



Tracking Ambulatory Surgical Facility Cancellations and Transfers: Lessons Learned from an 18-Month Collaboration

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ABSTRACT

In 2012, 11 ambulatory surgical facilities (ASFs) in the northeast region of Pennsylvania worked in collaboration with the Pennsylvania Patient Safety Authority to address the nurse-driven preoperative screening and assessment process in an effort to reduce day-of-surgery (DOS) cancellations and transfers. The ASFs tracked the time when the nurse-driven preoperative screening and assessment process was completed (e.g., 24 hours prior to the DOS). A statistically significant difference was noted between no-show DOS cancellation rates in patients with and patients without a preoperative screening and assessment. Reasons for DOS cancellations and transfers and types of surgeries or procedures were also tracked. To continue the identification of DOS cancellations and transfers, the ASF Cancellation and Transfer Tracking tool was developed to identify trends regarding when a nurse-driven preoperative screening and assessment process has been completed, reasons for DOS cancellations or transfers, types of surgeries or procedures in patients who cancelled or were transferred, and patient characteristics associated with patient transfers. Identifying reasons for patient cancellations and transfers to an acute care hospital provides context about patient circumstances or situations that can assist healthcare staff in developing appropriate solutions to reduce their occurrence and improve patient care. (Pa Patient Saf Advis 2014 Sep; 11 [3]:109-14.)



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INTRODUCTION

Cancellations and transfers are ongoing problems that ambulatory surgical facilities (ASFs) have identified, and when examined, these problems have revealed patient safety concerns.¹ Starting in 2012, the Pennsylvania Patient Safety Authority worked in collaboration with 11 ASFs in the northeast region of Pennsylvania to standardize the nurse-driven preoperative screening and assessment process in an effort to reduce day-of-surgery (DOS) cancellations and transfers. DOS cancellations represent opportunities to identify and address patient safety concerns and improve patient care by identifying medical conditions or situations (e.g., patients failing to meet screening criteria, patients not following preoperative instructions) that place patients at risk for harm if they have surgery or a procedure.

When DOS cancellations occur, communication is necessary between the surgeon and surgical team, often while in the midst of other procedures, to rearrange the surgical schedule for the rest of the day.² This type of disruption, referred to as a case-irrelevant communication, has the potential to distract the team and lead to adverse events.^{2,3} Reducing DOS cancellations reduces distractions and preserves schedule continuity and staff attention toward patients currently receiving care, thereby improving patient safety.

During the 18-month ASF Preoperative Screening Collaboration, the implementation of three interventions resulted in reductions in DOS cancellations and transfers. The three interventions involved use of a standardized preoperative screening tool to standardize the nurse-driven preoperative screening and assessment process, institution of health literacy strategies into written materials and oral conversations with patients, and completion of an additional preoperative phone call to supplement the initial preoperative screening contact. The majority of the nurse-driven preoperative screenings and assessments were conducted over the phone, and the remainder in person.

Analysis of collaboration data identified a statistically significant difference between DOS no-show cancellation rates in patients who had and patients who did not have a nurse-driven preoperative screening and assessment. The initiation of health literacy strategies and completion of an additional phone call also led to reductions in DOS cancellations.¹ An important lesson learned from this collaboration was that tracking DOS cancellations and transfers helps identify opportunities to improve an ASF nurse-driven preoperative screening and assessment process. The introduction of a new ASF tracking tool that monitors the nurse-driven preoperative screening processes, DOS cancellation and transfer event information and rates, and DOS cancellation costs in real-time provides ASFs a timely way to identify trends. Collecting and trending detailed information about DOS cancellations and transfers provides opportunities to learn about the circumstances surrounding these events and to gain new insights to increase the likelihood of averting similar events in the future.

METHODS

Tracking Tool

The Authority developed the ASF Cancellation and Transfer Tracking tool to assist ASFs with tracking and trending DOS cancellation and transfer rates, as well as event information and costs associated with DOS cancellations. The tracking tool provides structured data entry that links to automated, real-time reports along with free-text fields for individualized notes. This tool collects data for a 12-month period that is determined by the ASF. When developing the tracking tool, consideration was given to the facilities' scopes of care: general surgical or specialty services. Rather than



developing one tracking tool with a broad range of surgical and procedural choices that might not be applicable to a specialty ASF, three separate tracking tools were developed: one for general surgical ASFs, one for endoscopic ASFs, and one for ophthalmologic ASFs.

