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Transition to Outpatient Setting for Urological Surgery: Feasibility, Safety, and Practice Implications

Learning Objective: At the conclusion of this continuing medical education activity, the participant will be able to describe the scope and development of current outpatient urological surgery and describe successful strategies for achieving same-day discharge.

This AUA Update aligns with the American Board of Urology Module on Calculus, Laparoscopy-Robotics, and Upper Tract Obstruction. Additional information on this topic can be found in the AUA Core Curriculum sections on Laparoscopy and Robotic Surgery, and Urolithiasis.

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KEY WORDS: outpatient surgery, same-day discharge, fast-track surgery, enhanced recovery after surgery

RATIONALE FOR OUTPATIENT SURGERY

Outpatient urological surgery has increasingly been applied for many conditions and procedures. In addition to affording patients the opportunity to recover in their homes, sleep in their own beds, eat home-cooked meals, and have their family around them, there are additional benefits with a medical rationale.

Given the challenges of recent nursing shortages in many regions, hospitalized patients may experience delay in early ambulation, thereby potentially increasing the risk of ileus or deep vein thrombosis. **Patients recovering at home will have natural inclination to ambulate rather than spending all day in a hospital bed tethered to an IV or awaiting permission or nursing help to get out of bed.** In addition, restful sleep after surgery is not only important for patient satisfaction but has been shown to be beneficial in postoperative recovery, with sleep disturbance common in the inpatient setting.[1]

From a systems-based practice perspective, there are material, labor, and opportunity costs incurred by hospitals from avoidable overnight admissions. This ultimately increases the cost of care and may ultimately be passed through to payers, including public payers (eg, Medicare). **In terms of cost, shorter hospital stays are preferable as long as outcomes are not impacted.** Over the past 2 decades, "fast-track surgery" or "enhanced recovery after surgery" pathways have been widely adopted in breast, colorectal, thoracic, and urological surgery with generally favorable results.

CRITICAL CONSIDERATIONS FOR TRANSITIONING TO SAME-DAY SURGERY

Critics of transitioning traditionally inpatient procedures to a routine of outpatient surgery argue that the lack of postoperative patient monitoring risks devastating complications and that patient satisfaction may suffer if they perceive that they are being sent home prematurely. In addition, cost savings may be offset if additional resources are required to handle increased patient phone calls or readmissions. Higher readmissions can also result in Centers for Medicare & Medicaid Services penalties or affect national rankings.

Such concerns are valid and should be addressed before initiating outpatient surgery protocols and/or selecting which procedures are candidates for consideration by surgeons, departments, or institutions. The potential for negative consequences can be assessed by evaluating historical data regarding the rate of complications within the initial 24 hours of surgery. Surgeons or hospitals experiencing higher rates of early complications for a particular procedure would need to be more selective regarding same-day discharge (SDD) patient selection. Careful patient selection may allow safe implementation of SDD in such settings without increasing readmissions (Table 1).

Patient attitudes regarding outpatient surgery are best addressed by setting expectations preoperatively to avoid degradation of patient satisfaction. Patient education is critical to engendering comfort with SDD because patients would prefer the comfort of home but need to know that it is safe. **If a patient displays high levels of anxiety or has inadequate support at home, they may be poor candidates for SDD.** Patients with comorbidities or the potential for unanticipated intraoperative complexity should be counseled preoperatively that admission may be required even if the procedure is typically performed with SDD.

Successful transition to an SDD program involves several important considerations. **First, surgeons should evaluate their early complication rate for particular procedures to preserve patient safety. Those early in their learning curve or without adequate experience to gauge their expected outcomes may not be ideal for safe SDD, particularly for more complex procedures (eg, robotic surgery), as opposed to more uniformly low-risk procedures (eg, diagnostic endoscopy).**

Secondly, although minimally invasive procedures often are considered prime targets for SDD, they are not painless and require adequate analgesia protocols to prevent pain-related readmissions. Use of long-acting local anesthetics locally or as regional blocks (eg, liposomal bupivacaine or elastomeric pain pumps) and nonnarcotic nonsteroidal anti-inflammatory drug (NSAID) analgesics (eg, ketorolac) is an important adjunct to provide adequate early pain control to facilitate SDD without requiring high doses of opioids. Other measures, such as minimizing incision length or number of incisions needed and decreasing insufflation pressures, can be helpful to reduce postoperative pain. Last, patients should be counseled on

Table 1. Patient and Surgeon Considerations for Same-day Discharge

Patient factors	Surgeon factors
1. Social support 2. Patient anxiety/comfort with SDD 3. Distance of home from hospital 4. Comorbidities/overall health	1. Historical complication rate 2. Relative case complexity 3. Surgeon experience

Abbreviation: SDD, same-day discharge.

