those procedures, roughly 600 inpatient and 2,100 outpatient colonoscopies are performed annually. Inpatients and outpatients are scheduled for colonoscopies for various diagnostic and therapeutic reasons such as gastrointestinal bleeding, abdominal pain, anemia, and inflammatory bowel diseases. Current policy does not ensure patient education prior to their procedure. When an inpatient is scheduled for a colonoscopy, the GI nurse practitioner, physician, or bedside nurse may educate the patient about drinking the bowel prep to some degree, if at all. From the outpatient standpoint, often the

patients are scheduled for a colonoscopy and receive their written instructions months in advance. There is no standardized follow up or contact made after that point to clarify instructions or review them. There was organization support for this project.

Intervention(s)

When patients were admitted to the hospital with a GI consult, the Gastroenterology team visited and examined the patient. If needed, the GI team put an order in for the patient to be scheduled for a colonoscopy. This order included nothing by mouth (NPO) after midnight, except the bowel prep, clear liquid diet the day before the colonoscopy, and drinking the bowel prep. The GI Endoscopy lab received notice of the inpatient addition to the schedule the day before the procedure was scheduled to be performed.

To implement the educational interventions, the nurse/nurses in the GI Endoscopy lab examined the procedural schedule for the following day and identified any inpatient colonoscopies that were scheduled. All inpatients scheduled for a colonoscopy were educated. The GI endoscopy nurse visited the inpatient and discussed the importance of the bowel prep using educational binders and information related to the colonoscopy. When the inpatient arrived in the GI Endoscopy lab, the charge nurse communicated with the staff nurse caring for the patient that day. The nurses discussed the quality of bowel prep and if the patient's bowel movements were "clear", which was the goal result. If the patient was not "clear", communication with the physician was done to determine if any additional prep needed to be given or if the physician was okay with them being scoped at that time.

For outpatients, a colonoscopy was decided on by a physician and a pre-colonoscopy appointment was scheduled in the outpatient GI clinic. Outpatient colonoscopies were scheduled in advance, rather than next day like the inpatient procedures. A patient scheduled for an

outpatient colonoscopy had an appointment ahead of time with the gastroenterologist in the clinic. It was during that meeting that the patient was scheduled for a colonoscopy for a later date. Bowel prep instructions were given to the patient during this appointment, and included times to arrive at the GI lab, which bowel prep to drink, and how to drink it.

The nurse/nurses checked for these appointments at the beginning of the day and marked that chart as needing the educational intervention. The educational intervention occurred one week before the outpatient procedure. A list of patients and their scheduled colonoscopy time was obtained from the GI Lab. A phone call was made to the patient to discuss the bowel prep, remind them of foods and medications to avoid while prepping, and educate them on the importance of drinking the entire bowel prep solution for the colonoscopy to be successful. It was also discussed what to do in case any side effects occur from the bowel prep, like nausea or vomiting. Education for inpatients and outpatients was the same, only the delivery differed as inpatient was in person and outpatient was over the phone.

Education for this project was performed verbally with written instructions by a gastroenterology nurse to allow for more thorough education and response to questions regarding the bowel prep and procedure. In person education allowed for any questions to be answered and a complete education to be done by a specialized nurse. If any barriers were identified, the nurse addressed them with the gastroenterologist or other physician on the care team, which allowed for an optimal bowel prep.

During the colonoscopy, the gastroenterologist commented on the ProvationMD report on the quality of the patient's prep. With patients receiving extra education regarding the importance of their bowel prep, the result was hoped to be an increase in preps rated "Excellent or Good" by the physician.

The researchers collaborated with the gastrointestinal lab nurses and received their feedback regarding this project. The education given to the nurses prior to implementing the educational interventions involved the implementation plan of in-person and on-the-phone education to patients and the review of the GI education binder. The educational intervention was in place for 2 weeks, allowing 20 patients' data, for each inpatient and outpatient, to be collected for interventional comparison. These patients were compared against 2 weeks of past data just prior to educational interventions were initiated.

Study of the Intervention(s)

Determining the success of the educational interventions was assessed using the number of patient's bowel preps rated "Excellent or Good" by the physician. If there was an increase in quality of bowel prep, the educational interventions were successful. If there was not an increase in the quality of bowel prep, future case reviews could determine other barriers for that patient. Data collection entailed reviewing each patient's ProvationMD report after the completion of their procedure. Data gathered included age, gender, and rating of bowel prep by the physician. The data was also broken down into inpatient and outpatient categories.

