Cleveland Clinic

Outcomes 2006

Endocrinology, Diabetes and Metabolism


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Outcomes | 2006

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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Chairman's Letter

I am pleased to share the third edition of our outcomes data from the Department of Endocrinology, Diabetes and Metabolism. In 2006, *U.S. World & News Reports* survey of America's Best Hospitals ranked the Endocrinology Department No. 7 in the nation and No. 1 in Ohio.

We continue to monitor our outcomes and assess the quality of care provided to our patients. Assessing this data, we strive to continually improve the quality of life for our patients.

Several clinics have been established to help patients with diabetes and endocrine disorders, which include the Intensive Diabetes Clinic, Thyroid Clinic, Pituitary Clinic, Weight Disorder Clinic and Transition Clinic.

It is our hope this book provides a source of information about our services.

Robert Zimmerman, M.D., FACP, FACE
Interim Chairman, Endocrinology, Diabetes and Metabolism

Department Overview

Selected Department Statistics

Total Patient Visits	18,916
Total New Patients	682
Total Inpatient Consults	1,681
Total Office Consults	2,644
Total Fine Needle Aspirations	316

The mission of the Department of Endocrinology, Diabetes and Metabolism is to provide the highest quality of care for patients with diabetes and endocrine disorders, explore ways to improve their care and to teach how best to treat endocrine disorders.

Vision

Within the Cleveland Clinic Health Care System, we strive to improve the life of patients with endocrine disorders.

Values

Our values are to provide the highest quality services for our patients with endocrine disorders.

Product Lines

Treatments are provided for patients with Types 1 and 2 diabetes, including diabetes education and nutrition services. We also offer an intensive insulin treatment clinic. Studies involving many new products to manage diabetes are ongoing.

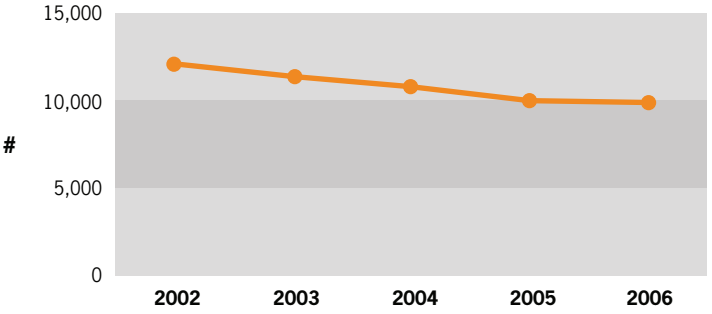
A pituitary clinic in conjunction with Neurosurgery is directed by Amir Hamrahian, M.D. A thyroid clinic is under the direction of Mario Skugor, M.D. To manage patients with osteoporosis, we take part in the Metabolic Bone Clinic. Patients are also seen in the Preventive Cardiology Clinic. Intensive weight-management programs and consultations are provided for all endocrine disorders. We also share in a transition clinic to help children transition to adult endocrine care.

Quality & Outcome Measures

Diabetes

Diabetes is a major public health problem, and the department continues to be very active in providing consultative as well as continuing care. The department also has special clinics dedicated to Type 1 diabetes, and intensive diabetes management for particularly high-risk patients. Our Diabetes Self-Management Program was recently recertified by the American Diabetes Association, and offers both group and individual instruction. We are transferring many stable patients back to their primary care physicians.

Total Diabetes Cases



Total Diabetes Cases

	Target %	2004 4th Quarter	2005 4th Quarter	2006 4th Quarter
Hba1c >9%	n/a	14%	14%	14%
Hba1c Rate ≤8%	55%	68%	70%	68%
Hba1c Rate ≤7%	50%	44%	42%	43%
LDL Rate ≤100	75%	66%	67%	68%
BP Control <130/80	n/a	40%	38%	39%

Eligible patients: patients with a diagnosis of diabetes mellitus of any type in our electronic medical record and who have been seen twice in our department within the past 12 months

Hba1c > 9, ≤ 8 and ≤ 7%: the percentage of patients who had an Hba1c measurement and the result indicated on their most recent visit

LDL <100 mg/dl: the percentage of patients who had an LDL-cholesterol measurement and the result indicated on the most recent visit

Blood pressure control in diabetes: the percent of eligible patients who, at the most recent EMR measurement, had a blood pressure below 130 systolic and below 80 diastolic.

