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
### 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.
Dear Colleagues,

I am privileged to again share the annual Outcomes book from Cleveland Clinic's Dermatology & Plastic Surgery Institute. This review of 2011 captures the institute's year in data and in treatment trends. It is an outgrowth of the work of the institute’s Quality and Compliance Committee, which continues to meet regularly to guide our quality improvement and efficiency efforts and to make those efforts transparent to the public. Among the efforts overseen by this committee was a record expansion of staff physicians in the institute in 2011.

I hope this report also succeeds in bringing across the culture of the institute, which promotes multidisciplinary collaboration in support of comprehensive, coordinated, patient-focused care. The dominant result has been a consistent growth in our service offerings during 2011 and several preceding years. Not only are we caring for more patients than ever, but we are caring for them through new, collaborative programs and initiatives such as our Photodynamic Therapy Center, multidisciplinary Cosmetic & Plastic Surgery Center, Center for Reconstructive Transplantation and Multicultural Skin Center. And our innovations are continuing, with ongoing planning for new multidisciplinary centers focusing on wound care and surgical treatment of headache.

The impetus for these new offerings is the institute's mission of providing the fullest range of dermatologic, reconstructive and aesthetic services with an ethic of care delivery that consistently puts our patients first. We hope this book serves as a valuable resource outlining our services and the high-quality patient outcomes to which our institute is committed.

Respectfully,

Frank A. Papay, MD, FACS, FAAP
Chairman, Dermatology & Plastic Surgery Institute
For Cleveland Clinic’s Dermatology & Plastic Surgery Institute, 2011 was a year of expansion, new initiatives and strengthening of recently established programs.

After unprecedented clinical staff expansion in 2010 in both the Department of Dermatology and the Department of Plastic Surgery, the institute saw even greater growth in full-time staff in both specialties during 2011. The result has been increased access to specialist consultations and referrals for our physician partners in the community.

The past year also saw significant rollout and expansion of several initiatives started in 2010. Our new multidisciplinary Cosmetic & Plastic Surgery Center was expanded in 2011 to further bring board-certified specialist expertise to bear to meet a wide range of surgery needs. We likewise enhanced the services and activities of our recently established Photodynamic Therapy Center and our Center for Reconstructive Transplantation.

Notable new developments in 2011 included the creation of a Multicultural Skin Center and the expansion and enhancement of our residency and fellowship programs.

The Dermatology & Plastic Surgery Institute has continued to reap gains from the integration of its two specialties into a single institute several years ago. Our interdisciplinary approach takes advantage of the collective expertise of the institute’s two component departments using a collaborative model that promotes comprehensive, patient-focused care while creating broad new research and educational opportunities.

### The Dermatology & Plastic Surgery Institute offers services in the following specialty areas:

#### Dermatology
- Clinical dermatology
- Cosmetic dermatology
- Dermatologic surgery and cutaneous oncology
- Hair loss
- Industrial and environmental dermatology
- Mohs micrographic surgery and reconstruction
- Molecular dermatology
- Pediatric dermatology
- Clinical research

#### Plastic Surgery
- Body contouring, including liposuction and plastic surgery after massive weight loss
- Breast reconstruction
- Complex wound problems and reconstruction after cancer
- Cosmetic breast surgery
- Craniofacial surgery
- Facial cosmetic surgery, including minimally invasive procedures
- Hand/upper extremity surgery
- Microsurgery
- Pediatric plastic surgery
Institute Overview

Dermatology

The Department of Dermatology provides expertise in the diagnosis and management of the full spectrum of dermatologic conditions. We also offer a wide range of services in cosmetic evaluation and surgical procedures.

The number of patients treated in our multidisciplinary Melanoma Clinic grew by 23 percent in 2011, and our case volume expanded in Mohs micrographic surgery and dermatopathology as well. We are delighted to be augmenting our Mohs fellowship program with an additional fellow position.

Our recently launched Photodynamic Therapy Center continued to advance this past year, particularly via initiation of several research protocols. The center is carrying out leading-edge work in treating and screening for skin cancer in transplant patients.

We also launched a new clinical program, the Multicultural Skin Center, to provide dermatologic and cosmetic services to meet the specific needs of populations with greater skin pigmentation (skin types IV to VI), including African-Americans, Latinos, Asians and other racial and ethnic minorities. Another goal of the center is to research dermatologic conditions that disproportionately affect these populations, to improve treatment outcomes.

We continued to expand community access to our care in 2011 with the rollout of a dermatology service at Cleveland Clinic's newly opened Twinsburg Family Health and Surgery Center. We further served the community through multiple free skin cancer screenings, active participation in National Skin Cancer Week activities, staff presentations at community health talks and provision of medical missionary assistance in developing nations.

Plastic Surgery

Cleveland Clinic’s Department of Plastic Surgery is one of the largest plastic surgery programs in the country. The “vertical” organization of our staff, which ensures that each surgeon has a specific area of clinical focus, provides our patients with deep expertise in virtually all areas of aesthetic and reconstructive plastic surgery. Our surgeons’ close collaboration with their dermatology colleagues within the broader institute yields synergies in the areas of aesthetic facial plastic surgery, oculoplastic surgery and cosmetic dermatology.

