To promote quality improvement, Cleveland Clinic has created a series of Outcomes books similar to this one for many of its institutes. Designed for a physician audience, the Outcomes books contain a summary of our surgical and medical trends and approaches, data on patient volumes and outcomes, and a review of new technologies and innovations.

Although we are unable to report all outcomes for all treatments provided at Cleveland Clinic — omission of outcomes for a particular treatment does not necessarily mean we do not offer that treatment — our goal is to increase outcomes reporting each year. When outcomes for a specific treatment are unavailable, we often report process measures associated with improved outcomes. When process measures are unavailable, we may report volume measures; a volume/outcome relationship has been demonstrated for many treatments, particularly those involving surgical techniques.

In addition to our internal efforts to measure clinical quality, 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 providing accurate, timely information about patient care also will help patients and referring physicians make informed healthcare decisions.

We hope you find these data valuable, and we invite your feedback. Please send comments and suggestions to us at OutcomesBookFeedback@ccf.org. To view all our Outcomes books, please visit Cleveland Clinic’s Quality and Patient Safety website at clevelandclinic.org/outcomes.
Dear Colleague:

Welcome to Cleveland Clinic’s 2011 Outcomes books. They include data on clinical outcomes, patient volumes, innovations and publications. Cleveland Clinic pioneered the collection and annual publication of outcomes data. This initiative has become part of the national discussion on lowering costs and improving the quality of healthcare.

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. Each institute defines quality benchmarks for its specialty services and reports longitudinal progress.

Cleveland Clinic Outcomes books are available in print and online. Additional data is available through our online Quality Performance Report (clevelandclinic.org/QPR). The site offers data in advance of national and state public reporting sites in key areas, including heart attack, heart failure, stroke and infection prevention.

We hope you will find this information useful.

Sincerely,

Delos M. Cosgrove, MD
CEO and President
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.

what's inside

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I am pleased to be sharing this collection of outcomes from the Ob/Gyn & Women’s Health Institute. We had a particularly productive and exciting year in 2011. Our commitment to clinical excellence, innovation, education and research allowed us to remain the No. 4 program in the country, according to U.S. News & World Report. We are humbled by the confidence our patients and colleagues have shown in us and excited about the opportunities that lie ahead.

We are committed to sharing this annual compilation of quality and outcomes measurements with our referring physicians and others who are interested in the medical and surgical activities of our institute. Every Cleveland Clinic institute shares this commitment to complete transparency. As we see the advent of reimbursement based on outcomes, we aim to serve as a model for improving healthcare quality, safety and efficiency while reducing health disparities.

In the following pages, you will see a small sample of our innovative work. We are making significant strides in improving the treatment of infertility, with innovative approaches and cutting-edge equipment. We continue to employ the latest minimally invasive surgical approaches, including single-site robotics, and are leaders in comparative studies to determine the most efficient and cost-effective use of new tools. We have developed a robust menu of hysteroscopic office procedures. We are evaluating state-of-the-art approaches to cancer of the peritoneal cavity and have reported exciting progress toward developing a breast cancer vaccine.

Late last year, we saw the launch of our Special Delivery Unit, a special partnership between Cleveland Clinic Children’s Hospital and our Section on Maternal-Fetal Medicine. Coupled with our skilled and diverse Critical Care Transport capabilities, we now offer special care to our most fragile patients — both mothers and their babies.

In addition to our leadership in subspecialized care, we have a large network of obstetricians and gynecologists in Cleveland Clinic community hospitals and family health and surgery centers throughout Northeast Ohio who bring expertise closer to home for our patients. In 2011, Cleveland Clinic opened new facilities in three counties, and 2012 promises further expansion of our services.

I hope you find the information in this Outcomes book both useful and informative. I look forward to working with you to provide the best in patient care.

Tommaso Falcone, MD
Professor and Chairman, Ob/Gyn & Women’s Health Institute
Cleveland Clinic Ob/Gyn & Women’s Health Institute is committed to providing world-class care to women of all ages. The institute offers a full complement of services that fall within the field of women’s health, from general obstetric/gynecologic care and screenings for breast disorders to complex oncologic surgery for breast and gynecologic malignancies, management of fetal anomalies, management of complex mesh complications, and innovative approaches to cryopreservation of gametes. Cleveland Clinic has one of the highest acuity patient profiles in the country. Services are available on the main campus, at other Cleveland Clinic hospitals throughout Northeast Ohio and in several family health centers. In 2011, the Department of Obstetrics and Gynecology was the top-rated program in Ohio and ranked fourth in the nation by *U.S. News & World Report*.

The Ob/Gyn & Women’s Health Institute includes the Department of Obstetrics and Gynecology, the Department of Regional Obstetrics and Gynecology and the Center for Specialized Women’s Health, in collaboration with the Breast Center. This institute model has streamlined the care of women, enhanced research opportunities, and improved education of physicians, nurses and other healthcare professionals. Staff members are actively involved in the education of residents, fellows and medical students in the Cleveland Clinic Lerner College of Medicine. The institute offers fellowships in women’s health, gynecologic oncology, breast surgery, urogynecology/reconstructive pelvic surgery and reproductive endocrinology. The institute staff hosts continuing medical education courses throughout the year on a variety of topics, from female sexual dysfunction to minimally invasive surgical approaches, including single-port laparoscopy and robotics.

The Department of Obstetrics & Gynecology includes generalists and specialists in several distinct clinical sections.

**Reproductive Endocrinology and Infertility Section** physicians provide comprehensive evaluation and treatment for infertile couples. Treatments encompass artificial insemination, ovulation induction and reproductive surgery, including microsurgical sterilization reversal, advanced endoscopic techniques for tubal disease, advanced stage endometriosis and myomectomy, with and without robotics. The IVF lab performs the complete spectrum of assisted-reproductive technologies, including in vitro fertilization with intra-cytoplasmic sperm injection, assisted hatching, embryo co-culture and preimplantation genetic testing, as well as oocyte, embryo and ovarian tissue freezing. The lab is involved in several innovative techniques, which are outlined in the “Innovations” section later in this report. The section also includes a fellowship-trained male infertility specialist.

**The Maternal-Fetal Medicine/Obstetrics Section** provides obstetrical care according to patient needs and preferences. Certified nurse midwives offer a family-centered approach to low-risk prenatal care and delivery, general obstetricians provide care for low- and high-risk pregnancies, and maternal-fetal medicine specialists provide consultative services and comprehensive management for complicated high-risk pregnancies. Available services include genetic counseling, aneuploidy screening, ultrasound and prenatal diagnosis. A Level III neonatal intensive care unit is available on the main campus and at Fairview and Hillcrest hospitals. The Cleveland Clinic health system provides services for more than 10,000 deliveries every year.
Institute Overview

The Fetal Care Center is a multidisciplinary team consisting of maternal-fetal medicine physicians, neonatologists, pediatric surgeons and other subspecialists whose goal is to achieve the best possible outcomes in pregnancies complicated by complex congenital anomalies. Through collaboration and communication, the team provides accurate prenatal diagnosis using state-of-the-art fetal imaging techniques, such as high-resolution ultrasound and MRI, and applies that information in developing a coordinated management plan for pregnancy, delivery and newborn care.