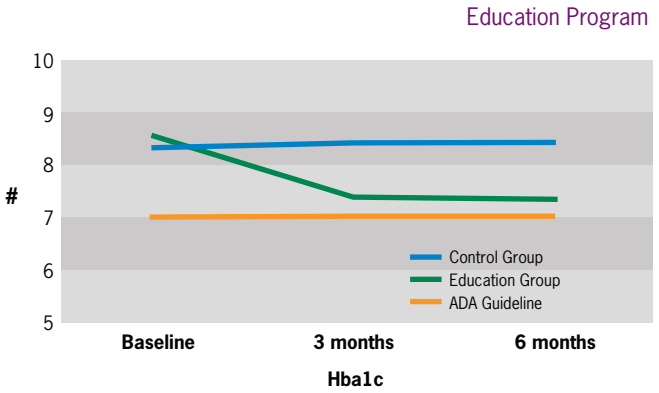
National figures show that only about 7% of those with diabetes have a Hba1c less than 7%, a BP less than 130/80 mm Hg and a total cholesterol less than 200 mg/dl. About 30% of those with diabetes have a HbA1c less than 7%.

We are definitely swimming against the tide and achieving results exceeding the national trends.

Education Program

Patients who received diabetes education (e.g., diabetes self-management education, nutrition counseling, survival skills and/or comprehensive group classes) in the Department of Endocrinology, Diabetes and Metabolism were evaluated for improvement in Hba1c at three and six months following their education session. They were compared with patients referred for education but who did not attend. Average improvement for the education group at six months was an approximate 1.2 a1c point decrease from baseline.

Most of the education participants received one education session. The majority of these patients had no diabetes medication changes or had a medication decrease during this period. Some were even taken off their diabetes medications completely because of improved blood glucose control. It may also be noted that nearly all of the patients reported a high level of satisfaction.



Patients with only baseline measures were excluded. Data are from 10/05 through 9/06. Control group consists of those who were referred but did not attend.

Insulin Error Rates

	7/04	9/04	1/05	5/05	8/05	2/06	6/06	8/06
Error Rate (%) (total injections / actual errors)	2.8	3.0	1.7	2.4	1.6	1.4	1.9	1.3

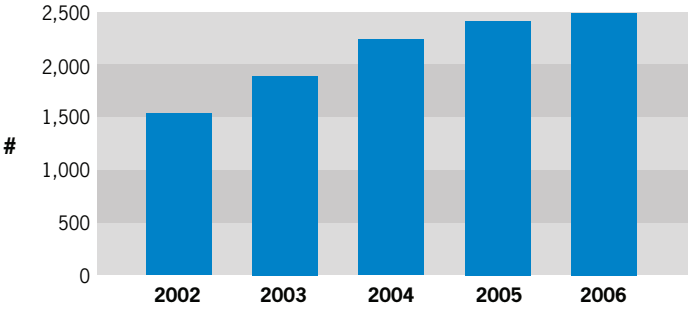
Nationwide, insulin errors are among the most common medication errors to occur among hospitalized patients. Five surveys of 30 consecutive patients per survey were conducted at Cleveland Clinic's main campus for the past two years. During the surveys, diabetic patients in the hospital who received insulin were monitored up to five days after the endocrine service was consulted. Through close collaboration with the Department of Nursing, lunchtime in-services were provided on the nursing units and a formal 16-hour diabetes education program for nurses was offered following the first survey. The most common type of insulin error was omission error. Through nursing floor focus group discussion, the most common reasons for omission error were nutrition interruption and the fear of hypoglycemia. The average percentage insulin error in 2004 was 2.9% and was decreased to 1.3% in August 2006.