DOS Cancellations

A DOS cancellation is defined as a cancellation of a scheduled surgery or procedure for any reason that occurred after 12:01 a.m. on the DOS, whether the cancellation occurred prior to admission, after admission, or after anesthesia. Cancellation rates for three time periods were tracked during the collaboration and are tracked in the ASF tracking tool using the same time frames: DOS cancellations, 24-hour cancellations,* and 48-hour cancellations.† Cancellation rates in the tracking tool are calculated and tracked monthly and are reported as the number of cancellations per 1,000 completed procedures.

Two pieces of data are required for the tool to calculate a cancellation rate: (1) the number of cancellations for each time period (i.e., DOS, 24 hours, or 48 hours) in which the cancellation occurred during a given month and (2) the number of completed procedures for the same given month. The ASF tracking tool calculates cancellation rates in real time and presents these rates as a trend line.

DOS cancellations are identified and grouped according to the underlying reason prompting the cancellation. There were 13 reasons for DOS cancellations identified during the collaboration (see Table 1). Not all 13 cancellation reasons

were amenable to the nurse-driven preoperative screening and assessment processes. For example, surgeon illness, severe weather conditions, and family emergencies are situations that are unpredictable and at times arise without ample notice to reschedule patients. Completing a nurse-driven preoperative screening and assessment had limited impact in reducing DOS cancellations due to these reasons.

Cancellation reasons deemed amenable to the nurse-driven preoperative screening and assessment processes are included in the tracking tool. The seven DOS cancellation reasons selected for inclusion in the tracking tool are based on whether the nursing-based interventions implemented in the collaboration had the potential to influence reductions in DOS cancellations. See Table 2 for descriptions of the seven reasons for cancellation included in the tracking tool.

The tracking tool also includes data fields for the time when the preoperative screening and assessment is completed

and the type of surgery or procedure that is cancelled. It is important to track the time that the preoperative screening process is completed, especially given the finding of a statistically significant difference in no-show cancellations noted for patients with versus patients without a preoperative screening and assessment.¹ There are six different choices to indicate the time when a nurse-driven preoperative screening and assessment is completed:

1. DOS
2. 24 hours prior to the DOS
3. 48 hours prior to the DOS
4. Greater than 48 hours prior to the DOS
5. Screening not completed
6. ASF unable to contact the patient—consequently, no nurse-driven preoperative screening and assessment was completed

Tracking the types of surgeries and procedures cancelled during the collaboration

Table 1. Reasons for Ambulatory Surgical Facility Day-of-Surgery Cancellations from December 2012 through June 2013 (N= 824), as Reported by Collaboration Participants

REASON FOR CANCELLATION	NO. OF CANCELLATIONS	% OF CANCELLATIONS
Change in medical status*	237	28.8
No-shows	156	18.9
Preoperative instructions not followed	103	12.5
Procedure not rescheduled	77	9.3
Rescheduled procedure	52	6.3
Protocol issues	51	6.2
Weather related*	43	5.2
Financial issues	30	3.6
Transportation	20	2.4
Family issues/emergencies*	19	2.3
Surgeon illness*	19	2.3
Work related	4	0.5
Language barrier	2	0.2

* These cancellation reasons collected during the collaboration are rarely amenable to a nurse-driven preoperative screening and assessment.

* A 24-hour cancellation is defined as a cancellation that occurred 24 hours prior to 12:01 a.m. on the DOS. The collaboration 24-hour cancellation rate was 27.0 cancellations per 1,000 completed procedures.

† A 48-hour cancellation is defined as a cancellation that occurred 48 hours prior to 12:01 a.m. on the DOS. The collaboration 48-hour cancellation rate was 11.5 cancellations per 1,000 complete procedures.

was important to the ASFs to determine if patterns existed in the cancellations. For example, diagnostic colonoscopies were the most frequently cancelled type of

endoscopic procedure identified during the collaboration. The list of surgeries and procedures generated for the tracking tool is based on surgeries and procedures

cancelled during the collaboration (e.g., cataracts surgery, plastic surgery, pain management).