The Special Delivery Unit (SDU) is a small, comprehensive labor and delivery unit located within Cleveland Clinic Children’s Hospital. The SDU team provides individualized care for mothers carrying fetuses with serious congenital anomalies or illnesses that will require pediatric surgical or subspecialty medical care at birth, as well as for pregnant women with critical conditions who require specialized care found only at Cleveland Clinic’s main campus. The aims of the SDU are to coordinate multi-specialty care, to ease logistical issues for patients and families, and to improve access and quality of care for patients with the most complicated pregnancies. The unit adjoins a new Pediatric Cardiac Catheterization Laboratory and is in close proximity to a state-of-the-art pediatric surgical suite and Level III NICU.

Physicians in the Section of Urogynecology and Pelvic Reconstructive Surgery have a wide variety of subspecialty interests, including urogynecology and vaginal reconstructive pelvic surgery, advanced operative endoscopy, genital fistulas and bowel disorders. The professional staff aspires to remain at the forefront of advanced gynecologic surgery as national leaders in surgical innovations and experience. Cleveland Clinic urogynecologists are pioneers in minimally invasive and robotic procedures. Urogynecology services are offered in community hospitals on the east and west sides of Cleveland as well as on the main campus. Cleveland Clinic is a member of the Pelvic Floor Disorders Network, a network of doctors, nurses and researchers from across the United States who engage in collaborative research to improve the care and daily lives of women with pelvic organ prolapse and bladder and bowel control problems.

In the Section of Gynecologic Oncology, the staff employs a multidisciplinary approach to comprehensive management of gynecologic malignancies, incorporating surgery, radiation, chemotherapy and biologic therapy. The section offers innovative surgery, including single-port and robotic procedures. Staff members are part of the Gynecologic Oncology Group, the only national cooperative study group devoted exclusively to the investigation of gynecologic malignancies. Extensive clinical trials of the newest treatments and techniques are available. The section also maintains the Familial Ovarian Cancer Registry and provides complete treatment of pre-invasive lower genital tract disease.

The Section of General Gynecology provides general women’s health, menopause and geriatric gynecologic services, including treatment of pelvic pain and menstrual disorders. Cleveland Clinic’s Menstrual and Fibroid Treatment Center provides advanced care for women who are experiencing menstruation dysfunction and symptoms from uterine fibroids.

The Section of Pediatric and Adolescent Gynecology works in conjunction with the Department of General Pediatrics to manage the gynecologic, consultative and surgical care of pediatric and adolescent patients.
The staff in the Breast Center includes breast surgeons, medical breast specialists and radiologists who focus on breast cancer screening and surgical treatment, advanced diagnostic breast imaging, and high-risk screening and prevention. Breast surgeons and medical breast specialists collaborate in the main campus Breast Center, Beachwood Breast Center, Strongsville Breast Center, and at Fairview Hospital, with screening mammography available at these locations and all of our family health centers. To offer patients state-of-the-art surgical options, the Breast Center staff includes a team of microvascular breast reconstructive surgeons who specialize in the DIEP free-flap reconstruction — a type of reconstruction offered only in a select group of centers worldwide. Additionally, Cleveland Clinic's Breast MRI Program has set the standard for breast MRI in staging and high-risk screening. In 2010, a comprehensive task force of Cleveland Clinic breast cancer specialists sorted through controversies in screening guidelines and recommended that most women continue annual screenings, beginning at age 40.

The Center for Specialized Women’s Health offers leading-edge interdisciplinary women’s health services and serves as a national model to other hospitals. Staff specializes in addressing problems of particular concern to women, including menstrual disorders, non-hysterectomy alternatives, perimenopause and menopausal disorders, uterine fibroids, severe PMS/PMDD, menopause hormone therapies, postmenopausal osteoporosis, urinary incontinence, hormonally induced depressive disorders, polycystic ovarian syndrome and female sexual dysfunction. The center has a successful women’s health fellowship training program. In addition, the Center for Specialized Women’s Health operates Speaking of Women’s Health, a national program that educates women to make informed decisions about health, well-being and personal safety for themselves and their families.
## Institute Overview

39 — Number of locations at which our Obstetrics/Gynecology, Breast Services and Women’s Health staff provide comprehensive care

### 2011 Volumes

#### Outpatient Visits

<table>
<thead>
<tr>
<th>Service</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast Center</td>
<td>16,651</td>
</tr>
<tr>
<td>Obstetrics &amp; Gynecology</td>
<td>132,985</td>
</tr>
<tr>
<td>Regional Obstetrics &amp; Gynecology</td>
<td>145,753</td>
</tr>
<tr>
<td>Center for Specialized Women’s Health</td>
<td>5,578</td>
</tr>
</tbody>
</table>

#### Breast Center

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screening Mammograms</td>
<td>65,441</td>
</tr>
<tr>
<td>Diagnostic Mammograms</td>
<td>16,844</td>
</tr>
<tr>
<td>Diagnostic Breast Ultrasounds</td>
<td>10,008</td>
</tr>
<tr>
<td>Imaging Special Procedures</td>
<td>915</td>
</tr>
<tr>
<td>Core Biopsies</td>
<td>2,779</td>
</tr>
<tr>
<td>Excisional Biopsies</td>
<td>400</td>
</tr>
<tr>
<td>Mastectomies</td>
<td>523</td>
</tr>
<tr>
<td>Lumpectomies</td>
<td>534</td>
</tr>
</tbody>
</table>

#### Gynecologic Surgical Procedure Distribution

<table>
<thead>
<tr>
<th>Category</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Obstetrics &amp; Gynecology</td>
<td>3,827</td>
</tr>
<tr>
<td>Gynecologic Oncology</td>
<td>1,456</td>
</tr>
<tr>
<td>Urogynecology</td>
<td>740</td>
</tr>
<tr>
<td>Reproductive Endocrinology</td>
<td>767</td>
</tr>
<tr>
<td>Maternal – Fetal Medicine</td>
<td>76</td>
</tr>
</tbody>
</table>

#### Hysteroscopy

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operative</td>
<td>1,894</td>
</tr>
<tr>
<td>Polyps</td>
<td>1,263</td>
</tr>
<tr>
<td>Fibroids</td>
<td>148</td>
</tr>
<tr>
<td>Ablation</td>
<td>483</td>
</tr>
<tr>
<td>Diagnostic – Office</td>
<td>943</td>
</tr>
<tr>
<td>Diagnostic – Outpatient</td>
<td>84</td>
</tr>
</tbody>
</table>
**Hysterectomy (including cancer patients)**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal</td>
<td>583</td>
</tr>
<tr>
<td>Vaginal</td>
<td>413</td>
</tr>
<tr>
<td>Laparoscopic</td>
<td>818</td>
</tr>
</tbody>
</table>

**Incontinence and Prolapse**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prolapse</td>
<td>269</td>
</tr>
<tr>
<td>Incontinence</td>
<td>166</td>
</tr>
<tr>
<td>Incontinence and Prolapse</td>
<td>369</td>
</tr>
</tbody>
</table>

**In Vitro Fertilization**

<table>
<thead>
<tr>
<th>Test</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egg Retrievals (excluding oocyte donor and surrogate)</td>
<td>370</td>
</tr>
<tr>
<td>Oocyte Donor Retrievals</td>
<td>24</td>
</tr>
<tr>
<td>IVF/Surrogate Retrievals</td>
<td>3</td>
</tr>
</tbody>
</table>

**Deliveries**

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deliveries at Cleveland Clinic Hospitals</td>
<td>10,779</td>
</tr>
</tbody>
</table>

**Perinatal Testing Performed by Cleveland Clinic Staff**

<table>
<thead>
<tr>
<th>Test</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dopplers</td>
<td>1,324</td>
</tr>
<tr>
<td>Amniocentesis</td>
<td>359</td>
</tr>
<tr>
<td>Biophysical Profiles</td>
<td>2,993</td>
</tr>
<tr>
<td>Chorionic Villus Sampling</td>
<td>135</td>
</tr>
<tr>
<td>Nuchal Translucencies</td>
<td>3,532</td>
</tr>
</tbody>
</table>
Medical treatment is the primary method used for treating endometriosis. When surgical methods are used, hysterectomy is seldom the course of action taken.

