Measuring Outcomes Promotes Quality Improvement
Measuring and understanding outcomes of medical treatments promotes quality improvement. Cleveland Clinic has created a series of Outcomes books similar to this one for its disease-based institutes. Designed for a physician audience, the Outcomes books contain a summary of many of our surgical and medical treatments, with data on patient volumes and outcomes and a review of new technologies and innovations.

The Outcomes books are not a comprehensive analysis of all treatments provided at Cleveland Clinic, and omission of a particular treatment does not necessarily mean we do not offer that treatment. When there are no recognized clinical outcome measures for a specific treatment, we may report process measures associated with improved outcomes. When process measures are unavailable, we may report volume measures; a relationship has been demonstrated between volume and improved outcomes for many treatments, particularly those involving surgical techniques.

In addition to these institute-based books of clinical outcomes, Cleveland Clinic supports transparent public reporting of healthcare quality data and participates in the following public reporting initiatives:

- Joint Commission Performance Measurement Initiative (qualitycheck.org)
- Centers for Medicare & Medicaid Services (CMS) Hospital Compare (hospitalcompare.hhs.gov)
- Ohio Department of Health (ohiohospitalcompare.ohio.gov)
- Cleveland Clinic Quality Performance Report (clevelandclinic.org/QPR)

Our commitment to transparent reporting of accurate, timely information about patient care reflects Cleveland Clinic’s culture of continuous improvement and may help referring physicians make informed decisions.

We hope you find these data valuable, and we invite your feedback. Please send your comments and questions via email to:
OutcomesBooksFeedback@ccf.org or scan here.

To view all our Outcomes books, please visit Cleveland Clinic’s Quality and Patient Safety website at clevelandclinic.org/outcomes.
Dear Colleague:

Welcome to this 2012 Cleveland Clinic Outcomes book. We distribute Outcomes books for more than 14 specialties. These publications are unique in healthcare. Each one provides a summary overview of medical or surgical trends, innovations, and clinical data for a Cleveland Clinic specialty over the past year.

Cleveland Clinic uses data to manage outcomes across the full continuum of care. Clinical services are delivered through patient-centered institutes, each based around a single disease or organ system. Institutes combine medical and surgical services, along with research and education, under unified leadership. The individual institute defines quality benchmarks for its specialty services and reports longitudinal progress.

All Cleveland Clinic Outcomes books are available in print and online. Additional data are available through our online Quality Performance Report (clevelandclinic.org/QPR). The site offers process measure, outcome measure, and patient experience data in advance of national and state public reporting sites.

Our practice of releasing annual outcomes reports has received favorable notice from colleagues, media, and healthcare observers. We appreciate your interest and hope you find this information useful and informative.

Sincerely,

Delos M. Cosgrove, MD
CEO and President
# what’s inside

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**Prefer an e-version?**  
Visit clevelandclinic.org/OutcomesOnline, and we'll remove you from the hard copy mailing list and email you when next year’s books are online.
It gives me great pleasure as Chairman of the Medicine Institute at Cleveland Clinic to share our 2012 outcomes. In 2012, the Medicine Institute pursued its core missions: providing outstanding medical care to our patients, educating the next generation of physicians, and contributing to the advancement of medical knowledge. In addition, we began to profoundly transform our care delivery model to move from volume-based to value-based care and population management in this era of healthcare reform.

The Medicine Institute, which focuses on primary care, hospital medicine, consultative internal medicine, geriatrics, and infectious diseases, was formed in 2007 as Cleveland Clinic moved to the institute model. This model was designed to foster integrated, streamlined, and coordinated delivery of care to our patients across both ambulatory and hospital settings. It also promotes better communication among physicians and other caregivers while seeking to optimize quality and the patient experience.

The Medicine Institute’s mission is at the center of our nation’s ongoing discussion about how best to deliver high-quality, cost-effective care at a time of escalating healthcare costs and burgeoning scientific knowledge. We continue to examine innovative strategies to achieve these goals in both the ambulatory and hospital settings. Specifically, we are testing different models of care in our National Committee for Quality Assurance (NCQA) Level 3-certified patient-centered medical homes to define which model delivers optimal value to the populations we serve. Our early results are very promising. We are also providing medical trainees with the tools required to innovate and deliver high-quality care in an evolving healthcare environment.
This book summarizes the Medicine Institute’s outcomes in 2012, consistent with the transparency of Cleveland Clinic culture. Highlights from the year include:

- Blood pressure control, screening mammography, and diabetes control in our patients all significantly exceeded national quality benchmarks.
- We continued to launch major initiatives to improve patient experience in the hospital and ambulatory settings and achieved impressive results.
- Our geriatrics program was ranked No. 4 in the country in the *U.S. News & World Report* “America’s Best Hospitals” survey, up from No. 7 and No. 10 in years past.
- Institute faculty mentored 168 internal medicine residents and 18 family practice residents, along with fellows in geriatrics, hospital medicine, and infectious diseases.
- The main campus internal medicine residency program was reaccredited for five years by the Accreditation Council for Graduate Medical Education.
- Institute faculty members were involved in 180 active research projects approved by the institutional review board and contributed 130 publications to the medical literature.

Looking forward, we remain highly committed to Cleveland Clinic’s credo of “Patients First” and to demonstrating leadership in clinical care, medical education, and focused investigation around care delivery. We aspire to be a national leader in the delivery of value-based care to the populations we serve during this transformational time in healthcare.

We hope this report serves as a valuable resource and reinforces your confidence in the medical care and personal service we provide. We look forward to hearing about your experiences with the Medicine Institute and how we can better serve you.

It remains a very special privilege to serve as steward and Chairman of the Medicine Institute.

Respectfully submitted,

David L. Longworth, MD
Chairman, Medicine Institute
Institute Overview

Cleveland Clinic’s Medicine Institute brings together departments that provide coordinated care across the practices of adult primary care, family medicine (including care of children and adolescents), consultative internal medicine, geriatrics, hospital medicine, and infectious disease. From establishing care with a new physician at one of Cleveland Clinic’s family health centers, community sites, or main campus locations to ensuring effective inpatient care through hospital medicine and infectious disease consultants, the Medicine Institute has the expertise to deliver outstanding care and achieve superior outcomes.

The Medicine Institute strives to be the medical home for accessible, comprehensive, coordinated, high-quality, cost-effective care for patients. At the same time, institute research focuses on improving outcomes in patients with chronic diseases as well as on prevention, developing better care processes, and achieving superior outcomes for hospitalized patients. Researchers also work to advance the science of infection diagnosis and management, particularly in complex medical and surgical patients.

In preparation for effective population management, the Medicine Institute is transforming the care delivery model at all primary care practices. These transformative efforts seek to maximize the talents of each member of the care team in unique ways. Working with physicians, embedded RN care coordinators manage the highest-risk patients while specialty-trained pharmacists consult with patients on their medications. To most efficiently plan for visits, medical assistants reach out to patients about health maintenance activities and encourage them to seek lab services before upcoming visits. Team huddles facilitate communication and build teamwork.

Community Internal Medicine

This department consists of more than 100 internal medicine and internal medicine/pediatric physicians practicing at 14 Cleveland Clinic family health centers and six other community-based sites throughout Northeast Ohio. In 2012, Community Internal Medicine physicians provided care in more than 320,000 patient visits.

The Department of Community Internal Medicine strives to provide outstanding preventive, acute, and chronic disease care for adults in a patient-centered environment that is close to home. In keeping with Cleveland Clinic’s values, it also focuses on its educational mission. Staff physicians are extremely active in teaching both residents and medical students.

Family Medicine

The Department of Family Medicine concluded 2012 with more than 90 staff members practicing at 18 Cleveland Clinic locations, including family health centers, community practices, and Fairview Hospital, a community hospital in Cleveland. Many of these physicians teach in the Family Medicine residency programs at Fairview and at South Pointe Hospital, another community hospital, and offer preceptorships to medical students. In 2012, the outpatient care the department provided included more than 227,000 visits by patients of all ages.
**Hospital Medicine**

This department of 80 staff physicians was created in 2007. Hospitalists are general internists who optimize care by developing specific expertise in the care of hospitalized patients. Other benefits include full-time attention to patients’ needs, excellent patient safety monitoring, and reduced length of stay. The department also leads the Internal Medicine Preoperative Assessment, Consultation, and Treatment (IMPACT) Center, providing preoperative consultation and care for surgical patients. Over the past several years, the Department of Hospital Medicine has nearly doubled its annual number of visits. The education of internal medicine residents and fellows is a critical component of departmental operations, and the department offers one of the few hospital medicine fellowship programs in the United States.

**Infectious Disease**

The 24 staff physicians of the Department of Infectious Disease primarily provide consultative services, and they do so seven days a week. The 14 inpatient subspecialty services they offer enable timely response to their Cleveland Clinic colleagues’ requests for infectious disease evaluation. Aligned with multidisciplinary teams of specialists, these subspecialty services provide patients with personalized care, often for highly complex medical problems, such as the care offered by the Transplant Infectious Disease Section.