ABBREVIATIONS: ambulatory surgery center (ASC), American Society of Anesthesiologists (ASA), benign prostatic hyperplasia (BPH), emergency room (ER), holmium laser enucleation of the prostate (HoLEP), nonsteroidal anti-inflammatory drug (NSAID), outpatient percutaneous nephrolithotomy (oPCNL), operative time (OT), percutaneous nephrolithotomy (PCNL), photoselective vaporization of the prostate (PVP), robot-assisted laparoscopic prostatectomy (RALP), same-day discharge (SDD), single-port (SP), standard percutaneous nephrolithotomy (sPCNL), shock wave lithotripsy (SWL), tubeless percutaneous nephrolithotomy (tPCNL), transurethral resection of bladder tumor (TURBT), transurethral resection of the prostate (TURP) target and acceptable pain levels after surgery to have reasonable expectations so that they do not overuse narcotics.

ESTABLISHED OUTPATIENT UROLOGICAL PROCEDURES

Historically, interventions for benign conditions such as kidney stones or benign prostatic hyperplasia (BPH) required large incisions with prolonged recovery. The advent of shock wave lithotripsy (SWL) and advancements in endoscopic techniques facilitated outpatient management of these conditions, driving these conditions into a predominantly outpatient setting. Although procedures such as ureteroscopy and extracorporeal SWL are now performed routinely as outpatient procedures, endoscopic management of such conditions as BPH and bladder tumors that previously involved postoperative hospitalization is increasingly being handled on an outpatient basis and in ambulatory surgery settings (Table 2).

Transurethral resection of the prostate, GreenLight, holmium laser enucleation of the prostate, and other BPH procedures. BPH can cause severe lower urinary tract symptoms. When medical therapy fails or when associated with hematuria, recurrent infections, bladder stones, diverticuli, or deterioration of renal function, surgical intervention becomes indicated. Endoscopic surgical management of BPH remains the most common approach and is increasingly shifting from the inpatient setting to an almost exclusively outpatient one.[2]

Traditionally, transurethral resection of the prostate (TURP), holmium laser enucleation of the prostate (HoLEP), and GreenLight laser-photoselective vaporization of the prostate (PVP) were inpatient procedures. In 2021, Salciccia et al systematically reviewed the surgical management of BPH in an exclusively outpatient setting.[3] The authors identified 18 studies prior to 2020 comprising 1,626 patients. They analyzed the pooled failure rates of SDD after endoscopic surgeries and identified significant events. **Failure rates were only 3% for TURP, 7.1% for PVP, and 11.8% for HoLEP, with no statistically significant covariates predicting SDD failure under meta-regression analysis**. The authors concluded that outpatient endoscopic BPH treatment is safe and reliable.

Table 2. Relative Utilization of Same-day Discharge for Common Transurethral Procedures

Procedure	SDD utilization
iTIND	Routine
UroLift	Routine
Rezūm	Routine
Aquablation	Selective
Monopolar or bipolar TURP	Selective
PVP	Selective
HoLEP	Selective
TURBT	Routine

Abbreviations: HoLEP, holmium laser enucleation of the prostate; PVP, photoselective vaporization of the prostate; SDD, same-day discharge; TURBT, transurethral resection of bladder tumor; TURP, transurethral resection of the prostate.