At the national level, the data on insulin errors are based on self-reports and not on prospectively collected data. We are one of the first hospitals to prospectively collect and report the data on insulin errors. We did not find any serious harm to the patients surveyed and most only needed temporary close monitoring.

Thyroid Cancer

The department is increasingly recognized for its expertise in thyroid cancer management. Working with our colleagues in Surgery, Nuclear Medicine, Pathology, Endocrine Biochemistry and Oncology, endocrinologists offer compassion backed by the latest research.

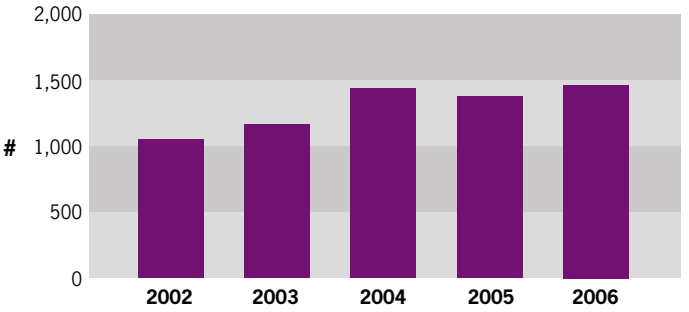
Total Thyroid Cancer Cases



Pituitary Disease

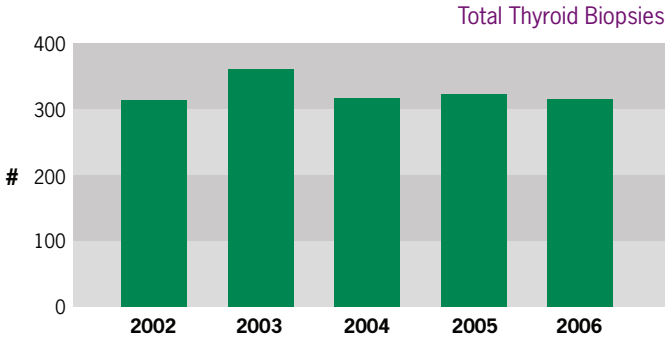
Over the last five years, pituitary care has become more collaborative among endocrinologists, neurosurgeons and radiation oncologists, resulting in increased national recognition. Cleveland Clinic is one of the top centers in the United States for number of pituitary surgeries at an institution.

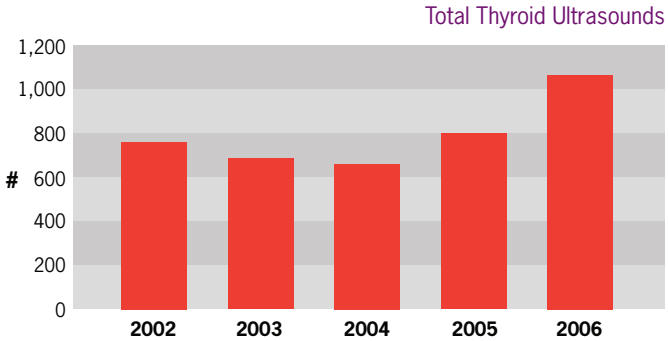
Total Pituitary Cases



Thyroid Biopsies and Thyroid Ultrasounds

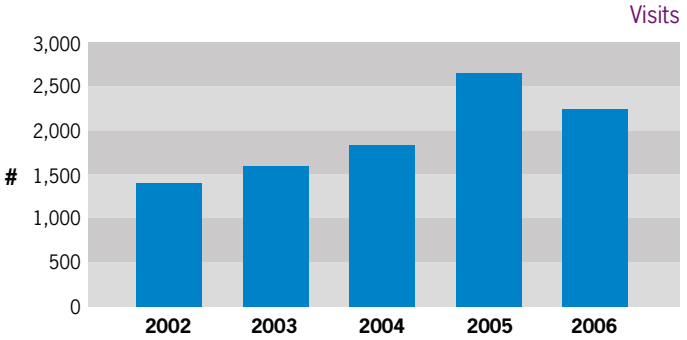
The department has been a leader in incorporating fine needle aspirations and ultrasounds into the realm of endocrinology. Our fellowship program was one of the first in the United States to train future endocrinologists in guided biopsy techniques of the thyroid.



