Quality counts when referring patients to hospitals and physicians, so Cleveland Clinic has created a series of outcomes books similar to this one for its institutes and departments. Designed for a health care provider audience, the outcomes books contain a summary of our surgical and medical trends and approaches; data on patient volume and outcomes; and a review of new technologies and innovations. We hope you find these data valuable. To view all our outcomes books, visit Cleveland Clinic’s Quality Web site at clevelandclinic.org/quality/outcomes.
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The Glickman Urological and Kidney Institute is pleased to present our third edition of *Outcomes*, a summary review of our surgical trends, treatment approaches and results. We believe it is important to share this information with our referring physicians, potential patients, alumni and other individuals interested in our program.

The staff of the Glickman Urological and Kidney Institute comprises a unique group of talented and creative individuals who make significant contributions while supporting one another in a shared commitment to excellence. We believe providing the best surgical care goes beyond state-of-the-art technology and the latest techniques; it also means providing care with compassion and understanding.

We are proud of our past, energized by our current activities, and passionate about our future. We hope you find the information contained in this summary helpful and informative.

**Andrew C. Novick, M.D.**
Chairman, Glickman Urological and Kidney Institute
The Glickman Urological and Kidney Institute’s activities encompass a unique combination of high-volume and challenging clinical material, extensive clinical scientific activities, and credible laboratory research within an environment that nurtures the future leaders of our specialty. The Institute’s professional staff of 69 urologists and scientists offers in-depth expertise in every urologic subspecialty area. They comprise the largest full-time urology faculty in the United States. The aggregate clinical, educational and scientific activities of the Glickman Urological and Kidney Institute are unmatched by any other urology program in the United States at this time.

The Glickman Urological and Kidney Institute performed more than 22,000 surgical procedures in 2006.
We offer a full range of care for urological problems in adults and children, including kidney disease, bladder disease, prostate disorders, sexual dysfunction/impotence, male infertility, testicular/bladder/prostate/adrenal/kidney cancers, chronic urinary tract infections, and obstructions and pediatric urology.

The demand for clinical services provided by the institute continued to increase over the last ten years, reflecting the strong national and regional reputation of our professional staff. A corresponding increase in new patient visits over the last ten years has resulted. The Institute has been ranked among the top five urological programs in the country for the last 16 years and among the top two programs for the last seven years. Statistical measures indicate we continue to move closer to the No. 1 national ranking in our specialty.
Quality & Outcome Measures

Urologic Oncology

Tumors of the Kidney
Treatment of renal cell carcinoma is the indication for the majority of renal surgery. In 2006, more than 700 patients had surgery for renal tumors. Surgical treatment by radical or partial nephrectomy remains the only curative treatment for localized renal cell carcinoma. Patients with advanced or metastatic disease are treated with a combination of surgery and systemic medical therapy through a multidisciplinary approach in conjunction with dedicated urologic medical oncologists. Despite the complicated surgery involved with these malignant tumors, overall mortality rate remains less than 1%.

Radical Nephrectomy
Radical nephrectomy remains the standard surgical treatment for renal cell carcinoma. Laparoscopic radical nephrectomy has rapidly become the standard of care due to markedly decreased pain and morbidity and shorter hospital stay and recovery. The majority of patients requiring radical nephrectomy undergo a laparoscopic procedure. Patients selected for open radical nephrectomy include those with very large tumors, marked adenopathy, tumor venous thrombus in the vena cava, or tumor involving adjacent organs.
Laparoscopic Radical Nephrectomy

Blood Loss (cc)

Days

N=53

N=63

Open

Laparoscopic

Blood Loss

Length of Stay

T1 Disease Specific Survival

T2 Disease Specific Survival

T1 Overall Survival

T2 Overall Survival

7 Year Follow-up

Cancer-specific Survival Curve

P=0.75
Partial Nephrectomy

The Glickman Urological and Kidney Institute pioneered and developed both open and laparoscopic techniques for partial nephrectomy for renal tumors. These techniques are firmly established in the treatment of renal cell carcinoma. Partial nephrectomy offers patients the advantage of preserving more renal tissue and kidney function. With more than 2,500 open partial nephrectomies performed, our experience is the largest of any center in the world for these delicate surgeries.

Open partial nephrectomy was performed in about half the patients selected for partial nephrectomy in 2006. Our vast experience with this type of surgery is reflected in a low incidence of surgical complications, none of which required reoperation. The most comprehensive series of open partial nephrectomy results with the longest follow-up, including cancer control and renal function results, were reported.

*Tumor Recurrence after Open Partial Nephrectomy*  
*400 patients with solitary kidney  
*Mean follow-up: 48 months  
*78% of patients undergoing partial nephrectomy remain disease-free without recurrence; only 3.5% of patients have recurrent tumor in the kidney remnant.  
Disease-specific survival of tumors localized to the kidney (T1-T2) is typically above 90% after open partial nephrectomy. N = 400

Extensive surgical experience results in a low incidence of surgical complications for open partial nephrectomy. N = 400
Most patients, including those with solitary kidney, maintain the same kidney function after open partial nephrectomy. Surgical complications after partial nephrectomy were directly related to advancing patient age.
Long-term Preservation of Renal Function after Open Partial Nephrectomy

*Mean time to renal failure: four years.
*Long-term kidney function can be expected to be maintained in more than 95% of patients with solitary kidney after open partial nephrectomy. N = 400
Laparoscopic Partial Nephrectomy
Our laparoscopic surgeons developed and refined the technique of laparoscopic partial nephrectomy, utilizing the experience gained from the open procedure. Initially confined to small peripheral tumors, the procedure was expanded to include selected, more complicated tumors. Our experience in this field continues to be the most extensive in the world, with more than 700 cases performed to date. At 5 years, local recurrence rate was 2.5% overall, and cancer specific survival was 86% and 100%, respectively, in a group of 55 patients recently studied. Laparoscopic partial nephrectomy is a technically complex technique which carries a greater risk of postoperative complications than the open technique and the indications are more restrictive than for the open technique.

Renal Tumor Ablation

At the forefront of developing ablative techniques for treatment of renal tumors, our laparoscopic surgeons perform renal cryoablation laparoscopically, under laparoscopic ultrasound monitoring. We recently reported the longest and most careful follow-up of our experience with this procedure. Radiofrequency ablation of renal tumors is performed percutaneously under sedation and under CT guidance. It is a truly minimally invasive procedure performed as an outpatient surgery. Both renal cryoablation (CRYO) and radiofrequency ablation (RFA) established a secure place in the treatment of kidney tumors in select patients with multiple medical or surgical risk factors. We recently presented 5-year oncologic outcomes data of laparoscopic cryoablation for small renal tumors in selected patients.