The outpatient Infectious Disease Clinic provides high-quality consultations through the clinical team that includes staff physicians, fellows, residents, advanced practice nurses, physician assistants, nurses, medical assistants, and front desk personnel. Each team member is committed to ensuring the highest level of care for patients. In 2012, the team saw 19,894 patients on an outpatient basis.

The International Travel Health Clinic is a specialized component of the outpatient Infectious Disease Clinic. This travel clinic is offered at four Cleveland Clinic locations: main campus, Beachwood and Willoughby Hills family health centers, and Bainbridge Urgent Care Center. The clinic’s physicians and nurses are trained in tropical infectious diseases and travel medicine and are knowledgeable about everything from the danger of frostbite at high altitudes to decompression illness while scuba diving. All travel clinic locations are official state-designated yellow fever vaccination centers.

**Internal Medicine**

The Department of Internal Medicine is located at Cleveland Clinic’s main campus and provides outpatient primary care for adults, consultative geriatric assessment, and consultative services for patients with complex clinical problems. The department takes a multidisciplinary approach by teaming its 44 physicians with physician assistants, nurse practitioners, pharmacists, and certified diabetes educators to provide the highest-quality and most comprehensive care to its patients. There were more than 65,000 patient visits to the department in 2012.

The department includes a nationally recognized Center for Geriatric Medicine that provides convenient and accessible consultation — inpatient and outpatient — for adults over 75 years of age. The program is consistently ranked among the top 10 geriatrics programs in the U.S. News & World Report “America’s Best Hospitals” survey, and it was No. 4 in 2012. Geriatric specialists provide consultations at a variety of Cleveland Clinic locations, including main campus; Euclid, Lakewood, and Lutheran community hospitals; and several family health centers.
For out-of-town patients with complex conditions, the department offers its National Consultation Service, which streamlines patient access to a team of Cleveland Clinic specialists. The consultative medicine team works with patients referred to the service prior to their arrival and coordinates subspecialty appointments after a physician has examined their case. A summary of the patient’s visits is sent directly to the referring physician, including all test results and a recommended treatment plan.

The education of medical students, residents, and fellows is an essential mission of the department. Several members serve in key faculty and leadership positions at Cleveland Clinic Lerner College of Medicine and in Cleveland Clinic’s Center for Graduate Medical Education. The department hosts 70 percent of all longitudinal resident clinics, which equates to 123 residents between the main campus and Stephanie Tubbs Jones Health Center in Cleveland. The department also provides 25 percent of the longitudinal clinic experience for Lerner College of Medicine students. Many additional medical, midlevel, and ancillary students rotate through the department during the year.

**Internal Medicine Residency Program**

Cleveland Clinic main campus: This nationally recognized program provides a comprehensive academic training experience for 168 outstanding residents, which enables graduates to pursue careers in academic or clinical general internal medicine or one of the medical subspecialties. In addition, both primary care and hospital medicine tracks are available, with rotations in such specialties as geriatrics, palliative medicine, and neurology. The specific goals of the program include:

- Providing outstanding education in the diagnosis and management of medical problems that span the spectrum of general internal medicine within a framework of humanism, professionalism, and cost-effective practice

- Maximizing opportunities for residents to obtain practice opportunities or competitive fellowship program positions upon completion of their residencies. Cleveland Clinic faculty are uniquely suited to achieve these goals, as they are full-time clinicians, researchers, and educators with a deep commitment to teaching both residents and students. Many of the Internal Medicine faculty are nationally and internationally known for their research and actively mentor resident research projects. Further information is available at [clevelandclinic.org/medicineresidency](http://clevelandclinic.org/medicineresidency).

In addition to this robust training program, fellowships are available in several related specialties. Current offerings include geriatrics, infectious disease, hospital medicine, and women’s health (the latter in collaboration with the Ob/Gyn & Women’s Health Institute).
South Pointe Hospital, a Cleveland Clinic hospital: South Pointe Hospital’s Internal Medicine Residency Program began in 1959 with one resident and has graduated over 100 residents. The program is accredited by the American Osteopathic Association and currently has 10 residents.

The program emphasizes training in inpatient and critical care, with subspecialty training in various disciplines including but not limited to rheumatology, endocrinology, and nephrology. A portion of the training is dedicated to the outpatient internal medicine continuity clinic, which is part of the South Pointe Primary Care Clinic. Graduating residents have continued their training with prestigious fellowships including cardiology, critical care, gastroenterology, and pulmonology.

**Family Medicine Residency Program**

Fairview Hospital: As a full-service Cleveland Clinic community hospital, Fairview Hospital offers family medicine residents the opportunity to learn directly from experienced attending physicians and subspecialists in a friendly, personalized environment. Residents care for patients similar to those they can expect to manage in their careers as family physicians. This training enables residents to become highly skilled family physicians.

The residency program is dually accredited by the Accreditation Council for Graduate Medical Education (ACGME) and the American Osteopathic Association and is also the ACGME sponsor for Cleveland Clinic’s Primary Care Sports Medicine fellowship. The faculty consists of six full-time Cleveland Clinic physicians, a full-time behavioral science director, a family nurse practitioner, and a patient educator. Many of the program’s faculty are nationally known and actively mentor resident research projects.
Institute Overview

Over 30 years, the Family Medicine Residency Program has had 185 graduates. These former residents are now practicing in 26 states across the country. Of those, 118 have set up practices in Ohio, with 93 in Northeast Ohio.

South Pointe Hospital: South Pointe Hospital’s Family Medicine Residency Program began in 1973 and has graduated over 130 residents. The program is accredited by the American Osteopathic Association. Currently, seven family practice residents train primarily in an outpatient setting, with their continuity patient base at the South Pointe Primary Care Clinic.

Center for Personalized Healthcare

The Center for Personalized Healthcare was launched in January 2011 to facilitate and encourage incorporation of personalized healthcare approaches into the standard practice of medicine at Cleveland Clinic. Personalized healthcare uses a person’s unique biologic or molecular information (such as genetics, genomics, and family history), together with historical and personal preference information, to create individualized patient care plans. The goal is to improve the quality of healthcare, decrease cost, and improve patient experience and satisfaction.

Collaborating with multiple areas within Cleveland Clinic, the Center for Personalized Healthcare aims to develop and integrate select personalized healthcare approaches into the practice of medicine, to study the value of personalized healthcare and the implementation of such approaches, and to educate clinicians and patients about the utility and potential impact of personalized healthcare.

The Center for Personalized Healthcare hosted its second annual summit, “Personalized Healthcare for the Practicing Clinician,” on May 31, 2012. This one-day CME conference, which attracted more than 100 attendees, was designed to educate local and national physicians about topics in personalized healthcare and to build an educational foundation for future thought summits.

Physician Integration

For the community primary care practices, 2012 was a year of growth and expansion. The departments of Community Internal Medicine and Family Medicine now have 14 newly onboarded practice sites. Several locations received facility upgrades and/or were relocated to
new sites to accommodate the growing demand for care. Each practice continues to focus on the institute’s mission of providing patient access, quality, and increased efficiencies through practice redesign. Value-based care was introduced into the practice sites, with a full-scale implementation planned for the coming year. As opportunities continue to be identified, the number of community primary care practices will continue to grow.

**Medicine Institute Center for Value, Quality, and Effectiveness Research**

In 2009, the Medicine Institute centralized all research efforts to focus on quality improvement and clinical research and to study novel interventions throughout the institute. The research center has grown and in late 2012 was restructured to form the Center for Value, Quality, and Effectiveness Research. The center will include Medicine Institute researchers as well as health services researchers from across the Cleveland Clinic health system. Recruitment of mid-career and junior investigators has begun. Maximizing the strengths of the Medicine Institute, the center will focus on the following modes of research to examine healthcare delivery across the system:

- Health outcomes and comparative effectiveness research: healthcare delivery, practice redesign, medical informatics and electronic health record (EHR)-based research, healthcare reform, cost-effectiveness, point-of-care decision-making tools, patient-centered decision-making
- Quality and patient safety: assessing quality improvement initiatives, creating new measures of quality and value, using the EHR to improve quality and safety
- Clinical research: clinical trials, chart reviews, observational and epidemiological studies

The Center for Value, Quality, and Effectiveness Research supported several new initiatives and projects in 2012. These included the submission of seven NIH grants, 10 non-NIH federal grants, six industry-sponsored contracts, three foundation grants, one NIH Clinical and Translational Science Collaborative pilot grant, and three Cleveland Clinic Research Programs Committee grants. Of 31 grants submitted, the institute has been awarded 19. Research funding of approximately $3 million supports specific NIH and non-NIH federal, industry-sponsored, and foundation-sponsored projects.

**Primary Care Women’s Health**

Primary Care Women’s Health is an innovative program established within the Medicine Institute in 2008. With 47 primary care physicians, the program strives to provide integrated, comprehensive, gender-specific care by driving quality, outreach, and empowerment via innovative collaborations (internal and external to the Medicine Institute), education, and research. Quality and value-based care are important new areas of focus for Primary Care Women’s Health. In 2012, the program implemented several educational initiatives: quarterly webinars targeted to Cleveland Clinic physicians, quarterly email updates on the latest journal research, patient education materials, quality metric updates, ongoing best practice updates, and hosting of the annual “Primary Care Women’s Health: Essentials and Beyond” continuing medical education seminar.
The healthcare landscape continues to change in many ways, providing new and unique challenges to healthcare providers. One clear change is the rise in publicly reported process and outcomes measures. Making results transparent aids both the caregiver and the patient in understanding how a clinician is applying best practices and giving the patient the best opportunity to remain in optimal health.