Gordon first reported a series of 58 outpatient TURP procedures from Australia in 1998, of which 67% were performed under spinal anesthesia with only 2 readmissions.[4] Further experience in a total of 259 patients reported a catheterization time of only 2.9 hours in the postoperative recovery area and an average length of stay of 10.6 hours.[5]

Newer therapies for BPH have recently emerged and are predominantly performed on an outpatient basis. UroLift is a procedure involving retracting implants deployed under cystoscopic guidance with improvements in International Prostate Symptom Score, quality of life, and maximum urinary flow rate maintained at 5 years, with surgical reintervention in only 13%.[6] UroLift is an outpatient procedure often performed in an ambulatory surgery center (ASC) or clinic under local anesthetic or sedation, typically in less than 1 hour. Rezūm (convective water vapor therapy) is also performed under cystoscopic guidance with steam needle-injected to produce cell death in adenomatous tissue. Similar to UroLift, Rezūm preserves ejaculation and is indicated for glands <80 g with a reintervention rate of less than 5% at 5 years.[7] It can be performed in the office or ASC under sedation or local anesthesia without general anesthesia in typically 10-15 minutes.

Aquablation uses robotic-guided water jet to ablate obstructing prostate tissue. Although Aquablation initially was performed with an overnight stay (discharged within 24 hours without catheters), recent trends show a shift to SDD.[8] iTind is a temporarily implantable nitinol device inserted cystoscopically under local anesthesia. The nitinol strands produce ischemic troughs in the prostatic urethra after approximately 1 week.[9] It is an outpatient procedure performed in minutes and is retrieved in the office via tether string, with studies showing durable improvements in maximum urinary flow rate and International Prostate Symptom Score at 3 years.

Transurethral resection of bladder tumor. Transurethral resection of bladder tumor (TURBT) is the gold standard procedure for bladder cancer diagnosis and/or initial treatment. When more superficial TURBT is performed, SDD is typical. With more invasive tumors requiring deeper resection, an indwelling urethral catheter may be necessary and bleeding may require hospitalization for observation or bladder irrigation.[10,11]

Gray et al attempted to identify predictors of when an overnight admission is more likely to be required after TURBT by analyzing 19,383 TURBTs from 2017-2018 from the National Health Service in England, of which 3,466 (17.9%) were outpatient.[12] Patients who required an overnight stay were older, male, and had higher frailty and comorbidity indices. After controlling for confounding biases, patients who stayed overnight had poorer outcomes with higher readmission and mortality rates, but hospitals with higher rates of SDD did not have significant differences in patient comorbidity mix or outcomes.

Malde et al reported a systematic review of exclusively outpatient alternatives to TURBT using transurethral laser ablation or diathermy using only local anesthetics.[13] A total of 1,584 patients with low-grade, noninvasive bladder tumors were included with all patients discharged the same day. Flexible cystoscopy with diathermy under local anesthesia is an additional option described but carries the limitation of not providing a tissue sample (biopsy). For low-risk nonmuscle-invasive bladder cancer, significant cost reduction may be possible using such outpatient ablative options.[14]

EMERGING OUTPATIENT UROLOGICAL PROCEDURES

Percutaneous nephrolithotomy. Percutaneous nephrolithotomy (PCNL) is the gold standard management of larger kidney stones. PCNL is technically complex from entry to exit with risks including bleeding, infection, and injury to major organs such that postoperative admission for observation has been the norm. Outpatient percutaneous nephrolithotomy (oPCNL) was first performed in 1986 by Preminger et al,[15] but standard PCNL (sPCNL) remains a predominantly in-patient procedure. More recently, new techniques performed with smaller scopes and better lasers have improved the feasibility of oPCNL, with growing interest among urologists.[16]

Fahmy et al evaluated 186 PCNL patients from 2011-2014, including those deemed candidates for oPCNL and those who were admitted.[17] Among 162 patients, 146 (90%) were successfully discharged the same day with mean length of stay of 8.97 hours. **Since significant intraoperative or postoperative bleeding or signs of urinary infection after PCNL may require admission, monitoring for several hours would likely allow identification of those inappropriate for SDD**. Only 16 patients who chose oPCNL preoperatively required hospitalization. A standardized follow-up protocol with telephone calls on the second postoperative day, then at 1 week and 1 month, and a 30F Amplatz sheath with a 27F nephroscope were used in all patients. A nephrostomy tube (22F) was placed in 128 patients and a "tubeless" percutaneous nephrolithotomy (tPCNL) was performed in 34 patients.