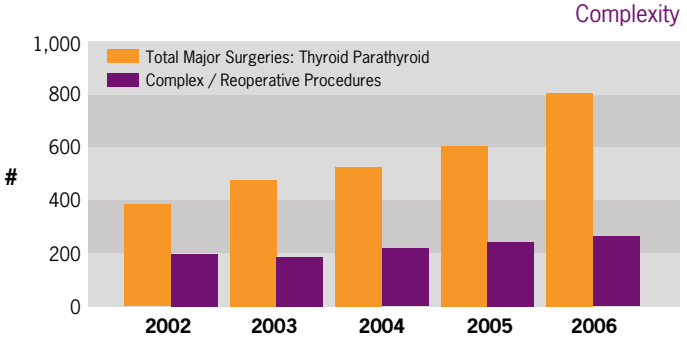


Endocrine Surgery

Cleveland Clinic surgeons offer renowned surgical care for patients with diseases of the thyroid, parathyroid, adrenal gland, endocrine pancreas, as well as neuroendocrine tumors metastatic to the liver. Clinic endocrine surgeons offer comprehensive diagnostic evaluations during the physician consultation. Diagnostic ultrasound and thyroid needle biopsy can be done in a single visit, particularly convenient for out-of-town patients. In fact, with nearly 500 endocrine surgical procedures each year, the Clinic's program is the largest in Ohio and in the six surrounding states.



In 2006, a system of streamlining evaluations for endocrine surgery patients was implemented. This reduced the number of return preoperative visits before embarking on a definitive treatment plan.

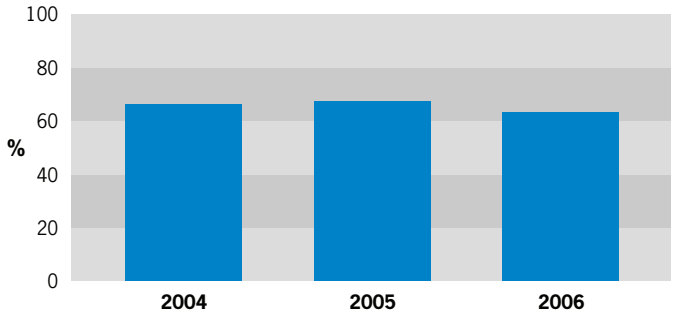


A special emphasis is placed on patients with complex problems and those requiring reoperative surgery.

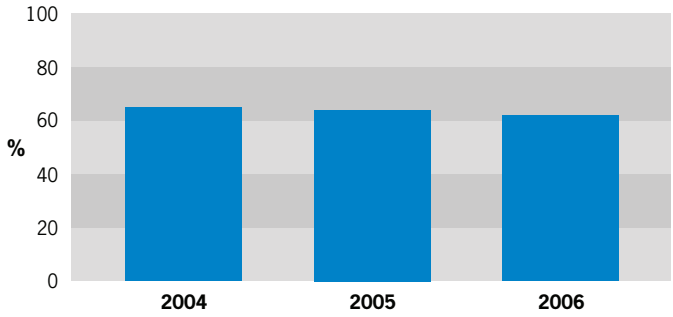
Patient Experience

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.

Outpatient
Overall Rating of Care
Percent Excellent



Outpatient
Would Recommend Provider
Percent Extremely Likely



Innovations

The department believes change is a constant part of our lives and that we must continuously improve our ability to provide accessible world-class care. Changes have been made that are truly in the best interests of our patients. We look forward to any suggestions from our physician colleagues as well as our patients and their families.