In selecting measures, Cleveland Clinic’s Medicine Institute uses standards developed by prominent national organizations, including the National Committee for Quality Assurance (NCQA) and the U.S. Preventive Services Task Force, as well as those adopted by the National Quality Forum. These measures include:

- Management of common chronic conditions, such as diabetes and high blood pressure
- Screening for common preventable or treatable conditions, such as breast cancer, colorectal cancer, and cervical cancer
- Inpatient care for heart failure and pneumonia
- Prevention of infectious diseases with immunizations
- The patient’s hospital experience
- Hospital readmissions and mortality

In addition to the results shown in this Outcomes book, these measures are tracked and shared on a regular basis, and physicians are given regular feedback on their practices. This information identifies opportunities to improve performance, which in turn improves the care the institute provides for patients.
The epidemic of Type 2 diabetes mellitus is of great concern. Institute physicians closely monitor how the care of patients with diabetes adheres to guidelines and targets promoted by prominent organizations, most notably the American Diabetes Association. These targets are often difficult to achieve in actual clinical practice. Given the limitations of currently available treatments and patient factors, controlling diabetic risk factors remains a major challenge for patients and their physicians. Results are reported for all diabetic patients ages 18–75.

**Blood Sugar Control in Diabetes**

<table>
<thead>
<tr>
<th>Year</th>
<th>HbA\textsubscript{1c} Checked</th>
<th>HbA\textsubscript{1c} &lt; 8%</th>
<th>HbA\textsubscript{1c} &gt; 9%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>9,357</td>
<td>60%</td>
<td>80%</td>
</tr>
<tr>
<td>2011</td>
<td>11,742</td>
<td>65%</td>
<td>75%</td>
</tr>
<tr>
<td>2012</td>
<td>13,942</td>
<td>70%</td>
<td>80%</td>
</tr>
</tbody>
</table>

2010 NCQA 90th percentile*  
2011 NCQA 90th percentile*  
2012 NCQA percentile not available

The percentage of diabetic patients whose HbA\textsubscript{1c} is checked at least once during the year was evaluated. The percentage of diabetic patients whose disease is inadequately controlled (HbA\textsubscript{1c} > 9%, an NCQA measure), as well as those with good control (HbA\textsubscript{1c} < 8%), was also examined. Institute performance was compared with established national NCQA benchmarks.

*NCQA benchmarks are based on the care of health plan members; that population may differ from the general population treated by Cleveland Clinic primary care physicians.
Eye Exams for Diabetic Patients

Serious vision problems may be prevented by early detection of diabetic retinopathy. The percentage of patients who have had a documented dilated retinal exam within Cleveland Clinic's health system in the past year is reported. Capturing those eye exams done outside the health system is a goal for 2013.

Monitoring for Nephropathy in Diabetic Patients

Reducing the risk of chronic kidney disease is an essential component of diabetes care. The percentage of patients who either have had a screening test for nephropathy or whose nephropathy has been treated appropriately during the past year is reported.

*NCQA benchmarks are based on the care of health plan members; that population may differ from the general population treated by Cleveland Clinic primary care physicians.
Aggressive control of high cholesterol, specifically low-density lipoprotein (LDL) cholesterol, has been shown to prevent or delay atherosclerosis and improve outcomes in patients with existing atherosclerosis. Excellent cholesterol control (LDL < 100) is the institute’s goal for patients with diabetes.

Maintaining blood pressure below 140/90 mm Hg is recommended for most patients with diabetes. Institute physicians make every effort to achieve the best blood pressure control possible in patients. Through consistent monitoring and awareness, a high level of success is achieved.

*NCQA benchmarks are based on the care of health plan members; that population may differ from the general population treated by Cleveland Clinic primary care physicians.
The Centers for Disease Control and Prevention recommends that all patients with diabetes receive the pneumococcal vaccine. There is no current NCQA benchmark for pneumococcal immunization in diabetic patients.
Institute physicians evaluated the percentage of patients ages 18–85 who had a documented diagnosis of hypertension and a blood pressure reading of < 140/90 mm Hg at their most recent visit. The institute continues to exceed national averages and is among the best in the country in hypertension control. With current tools, however, perfect control of blood pressure in 100% of patients is not attainable.

Breast Cancer Screening

The Medicine Institute has monitored rates of screening mammography within the past two years in women ages 40–69. The institute's performance during that period has been steady and above the national benchmark and slightly higher for the section of Primary Care Women’s Health.

*NQCA benchmarks are based on the care of health plan members; that population may differ from the general population treated by Cleveland Clinic primary care physicians.
Preventive Health

Fractures caused by osteoporosis, especially in the hip and spine, have been shown to lead to considerable pain, loss of independence, and even death. The institute monitors the percentage of women aged 65 or older who have been screened for osteoporosis with a bone density (dual-energy X-ray absorptiometry) scan.

*NCQA benchmarks are based on the care of health plan members; that population may differ from the general population treated by Cleveland Clinic primary care physicians.
The cervical cancer screening measure assesses whether women between 21 and 64 years of age received screening for cervical cancer using a Papanicolaou test at appropriate intervals.

*NCQA benchmarks are based on the care of health plan members; that population may differ from the general population treated by Cleveland Clinic primary care physicians.
Cleveland Clinic has not applied to be a Centers for Medicare & Medicaid Services (CMS) accountable care organization (ACO). However, the quality metrics of the CMS ACO program are considered important to patients; therefore, these metrics will now be reported. A baseline is established that allows critical review of institute practices and goal-setting for future improvement.

**Preventive Care and Screening: Tobacco Screening and Cessation Intervention**

The percentage is reported of patients asked at least once in the previous two years about their tobacco use and whether they were offered cessation intervention during the previous two years. Smoking cessation counselors are on-site at many Cleveland Clinic family health centers.

**Ischemic Vascular Disease: Complete Lipid Profile and Low-Density Lipoprotein Control**

The percentage is reported of patients with ischemic vascular disease who had a complete lipid profile completed within the past year with low-density lipoprotein < 100.

**Ischemic Vascular Disease: Use of Aspirin or Another Antithrombotic**

The percentage is reported of patients with ischemic vascular disease who have been prescribed aspirin or another antithrombotic during the previous year.
Heart Failure: Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction

The percentage is reported of patients with heart failure and left ventricular systolic dysfunction who were prescribed a beta blocker.

Coronary Artery Disease: Drug Therapy for Lowering Low-Density Lipoprotein Cholesterol

The percentage is reported of patients with coronary artery disease who were prescribed a statin or whose last low-density lipoprotein was < 100.

Angiotensin-Converting Enzyme Inhibitor or Angiotensin Receptor Blocker Therapy for Patients With Coronary Artery Disease and Diabetes and/or Left Ventricular Systolic Dysfunction

The percentage is reported of patients with coronary artery disease who also have diabetes and/or left ventricular systolic dysfunction who were prescribed an angiotensin-converting enzyme inhibitor or an angiotensin receptor blocker.
Family Medicine and Internal Medicine/Pediatric physicians are committed to caring for patients of all ages and work in concert with Cleveland Clinic’s Pediatric Institute in defining reported pediatric outcome measures. The information that follows reflects the performance of the Medicine Institute’s Family Medicine and Internal Medicine/Pediatric physicians.

**Appropriate Antibiotic Use in Pediatrics in Accordance With National Guidelines**

**Patients Not Prescribed Antibiotics for Upper Respiratory Infection**

Antibiotics have been found to offer no benefit in the treatment of viral upper respiratory infections, and, appropriately, Cleveland Clinic physicians are not prescribing them for those conditions. Antibiotic use is declining among physicians due to increasingly appropriate utilization.

*NCQA benchmarks are based on the care of health plan members; that population may differ from the general population treated by Cleveland Clinic primary care physicians.*
Cleveland Clinic physicians ensure an accurate diagnosis of strep throat by obtaining a throat culture before initiating antibiotics.

*NCQA benchmarks are based on the care of health plan members; that population may differ from the general population treated by Cleveland Clinic primary care physicians.
Childhood Immunization Status

Combination 2

<table>
<thead>
<tr>
<th>Percent</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>109</td>
<td>172</td>
<td>159</td>
</tr>
</tbody>
</table>

Diamond: 2010 NCQA 90th percentile*

This graph represents the percentage of children 2 years of age who received all required immunizations by their second birthday. The immunizations include four diphtheria, tetanus, and acellular pertussis; three polio; one measles, mumps, and rubella; three *Haemophilus influenzae* B; three hepatitis B; and one chicken pox vaccine.

This graph represents an even more stringent measure. It includes all Combination 2 immunizations plus hepatitis A, pneumococcal conjugate, rotavirus, and influenza vaccines. This is a new measure, and the Medicine Institute began collecting data in 2011.