Table 2. Ambulatory Surgical Facility Tracking Tool Reasons for Cancellations and Descriptions*

REASON	DESCRIPTIONS†
Protocol issues (i.e., failure to adhere to facility protocol)	<p>Patient did not meet screening criteria</p> <p>Medical issues missed during preoperative screening</p> <p>Miscommunication and lack of communication between providers</p> <p>Equipment issues (e.g., implant not available, power outages)</p> <p>Incomplete or missing history and physical</p> <p>Scheduling delay</p>
Preoperative instructions not followed	<p>Nothing-by-mouth or dietary requirements not adhered to</p> <p>Prep issues (e.g., sick from prep, did not complete prep)</p> <p>Medication instructions not followed</p> <p>Misunderstanding day or time of procedure</p>
Procedure not rescheduled	<p>No explanation</p> <p>Patient changed his or her mind</p> <p>Mental health or anxiety</p> <p>Scheduling conflict</p> <p>Patient overslept</p>
Rescheduled procedure	<p>No explanation</p> <p>Scheduling conflict</p> <p>Communication issues with patient</p>
Financial	<p>Insurance and payment-related issues</p>
Transportation	<p>No ride to or from the ambulatory surgical facility</p> <p>Car troubles the day of surgery (e.g., stuck in traffic, dead battery)‡</p>
No-shows§	<p>No explanation</p> <p>Patient forgot</p> <p>Miscommunication and lack of communication with patient</p> <p>Patient wanted second opinion</p>

* Cancellation reasons not included in the tracking tool are changes in medical status (i.e., patients with new medical conditions, exacerbation of existing conditions, colds, infections, hospitalization, death, or condition improved and no longer required treatment), surgeon illness, weather related, work related, and language barrier.

† The cancellation descriptions are based on interpretations from the ASF Preoperative Screening Collaboration.

‡ These cancellation reasons may not be affected by the preoperative screening process.

§ No-show explanations best reflected by another defined category (e.g., financial-related issues, protocol issues) are assigned to those categories to provide a clearer understanding for the reason for no-show day-of-surgery cancellations.

Transfers

A transfer is defined as an ASF admission requiring an unexpected hospital transfer or admission directly following discharge from the ASF. ASF transfers are a patient safety measure that the Centers for Medicare and Medicaid Services will use for public reporting and payment determination for 2014.^{4,5} Transfer rates are calculated in the same manner as cancellation rates: monthly and reported as the number of transfers per 1,000 admissions. Two pieces of data are required, the number of transfers per month and the number of admissions per month. The ASF tracking tool calculates the transfer rate in real time and presents these rates as a trend line.

Patient transfer event information collected in this tracking tool focuses on a broader scope of data than the DOS cancellation event information. The basic data requirements for transfer event information are the same as the DOS cancellation event data collection: the event date, the time the preoperative screening and assessment is completed, and the surgery or procedure the transferred patient is scheduled to undergo or has undergone. Additional transfer data requirements comprise three patient characteristics: (1) the patient's age, physical status according to the American Society of Anesthesiologists' classification system,⁶ and body mass index;⁷ (2) time of the transfer (preoperative and postoperative); and (3) reasons for the transfer (selected from a 13-item list).

Cost Calculator

The ASFs participating in the collaboration requested assistance with building a business case to examine the impact of cancellations on an ASF by identifying the scope of the problem and the associated financial costs. To address this request, a

cancellation cost calculator was developed during the collaboration and is included in the ASF tracking tool.

RESULTS

The tracking tool consists of the cost calculator, cancellation and transfer rate reports, and DOS cancellation and transfer event information reports. The *ASF Cancellation and Transfer Tracking Tool Reference User Guide* explains the different facets of the tool.

The DOS cancellation rates calculated by the tracking tool do not provide benchmarking data. For comparison purposes, the collaboration postintervention DOS cancellation rate was 26.8 cancellations per 1,000 completed procedures. During the collaboration, two reasons for DOS cancellations, changes in the patient's medical condition and no-show cancellations, accounted for almost half (47.7%, n = 393 of 824) of the DOS cancellations. Even though both reasons for DOS cancellations account for such a large portion of the cancellations, no-show cancellations are the only reason included in the tracking tool, given its amenability to the nurse-driven preoperative screening processes.¹

The transfer rates calculated by the tracking tool do not provide benchmarking data. For purposes of comparison, the collaboration postintervention transfer rate was 1.03 transfers per 1,000 admissions. Table 3 lists the reasons for transferring patients to an acute care hospital, identified by the patient's operative status (i.e., preoperative and postoperative).

There is no benchmarking data for the cancellation cost calculator. Each ASF will determine the lost reimbursements and potential gains according to its own experience.