Minimally Invasive Nephron-sparing Surgery

<table>
<thead>
<tr>
<th></th>
<th>Partial NX</th>
<th>CRYO</th>
<th>RFA</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR Time (min)</td>
<td>206</td>
<td>174.2</td>
<td>-</td>
</tr>
<tr>
<td>EBL (cc)</td>
<td>258</td>
<td>115.1</td>
<td>-</td>
</tr>
<tr>
<td>Hosp Stay (days)</td>
<td>2.5</td>
<td>2.4</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Intraop Complications</td>
<td>6.6</td>
<td>3%</td>
<td>-</td>
</tr>
<tr>
<td>Postop Complications</td>
<td>14.8%</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Open Conversation</td>
<td>1.2%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Transfusion Rate</td>
<td>3%</td>
<td>2%</td>
<td>0</td>
</tr>
</tbody>
</table>
Nephroureterectomy
Laparoscopic surgery has a dominant role in nephroureterectomy for renal and ureteric transitional cell carcinoma. Minimally invasive techniques developed at the Glickman Urological and Kidney Institute are used to manage the distal ureter in addition to standard open techniques for distal ureterectomy and bladder cuff excision.
Prostate Cancer

Prostate cancer is the most common male malignancy. Patients with prostate cancer represent a significant percentage of our practice volume. Every effective treatment modality for prostate cancer is performed, including open and laparoscopic prostatectomy, radiation and cryotherapy. Systemic treatment with hormones or chemotherapy is also performed in a combined multidisciplinary approach that includes our urologists and medical oncologists.

Prostate Cancer Patients

Laparoscopic Nephroureterectomy for Transitional Cell Carcinoma of the Kidney
Radical Retropubic Prostatectomy
Radical retropubic prostatectomy evolved into a precise anatomic surgical procedure with early identification and separation of the neurovascular bundles that supply the erectile tissue of the penis and contribute to postoperative continence. Continence and potency rates for patients undergoing radical retropubic prostatectomy are on par with other centers of excellence in the United States and internationally. Mortality rates for patients undergoing surgery for prostate cancer remains less than 0.2%.
Surgeon Experience Affects Outcomes
With an accumulated vast experience performing surgery for prostate cancer, our studies show patient survival rates are significantly affected by the volume of experience of the surgeon performing radical prostatectomy. The rate of positive surgical margins, directly related to cancer recurrence, is also affected by the level of surgeon's experience.

Survival by Surgeon Volume

![Survival by Surgeon Volume Graph](image)

Recurrence Free Survival with Negative (- SM) and Positive (+ SM) Surgical Margins

![Recurrence Free Survival Graph](image)

Time to Achieve Urinary Continence after Radical Retropubic Prostatectomy

<table>
<thead>
<tr>
<th>Source:</th>
<th>Immediate</th>
<th>Overall</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department Database</td>
<td>46%</td>
<td>92%</td>
<td>4 weeks</td>
</tr>
</tbody>
</table>
Continence after Radical Retropubic Prostatectomy

Potency after Open Radical Prostatectomy

Perioperative Outcomes of Radical Retropubic Prostatectomy

<table>
<thead>
<tr>
<th></th>
<th>Mean Operative Time (min)</th>
<th>Blood Loss (cc)</th>
<th>Transfusion</th>
<th>Discharge Hgb/Hct</th>
<th>Length of Stay</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>115 (95-140)</td>
<td>965 (265 - 2200)</td>
<td>Autologous</td>
<td>78%</td>
<td>2.0 (1 - 3)*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Non-autologous</td>
<td>3.2%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*99% stay 48 hours or less
Laparoscopic Prostatectomy
Developed as a minimally invasive alternative to radical retropubic prostatectomy, laparoscopic prostatectomy is performed by the laparoscopic surgeons at the Institute. In some cases the surgical robot (da Vinci) is used. In 2006, about 290 patients underwent laparoscopic prostatectomy. This large experience translates into excellent outcomes similar to standard open surgery. In order to minimize nerve damage, a novel, thermal energy-free technique of nerve-sparing laparoscopic radical prostatectomy is performed with real-time transrectal ultrasound monitoring. Our technique involves transient bulldog clamping of lateral pedicle, cold-cut release of neurovascular bundle, and delicate homeostatic suturing.

<table>
<thead>
<tr>
<th>Pre-op PSA (ng/ml)</th>
<th>5.9 ng/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Stage</td>
<td></td>
</tr>
<tr>
<td>T1c</td>
<td>84%</td>
</tr>
<tr>
<td>T2a</td>
<td>13%</td>
</tr>
<tr>
<td>T2b</td>
<td>3%</td>
</tr>
<tr>
<td>OR Time</td>
<td>3.5 hours</td>
</tr>
<tr>
<td>Estimated Blood Loss</td>
<td>317 ml</td>
</tr>
<tr>
<td>Hospital Stay</td>
<td>1.6 days</td>
</tr>
<tr>
<td>Pathologic Stage</td>
<td></td>
</tr>
<tr>
<td>pT2</td>
<td>73%</td>
</tr>
<tr>
<td>pT3</td>
<td>27%</td>
</tr>
</tbody>
</table>

Positive Surgical Margins after Nerve-sparing Laparoscopic Radical Prostatectomy
Erectile Function Recovery Rates after Nerve-sparing Laparoscopic Radical Prostatectomy

<table>
<thead>
<tr>
<th>SHIM Score</th>
<th>3-month</th>
<th>6-month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy-free technique</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Conventional technique using thermal energy</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>

One Year Intercourse Rate

<table>
<thead>
<tr>
<th>%</th>
<th>All Patients</th>
<th>Pre-op SHIM ≥22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy-free Technique</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>Conventional Technique Using Thermal Energy</td>
<td>40</td>
<td>60</td>
</tr>
</tbody>
</table>


Gill IS, Ukimura O. 1-year potency outcomes of thermal energy-free laparoscopic radical prostatectomy. *Urology*. In press.
Real-time transrectal ultrasound monitoring of neurovascular bundles during laparoscopic radical prostatectomy.

Cold scissor dissection of the neurovescualr bundles during laparoscopic prostatectomy under ultrasound guidance to minimize nerve damage.
Robotic Assisted Prostatectomy
About 200 robotic assisted prostatectomy procedures have been performed, offering patients another minimally invasive approach to prostatectomy. Average operating time is 3.3 hours; blood loss is 275 cc; and hospital stay is 36 hours. Patients can expect normal urinary control in 88% of cases, normal potency in 87% of patients less than 60 years of age.

