General

Schedule Reminders to Affect Patient Compliance in Preparation for Interventional Pain Procedures: A Pilot Study for Reduced Cancellations in Clinical Practice

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Purpose of Review: Cancellation of pain procedures can result in delays for patient care, loss of revenue, and inefficiency. Various strategies and even apps have been developed to improve on cancellations rates with all types of surgeries and procedures, including those in pain management. Schedule reminders the week prior to interventional pain procedures were evaluated to reduce cancellations and increase adherence to medication discontinuation and maintain nil per os (NPO). Recent Findings: Patients in a interventional pain clinic were provided hard copy instructions directing them on preoperative guidelines to follow before surgery such as discontinuation of NSAID's, discontinuation of diabetic medication, and to remain NPO after midnight prior to interventional pain procedures. The present investigation was a pilot study of 466 patients contacted by phone and text message over a one-month period in the summer of 2025 at St. Mary's Hospital in Shreveport, Louisiana after institutional review board approval. Each patient was contacted by phone or text message one week prior and text message one day prior to reiterate medication cessation consistent with Antithrombotic Guidelines of the American Society of Interventional Pain Physicians, to avoid medical complications that can make patients ineligible for surgery, and to maintain NPO 12 hours prior to procedure. Historic norms for cancellations were evaluated using the EPIC system from the pain clinic. Comparing the cancellation rates in 2024, there was a significant change in cancellations rates in the population studied. Patients who were not contacted had a 24.19 percent cancellation rate when compared with 2024 historic norms for the facility with a p-value of p=0.0067. Similarly, the contacted once group had a 26.32 percent cancellation rate with a p-value of p=0.1874. When looking at the group that was contacted twice, the overall cancellation rate was 7.43 percent, which represented a significant reduction with a p-value of p=0.0001. Reliance of using internal data from pain clinic records and individual variation of previous documentation of patient cancellations. Lack of detail as to reason for documentation in historic data from the facility. Low number of participants overall in the present investigation. Reliance on internal data from pain clinic led to a high internal validity within St. Mary's hospital pain clinic, but poor external validity. Unable to assess patient satisfaction and understanding of preoperative guidelines with phone call or text message due to time. Unable to document whether patients were contacted by phone or text message on the seven day preoperative consultation. Summary: Overall, this research showed statically that contacting patients scheduled for interventional pain procedures and surgeries twice regarding pre surgical NPO and medicine guidelines significantly reduces cancellation rates within St. Mary's hospital pain clinic. Future research on this topic should add a control group as well as not rely on clinic electronic records to have a more controlled study.

1. INTRODUCTION

Within the pain clinic at Saint Mary's, it was noticed that a substantial number of patients must cancel or reschedule their pain procedure appointments due to issues like taking blood thinners, taking antibiotics, or even accidently breaking NPO. As stated by Rothstien 2018, best time to reduce patient cancellation is during pre-operation.[1] We believe a potential avenue to improve patient compliance with preoperative guidelines is to improve patient exposure to preoperative requirements. We hope that with increased exposure to preoperative surgical guidelines, patients are more likely to adhere to them. Therefore, the purpose of this piolet study was to evaluate whether enhanced preoperative patient communication could reduce cancellation rates for interventional pain procedures.

Effective patient education is essential for adherence to preoperative instructions. The current standard for patient education within St. Mary's hospital pain clinic is a consultation from the physician along with a hard copy instruction detailing which medications or medical scenarios make patient ineligible for surgery. Afterwards patients have no further communication with health care providers in the following weeks to months after their initial visit, until a few days before their procedure to confirm arrival and reminder to maintain NPO status. Issues identified with this current standard are that patients are liable to forget preoperative instructions such as medication discontinuation or following up with the pain clinic providers if certain medical complications occur prior to their surgical procedure. Patients may be unaware of certain medical terminology which may present difficulties when reading the hard copy instructions. Lastly, only contacting the patient the day before their surgical procedure does not provide ample time to discontinue medication if they had not done so already or allow for an early reschedule if further medical complications have occurred weeks prior. Alternative or supplementary educational approaches including reminder phone calls, text messaging, and other digital communication tools, have been shown to enhance patient understanding and adherence to preoperative instructions beyond what is achieved with paper material alone.[2-7] For example, Morte et al., 2021 demonstrated that a mobile phone app designed for patient education was well received by patients, with high reported usability and perceived benefit.[7] Most participants indicated that the platform improved their overall surgical experience, helped reinforce important reminders, and clarified important perioperative instructions, with the majority reporting consistency between the digital content and surgeon provided guidance. These findings support the role of technology enhanced communication in improving preoperative patient preparedness.[7]