Cleveland Clinic provides several treatment options for uterine fibroids, including uterine fibroid embolization (UFE) and myomectomy, as well as hysterectomy.
Surgical Case Approach (All Cases)
2007 – 2011

Procedures

<table>
<thead>
<tr>
<th>Year</th>
<th>Laparoscopic/Robotic</th>
<th>Abdominal</th>
<th>Vaginal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>689</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>636</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>716</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>752</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>750</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Small-Bowel Obstruction Within 30 Days of Urogynecologic Surgery*
2007 – 2011

Rate per 1,000 Surgeries

<table>
<thead>
<tr>
<th>Year</th>
<th>Rate per 1,000 Surgeries</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>683</td>
</tr>
<tr>
<td>2008</td>
<td>734</td>
</tr>
<tr>
<td>2009</td>
<td>799</td>
</tr>
<tr>
<td>2010</td>
<td>739</td>
</tr>
<tr>
<td>2011</td>
<td>747</td>
</tr>
</tbody>
</table>

* N represents the total number of urogynecology surgical procedures per year.

There is a low incidence of small bowel obstruction following urogynecologic surgery at Cleveland Clinic.
Between 2005 and 2011, 2,174 patients received prolapse surgery by Cleveland Clinic urogynecology surgeons and had at least one year of follow-up. This figure illustrates the percentage of these patients who had a reoperation for prolapse relative to the time since their initial surgeries. The number of patients at risk represents those patients with the indicated length of follow-up who did not have prolapse reoperation. The three-year prolapse reoperation percentage for Cleveland Clinic urogynecology surgeons is approximately 3 percent.

Between 2005 and 2011, 1,101 patients received anti-incontinence (sling) surgery by Cleveland Clinic urogynecology surgeons and had at least one year of follow-up. This figure illustrates the percentage of these patients who had sling revision (urethrolysis) relative to the time passed since their initial surgery. The number of patients at risk represents those patients with the indicated length of follow-up who did not have sling revision. The three-year sling revision rate for Cleveland Clinic urogynecology surgeons is 2.1 percent.
Urogynecology Surgical 30-Day Readmission Rate and Severity Index**
2009 – 2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Readmission Rate</th>
<th>Severity Index*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>1.0</td>
<td>4.0</td>
</tr>
<tr>
<td>2010</td>
<td>1.0</td>
<td>3.0</td>
</tr>
<tr>
<td>2011</td>
<td>2.0</td>
<td>2.0</td>
</tr>
</tbody>
</table>

N = 716 752 750

Urogynecology Length of Stay and Severity Index**
2009 – 2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Expected LOS</th>
<th>Observed LOS</th>
<th>Severity Index*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>1.5</td>
<td>1.5</td>
<td>4.0</td>
</tr>
<tr>
<td>2010</td>
<td>1.4</td>
<td>1.4</td>
<td>3.0</td>
</tr>
<tr>
<td>2011</td>
<td>1.3</td>
<td>1.3</td>
<td>2.0</td>
</tr>
</tbody>
</table>

N = 716 752 750

*APR-DRG (All Patient Refined Diagnosis Related Groups) Severity Index – a method of adjusting for severity of patient illness
http://solutions.3m.com/wps/portal/3M/en_US/3M_Health_Information_Systems/HIS/Products/APRDRG_Software

**These data are prepared using the University HealthSystem Consortium (UHC) Clinical Database.
Surgical Case Approach (All Cases)

2007 – 2011

Cases

<table>
<thead>
<tr>
<th>Year</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>917</td>
</tr>
<tr>
<td>2008</td>
<td>1,076</td>
</tr>
<tr>
<td>2009</td>
<td>1,313</td>
</tr>
<tr>
<td>2010</td>
<td>1,395</td>
</tr>
<tr>
<td>2011</td>
<td>1,451</td>
</tr>
</tbody>
</table>

* Began to report separately from abdominal starting in 2010.

The advent of robotic-assisted laparoscopy has prompted an increase in minimally invasive procedures (laparoscopic and robotic) in the gynecologic subspecialties. Cleveland Clinic gynecologic oncology surgeons strive to provide the best care for patients while using minimally invasive procedures when possible.

Cancer Diagnosis Case Mix

2010 – 2011

Percent

<table>
<thead>
<tr>
<th>Year</th>
<th>Vulvar</th>
<th>Uterine</th>
<th>Ovarian</th>
<th>Cervical</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 283 281
Length of Stay and Severity Index**
2007 – 2011

Severity Index*

Observed LOS
Expected LOS
Severity Index

N = 939 866 1,313 1,395 1,451

30-Day Mortality Rate and Severity Index**
2007 – 2011

Mortality
Severity Index*

N = 939 866 1,313 1,395 1,451

30-Day Readmission Rate and Severity Index**
2007 – 2011

Severity Index*

Readmission Rate
Severity Index*

N = 939 866 1,313 1,395 1,451

*APR-DRG (All Patient Refined Diagnosis Related Groups) Severity Index – a method of adjusting for severity of patient illness
http://solutions.3m.com/wps/portal/3M/en_US/3M_Health_Information_Systems/HIS/Products/APRDRG_Software

**These data are prepared in part using the University HealthSystem Consortium (UHC) Clinical Database.
Most breast biopsies were nonsurgical, consistent with our minimally invasive approach to breast cancer diagnosis.
Surgery for Breast Cancer*
2007 – 2011

*Includes prophylactic mastectomy with breast reconstruction.

Surgical Site Infections
April – June 2011

A prospective analysis of 291 postoperative patients from April through June 2011 showed an overall infection rate of 3.4 percent. There was equal distribution across surgeons, surgery type, time from biopsy, and type of reconstruction.
Breast Cancer

Patients newly diagnosed with breast cancer are seen in the multidisciplinary Breast Center, a single location comprising surgeons, medical oncologists and radiation oncologists specializing in breast cancer. This arrangement is convenient for patients and allows the closest possible collaboration among the physicians to develop an integrated treatment plan.

Five-Year Relative Survival of Female Patients with All Stages of Breast Cancer (N = 5,389)
1996 – 2007

<table>
<thead>
<tr>
<th>Years Since Diagnosis</th>
<th>Percent Survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>1</td>
<td>98.4</td>
</tr>
<tr>
<td>2</td>
<td>96.3</td>
</tr>
<tr>
<td>3</td>
<td>93.9</td>
</tr>
<tr>
<td>4</td>
<td>91.8</td>
</tr>
</tbody>
</table>

Percent Survival = 100 98.4 96.3 93.9 91.8

American Joint Committee on Cancer (AJCC) stage I – IV breast cancer.

CC = Cleveland Clinic.