Bechis et al studied 60 patients who underwent planned oPCNL with 37 sPCNLs during the same period.[18] Among planned oPCNL, 72% were successfully discharged the same day with no difference in 30-day complications (27% vs 20%), emergency room (ER) visits (19% vs 18%), or readmissions (3% vs 10%). Patients selected for inpatient PCNL had larger stone burdens, while oPCNL patients more often had supracostal access. The authors concluded that oPCNL is safe and effective in moderate-sized stones regardless of comorbidities.

In 2009, the first totally tPCNL was reported by Beiko et al.[19] The patient was discharged home <4 hours postoperatively without a nephrostomy tube or ureteral stent. The stone was 1.1 cm in the lower pole, and postoperative imaging showed complete clearance. The authors targeted an interpolar calyx using a 30F balloon dilator and 24F rigid nephroscope.

Dunne et al reported on 650 patients who underwent PCNL at a free-standing ASC between 2015-2019.[20] The urologist obtained access in all cases with all performed tubeless using an intercostal block for pain control and hemostatic plug in the access tract for hemostasis. Only 26 patients had complications, of whom 13 (2%) required hospital transfer. The same group evaluated patients undergoing PCNL at both the hospital and ASC to identify factors associated with need for admission. Preoperative anticoagulation or positive urine culture, American Society of Anesthesiologists (ASA) level >2, operative time (OT) >125 minutes, and stone burden >40 mm were predictors of hospitalization.[21]

El-Tabey et al published a study on 84 patients who underwent supine tPCNL.[22] Mean±SD hospital stay was 33.4±17.5 hours, with oPCNL successfully achieved in 71% of patients. Although all patients were admitted overnight, Singh et al successfully performed tPCNL without general anesthesia in 10 patients using a regional block (spinal low-dose anesthesia with low-dose bupivacaine plus fentanyl).[23] The mean postoperative visual analogue pain score was 2.4, such that this strategy might facilitate oPCNL if reproduced by others.

Shahrour and Andonian recommended that good candidates for oPCNL were ASA score ≤2, single-tract access, without intraoperative complications, without hemodynamic issues in the postoperative area, average stone size of 17 mm, and a BMI of around 25 kg/m^2.[24] Other groups with larger series did not have limitations on BMI, ASA score, stone size, or access, such that it is unclear what criteria, if any, should be considered contraindications to oPCNL, although several factors have been suggested (Table 3).[17,18] **Schoenfeld et al suggested a set of exclusion criteria of BMI >45, >1 access site, >3 puncture attempts, positive urine culture, solitary or transplant kidney, and limited performance status. Postoperative factors excluding oPCNL included hemodynamic instability, fever, pneumothorax, transfusion, immobility, or uncontrolled pain/nausea.[25]**

In a Canadian cost-analysis study, oPCNL resulted in $3,000 savings per case.[26] In the 2022 study by Lee et al, 23 oPCNLs were compared with 75 sPCNLs with no difference found in complications, ER visits, or readmissions, thereby realizing a cost savings of $5,327 per patient on average with oPCNL.[16] One identified component of cost savings was that more CT scans were done in the sPCNL group.

An NIH-funded randomized clinical trial, "Ambulatory Versus Inpatient Percutaneous Nephrolithotomy," began on January 8, 2022, and has an estimated completion date of December 30, 2024. The purpose of this trial is to compare outpatient tPCNL with inpatient PCNL using a nephrostomy tube, and 140 patients are currently enrolled. Exclusion criteria include age <18 years, pregnancy, positive urine culture within 3 weeks, bleeding disorder, renal anatomical abnormalities, solitary kidney, need for admission determined by anesthesiologist, significant ureteral or pelvicalyceal injury, intraoperative hemorrhage, temperature >100.4 °F, hemodynamic instability, hemoglobin drop of >3 g/dL, transfusion, pneumothorax or hemothorax on chest x-ray, uncontrolled nausea, vomiting, or pain.

Table 3. Potential Facilitating Factors and Predictors of Outpatient Percutaneous Nephrolithotomy

1. Tubeless or totally tubeless PCNL
2. Use of hemostatic sealant in the tract
3. Locoregional anesthesia protocol (intercostal/spinal blocks)
4. Upper pole access
5. Single access tract
6. Mini or micro PCNL
7. Smaller stone burdens
8. Lower BMI
9. Less comorbidities, absence of anticoagulation, preoperative UTI

Abbreviations: BMI, body mass index; PCNL, percutaneous nephrolithotomy; UTI, urinary tract infection.