DISCUSSION

Tracking Tool

During the collaboration, the events the ASFs experienced were shared with them via monthly reports that included

Table 3. Ambulatory Surgical Facility (ASF) Collaboration Reasons for Transfers, as Reported by Participating ASFs from July 1, 2012, through June 30, 2013

PREOPERATIVE TRANSFERS	POSTOPERATIVE TRANSFERS
Cardiac arrhythmias* [†]	Cardiac arrhythmias* [†]
Hypertension* [†]	Anesthesia complications, aspirations, or respiratory monitoring* [†]
Automatic implantable cardioverter defibrillator (AICD) dead battery*	Postoperative diagnostic findings* [†]
Syncope [†]	Nausea or vomiting*
	Bleeding or hemorrhage*
	AICD battery not detecting*
	Longer monitoring of the patient [†]
	Pneumothorax [†]
	Arm weakness [†]
	Perforation [†]
	Pain [†]
	Urinary retention [†]
	Abscess [†]
	Seizures [†]

* Transfers that occurred during the preintervention time period from July 2012 through November 2012

[†] Transfers that occurred during the postintervention time period from December 2012 through June 2013

aggregated (deidentified) and individual facility data. The reports synthesized and communicated trends about cancellation rates, transfer rates, and preoperative screening processes and outcomes data. Tracking and evaluating DOS cancellations and transfers during the collaboration was instrumental in helping ASFs identify areas of a nurse-driven preoperative screening and assessment process requiring improvement.¹

As the ASFs implemented the interventions for the collaboration, they had opportunities to evaluate changes in their processes and any changes in the number of DOS cancellations and transfers. For example, some of the ASFs were able to implement a second preoperative phone call that provided additional opportunities for the nursing staff to explore with their patients how well the patients understood their upcoming surgery or procedure and their preoperative instructions.¹ As noted in the March 2014 *Pennsylvania Patient Safety Advisory* article, many other lessons were learned as the

three nursing-based interventions were implemented.¹ The ASF tracking tool provides opportunities for facilities to initiate or continue tracking DOS cancellations and transfers monthly and identify patterns and solutions to reduce these events.

DOS Cancellations

Interpreting the data and identifying the different motivations behind patient cancellations helped to clearly elucidate the underlying reasons for these events. DOS cancellation reasons included in the tracking tool were selected on the basis of how amenable they were to a nurse-driven preoperative screening and assessment process. As noted earlier, cancellations due to a change in the patient's medical status, the most frequently reported reason for a DOS cancellation, were rarely amenable to a nurse-driven preoperative screening and assessment process. This reason for cancellation comprised patients who presented to the ASF on the DOS with new undiagnosed medical conditions, exacerbation of existing medical

conditions, cold symptoms, or infections; patients who were hospitalized or died prior to the DOS; and patients who had improvements in their medical condition that no longer required treatment.

A nurse-driven preoperative screening and assessment can have an indirect influence rather than a direct influence on this reason for cancellation because surgeons and anesthesiologists evaluate a patient's physical condition and determine eligibility for surgery or a procedure on the DOS. One way nursing staff can influence reductions in this reason for cancellation is to stress to patients the importance of calling to cancel as soon as they feel ill or notice a change in their medical condition (e.g., hyperglycemia). However, in many cases experienced during the collaboration, patients who felt ill or noticed changes in their health tended to identify them on the morning of their surgery or procedure.

There were other instances when issues occurred such as the history and physical forms being incomplete or not available at the time of preoperative screening. These types of problems (i.e., protocol issues) are much more amenable to a nurse-driven preoperative screening and assessment process. As discoveries about the underlying reasons for DOS cancellations became salient, approaches to address these issues emerged.

Nine of the 13 reasons for cancelling (i.e., transportation issues, protocol issues, no-shows, financial issues, preoperative instructions not followed, procedures not rescheduled, rescheduled procedures, work issues, and language barriers) were judged to be amenable to the interventions introduced during this collaboration. Two of the reasons, work issues and language barriers, were not included in the tracking tool, since these were rare events. Decreases in DOS cancellation rates were observed between the preintervention and postintervention period in five of these nine cancellation groups (i.e., transportation issues, protocol issues, no-shows, work issues, and

language barriers), while increases in DOS cancellation rates were observed in the remaining four cancellation groups (i.e., preoperative instructions not followed, financial issues, procedures not rescheduled, and rescheduled procedures).

Pattern identification can extend beyond the list of surgeries or procedures. For example, if the majority of patients scheduled for a diagnostic colonoscopy cancelled the procedure due to getting sick from using a particular prep, the staff might alert the physician about the trend and have the physician or physician practice consider prescribing a different prep.