Measures

Essential attributes of a dependable bowel preparation quality scale include reliability and validity (Kastenberg et al., 2018). Colonoscopy preps are often rated using a scale to indicate the quality. Scale reliability involves being reproducible and consistent for the physician or physicians scoping. Validity indicates how well the scale measures what it is designed to assess, which in the case of colonoscopies was how well the scale really measured how well the colon was cleaned. Validity may be assessed by comparison with results of other established and accepted scales used for the same purpose (*i.e.*, bowel preparation quality).

The most well established and commonly used validated bowel preparation quality scales in clinical trials include the Aronchick Scale, the Boston Bowel Preparation Scale (BBPS), and the Ottawa Bowel Preparation Scale (OBPS). ProvationMD used the Aronchick scale which allowed the physician to grade the colonoscopy prep as "Poor, Fair, Good or Excellent". A successful colonoscopy was rated as good or excellent.

The Aronchick scale consists of the descriptions: Excellent: Small volume of liquid; > 95% of mucosa seen. Good: Clear liquid covering 5%-25% of mucosa, but > 90% of mucosa seen. Fair: Semisolid stool could not be suctioned or washed away, but > 90% of mucosa seen. Poor: Semisolid stool could not be suctioned or washed away and < 90% of mucosa seen (Kastenberg et al., 2018).

While this scale was utilized by all physicians that performed colonoscopies during the study, the rating was slightly subjective as each physician has different scoping abilities and may find a colonoscopy prep better/worse than one of their partners. This information was taken into data collection to analyze trends among each physician and may be worked out for future recommendations.

Analysis

The project followed a descriptive quality process improvement design. The data gathered from the ProvationMD report included quantitative data recorded from a pre-intervention group not receiving the education intervention and the sample group post-intervention. The sample size for the pre-intervention group and post-intervention groups (for both inpatient and outpatient) was 20 participants per group. The data gathered from ProvationMD was presented by ordinal numbers. An excel program was used to enter the data and keep it orderly.

As the pre-intervention groups and post-intervention groups had small sample sizes, a Statistical Package for Social Sciences (SPSS) was used to conduct a hypothesis test for proportions to determine significance. The Chi square test was chosen as this test aimed to determine the relationship between the variables, or the relationship between education and bowel prep adequacy. The data in this study was nominal and chi square tests can be used with nominal, or categorical, data to show the presence or absence of correlation between the two variables.

Ethical Considerations

While ethical aspects of implementing educational interventions to improve bowel preparation in inpatients and outpatients were used, The Belmont Report's principles of respect for persons, beneficence, and justice were upheld to ensure patient protection and integrity of data collected (Cassell, 2000, p. 12). ProvationMD was the data collection method. This program was only accessible with a registered username and password, given to staff in the GI lab at the hospital. One researcher had access to ProvationMD. Patient age and gender, along with inpatient and outpatient status was the only information gathered to prevent any risk of breached patient confidentiality. This study involved little to no risk to the patient and the educational interventions provided in this project only served as a potential benefit. As the educational interventions were verbal and in-person instruction, patients who were non-English speaking were not included in this study. The option for additional measures to be added to include patients of various language backgrounds in the future was left open.

While this was a gastroenterology focused project and one of the researchers was directly involved in gastroenterology nursing and patient care, there was minimal conflict of interest involved. One of the researchers was employed on the gastroenterology unit involved. There was

no financial conflict of interests involved. Institutional Review Board (IRB) approval was obtained prior to any patient interaction involved in the study.

Results

Pre-intervention data was collected over a 2-week period for both inpatient and outpatient colonoscopies. Of the 20 inpatient colonoscopies prior to the intervention being implemented, 10 patients, or 50%, had inadequate bowel preparations on the ProvationMD report. Of the 20 outpatient colonoscopies that had data collected prior to the intervention, 8 patients , or 40%, were determined to have an inadequate bowel preparation rating per the ProvationMD report.

Post-intervention data was collected for a 2-week timeframe for both inpatient and outpatient colonoscopies. This allowed for 20 inpatients and 20 outpatients to receive the intervention and have their data collected. Of the 20 inpatient colonoscopies that received the new education, 7 patients had inadequate bowel preps charted. As seen in table 1, the obtained sig value (p-value) from the inpatient calculations was .337 ($p>.05$). Of the 20 outpatient colonoscopies that received the new education, 2 had a colonoscopy with a bowel prep rated as inadequate by the physician. As seen in tables 2 and 3, the outpatient calculation of the data resulted in a p-value of .025 ($p<.05$) and contingency coefficient of .327.