Robotic and laparoscopic urological procedures. The concept of outpatient radical prostatectomy was introduced prior to the advent of the robotic approach. Outpatient perineal prostatectomy was first described by Ruiz-Deya et al in 2001, with patients discharged within 24 hours using NSAIDs as the preferred analgesic and with 94.8% patient satisfaction.[27] Dudderidge et al reported the first series of same-day laparoscopic prostatectomies performed extraperitoneally and using routine transversus abdominis plane blocks, with 14 (7%) of 200 patients successfully discharged the same day.[28]

Over the past 2 decades, robot-assisted laparoscopic prostatectomy (RALP) has become the predominant approach for radical prostatectomy. Martin et al described the first report of outpatient robotic prostatectomy performed using an extraperitoneal approach in 2007.[29] Their series included 27 selected patients who were offered discharge home the same day, of whom 11 patients accepted. Postoperative survey at 2 weeks revealed high satisfaction, with no patients feeling rushed.

In 2016, Berger et al described a series of outpatient RALPs in 30 highly selected patients, among 950 of whom 26 were discharged the day of surgery with an average length of stay of 14 hours.[30] Wolboldt et al reported a pilot study in 2016, in which 9 of 11 selected patients were successfully discharged after RALP on the same day,[31] with Martin[29] and Banapour[32] et al subsequently reporting SDD RALP in a highly selected group of 11 and 25 patients, respectively.

Abaza et al reported the first large series of SDD RALP in which patients were not selected but were uniformly offered the option of SDD.[33] Of 500 consecutive RALP procedures, 246 (49%) opted for discharge the same day within 5.8 hours on average, with increasing proportion of SDD over time, such that 65% of the latest 100 patients were discharged the same day. Only 1 of 246 patients visited the ER, and 1 patient was readmitted within 90 days. **Cost savings with SDD RALP were estimated at $345,876 per year**.

Outpatient pyeloplasty was first described laparoscopically by Rubinstein et al in 2005 in 6 of 55 highly selected patients.[34] Pyeloplasty may be ideally suited for SDD due to a generally healthier patient population, relatively short OT, and lack of need for an extraction incision.

Several small case series of either short stay or SDD after minimally invasive adrenalectomy have been reported. The first report was by Gill et at in 2000 of 9 selected patients with small adrenal tumors (2 cm).[35] Pigg et al recently recommended selection criteria for SDD after minimally invasive adrenalectomy, including tumor size of <8 cm, absence of preexisting cardiopulmonary failure, end-stage renal disease, anticoagulation, or severe deconditioning.[36] Pheochromocytoma was not considered a contraindication. The same group compared 33 SDD adrenalectomies with 25 conventional stays and found no difference in patient satisfaction by phone interviews.

SDD laparoscopic nephrectomy was first described by Ilie et al in 2011 among 22 patients, of whom most (57%) had simple nephrectomies for benign nonfunctioning kidneys.[37] Six patients (27%) were readmitted, most commonly the following day for pain. Azawi et al described a prospective trial of SDD for laparoscopic radical nephrectomy, in which 50 of 55 patients agreed to enroll and 46 were discharged within 6 hours without any readmissions.[38]

SDD robotic partial nephrectomy was first described in a single case by Bernhard et al in 2015 in a healthy 27-year-old male with a 1.6-cm renal mass.[39] The first series of SDD after robotic partial nephrectomy was published in 2020 and included 23 of 84 patients treated over 1 year with smaller tumor size (mean 2.24 cm) and shorter OT (mean 99.5 minutes). No readmissions or complications were reported.[40]

Single-port (SP) robotic surgery has increased interest in SDD, with several groups reporting outpatient SP robotic prostatectomy. Wilson et al reported a series of 60 patients who underwent extraperitoneal SP RALP.[41] Mean OT was 198 minutes, with 45 patients (75%) discharged the same day and 4 readmissions within 30 days. Several meta-analyses, including that of Hinojosa-Gonzalez et al, reported favorable outcomes for SP compared to multiport RALP with shorter lengths of stay, shorter catheterization times, lower amount of pain medication, and similar patient characteristics, margins, OT, blood loss, continence, erectile function, and biochemical recurrence.[42]