Transfers

ASF transfers were a rare event during the collaboration. For example, two of the ASFs had no transfers during both the preintervention and postintervention phases of the collaboration. Another ASF had two transfers during the preintervention phase and no transfers during the postintervention phase. When transfers did occur, differences between the reasons for preoperative and postoperative transfers became apparent early in the collaboration. The majority of preoperative transfers in the collaboration resulted from newly discovered medical conditions not detected during the patient's preoperative physical exam (e.g., atrial fibrillation on an electrocardiogram) or exacerbation of a preexisting medical condition (e.g., hypertension).¹

Eighty percent of the patients transferred due to a cardiac arrhythmia preoperatively in the postintervention time period were patients 75 to 85 years old; the remaining 20% of patients were 65 to 75 years old. Dehydration and being ill on the DOS were additional conditions that may have supported the need for a patient transfer.¹ Cardiac arrhythmia was the only medical condition that occurred in both preoperative and postoperative transfers during both preintervention and postintervention time periods. While preoperative screening and assessment processes might

not identify these types of problems prior to admission, these transfers represent safe patient care. The majority of transfers reflected issues arising postoperatively.

Cost Calculator

While there are no specific examples of ASF use of the cost calculator during the collaboration, it has great potential for ASFs to use as a tool to develop a business case for reducing cancellations. The tool calculates DOS cancellation rates and lost reimbursements for the facility and physicians and emphasizes opportunities to improve reimbursements associated with reductions in DOS cancellations. The cost calculator can be used to identify lost reimbursements for surgical or procedural DOS cancellations in the aggregate or in isolation.

The cost calculator requires the same data to calculate a cancellation rate and facility and physician reimbursement data. For example, if an ASF is interested in knowing the lost reimbursements for a specific type of DOS cancellation, such as diagnostic colonoscopies, the ASF would identify the total number of diagnostic colonoscopy cancellations and the expected facility and physician reimbursements for this procedure. The calculator will then calculate the cancellation rate and the total reimbursements lost for the facility and physician for cancelled diagnostic colonoscopies. It will also identify the increased reimbursements associated with reductions in diagnostic colonoscopy cancellations.

Limitations

The tracking tool collects data on 7 reasons for DOS cancellations and 13 reasons for transfers. Exclusions of cancellation reasons in the tracking tool were based on how amenable a cancellation reason was to a nurse-driven preoperative screening and assessment, use of health literacy strategies, or completion of an additional preoperative phone call.



ASF CANCELLATION AND TRANSFER TRACKING TOOLS

The Pennsylvania Patient Safety Authority developed three ambulatory surgical facility (ASF) cancellation and transfer tracking tools, available at <http://patientsafetyauthority.org/EducationalTools/PatientSafetyTools/asf/Pages/home.aspx>, designed for three different types of ASFs:

1. The general surgery tracking tool
2. The ophthalmologic tracking tool
3. The endoscopic tracking tool

Additionally, the tool does not include how a nurse-driven preoperative screening and assessment is conducted, although they are typically conducted by phone. Phone interviews lack a visual component. Nonverbal cues from patients during the preoperative screening process afford the nurse insights to identifying patient behaviors indicative of misinterpretation or miscomprehension of preoperative instructions. The implementation of a standardized checklist that included suggested questions to ask patients, along with instituting health literacy strategies, helped to overcome some of the challenges when conducting a nurse-driven preoperative screening over the phone.

The lack of benchmarking data poses another set of challenges for ASFs. Using the cancellation and transfer rates from the collaboration provides an initial benchmark. Future transfer rate benchmarks can be obtained quarterly from the national Ambulatory Surgery Center Quality Collaboration.⁸

CONCLUSION

Reducing cancellations and transfers starts with collecting and evaluating data pertaining to the circumstances surrounding these events. Tracking components of patient cancellations and transfers in real time provides evidence of

problems encountered, such as whether a nurse-driven preoperative screening and assessment process is executed.¹ Synthesizing data collected in the tracking tool provides opportunities to identify more than just problems or issues with cancellations or transfers. There are opportunities to use the data to identify and incorporate enhancements to nurse-driven preoperative screening and assessment processes, including the use of health literacy strategies and additional preoperative phone calls. As enhancements are implemented, continual tracking of these events offers facilities ongoing feedback to evaluate the value of changes made to the nurse-driven preoperative screening and assessment process. The Authority's ASF Cancellation and Transfer Tracking tool offers ASFs the opportunity to track cancellation and transfer rates, collect event information, and evaluate the costs of cancellations.

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NOTES

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