Five-Year Relative Survival of Patients with Breast Cancer by Stage at Diagnosis (N = 5,389) 1996 – 2007

<table>
<thead>
<tr>
<th>Percent Survival</th>
<th>Years Since Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>

- Stage I CC (N = 2,651)
- Stage I Ref
- Stage II CC (N = 2,027)
- Stage II Ref
- Stage III CC (N = 514)
- Stage III Ref
- Stage IV CC (N = 197)
- Stage IV Ref

Percent Survival by Stage

<table>
<thead>
<tr>
<th>Stage</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>II</td>
<td>96.8</td>
<td>99.5</td>
<td>97.4</td>
<td>94.7</td>
<td>91.5</td>
</tr>
<tr>
<td>III</td>
<td>81.9</td>
<td>63.3</td>
<td>49.9</td>
<td>34.4</td>
<td>27.5</td>
</tr>
</tbody>
</table>

American Joint Committee on Cancer (AJCC) stage I – IV breast cancer.

CC = Cleveland Clinic.

Overall Survival of Patients with Early Stage Breast Cancer Treated with Radiation (N = 2,003) 1996 – 2011

Overall Survival of Patients with Late Stage Breast Cancer Treated with Radiation (N = 445) 1996 – 2011
Percent Survival and (Number at Risk) by Stage

<table>
<thead>
<tr>
<th>Stage</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>99.3</td>
<td>97.4</td>
<td>96.5</td>
<td>94.6</td>
<td>94.6</td>
</tr>
<tr>
<td></td>
<td>(270)</td>
<td>(240)</td>
<td>(215)</td>
<td>(196)</td>
<td>(182)</td>
</tr>
<tr>
<td>I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>99.3</td>
<td>98.5</td>
<td>97.2</td>
<td>95.2</td>
<td>94.4</td>
</tr>
<tr>
<td></td>
<td>(934)</td>
<td>(877)</td>
<td>(821)</td>
<td>(772)</td>
<td>(732)</td>
</tr>
<tr>
<td>IIA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>97.6</td>
<td>95.3</td>
<td>91.0</td>
<td>87.5</td>
<td>85.9</td>
</tr>
<tr>
<td></td>
<td>(441)</td>
<td>(406)</td>
<td>(371)</td>
<td>(340)</td>
<td>(327)</td>
</tr>
<tr>
<td>IIB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>95.4</td>
<td>90.0</td>
<td>86.3</td>
<td>83.3</td>
<td>79.6</td>
</tr>
<tr>
<td></td>
<td>(248)</td>
<td>(225)</td>
<td>(207)</td>
<td>(187)</td>
<td>(171)</td>
</tr>
<tr>
<td>IIIA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>96.7</td>
<td>89.6</td>
<td>85.6</td>
<td>83.0</td>
<td>79.1</td>
</tr>
<tr>
<td></td>
<td>(141)</td>
<td>(120)</td>
<td>(102)</td>
<td>(91)</td>
<td>(78)</td>
</tr>
<tr>
<td>IIIB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>90.5</td>
<td>78.2</td>
<td>78.2</td>
<td>73.1</td>
<td>70.5</td>
</tr>
<tr>
<td></td>
<td>(74)</td>
<td>(63)</td>
<td>(62)</td>
<td>(57)</td>
<td>(55)</td>
</tr>
<tr>
<td>IIIC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>89.3</td>
<td>75.9</td>
<td>63.7</td>
<td>55.8</td>
<td>55.8</td>
</tr>
<tr>
<td></td>
<td>(23)</td>
<td>(14)</td>
<td>(9)</td>
<td>(6)</td>
<td>(4)</td>
</tr>
<tr>
<td>IV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>63.0</td>
<td>49.7</td>
<td>39.5</td>
<td>30.7</td>
<td>27.1</td>
</tr>
<tr>
<td></td>
<td>(109)</td>
<td>(86)</td>
<td>(54)</td>
<td>(34)</td>
<td>(29)</td>
</tr>
</tbody>
</table>

Patients who received radiation therapy at Cleveland Clinic main campus.

CC = Cleveland Clinic.

Breast Disease

Tamoxifen Usage

Consideration or Administration of Tamoxifen or Third-Generation Aromatase Inhibitor Within 365 Days of Diagnosis for Women with Hormone Receptor-Positive Breast Cancer* (N = 292)

2009

0.7% (N = 2)
Not Considered, Not Administered

99.3% (N = 290)
Considered

Of those for whom tamoxifen was considered, 280 patients received therapy; 10 patients did not receive therapy.

*Women diagnosed in 2009; ≥ 18 years of age at diagnosis; first or only cancer diagnosis; primary tumor of the breast; invasive solid tumors only; no clinical or pathological evidence of metastatic disease; American Joint Commission on Cancer (AJCC) stage T1C, N0, M0 or stage II or III hormone receptor-positive breast cancer; all or part of first course of treatment performed at Cleveland Clinic.

Tamoxifen or Third-Generation Aromatase Inhibitor Administered or Not Administered to Patients by Stage

<table>
<thead>
<tr>
<th>Stage</th>
<th>No. of Patients</th>
<th>No. of Patients Administered</th>
<th>No. of Patients Not Administered</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1C, N0, M0</td>
<td>84</td>
<td>79</td>
<td>3*, 1†, 1‡</td>
</tr>
<tr>
<td>II</td>
<td>165</td>
<td>158</td>
<td>3*, 1†, 1‡, 1§, 1‖</td>
</tr>
<tr>
<td>III</td>
<td>43</td>
<td>43</td>
<td>NA</td>
</tr>
<tr>
<td>Total</td>
<td>292</td>
<td>280</td>
<td>12</td>
</tr>
</tbody>
</table>

NA = Not applicable

*Patient refused hormonal therapy. †Contraindicated condition. ‡Not offered hormonal therapy (Stage I patient seen by outside oncologist). §Patient chose alternative therapy. ††Observation only.

Cleveland Clinic compliance with this National Cancer Data Base (NCDB) standard of care quality goal was 99.4 percent for 2009.

The National Cancer Data Base (NCDB) is a nationwide oncology outcomes database and is a joint program of the Commission on Cancer (CoC) and the American Cancer Society (ACS).
**Osteoporosis**

**Diagnosis of Patients Treated with Zoledronic Acid* for Low Bone Mineral Density**

2008 – 2011

100% (N = 243)

- 163, 67% Osteoporosis**
- 33, 14% Osteoporosis (Clinical)**
- 47, 19% Osteopenia**

**Zoledronic Acid* Injections Administered for Low Bone Mineral Density**

2008 – 2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>100% (N = 243)</td>
</tr>
<tr>
<td>2009</td>
<td>94</td>
</tr>
<tr>
<td>2010</td>
<td>117</td>
</tr>
<tr>
<td>2011</td>
<td>143</td>
</tr>
</tbody>
</table>

**Change in Bone Mineral Density**

**After Zoledronic Acid* Treatment**

2008 – 2011

100% (N = 243)

- 117, 48% No Follow-Up Scan Available
- 9, 4% Deterioration
- 54, 22% Stable
- 63, 26% Improvement

*5 mg zoledronic acid

**Osteopenia is defined by a bone mineral density T-score between −2.5 and −1.0; clinical osteoporosis is defined by a fragility fracture with osteopenia; osteoporosis is defined by a bone mineral density T-score ≤ −2.5.
While the success rates for in vitro fertilization (IVF) continue to improve over time, the patient’s age is the strongest predictor of success. Cleveland Clinic’s In Vitro Fertilization Laboratory employs cutting-edge technology, including work on novel culture systems to improve in vitro embryo development, growth factors, morphologic evaluation of embryos, and the design and development of successful clinical IVF laboratories.