Abaza et al reported an 88% SDD rate among their initial 100 patients who underwent SP robotic urological surgeries, including 59 prostatectomies, 18 partial nephrectomies, 12 pyeloplasties, 4 nephrectomies, 4 adrenalectomies, 2 partial cystectomies, and 1 nephroureterectomy, with only 2 complications and no readmissions.[43] **The SDD rate was higher in this series with the SP robot vs the traditional multiport approach, but the primary surgeon has since adopted a routine of true outpatient surgery (discharge from post-anesthesia care unit) after all multiport procedures, excepting cystectomy, with a 99% success rate in the last year (496 of 501 patients).** Therefore, while surgeons pioneering use of the SP robot have transitioned to SDD, the impact of SP surgery and/or need for an SP robot to achieve this is questionable.

Strategies have been described to facilitate SDD after laparoscopic or robotic surgery aimed at reducing postoperative pain (Table 4). Although general anesthesia is typically used, the same is true for other urological procedures commonly performed on an outpatient basis, such as ureteroscopy or extracorporeal SWL, as well as nonurological surgeries like cholecystectomy or hernia repair, and is therefore not a limitation to SDD. Minimizing port sites and length of incisions may be beneficial as seen with SP surgery, wherein pain scores may be reduced by as much as 15% by eliminating additional port sites.[43]

Table 4. Potential Strategies Facilitating Outpatient Robotic Urological Surgery

1. Patient education setting LOS expectations
2. Minimizing number of ports and incision size
3. Avoiding muscle cutting (midline extraction) and ports through rectus
4. Reducing intraoperative pneumoperitoneum pressure
5. Nonnarcotic analgesic adjuncts (eg, NSAIDs, acetaminophen, gabapentin, IV lidocaine)
6. Locoregional blocks (eg, rectus or TAP blocks, incisional local anesthetics, pain pump)
7. Drain and catheter avoidance when possible

Abbreviations: IV, intravenous; LOS, length of stay; NSAIDs, nonsteroidal anti-inflammatory drugs; TAP, transversus abdominis plane.

Multimodal nonnarcotic analgesic strategies have been suggested. **Adjuncts such as ketorolac, gabapentin, or intravenous lidocaine can be used intraoperatively. Use of locoregional blocks (eg, transversus abdominis plane block) and use of long-acting local agents such as liposomal bupivacaine or elastomeric pain pumps as previously mentioned may be beneficial for larger extraction incisions (eg, nephrectomy) but do not yet have clear evidence in terms of supporting SDD.** In addition, a growing body of evidence suggests that lowering pneumoperitoneum pressure during laparoscopic or robotic surgery benefits patient recovery in several ways that might facilitate SDD, including effects on pain and bowel function.[44-46] Abaza et al performed a randomized, controlled trial comparing RALP at an insufflation pressure of 6 mm Hg with the traditional 15 mm Hg and found a 25% reduction in immediate postoperative pain, although most patients in both groups were discharged the same day (88% vs 84%).[47]

Additional resources can be deployed by individual practices with routine early follow-up calls or using remote monitoring devices. These are not used by our practices currently. and there is no evidence for their support nor guidelines to our knowledge advocating them.

IMPACT OF COVID ON SDD

The COVID-19 pandemic resulted in unprecedented health care challenges including restrictions on elective surgery during the early phase and subsequent surges. This was a necessary temporary strategy to manage limited hospital resources, including personnel and hospital beds. While initial restrictions were broad for all elective surgeries, subsequent restrictions were focused on only elective surgeries requiring admission. The early impact of COVID on resources evolved, with ongoing staffing shortages that are strained by even prepandemic levels of hospital census.