It is well-known that vaccines are one of the leading causes of increased life expectancy and decreased mortality. Vaccine-preventable diseases are at an all-time low in the U.S. This is in large part due to the effectiveness of childhood immunizations and the efforts of providers to promote and provide the recommended vaccinations. Immunizations are given to children at birth and continue to be given through the teenage years. Cleveland Clinic immunization rates are consistently above the national benchmark rates.

Combination 10

<table>
<thead>
<tr>
<th>Percent</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>172</td>
<td>159</td>
</tr>
</tbody>
</table>

*NCQA benchmarks are based on the care of health plan members; that population may differ from the general population treated by Cleveland Clinic primary care physicians.*
Standardized mortality ratio (SMR) is observed deaths/expected deaths (1.0 represents the average mortality rate; less than 1.0 represents a better-than-expected mortality rate). SMR is a commonly used method of representing care and making data comparisons. The All Patient Refined Diagnosis Related Groups (APR DRG)* risk-adjustment method is used in this calculation to make effective comparisons. The institute's SMR remains well below expected. The population is defined as all patients admitted to the Medicine Institute’s service.

*The 3M™ All Patient Refined Diagnosis Related Groups (APR DRG) Classification System is used for adjusting data for severity of illness and risk of mortality. solutions.3m.com/wps/portal/3M/en_US/Health-Information-Systems/HIS/Products-and-Services/Products-List-A-Z/APR-DRG-Software
Venous thromboembolism includes deep vein thrombosis and pulmonary embolism. It is a common, lethal disease; the third most common cause of hospital-related death; and the most common preventable cause of hospital-associated death in the U.S. The National Quality Forum, in response to National Patient Safety Goal 3-E, has mandated that each organization implement a formal anticoagulation management program to reduce the likelihood of patient harm associated with the use of anticoagulation therapy. This is a measure of whether each patient is assessed for venous thromboembolism risk upon admission. By building it into the standard Cleveland Clinic admission process, the Medicine Institute has achieved almost 100% compliance with this process measure.
Aggressive monitoring of pressure ulcer prevalence, the use of new skin care products, and the coordinated initiatives of the clinical nurse specialists and unit-based skin care nurses resulted in a decrease in the hospital unit-acquired pressure ulcer rate for 2012.

Initiatives for reducing the rate of falls during 2012 focused on identifying those patients whose fall risk may have changed over the course of their care and treatment — due to either their own health status change or new medications/procedures known to increase their risk.
CMS calculates two pneumonia outcome measures: all-cause mortality and all-cause readmission rates, each based on Medicare claims and enrollment information. Cleveland Clinic’s performance appears below.

**Pneumonia All-Cause 30-Day Mortality (N = 280)**
*July 2009 – June 2012*

![Chart showing 30-day mortality rates for Cleveland Clinic and national average.*](chart1.png)

*Source: medicare.gov/hospitalcompare*

There is no significant difference between Cleveland Clinic’s pneumonia patient mortality rate and the national average; Cleveland Clinic’s readmission rate is significantly higher than the national average. To further reduce avoidable readmissions, a multidisciplinary team is tasked with improving transitions from hospital to home or post-acute facility. Specific initiatives have been implemented in each of these focus areas: communication, education, and follow-up.

**Pneumonia All-Cause 30-Day Readmissions (N = 330)**
*July 2009 – June 2012*

![Chart showing 30-day readmission rates for Cleveland Clinic and national average.*](chart2.png)

*Source: medicare.gov/hospitalcompare*
CMS calculates two heart failure outcome measures: all-cause mortality and all-cause readmission rates, each based on Medicare claims and enrollment information. Cleveland Clinic’s performance appears below.

Heart Failure All-Cause 30-Day Mortality (N = 777)
July 2009 – June 2012

<table>
<thead>
<tr>
<th>Percent</th>
<th>Cleveland Clinic</th>
<th>National Average*</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.7</td>
<td>11.7</td>
<td></td>
</tr>
</tbody>
</table>

*Source: medicare.gov/hospitalcompare

Heart Failure All-Cause 30-Day Readmissions (N = 1,078)
July 2009 – June 2012

<table>
<thead>
<tr>
<th>Percent</th>
<th>Cleveland Clinic</th>
<th>National Average*</th>
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<tbody>
<tr>
<td>24.5</td>
<td>23.0</td>
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*Source: medicare.gov/hospitalcompare

There is no significant difference between Cleveland Clinic’s heart failure patient mortality or readmissions rate and the respective national averages. To further reduce avoidable readmissions, a multidisciplinary team is tasked with improving transitions from hospital to home or post-acute facility. Specific initiatives have been implemented in each of these focus areas: communication, education, and follow-up.
Cleveland Clinic is dedicated to delivering excellent clinical outcomes and the best possible experience for our patients and their families. Patient feedback is critical in driving priorities and assessing results. Based on this feedback, Cleveland Clinic's Office of Patient Experience implements training programs to improve service and communication as well as educational initiatives to help patients understand what to expect when they are in our care.

### Outpatient Office Survey — Medicine Institute

**2011 – 2012**

**Percent Best Response***

*Response options: Very Good, Good, Fair, Poor, Very Poor
Each bar represents a composite score based on responses to multiple survey questions.

Source: Press Ganey, a national hospital survey vendor
The Centers for Medicare & Medicaid Services requires United States hospitals that treat Medicare patients to participate in the national Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey, a standardized tool that measures patients’ perspectives of hospital care. Results collected for public reporting are available at medicare.gov/hospitalcompare.

The guiding principle of Cleveland Clinic is “Patients First,” and improving the patient experience is a major strategic organizational goal. The Office of Patient Experience collaborates with physician and nursing leadership to establish best practices and implement standardized protocols that ensure delivery of patient-centered care.

### Inpatient Survey — Medicine Institute

**HCAHPS Overall Assessment**

**2011 – 2012**

#### Percent Best Response*

*Response options: Definitely Yes, Probably Yes, Probably No, Definitely No

Source: Press Ganey, a national hospital survey vendor

#### HCAHPS Domains of Care

**2011 – 2012**

#### Percent Best Response*

*Except for “Room Clean” and “Quiet at Night,” each bar represents a composite score based on responses to multiple survey questions.

Source: Press Ganey, a national hospital survey vendor

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*Options: Always, Usually, Sometimes, Never*
Overview

Cleveland Clinic health system uses a scorecard approach to measure and monitor quality, safety, and patient experience. Real-time dashboard data are leveraged in each location to drive performance improvement. Although not an exact match to publicly reported data, more timely internal data create transparency at all organizational levels and support improved care in all clinical locations. The following measures are examples of health system 2012 quality and safety focus areas. Throughout this section, “Cleveland Clinic” refers to the academic medical center or “main campus,” and those results are shown.

Cleveland Clinic Core Measures

Appropriateness of Care

2011 – 2012

Cleveland Clinic monitors 30-day readmission rates for any reason to any of its system hospitals. Unplanned readmissions are actively reviewed for improvement opportunities. Strategies associated with communication, education, and follow-up have been implemented for several high-risk conditions, including heart failure and pneumonia. These practices are being expanded and enhanced to reduce overall avoidable readmissions.

All-Cause 30-Day Readmission Rate to Any Cleveland Clinic Hospital

2011 – 2012

Cleveland Clinic's goal is for all patients to receive all the recommended care for their condition. An aggregated “all or nothing” measurement approach to monitoring multiple publicly reported process-of-care measures for heart failure, acute myocardial infarction, pneumonia, and surgery patients yields results consistently above 94%.
Cleveland Clinic Overall In-Hospital Mortality Observed/Expected Ratio

2011 – 2012

Cleveland Clinic's observed/expected (O/E) mortality ratio outperformed the University HealthSystem Consortium (UHC) academic medical center 50th percentile throughout 2012 based on the UHC 2012 risk model. Ratios less than 1.0 indicate mortality performance “better than” expected in UHC’s risk adjustment model.

The Agency for Healthcare Research and Quality’s Patient Safety Indicator 4 (AHRQ PSI 4) reports deaths among patients with serious treatable complications. Cleveland Clinic performs in the top third of UHC’s academic medical centers for this measure.

*These data are prepared using the University HealthSystem Consortium (UHC) Clinical Database. uhc.edu
Cleveland Clinic — Improving Quality, Safety, and the Patient Experience

Cleveland Clinic continues to improve its performance with respect to postoperative blood clots (AHRQ Patient Safety Indicator 12). Improved screening and prevention strategies have led to a 45% reduction in these events over the past two years.

Cleveland Clinic has implemented several strategies to reduce central line-associated bloodstream infections (CLABSI), including a central-line bundle of insertion, maintenance, and removal best practices. In 2012, Cleveland Clinic initiated focused reviews of every CLABSI occurrence and is introducing equipment and technology to support reductions in CLABSI rates in its high-risk critical care population.

*These data are prepared using the University HealthSystem Consortium (UHC) Clinical Database. uhc.edu
A pressure ulcer is an injury to the skin that can be caused by pressure, moisture, or friction. These sometimes occur when patients have difficulty changing positions on their own. Cleveland Clinic caregivers have been trained to provide appropriate skin care and regular repositioning help while taking advantage of special devices and mattresses to reduce pressure for high-risk patients. In addition, they actively look for hospital-acquired pressure ulcers and treat them quickly if they occur.