Brachytherapy
Interstitial radioactive iodine seed implantation into the prostate using computerized templates under ultrasonic guidance is performed in increasing numbers in conjunction with our radiation oncologists. Currently, more patients receive this form of radiation treatment than traditional external beam radiation, with long-term cure rates higher than 90% in patients with favorable disease features.

![Prostate Brachytherapy](chart.png)
**Prostate Cryotherapy**

Cryotherapy was recently used for treatment of prostate cancer as primary treatment and after failure of radiation treatment. Treatment results are encouraging, with minimal complications and excellent biochemical response rate.

![Biochemical Relapse-free Survival](image)

**Bladder Cancer**

The number of patients treated for bladder cancer steadily increased over the last few years. Patients with superficial, muscle-invasive, as well as advanced and metastatic diseases, are managed according to modern guidelines with excellent outcomes. More than 700 cystoscopic resection procedures were performed and more than 140 radical cystectomy operations in 2006. Laparoscopic radical cystectomy is offered to select patients with low risk of disease, offering the advantage of less postoperative pain and shorter recovery.

![Transurethral Resection](image)
Modern continent urinary diversion techniques are performed for patients who prefer to avoid external collecting appliances. Systemic chemotherapy is used in conjunction with surgery in an adjuvant or neoadjuvant manner in select patients with high risk or advanced disease. Overall surgical mortality for patients undergoing cystectomy is around 1%, with no mortality in patients younger than 60 years old.
Laparoscopic and Robotic Radical Cystectomy

Minimally invasive surgical techniques attempt to duplicate the excellent oncological outcomes of open radical cystectomy with a superior patient recovery profile: decreased blood loss, shorter hospital stay, and quicker convalescence. Our institutional experience with laparoscopic and robotic radical cystectomy exceeds 90 cases, 18 have been done robotically.

We recently compared the perioperative outcomes of laparoscopic-assisted radical cystectomies (n=25) with a contemporary cohort of open radical cystectomies (n=25). The table illustrates the comparative data of the two cohorts (8).

<table>
<thead>
<tr>
<th></th>
<th>Laparoscopic Radical Cystectomy</th>
<th>Open Radical Cystectomy</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operative time (hrs)</td>
<td>6.0±1.0</td>
<td>6.7±0.95</td>
<td>0.07</td>
</tr>
<tr>
<td>Blood loss (cc)</td>
<td>337±291</td>
<td>1170±1277</td>
<td>0.006</td>
</tr>
<tr>
<td>Transfusion (%)</td>
<td>4%</td>
<td>27%</td>
<td>0.002</td>
</tr>
<tr>
<td>Ileus (days)</td>
<td>12.0%</td>
<td>23%</td>
<td>0.09</td>
</tr>
<tr>
<td>Oral intake (days)</td>
<td>3.5±1.3</td>
<td>4.3±2.4</td>
<td>0.14</td>
</tr>
<tr>
<td>Minor postop complications (%)</td>
<td>16%</td>
<td>23%</td>
<td>0.22</td>
</tr>
<tr>
<td>Major postop complications (%)</td>
<td>8%</td>
<td>6%</td>
<td>0.09</td>
</tr>
<tr>
<td>Ambulation (days)</td>
<td>2.7±1.7</td>
<td>3.0±3.7</td>
<td>0.41</td>
</tr>
<tr>
<td>Hospital stay (days)</td>
<td>8.4±1.9</td>
<td>9.8±3.2</td>
<td>0.05</td>
</tr>
<tr>
<td>Lymph nodes on final pathology (n)</td>
<td>19.2±7.2</td>
<td>18.3±4.7</td>
<td>0.38</td>
</tr>
<tr>
<td>Positive surgical margins (%)</td>
<td>0</td>
<td>8%</td>
<td>0.15</td>
</tr>
</tbody>
</table>

**Testis Cancer**

Testis cancer patients are all managed with a careful multidisciplinary approach, including specialized urologic medical oncologists. This approach maximizes cure rates without subjecting patients to unnecessary treatment-related toxicity. This approach is especially important for the young patient population with this type of aggressive malignancy. Retroperitoneal lymph node dissection incorporates nervesparing techniques to preserve the sympathetic outflow tracts in the retroperitoneum and maintain antegrade ejaculation postoperatively.

![Retroperitoneal Dissection for Testis Cancer](chart1)

**Adrenal Tumors**

Adrenal surgery is one of the major domains of laparoscopy. Laparoscopic urologists have accumulated vast experience in this area, including all types of benign, malignant and hormonally active adrenal tumors. A small select group of patients still undergo open surgical adrenalectomy, usually in the presence of larger adrenocortical carcinoma.

![Adrenalectomy](chart2)
Indications for Adrenalectomy

- Adrenal Mass: 52%
- Cushing’s Syndrome: 6%
- Pheochromocytoma: 21%
- Aldosteronism: 21%

Tumors

- <5cm
- ≥5cm

Laparoscopic Adrenalectomy for Adrenocortical Carcinoma

Indications for Adrenalectomy:

- Mean operative time (min): 192 vs. 207
- Median hospital stay (days): 1 vs. 2
- Local recurrence: 12% vs. 1%
- Median specimen (gm): 28 vs. 78
- Alive at follow-up/total: 56% vs. 5%
**Laparoscopic Adrenalectomy for Adrenocortical Carcinoma**

<table>
<thead>
<tr>
<th></th>
<th>Tumors &lt;5cm</th>
<th>Tumors ≥5cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean operative time (min)</td>
<td>192</td>
<td>207</td>
</tr>
<tr>
<td>Median hospital stay (days)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Local recurrence</td>
<td>12%</td>
<td>31%</td>
</tr>
<tr>
<td>Median specimen (gm)</td>
<td>28</td>
<td>78</td>
</tr>
<tr>
<td>Alive at follow-up/total</td>
<td>56%</td>
<td>53%</td>
</tr>
<tr>
<td>Total (%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Overview of Laparoscopic Oncologic Surgery

Our collective experience with all laparoscopic procedures performed for all oncologic indications was recently reviewed. From April 1997-January 2006, 1,867 laparoscopic surgeries were performed for urologic cancer. The graph demonstrates the number of procedures performed per year. Procedures included laparoscopic partial nephrectomy (LPN), laparoscopic radical prostatectomy (LRP), laparoscopic radical cystectomy (LRC), laparoscopic radical nephrectomy (LRN) and laparoscopic nephroureterectomy (LNU). More than 60% of procedures performed after 2001 are classified as “very difficult” or “extremely difficult” according to the standardized European Scoring System (ESS). Despite the significantly increased technical complexity of the procedures, the complication rate decreased (17.3% versus 12.5%) in the same time period.