Potential benefits to reducing cancellation rates are many. Cancellation of a pain procedure can significantly reduce a patient's quality of life. Patients within the pain clinic have debilitating pain that places a negative impact on them financially, socially, and psychologically.[8] Having to cancel a patient's appointment due to failure to adhere to preoperative guidelines further prolong patient suffering. Cancellations can also create added financial stress for patients and their families, especially when missing work, travel expenses, lodging, or prolonged hospital stays are involved.[9] Previous studies have shown that the cost associated with a cancelled surgical procedure can be significant, with estimated per-case costs ranging from approximately $80 to more than $4,800 depending on the healthcare system and location. In addition to financial strain, cancellations can be emotionally distressing for patients and families, leading to frustration, anxiety, and decreased satisfaction with care. From a systems perspective, procedure cancellations place a considerable burden on clinic and operating room operations, resulting in wasted staff time, underutilized procedural slots, and loss of revenue. Together, these patient and system-level consequences highlight the need for strategies to reduce preventable cancellations.[10]

Given the impact of procedure cancellations on both patients and clinic operations, interventions focused on reducing preventable cancellations are important. The goal of this study was to evaluate whether contacting patients seven days and one day before their scheduled interventional pain procedures would improve adherence to preoperative instructions and decrease cancellation rates.

2. METHODOLOGY

STUDY POPULATION

This was a pilot study that was conducted during the months of June 2025 to July 2025. After receiving approval from the Institutional review board, it was documented which patients would be contacted. Selected patients for this study were patients from Ochsner LSU Health Shreveport pain clinic requiring surgical intervention for preexisting pain conditions. The age range of patients was limited to 15-99 years of age. Using the EPIC chart within the pain clinic, we documented which patients needed to be contacted and kept track of name, phone number, date of birth, and appointment date using REDcap.

The preoperative preparation guidelines were as follows. Patients were advised to abstain from taking antibiotics two weeks before their procedure. If patients had infection, had undergone any procedures, or suffered any trauma one to two weeks before their procedure, they should reschedule their appointments. Patients were advised not to take any blood thinners or diabetic medications 1 weeks before their procedure consistent with American Society of Interventional Pain Physicians and American Society of Anesthesiologists guidelines.[11,12] Patients were told to hold their anticoagulant medications one week prior to their pain procedure unless told otherwise by their physician. Patients were advised to withhold health supplements for two weeks prior to their procedures consistent with recommendations from the American Society of Anesthesiologists.[11] Patients were reminded not to eat or drink anything past midnight prior to their procedure or surgery. Patients were informed to abstain from any vaccination seven days prior to their

procedure. Patients were reminded to set up plans for transportation on their procedure day. This information was discussed with patients by a pain clinic physician as standard.

One week prior to their scheduled interventional pain procedure, patients were contacted either by direct phone call or via text message if they were unable to answer a direct phone call. During a phone call with the patient, a set of simplified preoperative guidelines were discussed with the patient that thoroughly went over preoperative preparation. If the patient was unable to pick up the phone, a text message with a comprehensive summary of preoperative guidelines was sent to the patient's phone number. This text message summary used simplified language and labeled both brand and generic name for medication to avoid confusion. The Doximity app could confirm if the patient had received the text message. All contact with patients used the Doximity app so that the caller ID presented as the pain clinic's contact number.

One day before a patient's scheduled pain clinic procedure, they were contacted again via text message reminding them of their last-minute preparation to keep in mind before their procedures. Patients were advised to contact the clinic immediately to reschedule if they had taken any medication that was listed in preop guidelines to avoid. Patients were reminded to maintain NPO past midnight. Calls were made from 6/9/2025 to 7/9/2025.

When the duration of the experiment concluded, the pain clinic's internal records from EPIC were collected to observe which patients during the duration of this study had completed or cancelled their procedure. Information such as age, sex, and race were collected as well. It was documented which patients had been contacted one week and one day prior to their procedure. Once all data was gathered, a chi squared test was performed to compare the cancellation rate from 2024 to the cancellation rate during the experiment. The cancellation rate in 2024 was chosen as an anchor for comparison because the clinical procedures and pre operation education guidelines remain the same as of 2025. A chi square test was also performed to compare the cancellation rate among the participants who were contacted once or twice. The contacted once group was created due to patients being able to receive phone calls on their seven day reminder but being unable to receive text messages through Doximity on their one day reminder through Doximity.