*Nationally, falls are a leading cause of hospital patient injury. Cleveland Clinic fall prevention efforts include identifying patients who are at risk for falls, checking on them frequently, assisting them to the bathroom, and providing nonskid footwear. Caregivers make sure patients have all necessary items, including a call light, within easy reach.

*The National Database of Nursing Quality Indicators® (NDNQI®) is owned by the American Nurses Association. The database collects and evaluates unit-specific nurse-sensitive data from hospitals domestically and globally, with > 1900 hospitals participating. The comparison data represented here are based on a third of all hospitals in the U.S. participating. © 2012, American Nurses Association, All Rights Reserved. [www.nursingquality.org](http://www.nursingquality.org)
Patient Experience

The Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey is a standardized national tool used to measure patients’ perspectives of hospital care. Results collected for public reporting are available at medicare.gov/hospitalcompare.

Cleveland Clinic HCAHPS Overall Assessment
2011 – 2012

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<tr>
<th></th>
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<td>Recommend Hospital (% Definitely Yes)*</td>
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<td>80.0</td>
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<td>Hospital Rating (% 9 or 10) 0–10 Scale</td>
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</tbody>
</table>

*Response options: Definitely Yes, Probably Yes, Probably No, Definitely No

Source: Centers for Medicare & Medicaid Services and Press Ganey, a national hospital survey vendor
The guiding principle of Cleveland Clinic is “Patients First,” and improving the patient experience is a major strategic organizational goal. The Office of Patient Experience collaborates with physician and nursing leadership to establish best practices and implement standardized protocols that ensure delivery of patient-centered care.

*Cleveland Clinic HCAHPS Domains of Care
2011 – 2012

Percent Best Response *

*Except for “Room Clean” and “Quiet at Night,” each bar represents a composite score based on responses to multiple survey questions.

Source: Centers for Medicare & Medicaid Services and Press Ganey, a national hospital survey vendor

*Options: Always, Usually, Sometimes, Never*
Cleveland Clinic Population Management — A Network of Patient-Centered Medical Homes

The healthcare landscape is rapidly changing, moving from a volume-based model to a value-based model. The Medicine Institute is taking the lead in this transformation, piloting and rolling out different models of care. The goals of the Medicine Institute’s practice redesign initiatives include:

- Improved quality of care for the entire population of covered lives
- Improved access and care continuity
- Fewer emergency room visits, hospital admissions, and readmissions
- Increased patient and caregiver satisfaction
- Increased practice efficiency
- Reduced annual cost per life covered

In 2011, the Medicine Institute began this practice transformation in population management by laying the foundation at three locations: Strongsville Family Medicine, Independence Internal Medicine, and the institute’s main campus Internal Medicine practices. The Medicine Institute’s 2011 Outcomes book outlined the plan, and 2012 was a year of implementation at all three pilot sites. In addition, a plan was formulated for full rollout across all institute primary care practices.

The lessons learned in the first year have been innumerable. It is clear that there is not one distinctive model that can be implemented. Each practice location has unique strengths and history that can be leveraged to give that location the best chance for success. However, there are some common elements, described below, that will be integrated going forward.

In 2013, population management will begin to be rolled out to the remainder of the institute’s practices, which will encompass approximately 34 practices, 180 physicians, and 171,000 patients. These efforts include implementation of the patient-centered care model, TeamCare; pharmacy collaboration; previsit planning; and care coordination activities. Proactive patient interactions and visit planning by an expanded care team form the cornerstone of the transformation. Population management is a component of the value-based care initiative and is central to Cleveland Clinic’s strategy. These transformations will assist in evaluating Cleveland Clinic’s performance and subsequent decision regarding entry into an accountable care organization (ACO) arrangement.

The foundation of these various models is the introduction of the care coordinator to outpatient medicine. The care coordinator provides enhanced patient education, care coordination, outreach, and health coaching to the population’s highest-risk patients, starting with those who have congestive heart failure and complex diabetes. Special emphasis is placed on lowering costs through avoidance of unnecessary hospitalization and emergency department utilization.
More specifically, the model includes:

- Care coordination for high-risk patients
- Embedded pharmacy support for direct referrals and access for medication reconciliation, management, and education
- TeamCare integration for efficiency, financial sustainability, and access considerations
- Previsit planning of patient visits via a team medical assistant to reduce redundant visits, prepare the patients for their visits by preordering lab tests, and focus on health maintenance activities for optimum clinical output
- The use of existing midlevel practitioners to enhance access and provide specialized education to high-risk patients
- Daily or weekly huddles to facilitate communication and team integration
- Top-of-license training and education to ensure high-functioning care teams

Changes of this magnitude are extremely challenging to manage. To facilitate efforts, leaders have worked to build an extensive road map for each site, including simulation sessions in which an office tries out the new skills needed in this practice transformation, the design of agendas and action steps for each team, training in change management, very specific job descriptions, manuals for how to use the various tools, and working with the Information Technology division to design care coordinator tracking tools.

Finally, the institute is conducting an extensive evaluation to understand the impact of the various models on patient care and the goals of the pilot project. This evaluation includes quantitative and qualitative measurements, including all 33 ACO metrics, as well as financial, utilization, and efficiency metrics.

**Patient Experience Initiatives**

**Reliable/Lead Patient Care Nursing Assistant Rounder**

Finding the best methods for ensuring responsiveness to patient needs is an issue nursing units are constantly trying to address. One solution implemented on a Medicine Institute nursing unit was using a Lead Patient Care Nursing Assistant (PCNA) Rounder to more promptly address the needs of patients.

Nurses and PCNAs are very busy handling day-to-day care of patients. When a patient uses the call light to request special assistance, the caregiver must often stop what he or she is doing for one patient to respond to another patient request, or continue with his or her current task and delay care to the patient requesting additional help. The “reliable rounder” has no specific patient assignment other than responding to call light requests, which makes him or her more readily available. This staff member does have task assignments that focus on maintaining a clean and uncluttered environment in patient rooms, but this can be done on a stop-and-start basis.

The role of the Lead PCNA Rounder has been further refined to remove identified barriers, provide clarity, and improve efficiency for the entire team. When not involved in meeting call light requests, the Lead PCNA Rounder specifically focuses on offering bathroom assistance to patients at least every hour and mobilizing patients in general. The Lead PCNA Rounder provides assistance when two caregivers are required for any aspect of patient care, thereby reducing the delays that stem from waiting for another staff member to become available. Incorporating the lead concept with the reliable rounder role was particularly important to expedite and clarify assignments and to ensure accountability. The Lead PCNA Rounder is a role that is rotated among PCNAs who have been assessed as having the skill set required to be effective in leading the PCNA team.
Outcomes 2012

Innovations

Results to date reflect an increase in responsiveness scores. The Lead PCNA Rounder has reduced the variability in call light response times, and the Medicine Institute expects to implement this role throughout the institute in 2013.

Infectious Disease Patient Satisfaction Initiatives: Wait-Time Tracking and iPad® Surveys

You never get a second chance to make a first impression; welcoming patients with a long wait time to see their physician can color their satisfaction with their entire visit. The Department of Infectious Disease has made efforts to provide excellent service and reduce the time patients wait to see a physician, although these efforts can be complicated by patients arriving early and/or late for their appointments and still wanting to get in quickly to see their physician.

To solve this issue, the department began actively tracking average wait time for its ambulatory patients, measured as time from check-in to check-out. The department identified protocol, process, and staff issues leading to extended wait times and involved all members of the care team in determining solutions to these barriers. With the team engaged, members began to share performance data on average lobby wait time, total appointment time, and patients with waits longer than 20 minutes. These data are shared at a daily team huddle. More important, the data are prominently displayed in the waiting room for all patients and visitors to see. The result has been a steady decline in average wait time for patients to see their Infectious Disease physician.

In addition to collecting time study data, the department uses volunteers and patient service representatives to request patient feedback at the end of visits. These volunteers use iPads to collect opinions from patients on their wait time, physician interaction, and experience with support staff. Patients answer multiple-choice questions and provide open-ended comments to elaborate on their experience. At the end of the survey, patients are offered the opportunity to receive a follow-up phone call to discuss their experience. This immediate feedback is being used to drive better patient experience.

New Models of Physician Coverage

As part of an effort to enhance patients’ hospital experience while maintaining the highest standards for patient safety and quality of care, the Department of Hospital Medicine piloted an “overlapping services” model of care in 2012. The new service model’s goals are to minimize the number of patients who need to be “handed off” to another physician as the original physician goes off service at the end of a rotation and to facilitate superior communication between patients and their care teams.

To accomplish these goals, the new model has a hospitalist “ramp up” his or her service by assuming responsibility for new patients during their first three days. At the same time, the physician preparing to finish his or her service is “ramping down” and caring only for those patients still in the hospital under his or her care, ideally discharging many of these patients over the next three days. If patients remain
in the hospital after the three days, these patients are then handed off to the next hospitalist. The service in between ramping up and ramping down remains exactly the same, with the hospitalist providing care to a panel of patients as they arrive and are discharged.