**Clinical Pregnancies**

**IVF Success Rates — Day 3 and Day 5 Transfers**

**2011**

<table>
<thead>
<tr>
<th>Age of Women</th>
<th>&lt; 35</th>
<th>35 – 37</th>
<th>38 – 40</th>
<th>41 – 42</th>
<th>&gt; 42</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retrievals</td>
<td>154</td>
<td>87</td>
<td>71</td>
<td>41</td>
<td>17</td>
</tr>
<tr>
<td>Transfers</td>
<td>149</td>
<td>85</td>
<td>68</td>
<td>36</td>
<td>17</td>
</tr>
<tr>
<td>Average embryos transferred</td>
<td>1.95</td>
<td>2.25</td>
<td>2.62</td>
<td>2.78</td>
<td>2.71</td>
</tr>
<tr>
<td>Clinical pregnancy rate</td>
<td>50%</td>
<td>59%</td>
<td>34%</td>
<td>31%</td>
<td>6%</td>
</tr>
<tr>
<td>Implantation rate</td>
<td>34%</td>
<td>38%</td>
<td>17%</td>
<td>12%</td>
<td>2%</td>
</tr>
<tr>
<td>Pregnancies:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Singletons</td>
<td>72%</td>
<td>76%</td>
<td>70%</td>
<td>91%</td>
<td>100%</td>
</tr>
<tr>
<td>Twins</td>
<td>24%</td>
<td>22%</td>
<td>30%</td>
<td>9%</td>
<td>0%</td>
</tr>
<tr>
<td>Triplets</td>
<td>4%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>
## IVF Success Rates — For Day 5 Transfer of Blastocyst Stage Embryos

**2011**

<table>
<thead>
<tr>
<th>Age</th>
<th>&lt; 35</th>
<th>35 – 37</th>
<th>38 – 40</th>
<th>41 – 42</th>
<th>&gt; 42</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfers</td>
<td>35</td>
<td>28</td>
<td>15</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Average embryos transferred</td>
<td>1.74</td>
<td>1.86</td>
<td>2.4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Clinical pregnancy rate</td>
<td>71%</td>
<td>64%</td>
<td>53%</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>Implantation rate</td>
<td>52%</td>
<td>48%</td>
<td>31%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Pregnancies:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Singletons</td>
<td>72%</td>
<td>67%</td>
<td>63%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Twins</td>
<td>28%</td>
<td>28%</td>
<td>37%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Triplets</td>
<td>0%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>

## IVF Success Rates — For Frozen Embryo Transfers

**2011**

<table>
<thead>
<tr>
<th>Age</th>
<th>&lt; 38</th>
<th>≥ 38</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thaws</td>
<td>139</td>
<td>77</td>
</tr>
<tr>
<td>Transfers</td>
<td>134</td>
<td>72</td>
</tr>
<tr>
<td>Average embryos transferred</td>
<td>1.7</td>
<td>1.8</td>
</tr>
<tr>
<td>Clinical pregnancy rate</td>
<td>46%</td>
<td>47%</td>
</tr>
<tr>
<td>Implantation rate</td>
<td>31%</td>
<td>35%</td>
</tr>
<tr>
<td>Pregnancies:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Singletons</td>
<td>82%</td>
<td>76%</td>
</tr>
<tr>
<td>Twins</td>
<td>16%</td>
<td>24%</td>
</tr>
</tbody>
</table>

One triplet pregnancy (<38 age group)
IVF Success Rates — For Donor Egg Cycles

<table>
<thead>
<tr>
<th>Transfers</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average embryos transferred</td>
<td>1.8</td>
</tr>
<tr>
<td>Clinical pregnancy rate</td>
<td>46%</td>
</tr>
<tr>
<td>Implantation rate</td>
<td>30%</td>
</tr>
</tbody>
</table>

Pregnancies

<table>
<thead>
<tr>
<th></th>
<th>82%</th>
</tr>
</thead>
<tbody>
<tr>
<td>_SINGLETONS</td>
<td></td>
</tr>
<tr>
<td>TWINS</td>
<td>18%</td>
</tr>
</tbody>
</table>

Live Births

IVF Success Rates and Live Births — Fresh Embryos From Non-Donor Eggs

<table>
<thead>
<tr>
<th>Age of Women</th>
<th>&lt; 35</th>
<th>35 – 37</th>
<th>38 – 40</th>
<th>41 – 42</th>
<th>&gt; 42</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of embryo transfers</td>
<td>216</td>
<td>116</td>
<td>99</td>
<td>43</td>
<td>7</td>
</tr>
<tr>
<td>Average number of embryos transferred</td>
<td>2.0</td>
<td>2.2</td>
<td>2.6</td>
<td>3.0</td>
<td>3.7</td>
</tr>
<tr>
<td>Number of live births</td>
<td>119</td>
<td>49</td>
<td>37</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Percentage of transfers resulting in live births</td>
<td>55%</td>
<td>42%</td>
<td>37%</td>
<td>28%</td>
<td>30%</td>
</tr>
<tr>
<td>Percentage of pregnancies with twins</td>
<td>29%</td>
<td>33%</td>
<td>22%</td>
<td>25%</td>
<td>0%</td>
</tr>
<tr>
<td>Percentage of pregnancies with triplets or more</td>
<td>0.8%</td>
<td>2%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>
### IVF Success Rates and Live Births — Thawed Embryos from Non-Donor Eggs*

**2010**

<table>
<thead>
<tr>
<th>Age of Women</th>
<th>&lt; 35</th>
<th>35 – 37</th>
<th>38 – 40</th>
<th>41 – 42</th>
<th>&gt; 42</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of transfers</td>
<td>107</td>
<td>73</td>
<td>54</td>
<td>22</td>
<td>8</td>
</tr>
<tr>
<td>Percentage of transfers resulting in live births</td>
<td>40.2%</td>
<td>31.5%</td>
<td>27.8%</td>
<td>31.8%</td>
<td>0/8</td>
</tr>
</tbody>
</table>

### IVF Success Rates and Live Births — Donor Eggs (All Ages)*

**2010**

<table>
<thead>
<tr>
<th></th>
<th>Fresh Embryos</th>
<th>Thawed Embryos</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of transfers</td>
<td>25</td>
<td>31</td>
</tr>
<tr>
<td>Percentage of transfers resulting in live births</td>
<td>60%</td>
<td>38.7%</td>
</tr>
</tbody>
</table>

* Clinical pregnancy determined by presence of fetal heart on ultrasound. A comparison of clinic success rates may not be meaningful because patient medical characteristics, treatment approaches, and entrance criteria for ART may vary from clinic to clinic. Data obtained from the Society for Assisted Reproductive Technology Clinical Outcomes Reporting System (SART CORS).
Perinatal Testing Volume
2008 – 2011

Genetic Testing
2008 – 2011
**Fetal Care Center of Cleveland Clinic at Hillcrest Hospital (a Cleveland Clinic hospital)**

The goal of the Fetal Care Center is to coordinate care for women with pregnancies complicated by fetal anomalies. Disciplines involved in prenatal diagnosis and counseling include maternal-fetal medicine specialists, neonatologists and pediatric specialists in surgery, imaging and medical management. A comprehensive intervention plan is developed and may include in utero interventions. The fetal care coordinator supports families through the evaluation phase, and provides education and special planning for delivery and neonatal interventions. The Fetal Care Center offers the full spectrum of caregivers, including pediatric specialists in anesthesia, intensive care and subspecialty surgery, including neurosurgery and cardiac surgery.

