ENGAGE WITH QUALITY IMPROVEMENT AND PATIENT SAFETY (E-QIPS)

Improving Time to Hospital Discharge Following Percutaneous Nephrolithotomy (PCNL)

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American Urological Association

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QUALITY OR SAFETY PROBLEM

Delays in discharge result in downstream negative impact on bed availability, patient and staff satisfaction, and hospital revenue. Timely hospital discharge affords patients improved outcomes including decreased length of stay in the hospital, decreased risk for catheter associated infections, and increased patient experience from enhanced workflows.

At our institution, only 7% of patients were discharging prior to noon following PCNL. This in turn consistently caused a bottleneck in bed availability for postoperative patients needing hospital admission following urologic surgeries. With no urology beds available, our patients either waited in the PACU longer than necessary, or patients were eventually bedded on non-urology floors where staff were less familiar with the surgery performed or postoperative care pathways. This in turn raises concern for suboptimal postoperative care.

BACKGROUND

There is limited evidence regarding quality improvement projects to improve rates of discharge by noon. No published evidence in urology exists. Prior work has characterized positive impact of discharge by noon on hospital costs.[1] Studies in Internal Medicine have assessed various interventions to improve discharge time and highlighted the importance of multidisciplinary participation.[2] The Lean Six Sigma framework has been used for projects on this topic.[3] One study in Otolaryngology used a checklist-based intervention with improvement in early discharge and patient experience.[4]

We used the Six Sigma/DMAIC (Define, Measurement, Analyze, Improve, Control) framework.

PROJECT OBJECTIVES

Aim statement: We will increase the hospital discharges completed by noon on post-op day #1 following PCNL by 350% (from 7% of patients to 25% of patients) by 03/31/2024 without adversely impacting the frequency of patient-initiated, unplanned clinical contact within 30 days of hospital discharge.

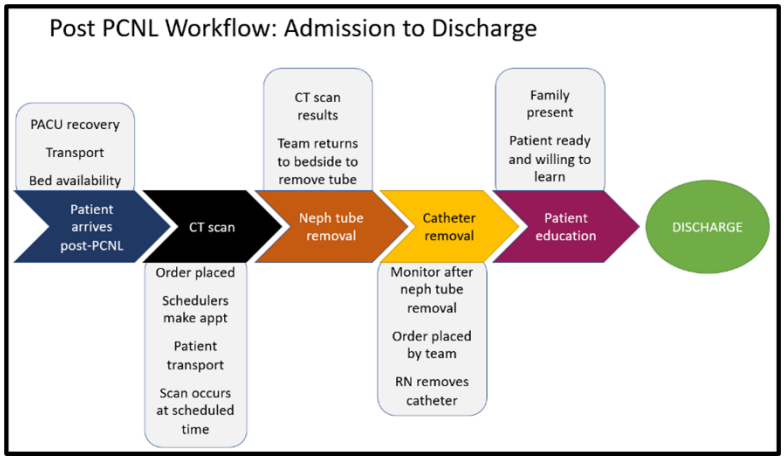
INTERVENTION

At our institution, post-PCNL discharge requires several steps, and each can lead to delay in hospital discharge. Post-procedure CT scan is obtained to verify stone clearance and identify other postoperative complications. If the CT scan results and not available by morning rounds to confirm nephrostomy tube removal is appropriate, the surgical team must return to the floor later to remove the tube. Doing this in a timely manner can be challenging on busy clinic or operative days. Patients must be educated on postoperative expectations, aftercares, and return precautions. While much of this education is done in the pre-operative setting, we also require postoperative education by nursing staff to reinforce important concepts. We found that mornings are often difficult times to perform patient education due to the plethora of other nursing tasks, and shortages in nursing staff added further difficulty to timely patient education.

Two key causes were identified and addressed in the following manner:

(1) Delays in ordering and performing the CT scan. The cause of delay was multifactorial. The surgical team had to place the order in a timely fashion to allow the radiology scheduling team to get the patient scheduled. Prior to this QI project, all scans were ordered for 6am the following morning but the radiology workflow prioritized morning scans in such a way that post-PCNL patients were often scanned much later in the day. To address this, standardized PCNL order sets were created to include CT orders that specify discharge dependence. CT was ordered for first cases on post-op day 0 instead of day 1. Surgical and nursing teams communicated on post-op day 0 to ensure release and scheduling of CT at appropriate times.