**Robotic Urology**

This clinical experience is based on the initial research performed at Cleveland Clinic in the early 2000s. Over 350 robotic procedures have been performed. Robotic procedures performed include robotic nerve-sparing radical prostatectomy, robotic radical cystoprostatectomy and cystectomy, robotic pyeloplasty, robotic adrenalectomy, robotic partial nephrectomy and robotic sural nerve grafting.
Prosthetics and Reconstruction

Reconstructive surgery of the penis is performed for acquired erectile deformity (Peyronie’s disease) or congenital curvature. Multiple options for correction of the deformity are available to these patients, including penile plication or plaque excision with tunical grafting. Inflatable penile prostheses are offered to patients with a combination of erectile dysfunction in addition to the deformity.
Male urethral reconstruction is often required for patients with urethral stricture disease. These delicate and usually difficult reconstructive operations combine urologic as well as plastic surgical principles and are only performed in a handful of centers. About 60 operations are performed annually, incorporating all modern techniques of grafts, flaps, and simpler anastomotic procedures. A significant number of patients with complex urethral fistulae (including recto-urethral fistulae) are also repaired surgically each year, a combined experience that rivals any other urologic center in the United States.
Reconstructive surgeons at the Institute pioneered and developed the field of urologic prosthesis for erectile dysfunction as well as urinary incontinence. Inflatable penile prostheses are used for treatment of erectile dysfunction and produce excellent long-term outcomes. Different types of prostheses are offered according to the clinical situation and indications. The main indication for placing an artificial urinary sphincter is incontinence following radical prostatectomy. Patients with this prosthetic implant can expect almost complete continence with excellent long-term mechanical reliability.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Inflatable Penile Prosthesis</th>
<th>Artificial Urinary Sphincter Surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>82</td>
<td>62</td>
</tr>
<tr>
<td>Length of stay</td>
<td>23 hrs</td>
<td>23 hrs</td>
</tr>
<tr>
<td>Infection</td>
<td>1.2%</td>
<td>0</td>
</tr>
<tr>
<td>Erosion</td>
<td>0</td>
<td>3.2%</td>
</tr>
<tr>
<td>Other re-ops</td>
<td>0</td>
<td>4.8%</td>
</tr>
</tbody>
</table>

**Long-Term Mechanical Reliability**

<table>
<thead>
<tr>
<th>Prosthesis - Products</th>
<th>5 Years</th>
<th>10 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMS 700 CX/CXM</td>
<td>92%</td>
<td>81%</td>
</tr>
<tr>
<td>AMS ULTREX</td>
<td>94%</td>
<td>23 hrs</td>
</tr>
</tbody>
</table>


Urethral Reconstruction
The Institute's reconstructive surgeons perfected the use of buccal mucosa in repair of urethral strictures. Dense strictures are repaired using a technique called Augmented Anastomotic Urethroplasty. In this technique, the dense part of the stricture is removed, the anterior or posterior plate of the urethra is reconstructed and the buccal mucosa is used as an onlay. After more than eight years of experience with this technique, our overall success rate is 91%. Less than 5% of patients report any long-term complaints related to harvesting of buccal mucosa from the cheek.


Repair of Radiotherapy-induced Urethrorectal Fistula
More than 25 patients presented with this most severe complication following radiation treatment for prostate cancer. A wide range of experience was developed with these cases. We continue to treat them with modern techniques of reconstruction in a multidisciplinary approach in combination with the colorectal and plastic surgeons. After preliminary urinary and fecal diversion, select patients are reconstructed using buccal mucosal graft combined with colo-anal pull through and a gracilis muscle flap as needed.
Transplantation

Transplant surgeons perform kidney and pancreas transplantation surgery, sometimes in combination as a kidney/pancreas transplant. Kidney transplantation offers longer survival, superior lifestyle and fewer complications than dialysis for patients in end-stage renal failure. Our kidney transplant program continues to generate a substantial volume, with a total of 150 transplants performed in 2006. As in the recent past, over 50% of kidneys now come from living donors. There is an important role for the living unrelated donor, which now represents 40% of all living donor kidneys. Patient survival after kidney transplant is excellent at 95%. One year graft survival is favorable at 91%. The major dilemma in transplantation across the country continues to be the insufficient supply of organs for those in need. Our median wait time for a cadaveric kidney is 845 days. UNOS identified our donor service area ranks No. 4 in the nation for living donor kidney transplant and No. 5 for transplanting high risk kidneys.

Volumes include kidney/pancreas and kidney/liver transplants (main campus).
Our majority of living donors undergo laparoscopic donor nephrectomy. Performed by laparoscopic surgeons, the laparoscopic procedure offers markedly decreased pain, improved cosmesis and shorter hospital stay. Long-term kidney function results are comparable to the open procedure.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Mean</th>
<th>Median</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days Waiting (Decreased Donor)</td>
<td>995.7</td>
<td>845.0</td>
<td>73</td>
</tr>
<tr>
<td>Post Transplant LOS</td>
<td>7.9</td>
<td>6.0</td>
<td>150</td>
</tr>
</tbody>
</table>
Kidney Transplant Survival


Primary Diagnoses

- Diabetes: 25%
- Cystic Disease: 9.1%
- Unknown: 9.9%
- *Other: 6.1%
- Retx/GraftFail: 3.8%
- Nephritis/Interstitial Disease: 16.7%
- Hypertension: 13.6%
- Multi-System Disease: 9.1%
- Dysplasia: 0.80%
- Glomerular Disease: 13.6%

*Other category includes alport syndrome, malignant disease, metabolic disease, nephrolithiasis, obstructive disease and others.
Kidney Graft Survival


Pancreas Transplant

Includes kidney/pancreas and pancreas only transplants
Female Urology

A large number of female patients are referred for management of urinary incontinence. Most patients have stress or urge incontinence or a combination of the two. Modern video-urodynamic testing is performed for these patients and various urethral sling procedures are performed according to the clinical indication.