**Fetal Abnormalities* (N = 193)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Abnormalties Treated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest</td>
<td></td>
</tr>
<tr>
<td>Face/Neck</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Chromosomal</td>
<td></td>
</tr>
<tr>
<td>Musculoskeletal</td>
<td></td>
</tr>
<tr>
<td>GI/Abdomen</td>
<td></td>
</tr>
<tr>
<td>Urological</td>
<td></td>
</tr>
<tr>
<td>Brain/Spine</td>
<td></td>
</tr>
<tr>
<td>Cardiac</td>
<td></td>
</tr>
</tbody>
</table>

* Some fetuses exhibited more than one abnormality.
Our previous Outcomes books reflected obstetric data for births attended by Cleveland Clinic staff at our health system community hospitals. Throughout 2011, dozens of community-based obstetrician-gynecologists joined our staff and now attend 70 percent of all births at our health system hospitals. As a result, this 2011 edition reports obstetric data for all births (for both staff and private physicians) at health system community hospitals as well as our main campus. To support staff and hospital integration, the Regional Quality Collaborative was formed to standardize quality metrics. Late in 2012, all sites will move to a common electronic health record platform, which will allow more robust reporting of obstetric outcomes in our 2012 Outcomes book.

**Primary Cesarean Delivery***

2011

*Cesarean rate for low-risk, first-birth women (i.e., nulliparous term singleton vertex cesarean (NTSV CS) birth rate identifies the portion of cesarean births with the most variation among practitioners, hospitals, regions and states.

Source: California Maternal Quality Care Collaborative (CMQCC)


**Labor Induction***

2011

*Number of inductions of labor as a portion of all deliveries

**Vaginal Births after Cesarean Delivery (VBAC)**

2011

*Number of vaginal deliveries as a portion of all deliveries in patients with prior cesarean delivery*

Source: Agency for Healthcare Research and Quality (AHRQ)

Benchmark: VBAC delivery rate of *U.S. News & World Report* “Top Ten Hospitals.” These data are prepared in part using the Clinical Resource Database Manager maintained by the University HealthSystem Consortium (UHC).

**Successful Trial of Labor After Cesarean Delivery**

2011

*Number of successful vaginal deliveries as a portion of all deliveries in patients with a trial of labor after prior cesarean delivery*

**Elective Deliveries < 39 Weeks***

2011

*Number of patients having elective vaginal or cesarean deliveries with ≥ 37 and < 39 weeks of gestation completed as a portion of all deliveries in patients with ≥ 37 and < 39 weeks of gestation completed.

Source: Joint Commission, JCAHO PC-01


**Episiotomy***

2011

*Percentage of vaginal deliveries with episiotomy procedures performed.

Source: National Perinatal Information Center

Third- and Fourth-Degree Lacerations in Vaginal Deliveries With Instrument Assistance*

2011

*Rate of third- and fourth-degree lacerations per 1,000 instrument-assisted vaginal deliveries

Source: AHRQ PSI-18

Benchmark: University HealthSystem Consortium (UHC) 50th percentile. These data are prepared in part using the Clinical Resource Database Manager maintained by UHC.

Third- and Fourth-Degree Lacerations in Vaginal Deliveries Without Instrument Assistance*

2011

*Rate of third- and fourth-degree lacerations per 1,000 instrument-assisted vaginal deliveries

Source: AHRQ PSI-19

Benchmark: University HealthSystem Consortium (UHC) 50th percentile. These data are prepared in part using the Clinical Resource Database Manager maintained by UHC.
**National Surgical Quality Improvement Program**

The American College of Surgeons’ National Surgical Quality Improvement Program (NSQIP) objectively measures and reports risk-adjusted surgical outcomes based on a defined sampling and abstraction methodology. The outcome data below reflect Cleveland Clinic’s surgical cases between July 1, 2010, and June 30, 2011.

**Overall Multispecialty 30-Day Mortality**

*July 2010 – June 2011*

**Gynecology Surgery (N = 217)**

*July 2010 – June 2011*

Overall multispecialty mortality was lower than expected; the difference was statistically significant. Gynecology surgery morbidity and surgical site infection were higher than expected; the differences were statistically significant. Gynecology surgery urinary tract infection was lower than expected; however, the difference was not statistically significant.
Surgical Care Improvement Program (SCIP) — Appropriateness of Care

This composite metric, based on 10 hospital surgical quality process measures developed by the Centers for Medicare and Medicaid Services (CMS), shows the percentage of patients who received all of the recommended care for which they were eligible.

Surgical Appropriateness of Care

2010 – 2011

* Source: University HealthSystem Consortium (UHC) Clinical Database
https://www.uhc.edu

Cleveland Clinic has set a target of UHC’s 90th percentile, and results are trending positively.
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 — Ob/Gyn & Women’s Health Institute**

**Overall Rating of Outpatient Care and Services During Outpatient Visit**

*2010 – 2011*

Source: Press Ganey, a national hospital survey vendor
**Rating of Outpatient Care Provider**  
*2010 – 2011*

**Likelihood of Recommending Outpatient Care Provider**  
*2010 – 2011*

Source: Press Ganey, a national hospital survey vendor
Patient Experience

Inpatient — Ob/Gyn & Women’s Health Institute

The Centers for Medicare and Medicaid Services (CMS) 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 hospitalcompare.hhs.gov.

HCAHPS Overall Assessment
2010 – 2011

<table>
<thead>
<tr>
<th>Percent</th>
<th>2010 (N = 384)</th>
<th>2011 (N = 291)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate Hospital % 9 or 10 (0 – 10 scale)</td>
<td>70%</td>
<td>76%</td>
</tr>
<tr>
<td>Would Recommend % “definitely yes”</td>
<td>69%</td>
<td>85%</td>
</tr>
</tbody>
</table>

Source: Press Ganey, a national hospital survey vendor
HCAHPS Domains of Care
2010 – 2011

Source: Press Ganey, a national hospital survey vendor
Innovations

**Single-Sperm Freezing**

Cleveland Clinic’s In Vitro Fertilization (IVF) Laboratory has developed a novel technique for cryopreservation of individually selected sperm. The technique is applicable for men with very few sperm. The laboratory has succeeded in isolating and freezing 1 to 20 sperm in a sealed microcapillary straw in less than one microliter of fluid.

Recently, a patient with nonobstructive azoospermia underwent testicular biopsy to retrieve sperm for an IVF cycle. After extensive microscopic screening, one motile sperm was successfully extracted and frozen using this new technique. This single sperm was subsequently thawed and injected into a mature egg. The resulting embryo was transferred into the patient’s wife’s uterus and successfully implanted. She experienced an uneventful pregnancy and delivered a healthy baby girl.

This was an extraordinary success, and it is hoped that the option of single-sperm freezing will aid other men with extreme spermatogenesis impairment. The new technique is easier and safer than methods that have been tried in the past.

**3-D Follicle Culture in a Hydrogel Matrix**

Women faced with impending sterility from chemotherapy or radiation treatment for their cancer have few options for preserving their fertility. Freezing pieces of ovarian tissue may be the only option when cancer treatment is imminent and there is no time to complete an IVF cycle and freeze either oocytes or embryos. Once the patient is in remission, the tissue can be transferred back to try to restore fertility. However, this requires surgery to reimplant the tissue, and it risks reintroducing malignant cells. This is also the only fertility preservation option for prepubertal girls.