3. RESULTS

During the duration of this study, 466 patients were included in this study. A P-value <0.05 was considered as statistically significant (α=0.05). Within table 2, cancellation rate within 2024 within the pain clinic was 15.4% (data not shown). The group we failed to contact at all had a cancellation rate of 24.19% and showed significant difference in cancellation rate as compared to 2024 cancellation rate (p=0.0067). The group that was contacted seven days and one day prior to their surgical procedures showed significant difference in cancellation rate as compared to year 2024 cancellation rate (p=0.0001). The groups that were only contacted once showed no statistical difference in cancellation rate (p=0.1874).

Table 3 summarizes whether age had any impact on the cancellation rate during the duration of our study. Failed contact, contacted once, and contacted twice showed no significant difference between age and cancellation rates.

Table 4 summarizes whether sex had any impact on the cancellation rate during the duration of the study. Participants in the Failed contact group and contacted twice group showed no significance difference between sex and cancellation rates. Participants in the contacted once group did show significant difference between sex and average cancellation rate (p=0.0325).

Table 5 summarizes whether race had any impact on the average cancellation rate during the duration of the study. Participants in Failed contact, contacted once, and contacted twice showed no significant difference. Other races besides white or black were too few to make any meaningful statistics.

Table 6 summarizes whether insurance coverage had any impact. Looking at the Failed contact group, Cramer V shows a moderate association between insurance coverage and cancellation status. Looking at the contacted twice group, Cramer V shows a negligible association between insurance coverage and cancellation status. There was not enough data to generate statistical analysis for the contacted once group.

4. DISCUSSION

We found that contacting patients twice during the preoperative period resulted in significantly lower cancellations than the no contact group and contacted once group compared to when phone/ text message reminders were not used in 2024. Generally, there was no difference for age, sex, race, or insurance types for cancellation rates. There was a moderate association between insurance coverage and cancellation rates within the Failed contact group. Individuals in this group were less likely to cancel if they were on Medicare and Medicaid. When looking at other studies, similar findings were noted with our own.

OTHER STUDIES

A previous study from Gopwani, et al., 2023 was conducted to determine if sending electronic reminders to anesthesia providers about preoperative protocols increases adherence to protocols. That study found that electronic reminder did show a significant increase in adherence to preoperative protocol by anesthesia providers.[5] While there is a big difference between provider and patient in terms of education, our study similarly showed that having electronic reminders and increased exposure to information does improve adherence to guidelines.

A separate study by Aloy-Prósper et al., 2020 evaluated if there was a major difference in post operative compliance to molar surgery if patients were called versus written instructions. That study found that patients who were called

Table 1. Demographic characteristics of study participants (n=466)

Sample (N)	No contact	Contacted once	Contacted twice	Total
Gender				
Male	**42**	**9**	**104**	**155**
Female	**82**	**10**	**219**	**311**
Age				
≥50	**44**	**10**	**127**	**181**
<50	**80**	**9**	**196**	**285**
Insurance type				
Commercial	**16**	**0**	**35**	**51**
Medicare	**68**	**15**	**200**	**283**
Medicaid	**32**	**3**	**72**	**107**
Other	**8**	**1**	**16**	**25**
Race				
White	**70**	**9**	**167**	**246**
Black	**53**	**10**	**144**	**207**
Misc.	**1**	**0**	**12**	**13**

Table 2. Cancellation rates during the study.

	Failed contact	Contacted once	Contacted twice
Sample size	124	19	323
Completed	94	14	299
Cancelled	30	5	24
Percent cancelled	24.19	26.32	7.43
Two-sided Pr > |Z|	0.0067	0.1874	<0.0001

Table 3. Relationship of age in cancellation rates.

	Failed contact	Contacted once	Contacted twice
Sample size	124	19	323
≥50 completed	32	8	115
≥50 cancelled	12	2	12
<50 completed	62	6	184
<50 cancelled	18	3	12
Two-sided Pr <= P	0.6618	0.6285	0.2835

were more compliant to post operative instructions compared to written instructions group.[6] In contrast to our study, Aloy-Prósper et al. paper made sure to delineate between paper and video instructions. We believe that having increased exposure to information in a variety of formats would decrease cancellations rates. Similarly in a study by Al Talalwah et al., 2019 checked if there was a difference between patients understanding of upper extremity surgery with paper instructions compared to video instructions. This study concluded that patients who watched the video instruction on upper extremities surgery demonstrated a significantly improved comprehension of operative instruction as well as better medication management (7). Once again in contrast to our study, this paper measured which modality for patient education improved patient understanding the most. While our study cannot definitively state that paper, phone call, or text message are individually superior to one another in reducing cancellations, our findings did show that the addition of phone calls and text messages with standard procedures did reduce cancellation.