Pelvic Floor Prolapse

Surgery for pelvic floor prolapse is performed by urologic surgeons with specialized training in the field of female and vaginal surgery. Anterior, posterior and total prolapse is repaired by different procedures, including vaginal colporrhaphy, sacrospinous ligament fixation and laparoscopic colpopexy, according to clinical indications.
Robotic-assisted abdominal sacrocolpopexy is used for repair of advanced pelvic organ prolapse, in the presence or absence of the uterus. Average blood loss for such procedures is 80 cc; average hospital stay is 2.4 days. Anti-incontinence surgery is performed as indicated in conjunction with these procedures.
Vaginal Slings
Mid-urethral slings have rapidly established themselves as the method of choice for most patients undergoing surgery for stress urinary incontinence. The Glickman Urological and Kidney Institute introduced the technique of Percutaneous Vaginal Tape (PVT). The polypropylene mesh is placed in the mid-urethral location in an antegrade fashion to minimize the likelihood of major bowel, bladder and bleeding complications. The newly introduced PVT procedure is as effective and safe as the gold standard Tension Free Vaginal Tape (TVT) kit procedure for the treatment of stress urinary incontinence in females, but the contemporary PVT procedure is inexpensive and minimally invasive, does not require special instrumentation and is simple to perform worldwide.
Laparoscopic Augmentation

The laparoscopic technique of colocystoplasty with a continent catheterizable stoma was developed at the Glickman Urological and Kidney Institute. This technique provides a minimally invasive alternative to major open abdominal surgery with prolonged recovery and significantly shorter hospital stay and recovery.

*Cases arranged chronologically
Bladder and bowel scale function before (pre) and after (post) open and laparoscopic approaches. Significant improvements are noted by the patient in bladder function without causing any bowel dysfunction.

### Perioperative Parameters of Bladder Augmentation

<table>
<thead>
<tr>
<th></th>
<th>Open Abdominal Approach</th>
<th>Laparoscopic Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (female/male)</td>
<td>8/1</td>
<td>8/1</td>
</tr>
<tr>
<td>Cystometric capacity</td>
<td>149 ml</td>
<td>167 ml</td>
</tr>
<tr>
<td>Mean operative time in minutes (range)</td>
<td>278</td>
<td>468</td>
</tr>
<tr>
<td>Mean time to achieve oral intake (days)</td>
<td>5.2</td>
<td>1.7</td>
</tr>
<tr>
<td>Mean hospital stay (days)</td>
<td>8.2</td>
<td>4.4</td>
</tr>
<tr>
<td>Mean change in bladder scale (SD)</td>
<td>2.2</td>
<td>3.4</td>
</tr>
</tbody>
</table>
View of the colonic patch sutured to bladder for augmentation with subsequent formation of a catheterizable ileal stoma to the umbilicus.
**Vesico-Vaginal Fistula**

Vesico-vaginal fistulas (VVF), or communications between the bladder and vagina, represent some of the most difficult reconstructions for most pelvic surgeons. Urologists perform a large volume of transvaginal VVF repairs as a tertiary referral center. Since many recurrent fistulas are referred, we have one of the largest experiences in the country in recurrent VVF repairs managed vaginally. The vaginal approach offers minimal pain and shorter recovery compared to the open trans-abdominal approach traditionally used. With the vaginal approach, 90% of our patients spend less than 24 hours in the hospital postoperatively.

**Interstim (sacral neuromodulation)**

![Graph showing Interstim Interstim Distribution](image)
**Intravesical Injection of Botox**
Botulinum A toxin is used for treatment of refractory conditions of detrusor overactivity, interstitial cystitis, urinary sphincter spasm, retention, and levator muscle spasm.

<table>
<thead>
<tr>
<th>Residual volume</th>
<th>Baseline</th>
<th>3-month follow-up</th>
<th>6-month follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean changes</td>
<td>P-value</td>
</tr>
<tr>
<td>264</td>
<td>148</td>
<td>44%</td>
<td>0.001</td>
</tr>
<tr>
<td>CIC</td>
<td>2.0</td>
<td>1.2</td>
<td>41%</td>
</tr>
<tr>
<td>Frequency</td>
<td>8.2</td>
<td>6.8</td>
<td>17%</td>
</tr>
<tr>
<td>Bladder perception</td>
<td>3.7</td>
<td>2.4</td>
<td>46%</td>
</tr>
<tr>
<td>IIQ-7</td>
<td>10.3</td>
<td>8.4</td>
<td>18%</td>
</tr>
<tr>
<td>UDI-6</td>
<td>8.8</td>
<td>6.4</td>
<td>27%</td>
</tr>
</tbody>
</table>

**Botulinum A Toxin Injection for the Treatment of Detrusor Sphincteric Dyssynergia (DSD)**
Endourology and Stone Disease

Stone Disease
Patients with urinary calculi represent a large volume of clinical practice. All modern techniques for managing these patients are conducted, including detailed metabolic evaluation and medical treatment to minimize chances of stone recurrence. For patients requiring intervention, options include shock wave lithotripsy, ureteroscopy or percutaneous nephroscopic extraction. Modern instrumentation, such as thin flexible ureteroscopes and laser lithotripsy, are used to minimize patient morbidity and shorten hospital stay.
Ureteropelvic Junction Obstruction
This common condition causing hydronephrosis is managed with minimally invasive techniques. Laparoscopic urologists perform increasing numbers of laparoscopic pyeloplasty with the assistance of the da Vinci robotic system. The percutaneous nephroscopic technique of endopyloplasty was introduced at the Glickman Urological and Kidney Institute. This entails incision of the obstructed ureteropelvic junction as well as suturing the incised repair through a nephroscopic approach.

Oncological Results Following Percutaneous Resection of Upper Tract Transitional Cell Carcinoma in Patients with a Solitary Kidney

<table>
<thead>
<tr>
<th>No. of patients</th>
<th>34</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of procedures</td>
<td>37</td>
</tr>
<tr>
<td>Recurrences</td>
<td>4</td>
</tr>
<tr>
<td>Disease-free survival</td>
<td>79%</td>
</tr>
<tr>
<td>Cancer-specific survival</td>
<td>93%</td>
</tr>
</tbody>
</table>

Mean follow-up: 47 months

All recurrences were successfully treated endoscopically.
With intermediate-term follow-up, this extremely high-risk group demonstrates a cancer-specific survival of 93%.

Percutaneous resection of renal urothelial tumors is performed in patients with solitary kidney. Strict selection criteria are applied.
Percutaneous Treatment of Staghorn Renal Calculi

Patients with large renal calculi are treated with multiple-tract nephrosto-lithotomy, a delicate and difficult procedure frequently performed by endourologists. High stone-free rates can be achieved with low complication rates even when multiple access tracts are required for stone clearance. While transfusion rates are higher in multiple tract patients, this tends to relate more to the lower preoperative hemoglobin levels seen in this group.