Additionally, the hospitalist and unit nurses participate in daily collaborative bedside rounding with special emphasis on updating patients on care plans and addressing their concerns. Preliminary data analysis indicates that the model has substantially reduced the number of patients who need to be handed off to another physician, and it has directly led to improved patient experience — specifically in the domain of patient-physician communication.

**Improving Transitions of Care**

**Transitions of Care Back Into the Community Through Enhanced Appointment Scheduling**

Ineffective transitions of care can lead to unnecessary readmissions and poor health outcomes for patients. In addition to a focus on improved transitions of care to a skilled nursing facility, the Department of Hospital Medicine has also concentrated on improving the transition of care from the hospital back to the patient’s home.

This is being accomplished in two ways: through more timely completion of a discharge summary and improved scheduling of outpatient appointments. Hospitalists discuss upcoming discharges and outpatient follow-up appointment needs with a scheduler every morning. A scheduler then comes to the patient’s room to schedule all the required appointments from a bedside phone before the patient is discharged. This ensures that the patient is an active participant in the appointment-scheduling process and that appointments can be scheduled at a time convenient to the patient. The patient is then given a list of upcoming outpatient follow-up appointments in his or her discharge packet. When the patient arrives at his or her follow-up appointment, the primary care physician now has access to a complete discharge summary in the record that summarizes the care the patient received in-house.

**Transition of Care From the Hospitalist to the “SNF-ist”: A Campaign to Improve Communication and Reduce Readmissions**

Patients discharged to a skilled nursing facility (SNF) are at significantly higher risk of readmission within 30 days than patients discharged to home. For hospitalists at Cleveland Clinic, the rate in 2012 was 26.4%. Physician communication during this transition for the patient can be suboptimal due to poor understanding of the reality of care in both the hospital and the SNF.

In the spring and fall of 2012, a group of hospitalists and SNF physicians (SNF-ists) agreed to meet and begin building a collaborative partnership to identify best practices in patient transition from hospital to SNF. The process began with a survey that was sent out to those in both roles. The purpose was to identify gaps in expectations from
each provider group. The results showed a wide disconnect regarding perceptions about the quality of information provided between the hospitalist and the SNF-ist. For example, the hospitalist reported being either completely confident or confident that medication reconciliation was occurring prior to discharge, while the SNF-ists were far less sure the patients they received had medication reconciliation prior to discharge. Similarly large disparities were identified regarding the quality of information related to tests and procedures.

As a result of these findings, the Department of Hospital Medicine brought together hospitalists and SNF doctors who accept many of the patients discharged to skilled nursing facilities for two “summits,” each three hours long. The Long-Term Care Physician Summit posed several key questions:

- What essential elements should be included in a discharge summary designed specifically for patients discharged to an SNF?
- Because there may be a mismatch in patient/family expectations that can lead to readmissions, what strategies can be employed — on both sides — to level-set expectations?
- How should follow-up appointments be prioritized between those that need to occur while patients are still in the SNF and those that can wait until after discharge from the SNF?
- Given new regulations for prescriptions — especially Schedule II prescriptions — how can patients be most efficiently provided with needed medications upon transition?
- How can the use of newly hired midlevel providers in SNFs be maximized during this transition process?
- How can the admission process be improved for all involved?

Bringing together all key participants to meet and work out methods to improve handoffs provided numerous benefits. Besides helping each group better understand the other’s workflows, it also encouraged increased familiarity between groups. Through direct dialogue, a “transition bundle” of care is now being developed to assist each patient discharged by a hospitalist to an SNF.

Improved Care Transitions in Resident Education

Ensuring that safe and consistent transitions of care occur between resident teams is a critical element that directly impacts patient safety. Recent changes to resident work hour restrictions have increased the number of patient handoffs as shifts become increasingly fragmented. Poor transitions of care increase the likelihood that critical information is lost between care teams and can lead to negative outcomes.

In 2012, the Internal Medicine Residency Program initiated a review of how care transitions occurred and assessed the quality of such transitions through direct observation of patient handoffs and the use of a five-point evaluation. Following the initial data collection, residents were provided an educational seminar that described the components and features of an effective handoff. Then the residents were again observed and evaluated while performing care transitions. Overall, the quality of the care transitions improved, and residents showed a more standard approach to patient handoffs.

Department of Hospital Medicine Physician Scorecard

High-quality healthcare occurs at the intersection of consistent best practice use and best knowledge. The Department of Hospital Medicine is always looking to improve protocols to ensure patient safety. Once protocols are established, the next step is to ensure each
physician follows these protocols. To track a department’s success, a scorecard can be created to cover a range of metrics. However, change really occurs when individual physicians can see their specific performance. In 2012, the department created a scorecard that is unique to each physician across seven quality domains: core measures, readmissions, whether each patient was properly assessed for risk of developing a venous thromboembolism, whether medication reconciliation was completed at discharge, doctor communication patient experience scores, whether verbal orders were signed within 48 hours, and whether the discharge summary was filed within 24 hours of discharge.

The report provides the physician information within each domain, using data from the previous quarter. The report also shows the average, minimum, and maximum performance in the department during the same period. Each physician sees only his or her individual performance. A peer expert on each topic has been identified and offered as a resource to any physician wishing to improve in any domain.

Reducing Central Line-Associated Bloodstream Infections

Central line-associated bloodstream infections (CLABSIs) are among the most deadly of healthcare-associated infections; they prolong hospitalization and are expensive to treat. Reduction and prevention of CLABSIs improve patient safety and reduce costs. In December 2011, following a rise in CLABSI incidences, a multidisciplinary team was formed to reinforce efforts to develop and execute a rigorous plan for CLABSI prevention, including reviewing action steps, carefully analyzing any events that occurred in the past month, and continuing to focus on this very important initiative. The team included staff nurses, nurse educators, clinical nurse specialists, physicians, an infection prevention specialist, and a representative from the Quality & Patient Safety Institute.

The team assembled a comprehensive approach that included process changes, new education, and engagement of all interested parties, including patients, in achieving success.

Established routines

- Developed a standard time, method, and equipment for dressing changes for all three non-ICU medicine units
- Performed monthly central line maintenance audits

Education

- Ongoing education for nurses in the proper care of central lines
- Direct observation of dressing change techniques
- Educational materials to share with the patient to involve him or her in the goal of CLABSI prevention

Physician involvement

- Established a “Physician Champion”
- Established a process for regular review of patients with central lines on each unit
By implementing a wide range of initiatives that involved all the relevant disciplines, the team has seen a dramatic decrease in CLABSIs across the three non-ICU medicine units. Beginning in January 2012, the incidence of CLABSIs consistently declined, with five months of zero occurrences and an overall threefold reduction for the year.

Therefore, in an effort to provide heightened awareness and a more visual reminder for patients, their families, and all caregivers, high-fall-risk patients were also provided yellow socks for a three-month pilot period. Families immediately noticed, commented about the special attention they felt their loved one was receiving, and frequently reminded their loved one to call for assistance. Patients — very much aware of their bright yellow socks — started to call more frequently for assistance.

As a result of this simple intervention, the falls rate decreased from 10.7/1,000 patient days in January to a low of 1.07/1,000 patient days for four months, with an overall rate of 3.48/1,000 patient days for the year. This can be compared with the 4.44/1,000 and 4.24/1,000 patient days year-to-date rates of similar Medicine Institute units that did not use the yellow socks. Patients have benefited from this intervention, and yellow socks are now being adopted for use throughout Cleveland Clinic’s health system.

Yellow Socks Falls Prevention Initiative

The prevention of falls is an ongoing focus in the complex medical patient population seen at Cleveland Clinic. In January 2012, one of the Medicine Institute's units experienced a notable increase in falls. This prompted the shared governance nursing team to more closely examine the reasons for falls and to develop new prevention strategies. In their review they found that a majority of falls were attributed to patients who overestimate their capability and do not call for assistance.

Although a traditional yellow falls wristband has long been used, the wristband was often not visible when patients were ambulating in the hallway in robes or other long-sleeved garments.

Quality Improvement Project for Patients Infected With HIV

Physicians in the Medicine Institute's Department of Infectious Disease care for approximately 700 patients infected with HIV and act as the primary care providers for many of these patients. It has been a challenge to track so many patients and identify gaps in their care. In February 2012, a team from the Department of Infectious Disease and the Information Technology Division began a project to leverage electronic health records to improve the quality of care of HIV-infected patients, based on a model implemented at Cleveland’s MetroHealth Medical Center. The team reviewed current workflows and restructured steps to capture important clinical data. The workflows were redesigned with input from all involved and have received good clinician support to date.
Health maintenance reminders were also developed to flag some gaps in care and ensure the patient is receiving all aspects of high-quality care. The project has been successful in improving documentation and providing reminders for recommended interventions. These interventions will continue to be monitored and tracked by the department to ensure improved patient outcomes.