An alternative approach would be to isolate the follicles with immature oocytes from the frozen and thawed ovarian tissue and to cultivate them in vitro. In vitro matured oocytes could then be frozen and thawed for sperm injection when the patient is ready to conceive. Follicle growth in vitro, however, is very challenging, and human follicles may require several weeks of culture. We are therefore conducting research on 3-D culture models to mimic the in vivo ovarian environment and allow in vitro follicle growth. The unique 3-D culture system currently being investigated involves a special hyaluronan hydrogel matrix developed at Cleveland Clinic. We are hoping this system will be able to better preserve follicle integrity and architecture over the extended culture interval and ultimately promote in vitro egg maturation. The IVF laboratory has already successfully matured mouse follicles using this 3-D culture model.
Intraoperative Radiotherapy of the Breast: A Viable Alternative to Standard Radiation Therapy

Cleveland Clinic’s Breast Center is the only center in Ohio to offer intraoperative radiotherapy (IORT) of the breast. IORT is a form of breast irradiation that is administered as a single dose during surgery immediately after lumpectomy. IORT is considered a practical and safe alternative to standard breast radiation therapy, which is usually given daily after lumpectomy for approximately six weeks. As a result, IORT makes breast conservation and breast radiotherapy a far more practical alternative treatment option for women with early-stage breast cancer.
**Breast Center**


**Center for Specialized Women’s Health**


Obstetrics & Gynecology


Farrell RM. Vitamin D may do the uterus good. Sci Transl Med. 2011;3(99):99ec143.


Rose PG, Monk BJ, Provencher D, Hartney J, Legenle P, Lane S. An open-label, single-arm Phase II study of intravenous weekly (Days 1 and 8) topotecan in combination with carboplatin (Day 1) every 21 days as second-line therapy in patients with platinum-sensitive relapsed ovarian cancer. *Gynecol Oncol*. 2011 Jan;120(1):38-42.

Rose PG, Brady MF. EORTC 55971: Does it apply to all patients with advanced state ovarian cancer? *Gynecol Oncol*. 2011 Feb;120(2):300-301.


Staff Listing

Some physicians may practice in multiple locations. For a detailed list including staff photos, please visit clevelandclinic.org/staff

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Abha Goyal, MD
Christopher Przybycin, MD
Andres Roma, MD
Bin Yang, MD, PhD
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**General Patient Referral**
24/7 hospital transfers or physician consults
800.553.5056

**Obstetrics & Gynecology Appointments/Referrals**
216.444.6601 or 800.223.2273, ext. 46601

**Women’s Health & Breast Pavilion Appointments/Referrals**
216.444.3024 or 800.223.2273, ext. 43024

**Hospital Patient Information**
216.444.2000

**Additional Contact Information**

**General Information**
216.444.2200

**General Patient Appointments**
216.444.2273 or 800.223.2273

**Referring Physician Center and Hotline**
Cleveland Clinic's Referring Physician Center has established a 24/7 hotline — 855 REFER.123 (855.733.3712) — to streamline access to our array of medical services. Contact the Referring Physician Hotline for information on our clinical specialties and services, to schedule and confirm patient appointments, for assistance in resolving service-related issues, and to connect with Cleveland Clinic specialists. 855.REFER.123, or email refdr@ccf.org

**Request for Medical Records**
216.444.2640 or 800.223.2273, ext. 42640

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

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

**Cleveland Clinic Florida**
Toll-free 866.293.7866

**For address corrections or changes, please call**
800.890.2467

**4HER® Women’s Health Advice Line**
Monday through Friday, 8:30 a.m. to 4:30 p.m.
216.444.4HER (4437) or 800.223.2273, ext. 44437

On the Web at
clevelandclinic.org/obgyn
clevelandclinic.org/womenshealth
clevelandclinic.org/breastcenter
Cleveland Clinic Ob/Gyn & Women’s Health Institute physicians see patients at the locations below. Please inquire about the availability of specific services at each location when calling.

Main Campus
9500 Euclid Ave.
Cleveland, OH 44195
Obstetrics & Gynecology: 216.444.6601
Center for Specialized Women's Health: 216.444.3024
Breast Pavilion: 216.444.3024

Avon Lake Family Health Center
445 Avon Belden Road
Avon Lake, OH 44012
440.930.6800

Avon Pointe Family Health Center
36901 American Way
Avon, OH 44011
440.930.6200

Beachwood Family Health and Surgery Center
26900 Cedar Road
Beachwood, OH 44122
Obstetrics & Gynecology: 216.839.3100
Fertility Center at Beachwood: 216.839.3150
Breast Center: 216.839.3200

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

Crocker Road
2001 Crocker Road
Westlake, OH 44145
Suite 520: 440.835.6132
Suite 650: 440.808.1905

Elyria Family Health and Surgery Center
303 Chestnut Commons Drive
Elyria, OH 44035
440.366.9444

Fairview Hospital
18099 Lorain Ave.
Cleveland, OH 44111
Breast Services: 216.252.2235
Gynecologic Oncology (Moll Center): 216.476.7540
Incontinence Clinic: 216.671.0380
Maternal-Fetal Medicine: 216.476.7144
Obstetrics & Gynecology: Suite 429 – 216.476.7912; Suite 504 – 216.671.2370

Hillcrest Hospital
6780 Mayfield Road
Mayfield Heights, OH 44124
Gynecologic Oncology: 440.312.5560
Maternal-Fetal Medicine: 440.312.2229
Obstetrics & Gynecology: 440.312.2229

Hillcrest Medical Office Building
6803 Mayfield Road
Mayfield Heights, OH 44124
440.312.9000
Institute Locations

Independence Family Health Center
Crown Centre II
5001 Rockside Road
Independence, OH 44131
216.986.4130

Lakewood Hospital Community Health Center
1450 Belle Ave.
Lakewood, OH 44107
Maternal-Fetal Medicine: 216.529.2202
Obstetrics & Gynecology: 216.529.2913

Lorain Family Health and Surgery Center
5700 Cooper Foster Park Road
Lorain, OH 44053
440.204.7400

Lutheran Hospital
1730 W. 25th St.
Cleveland, OH 44113
216.363.2312

Marymount Hospital and Medical Office Building
12000 McCracken Road
Garfield Heights, OH 44125
216.663.7355

Medina Hospital and Medical Office Building
1000 E. Washington St.
Medina, OH 44256
Maternal-Fetal Medicine: 330.725.1000
Obstetrics & Gynecology: 330.725.5282

North Olmsted
24700 Lorain Road, Suite 304
North Olmsted, OH 44070
440.777.3800

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

Ridgepark Medical Office Building
7575 Northcliff Ave.
Brooklyn, OH 44144
216.398.5988

Severance Medical Center
5 Severance Circle, Suite 304
Cleveland Heights, OH 44118
216.291.1220

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

Solon Medical Center
34055 Solon Road
Solon, OH 44139
440.914.0960

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

Twinsburg Family Health and Surgery Center
8701 Darrow Road
Twinsburg, OH 44087
330.888.4000

Westgate Medical Office
20800 Westgate, Suite 310
Fairview Park, OH 44126
440.895.1825

Westlake Medical Campus
850 Columbia Road
Westlake, OH 44145
Maternal-Fetal Medicine: 216.476.7144
Ob/Gyn: 440.835.3883

Willoughby Hills Family Health Center
2550 & 2570 SOM Center Road
Willoughby Hills, OH 44094
440.943.2500

Wooster Family Health Center
1740 Cleveland Road
Wooster, OH 44691
330.287.4500
Improving Quality, Safety and the Patient Experience

Overview

Cleveland Clinic uses a scorecard approach to measure quality, safety and patient experience. In addition, real-time dashboard data are leveraged to drive performance improvement. Although not an exact match to publicly reported data, more timely internal data provide transparency for leaders at all levels of the organization to support improved care in their clinical locations. The following are examples of Cleveland Clinic’s 2011 focus areas and main campus results.