<table>
<thead>
<tr>
<th></th>
<th>Single Tract</th>
<th>Multiple Tracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stone size (mm$^2$)</td>
<td>423</td>
<td>2,157</td>
</tr>
<tr>
<td>Stone-free rate</td>
<td>100%</td>
<td>95%</td>
</tr>
<tr>
<td>Major complications</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Minor complications</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Blood transfusion</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

Percutaneous surgery in patients with a solitary kidney has no significant adverse effects on renal function. This study reflects the safety of percutaneous renal surgery in this delicate and high-risk patient population. No patient in this group had significant deterioration in kidney function following percutaneous procedures for a variety of indications.

<table>
<thead>
<tr>
<th>Study Period</th>
<th>1987 - 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of patients</td>
<td>89</td>
</tr>
<tr>
<td>No. of procedures</td>
<td>97</td>
</tr>
<tr>
<td>Renal status</td>
<td>Anatomically Solitary</td>
</tr>
<tr>
<td></td>
<td>Functionally Solitary</td>
</tr>
<tr>
<td>Indication</td>
<td>Renal Calculus</td>
</tr>
<tr>
<td></td>
<td>Upper Tract TCC</td>
</tr>
<tr>
<td></td>
<td>Stone+UPJ Obstruction</td>
</tr>
</tbody>
</table>
Benign Prostate Hypertrophy

This cause of lower urinary tract symptoms is a common reason for urologic clinic visits worldwide. Urologists at the Glickman Urological and Kidney Institute developed the technique of Photoselective Vaporization of the Prostate (PVP) in which laser energy is used to remove the prostatic adenoma. Using this technique, more than 540 procedures were performed (nearly 250 in 2006) without the need for blood transfusion or hyponatremia. Patients on anticoagulation can undergo this procedure safely. Transurethral microwave therapy procedures were performed in 95 patients in 2006, the vast majority performed in satellite facilities.

For the gold-standard transurethral resection of the prostate, saline resection apparatus (GYRUS), which allows resection of prostate adenoma using saline instead of the usual irrigants such as glycine, is now used. This has virtually eliminated “TUR syndrome” from our practice, resulting in a safer resection without resection time limits, even for larger adenoma.
Pediatric Urology

Our pediatric urologists perform all aspects of modern pediatric urological care. This includes outpatient clinic care and ambulatory procedures, as well as major in-hospital operative procedures. A variety of pediatric procedures are performed, including genital reconstruction for hypospadias and similar congenital anomalies, surgery for undescended testis, surgery for reflux and ureterococcygeal pelvic obstruction and pediatric urologic oncology.
Pediatric urological care is provided at several satellite offices as well as our main campus.
Our pediatric urologists modified the standard Snodgras technique of hypospadias repair by improving coverage of the urethroplasty. Using this modification in our last 100 patients, only two fistulas were encountered. Reoperation was required in 2% of distal repairs and in 5% of proximal repairs.
Subtrigonal Injection of Deflux for Vescoureteral Reflux in Children:
This outpatient endoscopic procedure provides an alternative to surgical management, as well as long years of antibiotic prophylaxis for children with reflux. Pediatric urologists performed this procedure in children aged 15 months to 14 years, with only one patient eventually requiring surgery.

Success by Grade of Reflux

<table>
<thead>
<tr>
<th>Grade</th>
<th>Count</th>
<th>Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4/4</td>
<td>100%</td>
</tr>
<tr>
<td>2</td>
<td>25/30</td>
<td>83%</td>
</tr>
<tr>
<td>3</td>
<td>9/11</td>
<td>82%</td>
</tr>
<tr>
<td>4</td>
<td>4/4</td>
<td>100%</td>
</tr>
</tbody>
</table>
Male Infertility

Diagnostic and therapeutic procedures for male infertility are a highly specialized area of urological care. These procedures include varicocele ligation, sperm aspiration from the testis or the epididymis for assisted reproductive techniques and highly delicate microvascular repair of epididymis or vas deferens obstruction.

Microscopic vasovasostomy and vaso-epididymostomy procedures allow normal conception for men after vasectomy or other congenital or inflammatory causes of obstruction. More than 400 of these delicate procedures have been performed at the Glickman Urological and Kidney Institute with excellent patency results and pregnancy rates.
Patency and Pregnancy vs. Reason for Obstruction

Etiology of Obstruction

- **Congenital**
  - Patent: 70%
  - Pregnant: 20%

- **Inflammatory**
  - Patent: 80%
  - Pregnant: 70%

- **Vasectomy**
  - Patent: 60%
  - Pregnant: 80%

Level of Obstruction

- **Head**
  - Patent: 10%
  - Pregnant: 10%

- **Head + Body or Tail**
  - Patent: 40%
  - Pregnant: 70%

- **Body or Tail**
  - Patent: 80%
  - Pregnant: 90%

- **All**
  - Patent: 60%
  - Pregnant: 70%
Minority Men’s Health Center

Cleveland Clinic’s Minority Men’s Health Center (MMHC) is a specialized center dedicated to meeting the health needs of minority men in the city of Cleveland and its environs, providing comprehensive health access, treatment and education to historically underserved populations of minority men. The MMHC realizes its mission by attracting minority patients for diagnosis and culturally sensitive care, conducting research to clarify the causes of health disparities, and performing clinical research to test promising methods for the diagnosis and treatment of health disorders.

From July 2004 through November 2006, 937 patients visited the MMHC at the main campus. The self-reported racial breakdown of patients coming to the MMHC was 80% African American, 15% Caucasian, and 1% Hispanic. Patients who were found to have either abnormal digital rectal examinations or elevated prostate-specific antigen blood tests underwent prostate biopsy with 30 of 70 patient biopsies found to have prostate cancer.
The work of the MMHC was formally presented at several national meetings and venues including the National Medical Association, the National Black and National Hispanic Caucus and Women in Government Leadership Conferences, the National Kidney Foundation, Northwestern University Feinberg School of Medicine, the Office of Minority Health National Health Disparities Symposium, the National Black Legislatures Conference, the Medical University of Ohio and others.
Patient Experience

We ask our patients about their experiences and satisfaction with the services provided by our staff. Although our patients are already indicating we provide excellent care, we are committed to continuous improvement.
A Note Regarding H-CAHPS, the New National Standard for Reporting Hospital In-Patient Experience of Care:

The service excellence data displayed above shows results from an external patient experience survey administered for Cleveland Clinic.