Our Perioperative Diabetes Quality (PDQ) Service has had great success with able assistance from Deborah Ross, CNP. A highly effective inpatient glucose management protocol has been implemented for open-heart surgery patients. To further innovative treatment paradigms for diabetes, our staff participated in late-breaking clinical trials that highlighted the use of inhaled insulin and pancreatic beta cell enhancing medication (Incretins). Our pituitary, weight-management and thyroid clinics continue to grow in volume.

Some New Innovations:

Golden Jubilee Club

The department organized the First Annual Golden Jubilee Club to recognize patients who have had diabetes for 50 years. The Golden Jubilee Club is in addition to our **ABC** club, established to recognize diabetic patients who achieved excellent control in their glucose (Hb**a**1c), **b**lood pressure and **c**holesterol levels.

Intensive Glucose Management for Cardiac Surgery Patients

In addition to the PDQ team, a new inpatient protocol for management of uncontrolled glycemia following open heart surgery was implemented. This protocol is used for all hyperglycemia, regardless of cause (diabetes versus acute).

Clinical Trial Research

Byron Hoogwerf, M.D., with Cleveland Clinic staff and others, played a seminal role in outcomes of two clinical trials of major importance for the prevention and treatment of diabetes. The DREAM trial demonstrated the effectiveness of prevention of Type 2 diabetes with an oral agent (rosiglitazone).

Inhaled Insulin

Results from clinical studies demonstrated the efficacy and safety of inhaled insulin use in patients with Types 1 and 2 diabetes.

Incretins

New agents are now available for the treatment of Type 2 diabetes, which include drugs that enhance pancreatic beta cell function and reduction in weight. These new options will enhance treatment possibilities for patients with Type 2 diabetes and obesity.

Discharge Diabetes Medication Schedule

A new tool was developed to assist patients in need of diabetes management post-hospital discharge with their new oral/insulin regimens. This schedule optimizes adherence to diabetes medication regimens in patients discharged from the hospital.

Diabetes Summit 2006

A highly successful continuing medical education program was organized by our department with leaders in the field of pancreatic beta cell function. Other highlights for continuing medical education included Obesity Congress 2006, Diabetes Day and Innovara Preceptorship.

New Knowledge

Selected Publication Highlights

Araki M, Flechner SM, Ismail HR, Flechner LM, Zhou L, Derweesh IH, Goldfarb D, Modlin C, Novick AC, Faiman C. Posttransplant diabetes mellitus in kidney transplant recipients receiving calcineurin or mTOR inhibitor drugs. *Transplantation* 2006;81:335-341.

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Brotman DJ, Girod JP, Posch A, Jani JT, Patel JV, Gupta M, Lip GYH, Reddy S, Kickler TS. Effects of short-term glucocorticoids on hemostatic factors in healthy volunteers. *Thromb Res* 2006;118:247-252.

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Gopan T, Remer E, Hamrahian AH. Evaluating and managing adrenal incidentalomas. *Cleve Clin J Med* 2006;73:561-568.

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Hoogwerf RJ. Exenatide and pramlintide: new glucose-lowering agents for treating diabetes mellitus. *Cleve Clin J Med* 2006;73:477-484.

Hussein WI, Reddy SS. Prevalence of diabetes in patients with multiple sclerosis. *Diabetes Care* 2006;29:1984-1985.

Licata AA. Diagnosing primary osteoporosis: it's more than a T score. *Cleve Clin J Med* 2006;73:473-476.

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Remer EM, Motta-Ramirez GA, Shepardson LB, Hamrahian AH, Herts BR. CT histogram analysis in pathologically proven adrenal masses. *Am J Roentgenol* 2006;187:191-196.

Sood A, Reddy SS. Medical management of thyroid cancer. In: McLain RF, ed. *Cancer in the Spine: Comprehensive Care*. Totowa, N.J.: Humana Press; 2006:157-164.