Appropriateness of Care

2010 – 2011

Cleveland Clinic’s observed/expected (O/E) mortality ratio outperformed the University HealthSystem Consortium (UHC) academic medical center 50th percentile throughout 2011.

Mortality

2010 – 2011

Cleveland Clinic’s goal is for all patients to receive all the recommended care for which they are eligible. An aggregated “all or nothing” measurement approach to monitoring multiple publicly reported process-of-care measures for heart failure, acute myocardial infarction, pneumonia and surgical patients is trending positively.

*Source: Performance Accelerator Suite Program maintained by the University HealthSystem Consortium (UHC) https://www.uhc.edu/
Cleveland Clinic established a 2011 target ICU surveillance rate of 1.33 central line-associated bloodstream infections (CLABSI) per 1,000 central line days, with the goal of reducing our rate by an additional 50 percent over the 2010 results. This 2011 target was met by the end of the year.

Cleveland Clinic focused on reducing the incidence of 10 Agency for Healthcare Research and Quality PSIs. Cleveland Clinic achieved a reduction of more than 60 percent in the total number of these PSIs in 2011 through a combination of clinical and documentation improvement activities.

* PSI 3 Stage III/IV Pressure Ulcers, PSI 6 Iatrogenic Pneumothorax, PSI 7 CLABSI, PSI 8 Post-Op Hip Fracture, PSI 9 Post-Op Hemorrhage/Hematoma, PSI 11 Post-Op Respiratory Failure, PSI 12 Post-Op PE or DVT, PSI 13 Post-Op Sepsis, PSI 14 Post-Op Wound Dehiscence, PSI 15 Accidental Puncture/Laceration
Improving Quality, Safety and the Patient Experience

Hospital-Acquired Pressure Ulcers — ICUs
2010 – 2011

Pressure Ulcer Prevalence (%)

<table>
<thead>
<tr>
<th>Quarter</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Q2</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Q3</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Q4</td>
<td>10</td>
<td>8</td>
</tr>
</tbody>
</table>

Cleveland Clinic ICUs
Benchmark: NDNQI ICUs

Hospital-acquired pressure ulcers in Cleveland Clinic ICU patients were below the national average in 2010 and 2011.

Patient Falls — Stepdown Units
2010 – 2011

Fall Rate per 1,000 Patient Days

<table>
<thead>
<tr>
<th>Quarter</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Q2</td>
<td>3.5</td>
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</tr>
<tr>
<td>Q4</td>
<td>3</td>
<td>3.5</td>
</tr>
</tbody>
</table>

Cleveland Clinic Stepdown Units
Benchmark: NDNQI Stepdown Units

Falls in Cleveland Clinic stepdown unit patients were below the national average for most of 2010 and 2011. In 2011, Cleveland Clinic supplemented proactive falls-reduction strategies with after-event huddles to evaluate causality and develop prevention strategies.
Critical Response Outcomes

Medical Emergency Team Event Volume*
2009 – 2011

![Bar chart showing event volume from 2009 to 2011]

*Excluding events originating in ORs and ICUs

Percent of Medical Emergency Team Events Resulting in ICU Transfer
2009 – 2011

![Bar chart showing percent of events resulting in ICU transfer from 2009 to 2011]

Medical Emergency Teams (METs) bring critical care experience to patients across the hospital and provide early intervention that can prevent unplanned transfers to ICUs. As adult MET activations increased from 2009 through 2011, post-event adult ICU transfers decreased.
**Patient Experience — Cleveland Clinic**

The Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey is the standard national tool for measuring patients' perspectives of hospital care. Results are available at [hospitalcompare.hhs.gov](http://hospitalcompare.hhs.gov).

**HCAHPS Rate and Recommend Hospital**

2010 – 2011

**Percent (Best Response)**

- **Rate Hospital**
  - % 9 or 10 (0-10 scale)

- **Would Recommend Hospital**
  - % “definitely yes”

**HCAHPS Hospital Domain Scores**

2010 – 2011

**Percent (Best Response)**

- **Nurse Communication**
- **Responsiveness to Needs**
- **Doctor Communication**
- **Room Cleanness**
- **Quiet at Night**
- **Pain Management**
- **New Medications Communication**
- **Discharge Information Given**

(Options: always, usually, sometimes, never)

“Patients First” is the guiding principle of Cleveland Clinic, which was among the first major academic medical centers to make improving the patient experience a strategic 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. Campus-wide HCAHPS survey results are trending favorably in every domain.
Overview

Cleveland Clinic is a nonprofit multispecialty academic medical center that integrates clinical and hospital care with research and education. Across the health system, 2,800 Cleveland Clinic physicians and scientists practice in 120 medical specialties and subspecialties, annually recording more than 4.6 million physician visits and nearly 188,000 surgeries. Patients come for treatment from every state and from more than 125 countries annually.

Cleveland Clinic’s main campus, with 50 buildings on 180 acres in Cleveland, Ohio, includes a 1,400-bed hospital, outpatient clinic, specialty institutes, and supporting labs and facilities. The hospital currently has the highest CMS case-mix index in America. Cleveland Clinic also operates 18 family health centers, eight community hospitals, one affiliate hospital, a rehabilitation hospital for children, Cleveland Clinic Florida, Cleveland Clinic Lou Ruvo Center for Brain Health in Las Vegas, Cleveland Clinic Canada, and Sheikh Khalifa Medical City. Cleveland Clinic Abu Dhabi (United Arab Emirates), a multispecialty care hospital and clinic, is scheduled to open in 2013. With 41,000 employees, Cleveland Clinic is the second largest employer in Ohio and is responsible for an estimated $9 billion of economic activity every 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.

In 2007, Cleveland Clinic restructured its practice, bundling all clinical specialties into integrated practice units called institutes. An institute combines all the specialties surrounding a specific organ or disease system under a single roof. Each institute has a single leader and focuses the energies of multiple professionals on the patient. Institutes are improving the patient experience at Cleveland Clinic.
About Cleveland Clinic

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 $240 million in 2010. Research programs include cardiovascular, cancer, neuralgic, musculoskeletal, allergic and immunologic, eye, metabolic, and infectious diseases.

Cleveland Clinic Lerner College of Medicine

Celebrating its 10th anniversary in 2012, the Lerner College of Medicine of Case Western Reserve University is known for its small class size, unique curriculum and full-tuition scholarships for all students. The program graduated 31 students as physician investigators in 2011.

Graduate Medical Education

In 2011, nearly 1,800 residents and fellows trained at Cleveland Clinic and Cleveland Clinic Florida, the most ever hosted by Cleveland Clinic and 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 since 1995.

For more information about Cleveland Clinic, please visit clevelandclinic.org.


**Referring Physician Center and Hotline**

Cleveland Clinic’s Referring Physician Center has established a 24/7 hotline – 855.REFER.123 (855.733.3712) – to streamline access to our array of medical services. Contact the Referring Physician Hotline for information on our clinical specialties and services, to schedule and confirm patient appointments, for assistance in resolving service-related issues, and to connect with Cleveland Clinic specialists.

**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 1,000 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 Patient’s 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 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 toll-free 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 (ccfcmecom) is an educational resource for healthcare providers and the public. Available 24/7, it houses programs that cover topics in 30 areas – if not from A to Z, at least from Allergy to Wellness – with a worldwide reach. 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 under way. In 2011, the Center offered 15 simultaneous courses at Arab Health, a major world healthcare forum.
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