A study by Matthew et al. performed a narrative review on an app called MEDUMO to see if it improved patient engagement and preparation for colonoscopies. What makes this app interesting is that it automates patient education

Table 4. Relationship of sex in cancellation rates.

	Failed contact	Contacted once	Contacted twice
Sample size	124	19	323
Male completed	34	9	95
Male cancelled	8	0	9
Female Completed	60	5	204
Female cancelled	22	5	15
Two-sided Pr <= P	0.383	0.0325	0.6504

Table 5. Relationship of race in cancellation rates.

	Failed contact	Contacted once	Contacted twice
Sample size	123	19	311
White completed	51	7	153
White cancelled	19	2	14
Black Completed	42	7	135
Black cancelled	11	3	9
Two-sided Pr <= P	0.5256	1	0.5209

Table 6. Relationship of insurance coverage in cancellation rates

	Failed Contact Cancelled	Failed Contact Completed	Contacted Twice Cancelled	Contacted Twice Completed
Commercial	**10**	**6**	**4**	**31**
Medicaid	**12**	**56**	**15**	**185**
Medicare	**5**	**27**	**3**	**69**
Others	**3**	**5**	**2**	**14**
Cramer V	**0.3642**		**0.0885**	

via timed text messages or email using written instruction, images, and videos. Furthermore, this app can learn when it is the best time to send educative preoperative material to specific patients to improve compliance and reduce risk. This study concluded that MEDUMO significantly reduced the amount of cancellation due to improper bowel preparations.[13] In contrast to our project, Matthew et al. was able to use a mobile app to both remind and educate patients on preoperative guidelines for their procedures. The goal for our project was to see if simple measures such as a well-timed phone call or text message can improve patient adherence. Regardless of the methods used, both our study and Matthew et al. study showed that well timed reminders with a variety of modalities to educate patients do increase compliance with preoperative guidelines.

5. LIMITATIONS

A limitation includes reliance of using internal clinic data from St. Mary's hospital. Documentation of completed/cancelled status is entirely dependent on how individuals within the clinic document patients within EPIC. This can lead to variation related to changes in protocol or even individual variation in documentation. In cases of rescheduling a patient related to early detection in failure in preoperative preparation, these patients within internal statistics will not appear as cancelled. This study's definition of completed or cancelled procedure is dependent on outpatient OR documentation.

Furthermore, internal clinic data were unable to provide reliable documentation on why patients were cancelled. Another limitation of this study is the low number of participants in the contacted once group. It is likely that the low power in the contacted once group have yielded skewed the results. During this study, we were unable to document

whether patients who were contacted seven days prior were called on the phone or received text message. Either phone call or text message that was labeled received on Doxmity was considered "yes" for contact. Due to time limitations and restrictions from the IRB, we were unable to create a dedicated control group that received standard preoperative guidelines with no seven day and one day reminder. Being able to have our own control group would have aided in increasing this study's external validity. If a study like this were to be repeated, the design should include a control group who receives only standard preoperative education prior to their procedure. This group should be compared to the study group who is contacted about pre surgical guidelines in addition to standard preoperative education. Using the clinic's own EPIC data aided in this experiment's internal validity within St. Mary's Hospital pain clinic but may have limited applications externally. Lastly, we were unable to document patient satisfaction and education with preoperative surgical guidelines comparing hard copy, phone call, and text messages due to time constraints.

Overall, this research shows statically that contacting patients twice regarding preparation for their pre surgical guidelines significantly reduces cancellation rates specifically in St. Mary's Hospital pain clinic. With this study, we hope to improve on the way we communicate with our patients so that they better prepare for their own medical needs. While the applications of this study finding is limited, we hope that further research into this topic with a dedicated control group, greater population, and more time can prove that various/ and repeated exposure to preoperative guidelines will further improve compliance. While more testing and research is required, we believe that contacting patients through phone/message provides an effective and relatively inexpensive solution in reducing cancellation of pain procedures and broadly improve the quality of healthcare for patients. It is possible for clinic that run similarly to St. Mary's Hospital pain clinic to use the methods within this study to help their patient population complete more pain procedures.

6. CONCLUSION

The simple measures described in the present investigation can aid in increasing patient compliance with preoperative surgical guidelines in settings similar to St. Mary's Hospital pain clinic. It cannot be definitively stated within this project that patients had improved preoperative education, but the data does support that timely repetition and variety in administering patient education can aid in reducing cancellations.

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