A new national standard patient experience survey instrument called H-CAHPS was instituted across the country on October 1, 2006. Public reporting of initial results on CMS’s Hospital Compare website is anticipated in late 2007. Accordingly, Cleveland Clinic outcomes booklets will transition to reporting H-CAHPS inpatient service excellence results in 2007.
Innovations

Robotic Assisted Radical Cystectomy

To improve surgical precision, the surgical robot da Vinci® is used to perform robotic assisted radical cystectomy. The da Vinci provides three-dimensional visualization, filters tremor and allows more precise control of surgical instruments. The benefits of robotic assisted cystectomy include less blood loss, more precise nerve sparing and apical dissection, minimal handling of the bowel and decreased surgical morbidity.

Antibiotic Coated Inflatable Penile Prosthesis

To decrease rates of prosthesis infection, the most serious complication of this type of surgery, results of a novel prosthesis coated with Inhibizone™ which constitutes minocycline and rifampin impregnated into the outer silicone layer of the implanted prosthesis, was studied. Preliminary results are encouraging, showing a decrease in significant prosthetic infection.
Thermal Energy-free Nerve Sparing Laparoscopic Radical Prostatectomy

Radical prostatectomy can compromise potency by causing trauma to the cavernous nerves responsible for erections. In order to minimize nerve damage, we recently developed a novel, thermal energy-free technique of nerve-sparing laparoscopic radical prostatectomy performed with real-time transrectal ultrasound monitoring. The technique involves transient bulldog clamping of the lateral pedicle, cold-cut release of the neurovascular bundle and delicate hemostatic suturing.

Bulldog clamp in position on right lateral pedicle of the prostate.

Cold cutting of pedicle under real-time TRUS probe monitoring.
Prolapse or Uterine Laparoscopic Lift (PULL) Procedure
This new technique was developed for treatment of uterine or vaginal prolapse in women who desire to preserve their uterus. In this technique, a combined vaginal and laparoscopic approach is used to place suspension tape lateral to the vaginal wall for its full length, attaching it to the sacrum. This allows suspension of the full vaginal length, and significantly minimizes the need for concomitant hysterectomy and other pelvic floor repair procedures.

Initial Release of the Neurovascular Bundles during Radical Retropubic Prostatectomy
This technique results in less traction injury and preservation of potency. The prostate is rotated side-to-side as the initial surgical maneuver, and the neurovascular bundle (NVB), is dissected away from the prostate with scissors. Following dissection, the prostate can be lifted away from the NVB without traction which results in less damage and earlier function.

**Augmented Reality for Laparoscopic and Robotic Surgery**

The use of augmented reality (AR) is being developed and evaluated for laparoscopic and robotic urologic procedures. Augmented reality translates data into a virtual image and superimposes it onto the real intraoperative image to create a composite view. Data from the patient's own ultrasound, CT or MRI scan are converted into a real-time 3-D image and then registered and superimposed onto the laparoscopic or robotic view of the patient's anatomy on the screen. This represents the initial use of augmented reality in the field of urology.

**Venovenous Bypass for Inferior Vena Cava Thrombectomy**

This technique is being used during surgery for renal tumors with inferior vena cava thrombus extending into the liver or the right atrium. This replaces the more invasive technique of full hypothermic circulatory arrest and deep hypothermia with exsanguinations. The technique also spares patients the risks of brain and vital organ ischemic or hypothermic injury, and prolonged time on cardiopulmonary bypass machine.
Flexible Robotic Retrograde Renoscopy

A novel flexible robotic system was used for retrograde access of the renal pelvis and calices for bilateral ureterorenoscopy in experimental animals. Ninety-eight percent of all calices were accessed with the robotic system and time for inspection of all calices declined to only 49 seconds for the tenth kidney. Benefits of enhanced control of the flexible scope in addition to improved ergonomics are advantages of the robotic system, which can be applied to human ureterorenoscopy.

The sheath and guide assembly mounted on the robotic arm catheter manipulator.


Modified Lithotomy Examination for Patients with Alleged Prostatitis

The majority of men who suffer from chronic pelvic or genital pain are misdiagnosed with prostatitis or prostatodynia. When these patients are examined more thoroughly, employing a modified lithotomy position, the pelvic floor musculature can be assessed for myofascial trigger points via a methodical digital palpation. Such an exam not only confers a gentle empathy towards the patient, but also provides the patient with valuable education about his body, setting the stage for self-care remedies.

Prostate Cancer Energy Therapy and Guided Imagery Study

An NIH-funded prospective randomized study is currently underway to study the effects of Reiki on patients with prostate cancer awaiting definitive surgical or radiation therapy. Reiki is an alternative energy therapy involving the placement of hands on the body by trained Reiki personnel, with the intention of rebalancing energy flow. Such rebalancing can reduce stress and anxiety, which may be beneficial to patients with newly diagnosed prostate cancer.

Office Saturation Needle Biopsy of the Prostate

Office saturation needle biopsy is used in patients with elevated PSA and difficult to diagnose prostate cancer. This procedure has typically been performed under general anesthesia in the operating room. Our urologists have developed the technique of outpatient saturation biopsy for these patients, improving cancer detection rate and decreasing the cost and inconvenience of operating room biopsies.
Peptide Hydrogel Penile Prosthesis

Modern penile prosthetics incorporate a fluid hydraulic system of tubes, reservoirs and a pump. The ideal prosthetic would have fewer moving parts and would be self-contained. We are currently developing a prosthesis that obtains its rigidity from a peptide hydrogel that solidifies in response to increased temperature within a physiologic temperature range. This design would have no moving parts and reduced chance of mechanical problems. It would be activated electronically from outside the body.
Future Directions in Research

Several basic research labs at the Institute are pursuing the latest advancements in the diagnosis and management of different urologic diseases.