Converting traditionally inpatient surgeries to SDD was implemented by some centers during the pandemic. This may provide a solution in future surges or amid ongoing staffing shortages in order to avoid delaying cancer and other nonelective surgery as well as routine surgical care. In addition to easing the burden on hospitals during COVID, migration of surgeries from hospitals to ASCs accelerated after COVID and might also have been fueled by patient fears regarding potential nosocomial exposure.[48]

The pandemic precipitated reexamination of the need for postoperative hospitalization to allow typically inpatient surgeries to still be performed. While the vast majority of robotic urological procedures were traditionally performed with hospital admission, by motivating outpatient robotic surgery during its acute phases, COVID will likely hasten its application long term. Abaza et al reported an increase in the rate of SDD after robotic prostatectomy, partial and radical nephrectomy, and other kidney, bladder, and reconstructive procedures from 52% of historical patients to 98% of 89 patients during the acute phase of COVID and 98% of 42 patients when elective overnight surgeries were once again allowed.[49] Since then, the primary author has continued to perform outpatient robotic urological surgery for all procedures besides cystectomy/urinary diversion, with a 99% SDD rate in the last 500 patients.[50]

FUTURE DEVELOPMENTS

As in all medical subspecialties, the field of urology continues to evolve rapidly, with several changes impacting the transition to outpatient surgery. ASCs in the U.S. are growing in both number and patient volumes, with an estimated projected growth rate of 6.9% annually over the next several years.[51] While overnight capabilities are possible in some ASCs, the financial model does not favor this given that reimbursements are typically well below hospital rates for most procedures. Therefore, procedures migrating from hospitals to ASCs will likely continue to be naturally outpatient procedures, but procedures like TURP, TURBT, and even PCNL and robotic surgery can be performed in an ASC setting even without overnight capability by those implementing SDD protocols.

Finally, financial and reimbursement pressures on hospitals and physician practices will likely have an impact on the transition to outpatient surgery. Hospital and physician reimbursements from public and private payers continue to decrease, motivating postoperative recovery in less costly environments. The financial impact on physicians and shortage of urologists will require them to perform more surgeries and see more patients in the clinic, such that the ability to provide inpatient care for procedures that can be safely performed on an outpatient basis will be further strained. While financial causes should not be the major motivator for instituting same-day surgery protocols, when patient safety and satisfaction are at least equal, financial pressures will likely drive such initiatives by both providers and institutions.

DID YOU KNOW?

- Outpatient surgery is increasingly being offered after various endoscopic and robotic urological surgeries and should be considered, particularly by experienced surgeons with reliable outcomes and low complication rates.
- SDD has become relatively common for BPH procedures like TURP, PVP, and HoLEP as well as for TURBT, while outpatient management of PCNL and robotic urological surgery patients is still emerging.
- Clinical pathways or enhanced recovery after surgery protocols that include pain control strategies as well as adequate preoperative patient education are critical to successful same-day surgery implementation, particularly to prevent readmissions and ER visits.
- When properly implemented, SDD after endoscopic and robotic urological procedures does not increase complications and has been associated with high patient satisfaction rates when assessed.
- Cost concerns and financial market forces will likely continue to drive interest in outpatient surgery, including transition of surgeries from hospital settings to ASCs when possible.

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Study Questions Volume 42 Lesson 16

1. Which of the following is the most likely obstacle in the transition to outpatient surgery for prior inpatient procedures?
   a. Postoperative pain control
   b. Size of incision
   c. Patient anxiety
   d. Robotic procedures

2. What is the expected failure rate for same-day discharge(s) following BPH procedures performed in outpatient settings?
   a. 0%
   b. Approximately 10% or less
   c. Between 25% and 50%
   d. Nearly 75%

3. The transition to outpatient PCNL procedures is most facilitated by which kidney access?
   a. Lower pole placed prior to procedure
   b. Lower pole placed day of procedure
   c. Upper pole in a lower BMI patient
   d. Upper pole kidney access in a larger patient with increased tract compression

4. A PCNL is completed uneventfully in a 52-year-old male with a relatively small stone burden. Which of the following factors may facilitate same-day discharge?
   a. Leaving a nephrostomy tube to drain the kidney
   b. Single access tract to treat the entire stone burden
   c. Avoiding hemostatic sealant in the tract
   d. Right-sided procedure

5. Which of the following contributes most to successful same-day discharge after robotic prostatectomy?
   a. Intra-abdominal drain placement
   b. High pneumoperitoneum pressures (ie, >15 mm Hg)
   c. Preoperative bowel prep
   d. Preoperative patient education