(2) Delays in patient and family education about post discharge expectations, aftercare, and return precautions, this was addressed by providing patient/family education on post-op day 0 instead of right before discharge. We also required that all postoperative discharge orders be placed on POD0 if the patient was expected to dismiss on POD1, preventing delays in discharge orders and medication reconciliation. This allowed the pharmacy to fill prescriptions ahead of time, preventing pharmacy delays contributing to delayed discharge.

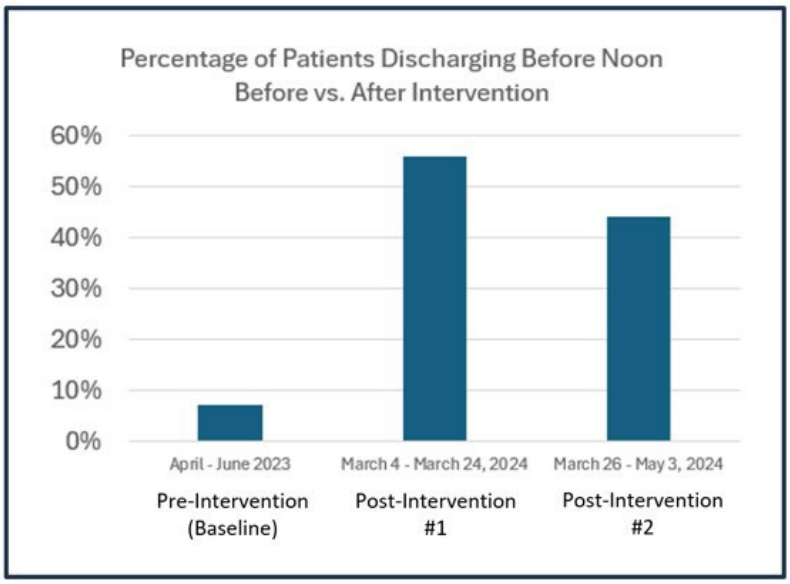


MEASURES OF SUCCESS

Success was defined as increasing the number of discharges before noon from 7% of patients to 25% of patients. Baseline data were collected prior to intervention. Potential causes were identified using stakeholder analysis findings, unstructured team discussions, and a Cause and Effect (Fishbone) Diagram. An Impact/Effort Grid was used to determine which interventions to implement. Postintervention data were collected, and a balancing measure (number of unplanned Emergency Department or clinic visits within 30 days of discharge) was included to ensure expedited discharges did not negatively impact patient outcomes or care.

OUTCOMES

Pre-intervention only 7% of PCNL discharges occurred before noon. Following intervention, 56% of patients discharged before noon during the initial 3-week pilot study period. 44% of patients discharge before noon during the subsequent 6-week study period. There was no increase in unplanned ED visits or clinic visits (balancing measure).



POTENTIAL IMPACT AND SCALABILITY

Timely hospital discharges facilitate improved hospital flow by allowing for earlier admissions from overcrowded emergency departments and increasing patient capacity through improved bed availability. Many factors may potentially serve as barriers to timely discharge. Using the Six Sigma/DMAIC process, care teams can identify barriers to discharge that are specific to their patient workflow and develop sustainable solutions to address them.

SUSTAINING THE CHANGES

Ongoing data collection for patients undergoing uncomplicated PCNL with measurement of the percentage who discharge before noon. Measurement of the balancing measure will ensure we are not negatively impacting patient outcomes.

ADDITIONAL RESOURCES

Educational material on improvement models such as Six Sigma and the DMAIC process is widely available, including through the Agency for Healthcare Research and Quality (AHRQ). DMAICTools.com provides a free resource to help navigate the DMAIC process and includes templates and tools that can be used when working through a quality improvement project.

KEY SUMMARY

1. Delays in hospital discharge following PCNL result in downstream negative impact on bed availability, patient and staff satisfaction, and hospital revenue.
2. Using the DMAIC process, we identified key barriers to PCNL patients discharging before noon and implemented strategies to mitigate them. Hospital discharges before noon increased seven-fold over the study period.
3. There was no increase in unplanned ED visits or patient clinic visits, indicating the interventions did not negatively impact patient outcomes. We hope to replicate this project on a larger scale and apply it to other common urologic surgeries.

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