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Research Highlights

Our department has been actively involved in the development of new agents (inhaled insulin and incretin therapy) used for the treatment and prevention of Type 2 diabetes. Currently, mechanisms on how weight loss alters metabolism and aids in remission of Type 2 diabetes and metabolic syndrome features are being studied. Clinical research efforts continue in national studies, including ACCORD and the new STAMPEDE (Surgical Therapy and Medications Potentially Eradicate Diabetes Efficiently) trials.

Staff Listing | Chairman

Robert Zimmerman, M.D., FACP, FACE
Interim Chair, Department of Endocrinology, Diabetes and Metabolism

Appointed: September 20, 2006

Appointed to Staff: 2001

Medical School: Johns Hopkins University, Baltimore, MD

Specialty Training: Fellowship, Endocrinology and Metabolism — Mayo Clinic, Rochester, MN

Residency, Internal Medicine — Duke University Hospital, Durham, NC

Internship, Internal Medicine — Duke University Hospital, Durham, NC

Specialty Interests: Thyroid, diabetes, pituitary

Staff Listing

Interim Chairman
Robert Zimmerman, M.D., FACP, FACE

Quality Review Officer
Sangeeta Kashyap, M.D.

Staff
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Byron J. Hoogwerf, M.D., FACP, FACE, CDE

Adriana Ioachimescu, M.D.

Adi E. Mehta, M.D., FRCPC, FACE

Christian Nasr, M.D.

Leann Olansky, M.D.

Mario Skugor, M.D.

Mariam Stevens, M.D.

Jennifer Wojtowicz, D.O.

Charles Faiman, M.D., FRCPC, MACE (Consultant)

Angelo Licata, M.D., Ph.D., FACE (Consultant)

S. Sethu K. Reddy, M.D., MBA, FRCPC, FACP, FACE, MACE (Consultant)

Pediatric Endocrinologists
Ajuah Davis, M.D.

Anzar Haider, M.D.

Michael Levine, M.D.

Douglas Rogers, M.D.

Scientists
Manjula Gupta, Ph.D.

Clinical Fellows
Harpreet Bajaj, M.D.

Sameera Daud, M.D.

Michael Davidson, D.O.

Dima Diab, M.D.

Krupa Doshi, M.D.

Thottathil Gopan, M.D.

Hla Win, M.D.

Rahfa Zerkily, M.D.

Advanced Nurse Practitioners
Lisa Bartlett, MSN, CNP

Pamela Combs, MSN, CNP, CDE

Susan Iannicca, MSN, CNP, RD, CDE

Deborah Ross, MSN, CNP

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Endocrinology Appointment Line
216.444.6568

For Hospital Transfers or Physician Consults
800.553.5056
24 hours a day, seven days a week

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216.444.6568

Independence
5001 Rockside Road
Crown Center II
Independence, Ohio 44131
216.986.4000

Lorain
5700 Cooper Foster Park Road
Lorain, Ohio 44053
440.204.7400

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 eclevelandclinic.org.

DrConnect

Online Access to Your Patient's Treatment Progress

Whether you are referring from near or far, our new eCleveland Clinic service, Dr**Connect**, 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 Dr**Connect** Web site. To establish a Dr**Connect** account, visit eclevelandclinic.org or e-mail drconnect@ccf.org.

MyConsult

My**Consult** 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. My**Consult** 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 eclevelandclinic.org/myconsult, e-mail eclevelandclinic@ccf.org or call 800.223.2273, ext 43223.

Cleveland Clinic Contact Numbers

How to Refer Patients
24/7 Hospital Transfers or Physician Consults
800.553.5056

General Information
216.444.2200

Hospital Patient Information
216.444.2000

Patient Appointments
216.444.2273 or 800.223.2273

Medical Concierge
Complimentary assistance for out-of-state patients and families
800.223.2273, ext. 55580, or email: medicalconcierge@ccf.org

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.

Cover photograph by Stephen Travarca