Table 1

Inpatient Chi-Square Test

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.921[a]	1	.337		
Continuity Correction[b]	.409	1	.522		
Likelihood Ratio	.925	1	.336		
Fisher's Exact Test				.523	.262
Linear-by-Linear Association	.898	1	.343		
N of Valid Cases	40				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.50.

b. Computed only for a 2x2 table

Table 2

Outpatient Chi-Square Test

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.800[a]	1	.028		
Continuity Correction[b]	3.333	1	.068		
Likelihood Ratio	5.063	1	.024		
Fisher's Exact Test				.065	.032
Linear-by-Linear Association	4.680	1	.031		
N of Valid Cases	40				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.00.

b. Computed only for a 2x2 table

Table 3

Outpatient Contingency Coefficient Test

		Value	Approximate Significance
Nominal by Nominal	Contingency Coefficient	.327	.028
N of Valid Cases		40	

Discussion

Summary

Taken at face value, the number of inadequate inpatient bowel preparations in the intervention group was an improvement when compared with the control group. With the p-value (.337) being greater than .05, it was concluded that bowel preparation adequacy for inpatients did not correlate significantly with the educational change. Since there was no correlation according to the p-value, a contingency coefficient was not relevant data.

On the outpatient side, with a p-value below .05 (.025), it was concluded that the adequacy of outpatient bowel preparations correlated significantly with the educational change. Since the p-value showed correlation, a contingency coefficient (r) was calculated to determine the level of correlation between the new educational method and bowel preparation adequacy. The value of r for the outpatient calculations was .327. This showed that there was weak correlation to show that the education provided will increase the adequacy of the bowel preparations.

Interpretation

As the literature review indicated, the lack of educational opportunities on bowel preparations prior to colonoscopies led to a higher proportion of inadequate bowel preps which led to poor outcomes. The outpatient bowel preparation data followed what was expected from

the research with a decrease in the number of inadequate bowel preparations because of a more robust educational program. Inpatient data, however, did not follow what was expected. The numbers of inpatient inadequate bowel preps did improve but the statistical calculations showed that there was not enough change for the data to be considered significant.

As bowel preparation quality increases, repeat colonoscopies, missed adenomas or cancers, and trauma to the patient decreases. Overall, patient satisfaction and safety are enhanced as well as cost savings for the health system. With this knowledge and collaboration with the GI lab at a Midwest regional hospital, pre-procedure education may become a new standard practice with the inpatient and outpatient populations. If further research is done and cost savings can be clearly demonstrated, this could change standard practice for area health systems in the Midwest area.

Limitations

Limitations to the study involved variations in data collection. ProvationMD ratings for bowel preparations are subjective to the physician performing the scope. There was a trend of certain physicians having an unusually high rating of "good" for the majority of the bowel preparations, where other physicians are likely to rate a bowel preparation as "fair" consistently. A short 2-week data collection with smaller sample sizes was another limitation. Another limitation is the inconsistency in how the education was reinforced by the floor nursing staff for inpatient colonoscopies.

Further recommendations gathered from this capstone project include additional education to nursing staff. Several instances were identified where additional education to the nursing staff caring for the inpatients receiving bowel preparations could have been beneficial. A potential educational avenue could be a PowerPoint on bowel preps and the order sets put in by

the physician to better familiarize nursing staff with what additional steps need done to help the patient achieve an adequate bowel preparation and colonoscopy.

On the outpatient side, further recommendations include reviewing bowel preparation instructions with the patient prior to their colonoscopy. Currently, pre-surgery nurses call the outpatients prior to their procedure to review past medical history and medications with the patient. Perhaps adding bowel preparation education could be added to their pre-surgery screening while continuing to give instructions at the patients' in-person pre-screening appointment.

Conclusions

The revised standards for quality improvement reporting excellence (SQUIRE 2.0) were used as a framework for reporting this project. This project addressed the inadequate bowel preparations among inpatient and outpatient colonoscopies. Adequate bowel preparations can prevent unneeded hospital expenses, missed diagnosis, patient and hospital dissatisfaction, and patient danger. Although the sample sizes for the data were small, the project showed signs of value for those patients receiving the education and for the health system. This project, if expanded, has the possibility of paving the way for future improvements to bowel preparation education at Midwest regional hospital as well as surrounding health systems. With increased adequacy of bowel preps, and more positive outcomes of colonoscopies, lifelong complications can be avoided and, in some cases, lives can be saved. With more in-depth studies, findings may further correlate with past research and demonstrate that educational interventions will increase the quality of bowel preparation, thus reducing the need for repeat procedures, missed adenomas, and risk of trauma to the colon. If significant improvement is shown, educational interventions can become standardized and allow for hospital policy change.

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