**Development of a Community-Based Parenteral Anti-Infective Therapy Dashboard**

Staff in the Department of Infectious Disease are responsible for the care of all patients who leave the hospital on community-based parenteral anti-infective therapy. A structured data-entry form in the electronic health record has been used to outline the patient’s treatment plan, but until recently those data were “stuck” inside the record and unavailable to track gaps in care. In response, the department worked with Medical Operations’ Business Intelligence Unit to design and build a dashboard. This tool shows the number of patients discharged from Cleveland Clinic on community-based parenteral anti-infective therapy, the diagnoses and microorganisms treated, and the antibiotics prescribed. A breakdown of the postdischarge care site and 30-day readmission rate for these patients is also displayed. Reports are also available to show results for customized date ranges.

These data available through the dashboard provide the infectious disease physicians and the administration at Cleveland Clinic Home Care with a window into their practice — showing volumes and trends of different treatment practices over time. This will allow continuing quality improvement and offer unique research opportunities with respect to the care of this population.

**Group Practice Clinic Model for Residents**

Preparing the next generation of physician caregivers is the core function of the Internal Medicine Residency Program. During their three years of training, the program’s 168 outstanding residents receive robust clinical experience in diverse settings, including inpatient and outpatient internal medicine and also within the subspecialties of internal medicine and intensive care units.

A cornerstone of a resident’s clinical training has been the opportunity to care longitudinally for his or her own panel of patients with mentorship from an attending physician. Building strong and trusting relationships with patients — while managing their wellness and care over a period of time — presents valuable learning opportunities for these young physicians. This has traditionally been done in a weekly half-day clinic and has served as a useful transition to a career in primary care medicine.

However, an evolving trend toward the division of inpatient and outpatient responsibilities among attending physicians, recent changes to residency work hour restrictions, and new training requirements have reduced the benefit of this weekly clinic and made the management of it a challenge. Related scheduling conflicts led to stress on the residents’ workday and contributed to their dissatisfaction with the weekly model. These changes also increased care transition times while residents were on the inpatient service and decreased patient continuity within residents’ outpatient panels.

In response, the residency program embarked on an innovative redesign of the structure of its longitudinal clinic and launched a paradigm-altering clinic model in July 2012. Working with Medicine Institute leadership, the program aligned its second- and third-year residents into small patient-centered medical homes, enabling residents’ participation in the longitudinal clinic for a dedicated
two-week block of time. Residents repeat this two-week experience at three-month intervals. During the two weeks, residents are freed of all inpatient clinical duties and are solely responsible for five half-day clinics per week in a general internal medicine outpatient clinic. The remainder of the time includes an administrative half-day to allow time to follow up on tasks related to patients seen in clinic; a primary care-focused educational half-day that includes topics on patient-centered medical homes, quality improvement, and population health management; and a regular opportunity to attend the program’s standard didactic conferences. The two remaining half-days are available to host unique learning experiences.

Early feedback from surveys of residents indicates a belief that patient continuity and satisfaction have improved. In addition, the two-week group practice model seems to give residents a truer perspective of outpatient internal medicine, and survey data point to increased interest in outpatient internal medicine as a career aspiration as compared with previous feedback.

Geriatric Caregiver Strain Reduction

One of the most significant factors influencing the life of an older adult with physical and/or cognitive impairments is the care environment. Evidence suggests that informal caregiver education and care management strategies can (1) modify the environment to reduce behavioral disturbances in the patient with dementia, (2) reduce informal caregiver strain in those caring for older adults with or without dementia, and (3) delay institutionalization.
Primary Care Women's Health: Essentials and Beyond

In November 2012, Primary Care Women’s Health hosted an extremely successful two-day CME conference at Cleveland Clinic’s administrative campus. This event featured a nationally recognized keynote speaker, Hope Haefner, MD; several women’s health experts from the Cleveland area; and a new, hands-on procedural workshop option for 30 participants. Reaching a record attendance of 169 participants (including the 15 faculty members), this program fostered an extensive learning environment for all participants.

Building on the growth and success it realized in 2012, Primary Care Women’s Health is planning to collaborate with colleagues from the Louis Stokes Cleveland VA Medical Center and the Medicine Institute’s Center for Geriatric Medicine to grow the CME program not only in numbers served but in content. Two keynote speakers and expanded workshop sessions are planned, with a focus on procedural and geriatric-specific issues.

MyFamily Collects Family Health History
Prior to Appointment

MyFamily, a clinical decision support application built by Cleveland Clinic, enables collection of patient-entered personal and family health history through an Epic© MyChart invitation prior to a scheduled encounter. MyFamily then integrates a disease-risk reference document into the electronic health record at the point of care that presents stratified disease-risk scores along with evidence-based, clinically actionable recommendations. MyFamily helps clinicians optimize their encounter time, allowing them to focus on creating personalized preventive care plans, which maximizes the quality of care for patients.
Selected Publications

**Center for Geriatric Medicine**


**Community Internal Medicine**


**Family Medicine**


Ratna S. Haridas, MD, FACS, FRCSEd, FRCOG, FRCPath, FAAA

Hospital Medicine


Nagarajan V. Improvement in ejection fraction — but do not forget the basics, the medications. Am Heart J. 2012 Apr;163(4):e27.
Selected Publications


Infectious Disease


**Internal Medicine**


Ha D, Tsai CJ. Pneumatosis intestinalis in a patient with recurrent Clostridium difficile infection. *BMJ Case Rep.* 2012;2012.


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Himanshu Dubey, MD
Cory Fisher, DO
Amber Tulley, MD
David Wendt, MD

Brook Park
Tim Fetterman, MD
Larry Hoffman, DO
Mary Klein, MD

Cleveland
John Hanicak, MD
Erin Nagrant, MD
John Zangmeister, MD

Garfield Heights
Himanshu Dubey, MD
Baran Onder, MD

Rockport
Kurtis Dornan, MD
Charles Garven, MD
Kevin Leisinger, MD
Jennifer Snyder, MD

Rockside Road
Eric Boose, MD
Colleen Clayton, MD
Michael Grusenmeyer, MD
Neil F. Grabenstetter, MD

Value City

Cleveland Clinic Community
Internal Medicine Locations

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Frederick Harris, MD
Garfield Heights
Allen Kline, DO
Chitra Manickam, MD
Hillcrest
Baljit Bal, MD
James Hekman, MD
Touhama Sayegh, MD
Clarence Taylor, MD
North Olmsted
Lena Dergham, MD
Hossam Naguib, MD
Akhilesh Rao, DO
Angela Ritchey, MD
Margaret Wilbur, MD
Sagamore Hills
Elizabeth Habjan, DO

Warrensville Heights
Jane D’Isa-Smith, DO
Elizabeth Habjan, DO
Christie Murphy, DO
Westlake
Roger Mansnerus, MD
Contact Information

General Patient Referral
24/7 hospital transfers or physician consults
800.553.5056

Internal Medicine and Geriatric Medicine Appointments/Referrals
(Main Campus)
216.444.5665 or 800.223.2273, ext. 45665

National Consultation Service
216.444.2323 or 800.223.2273, ext. 42323

Infectious Disease Appointments
(Main Campus)
216.444.8845 or 800.223.2273, ext. 48845

On the Web at my.clevelandclinic.org/medicine-institute

Additional Contact Information

General Information
216.444.2200

Hospital Patient Information
216.444.2000

General Patient Appointments
216.444.2273 or 800.223.2273

Referring Physician Center and Hotline
24/7 hotline to streamline access to our array of medical services and schedule patient appointments
855.REFER.123 (855.733.3712)
Or email refdr@ccf.org or visit clevelandclinic.org/refer123

Request for Medical Records
216.444.2640 or 800.223.2273, ext. 42640

Same-Day Appointments
216.444.CARE (2273)

Global Patient Services/International Center
Complimentary assistance for international patients and families
001.216.444.8184 or visit clevelandclinic.org/gps

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

Cleveland Clinic Abu Dhabi
clevelandclincabudhabi.ae

Cleveland Clinic Canada
888.507.6885

Cleveland Clinic Florida
866.293.7866

Cleveland Clinic Nevada
702.483.6000

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Cleveland, OH 44195
216.444.3627

Beachwood Family Health and Surgery Center
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Beachwood, OH 44122
216.836.3000

Brunswick Family Health Center
3574 Center Road
Brunswick, OH 44212
330.225.8886

Chagrin Falls Family Health Center
551 E. Washington St.
Chagrin Falls, OH 44022
440.893.9393

Independence Family Health Center
Crown Centre II
5001 Rockside Road
Independence, OH 44131
216.968.4000

Marymount Medical Center, Broadview Heights
2001 E. Royalton Road
Broadview Heights, OH 44147
216.986.4000

Medina Hospital Medical Office Building
970 E. Washington St.
Medina, OH 44256
330.721.5700

Mentor Medical Office Building
7060 Wayside Drive
Mentor, OH 44060
440.357.2770

Richard E. Jacobs Family Health Center
33100 Cleveland Clinic Blvd.
Avon, OH 44011
440.695.4000

Solon Family Health Center
29800 Bainbridge Road
Solon, OH 44139
440.519.6800

Stephanie Tubbs Jones Health Center
13944 Euclid Ave.
East Cleveland, OH 44112
216.767.4242