Among these are:

- Early detection of renal cell carcinoma through urinary screening tests.
- Decreasing kidney transplant rejection through manipulating ischemic and reperfusion injury to the kidney.
- Understanding the role of gangliosides as it relates to T-cell dysfunction in renal cell carcinoma.
- Relationship of oxidative stress to male infertility.
- Uncovering the cellular abnormalities of polycystic kidney disease.
New Knowledge

Selected Publication Highlights


Andrew C. Novick, M.D.
Chairman, Glickman Urological and Kidney Institute

Appointed: 1985

Medical School: McGill University School of Medicine

Specialty Training: Surgical Internship - McGill University and Cleveland Clinic; Residency - McGill University and Cleveland Clinic

Certified: American Board of Urology

Associate Dean: Faculty Affairs, Cleveland Clinic Lerner College of Medicine
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David Goldfarb, M.D.
Howard Goldman, M.D.
Michael Gong, M.D.
J. Stephen Jones, M.D.
Jihad Kaouk, M.D.
Eric Klein, M.D.
Venkatesh Krishnamurthi, M.D.
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Milton Lakin, M.D.
William Larchian, M.D.
Sanford Luria, M.D.
Stephen Mahoney, M.D.
Charles Modlin, M.D.
Drogo Montague, M.D.
Courtenay Moore, M.D.
Mark Noble, M.D.
Andrew Novick, M.D.
Jeffrey Palmer, M.D.
Arthur Porter, M.D.
Jeannette Potts, M.D.
Raymond Rackley, M.D.
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Robert Shapiro, M.D.
Daniel Shoskes, M.D.
Andrew Stephenson, M.D.
Luay Susan, M.D.
Anthony Thomas, Jr., M.D.
James Ulchaker, M.D.
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Craig Zippe, M.D.
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Appointment Line: 216.444.5600

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24 hours a day, seven days a week

Direct to Physician
800.223.2273

This is a Cleveland Clinic operator-assisted number. State the physician’s name and you will be connected directly to the office.

For more details about the Glickman Urological and Kidney Institute, visit www.clevelandclinic.org/urology
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**Lakewood Hospital**
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**Marymount Hospital**
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**Mayfield Heights**
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**Parma**
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**Strongsville Family Health & Surgery Center**
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**South Pointe Hospital**
216.295.1010

**Westlake Family Health Center**
440.899.5555
Division of Surgery Overview

Surgical Infection Prevention

Surgical site infections contribute to surgical morbidity and mortality in all specialties. The timely administration and the appropriate selection of antibiotics prior to surgery in appropriate patients have been shown to reduce surgical site infections. A multidisciplinary team, involving Surgery, Infectious Disease, Anesthesia, Nursing and Quality has been working to ensure that our patients receive their antibiotics in a timely fashion. Data collected show our successful results:

* Source: United States Department of Health and Human Services, Hospital Compare
Most current reported discharges April 2005 to March 2006.
National Surgical Quality Improvement Program

The American College of Surgeons’ National Surgical Quality Improvement Program (NSQIP) is a national program that objectively measures surgical outcomes. It reports risk-adjusted 30-day mortality and morbidity outcomes. Currently, the program includes surgical cases from Cleveland Clinic’s departments of Colorectal Surgery, General Surgery and Vascular Surgery. As this program continues to grow at a national level, Cleveland Clinic is committed to expanding it to all surgical departments. We view NSQIP as the most valid, independent way to document our surgical outcomes and provide a basis for ongoing performance improvement.

NSQIP July 1, 2005 to June 30, 2006

Appropriate Prophylactic Antibiotic Selection

% Compliance

Mortality

Morbidity

N=1684

Cleveland Clinic

National Average*

Top Hospitals*
Cleveland Clinic Overview

Cleveland Clinic, founded in 1921, is a not-for-profit academic medical center that integrates clinical and hospital care with research and education. Today, 1,700 Cleveland Clinic physicians and scientists practice in 120 medical specialties and subspecialties.

Cleveland Clinic’s main campus, with 41 buildings on 130 acres in Cleveland, Ohio, includes a 1,000-bed hospital, outpatient clinic, subspecialty centers and supporting labs and facilities. Cleveland Clinic also operates 13 family health centers, eight community hospitals, two affiliate hospitals, and a medical facility in Weston, Florida.

At the Cleveland Clinic Lerner Research Institute, hundreds of principal investigators, project scientists, research associates and postdoctoral fellows are involved in laboratory-based research. Total annual research expenditures exceed $150 million from federal agencies, non-federal societies and associations, and endowment funds. In an effort to bring research from bench to bedside, Cleveland Clinic physicians are involved in more than 2,400 clinical studies at any given time.

In September 2004, Cleveland Clinic Lerner College of Medicine of Case Western Reserve University opened and will graduate its first 32 students as physician-scientists in 2009.

For more details about Cleveland Clinic, visit clevelandclinic.org
Online Services

eCleveland Clinic

eCleveland Clinic uses state-of-the-art digital information systems to offer several services, including remote second opinions through a secure Web site to patients around the world; personalized medical record access for patients; patient treatment progress access for referring physicians (see below); and imaging interpretations by the Department of eRadiology's subspecialty trained academic radiologists. For more information, please visit eclelandclinic.org.

DrConnect

Online Access to Your Patient’s Treatment Progress

Whether you are referring from near or far, our new eCleveland Clinic service, DrConnect, can streamline communication from Cleveland Clinic physicians to your office. This new online tool offers you secure access to your patient’s treatment progress at Cleveland Clinic. With one-click convenience, you can track your patient’s care using the secure DrConnect Web site. To establish a DrConnect account, visit eclelandclinic.org or e-mail drconnect@ccf.org

MyConsult

MyConsult Remote Second Medical Opinion is a secure, online service providing specialist consultations and remote second medical opinions for more than 600 life-threatening and life-altering diagnoses. MyConsult remote second medical opinion service allows you to gather information from nationally recognized specialists without the time and expense of travel. For more information, visit eclelandclinic.org/myconsult, e-mail eclelandclinic@ccf.org or call 800.223.2273, ext 43223
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International Center
Complimentary assistance for international patients and families
216.444.6404 or visit www.clevelandclinic.org/ic

Cleveland Clinic in Florida
866.293.7866

www.clevelandclinic.org
Cleveland Clinic is determined to exceed the expectations of patients, families and referring physicians. In light of this goal, we are committed to providing accurate and timely information about our patient care. Through participation in national initiatives, we support transparent public reporting of healthcare quality data and participate in the following public reporting initiatives:

• Joint Commission Performance Measurement Initiative (www.qualitycheck.org)

• Centers for Medicare and Medicaid (CMS) Hospital Compare (www.hospitalcompare.hhs.gov)

• Leapfrog Group (www.leapfroggroup.org)

• Ohio Department of Health Service Reporting (www.odh.state.oh.us)

In addition, this publication was produced to assist patients and referring physicians in making informed decisions. To that end, information about care and services is provided, with a focus on outcomes of care. For more information, please visit the Cleveland Clinic Quality Web site at clevelandclinic.org/quality.
Cleveland Clinic

9500 Euclid Avenue, Cleveland, OH 44195

Cleveland Clinic is a not-for-profit multispecialty academic medical center. Founded in 1921, it is dedicated to providing quality specialized care and includes an outpatient clinic, a hospital with more than 1,000 staffed beds, an education division and a research institute.

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