Strongsville Family Health and Surgery Center
16761 SouthPark Center
Strongsville, OH 44136
440.878.2500
Institute Locations

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8701 Darrow Road
Twinsburg, OH 44087
330.888.4000

Willoughby Hills Family Health Center
2570 SOM Center Road
Willoughby Hills, OH 44094
440.943.2500

Wooster Family Health Center
1740 Cleveland Road
Wooster, OH 44691
330.287.4500

Cleveland Clinic Community
Family Medicine Locations

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14401 Snow Road, Suite 106
Brook Park, OH 44142
216.898.2229

Cleveland
11709 Lorain Ave.
Cleveland, OH 44111
216.476.7088

Garfield Heights
1200 McCracken Road, Suite 108
Garfield Heights, OH 44125
216.475.1551
Independence
6701 Rockside Road, Suite 260
Independence, OH 44131
216.369.2525

Lakewood
11851 Detroit Ave.
Lakewood, OH 44107
216.529.7125

Rocky River
19324 Detroit Road
Rocky River, OH 44116
440.356.3640

Valley City
6605 Center Road
Valley City, OH 44280
330.483.3135

Cleveland Clinic Community Internal Medicine Locations

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5 Severance Circle, Suite 505
Cleveland Heights, OH 44118
216.291.5151

Garfield Heights
5595 Transportation Blvd., Suite 230
Garfield Heights, OH 44125
216.587.6800

Mayfield Heights
6801 Mayfield Road, Suite 140
Mayfield Heights, OH 44124
440.312.8282

North Olmsted
24700 Lorain Road, Suite 207
North Olmsted, OH 44070
440.779.5505

Sagamore Hills
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Sagamore Hills, OH 44067
330.468.4550

Warrensville Heights
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Warrensville Heights, OH 44122
216.491.7036

Westlake
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Westlake, OH 44146
440.250.5737
Overview

Cleveland Clinic is an academic medical center offering patient care services supported by research and education in a nonprofit group practice setting. More than 3,000 Cleveland Clinic staff physicians and scientists in 120 medical specialties care for more than 5 million patients across the system, performing more than 200,000 surgeries and conducting 450,000 Emergency Department visits. Patients come to Cleveland Clinic from all 50 states and more than 132 nations around the world.

Cleveland Clinic is an integrated healthcare delivery system with local, national, and international reach. The main campus in midtown Cleveland, Ohio, has a 1,450-bed hospital, outpatient clinic, specialty institutes, labs, classrooms, and research facilities in 46 buildings on 167 acres. Cleveland Clinic patients represent the highest CMS case-mix index in the nation. Cleveland Clinic encompasses 75 northern Ohio outpatient locations, including 16 full-service family health centers, eight community hospitals, an affiliate hospital, and a rehabilitation hospital for children. Cleveland Clinic also includes Cleveland Clinic Florida, Cleveland Clinic Lou Ruvo Center for Brain Health in Las Vegas, Cleveland Clinic Canada, and Sheikh Khalifa Medical City (management contract). Cleveland Clinic Abu Dhabi is a full-service hospital and outpatient center in the United Arab Emirates scheduled to begin offering services in 2014. Cleveland Clinic is the second-largest employer in Ohio with nearly 44,000 employees. It generates $10.5 billion of economic activity a year.

The Cleveland Clinic Model

Cleveland Clinic was founded in 1921 by four physicians who had served in World War I and hoped to replicate the organizational efficiency of military medicine. The organization has grown through the years by adhering to the model set forth by the founders. All Cleveland Clinic staff physicians receive a straight salary with no bonuses or other financial incentives. The hospital and physicians share a financial interest in controlling costs, and profits are reinvested in research and education.

The Cleveland Clinic system began to grow in 1987 with the founding of Cleveland Clinic Florida and expanded in the 1990s with the development of 16 family health centers across Northeast Ohio. Fairview Hospital, Hillcrest Hospital, and six other community hospitals joined Cleveland Clinic over the past decade and a half, offering Cleveland Clinic institute services in heart and neurological care, physical rehabilitation, and more. Clinical and support services were reorganized into 27 patient-centered institutes beginning in 2007. Institutes combine medical and surgical specialists around specific diseases or body systems under single leadership and in a shared location to provide optimal team care for every patient. Institutes work with the Office of Patient Experience to give every patient the best outcome and experience.
Cleveland Clinic Lerner Research Institute

At the Lerner Research Institute, hundreds of principal investigators, project scientists, research associates, and postdoctoral fellows are involved in laboratory-based translational and clinical research. Total research expenditures from external and internal sources exceeded $265 million in 2012. Research programs include cardiovascular, oncology, neurology, musculoskeletal, allergy and immunology, ophthalmology, metabolism, and infectious diseases.

Cleveland Clinic Lerner College of Medicine

Lerner College of Medicine of Case Western Reserve University, which celebrated its 10th anniversary in 2012, is known for its small class size, unique curriculum, and full-tuition scholarships for all students. The program is open to 32 students who are preparing to be physician investigators.

Graduate Medical Education

In 2012, nearly 1,800 residents and fellows trained at Cleveland Clinic and Cleveland Clinic Florida, which is part of a continuing upward trend.

U.S. News & World Report Ranking

Cleveland Clinic is consistently ranked among the top hospitals in America by U.S. News & World Report, and our heart and heart surgery program has been ranked No. 1 in the nation since 1995. In 2012, Cleveland Clinic’s urology and nephrology programs were both ranked No. 1 in the nation.

For more information about Cleveland Clinic, please visit clevelandclinic.org.
**Referring Physician Center and Hotline**

24/7 hotline to streamline access to our array of medical services and schedule patient appointments, call 855.REFER.123 (855.733.3712), email refdr@ccf.org, or visit clevelandclinic.org/refer123.

**Remote Consults**

Online medical second opinions from Cleveland Clinic's MyConsult® are particularly valuable for patients who wish to avoid the time and expense of travel. Cleveland Clinic offers online medical second opinions for more than 1,200 life-threatening and life-altering diagnoses. For more information, visit clevelandclinic.org/myconsult, email eclevelandclinic@ccf.org, or call 800.223.2273, ext. 43223.

**Request Medical Records**

216.444.2640 or 800.223.2273, ext. 42640

**Track Your Patients’ Care Online**

DrConnect® offers referring physicians secure access to their patients' treatment progress while at Cleveland Clinic. To establish a DrConnect account, visit clevelandclinic.org/drconnect or email drconnect@ccf.org.

**Medical Records Online**

Cleveland Clinic continues to expand and improve electronic medical records (EMRs) to provide faster, more efficient, and more accurate care by sharing patient data through a highly secure network. Patients using MyChart® can renew prescriptions and review test results and medications from their personal computers. MyChart provides a link to Microsoft HealthVault, a free online service that helps patients securely gather and store health information. It connects to Cleveland Clinic’s social media and Internet site, currently the most visited hospital website in America. For more information, visit clevelandclinic.org/mychart.

**Critical Care Transport Worldwide**

Cleveland Clinic's critical care transport team and fleet of mobile ICU vehicles, helicopters, and fixed-wing aircraft serve critically ill and highly complex patients across the globe.

To arrange a transfer for STEMI (ST elevated myocardial infarction), acute stroke, ICH (intracerebral hemorrhage), SAH (subarachnoid hemorrhage), or aortic syndrome, call 877.379.CODE (2633).

For all other critical care transfers, call 216.444.8302 or 800.553.5056.

**CME Opportunities: Live and Online**

Cleveland Clinic's Center for Continuing Education operates one of the largest and most successful CME programs in the country. The center’s website (ccfcme.org) is an educational resource for healthcare providers and the public. Available 24/7, it houses programs that cover topics in 30 areas. Among other resources, the website contains a virtual textbook of medicine (Disease Management Project) and myCME, a system for physicians to manage their CME portfolios. Live courses, however, remain the backbone of the center’s CME operation. Most live courses are held in Cleveland, but outreach plans are underway.
**Clinical Trials**
Since its establishment in 1921, Cleveland Clinic has been an innovator in medical breakthroughs, with a mission of unlocking basic science and pursuing clinical research. Today, Cleveland Clinic is running more than 2,000 clinical trials of various types. Our researchers are focusing on an array of conditions, including breast and liver cancer, coronary artery disease, heart failure, epilepsy, Parkinson disease, chronic obstructive pulmonary disease, asthma, high blood pressure, diabetes, depression, and eating disorders. To learn more, go to clevelandclinic.org/research.

**Healthcare Executive Education**
Cleveland Clinic's dynamic executive education program provides real-world insights into the highly competitive business of healthcare. The Executive Visitors’ Program is an intensive three-day program that provides a behind-the-scenes view of our organization for the busy executive. The Samson Global Leadership Academy is a two-week immersion into the challenges of leadership, management, and innovation. The curriculum includes coaching and a personalized three-year leadership development plan. Learn more at clevelandclinic.org/execed.
This project would not have been possible without the commitment and expertise of a team led by Robert Jones Jr., MD, and Craig Martin, MPA.

Graphic design and photography were provided by Cleveland Clinic’s Center for Medical Art and Photography.
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Every life deserves world class care.