Collaboration and teamwork are the watchwords for our Center for Reconstructive Transplantation, which brings together our plastic surgeons with other medical and surgical specialists from across Cleveland Clinic to care for patients with catastrophic disfigurement from disease or injury. This recently created center, which specializes in reconstruction of difficult facial, abdominal, laryngeal and hand deformities and dysfunction, saw significant solidification over the past year. It positions us to make the most of our newly gained regulatory approval to perform hand transplantation.

Similarly, our recently introduced multidisciplinary Cosmetic & Plastic Surgery Center made further gains in 2011, continuing to offer board-certified expertise for cosmetic procedures ranging from body contouring to breast procedures to facial surgery. In facial cosmetic surgery, we have directed particular focus to minimally invasive techniques and have objectively measured and published our results. We now offer cosmetic and plastic surgery services at nine Cleveland Clinic facilities throughout Northeast Ohio.
In the area of reconstructive breast surgery, ours is one of the few U.S. centers that performs large numbers of deep inferior epigastric perforator (DIEP) flap procedures along with the spectrum of other immediate and delayed reconstructive procedure options.

Our staff expansion in 2011 included welcoming an additional craniofacial pediatric surgeon as well as additional microvascular surgeons, bringing our total of the latter to seven. And we have enhanced our training of the surgeons of tomorrow by converting our plastic surgery residency to a six-year program.

**Looking Ahead**

As the Dermatology & Plastic Surgery Institute looks to 2012 and beyond, we see more opportunities for collaboration across Cleveland Clinic and with our private practice partners and colleagues. Our strength lies in our cooperation, as recognized by Cleveland Clinic’s founders more than 90 years ago, who pledged to “act as a unit” to fulfill a mission that endures for us today: “Better care of the sick, investigation of their problems, and further education of those who serve.”
Plastic Surgery Volumes

Facial Cosmetic Surgeries

Primary and Secondary Rhinoplasty
Cosmetic Breast Surgery

<table>
<thead>
<tr>
<th>Year</th>
<th>Breast Reduction</th>
<th>Breast Augmentation</th>
<th>Mastopexy</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>200</td>
<td>150</td>
<td>100</td>
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<tr>
<td>2008</td>
<td>180</td>
<td>120</td>
<td>80</td>
</tr>
<tr>
<td>2009</td>
<td>210</td>
<td>140</td>
<td>90</td>
</tr>
<tr>
<td>2010</td>
<td>230</td>
<td>160</td>
<td>100</td>
</tr>
<tr>
<td>2011</td>
<td>220</td>
<td>170</td>
<td>110</td>
</tr>
</tbody>
</table>

Body Contouring

<table>
<thead>
<tr>
<th>Year</th>
<th>Abdominoplasty</th>
<th>Liposuction Trunk/Extremities</th>
<th>Liposuction Head/Neck</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>100</td>
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<tr>
<td>2008</td>
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<td>60</td>
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<tr>
<td>2009</td>
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<tr>
<td>2010</td>
<td>130</td>
<td>80</td>
<td>20</td>
</tr>
<tr>
<td>2011</td>
<td>140</td>
<td>90</td>
<td>30</td>
</tr>
</tbody>
</table>
Breast Reconstruction

Number

* Transverse rectus abdominis myocutaneous
** Deep inferior epigastric perforator flap
Endoscopic and Open Carpal Tunnel Surgery

Number

<table>
<thead>
<tr>
<th>Year</th>
<th>Endoscopic</th>
<th>Open</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>180</td>
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</tr>
<tr>
<td>2009</td>
<td>150</td>
<td>70</td>
</tr>
<tr>
<td>2010</td>
<td>120</td>
<td>50</td>
</tr>
<tr>
<td>2011</td>
<td>130</td>
<td>65</td>
</tr>
</tbody>
</table>
Photodynamic Therapy

Red Light Photodynamic Therapy for Recalcitrant Dermatoses and Skin Tumors

Photodynamic therapy (PDT) is a nonsurgical treatment modality for actinic keratoses and nonmelanoma skin cancers. It uses a topical photosensitizer (solution or cream) in combination with visible light to selectively destroy diseased or cancerous cells. PDT offers several advantages over surgical approaches: It is noninvasive and well tolerated and does not cause genetic mutations (unlike ionizing radiation). Importantly, PDT-treated lesions heal without a scar, thereby offering superior cosmetic results.

Currently, PDT is FDA-approved in the United States only for the treatment of non-hyperkeratotic actinic keratoses. However, in most European countries, PDT is approved for treatment of superficial squamous cell carcinomas and nodular basal cell carcinomas. Dermatologists worldwide have begun to explore the use of PDT for other dermatologic conditions, due to PDT’s unique mechanism of action and excellent safety profile.

In 2009 Cleveland Clinic’s Dermatology & Plastic Surgery Institute established a Photodynamic Therapy Center to offer this cutting-edge treatment modality for its patients. The mission of the Center is to offer patients a safe and often effective treatment for skin diseases that are resistant to multiple standard treatments or an alternative to systemic medications that are not tolerated. Perfecting and improving PDT for the treatment of actinic keratoses through several ongoing research studies is another goal for the Center.

At Cleveland Clinic’s main campus, we offer long-incubation red light PDT to treat actinic keratoses, superficial nonmelanoma skin cancers and inflammatory dermatoses for patients with few other viable options.
Red Light PDT Clinical Encounters per Diagnosis (N = 239)

2011

Clinical Encounters

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>*AK/NMSC</th>
<th>Warts</th>
<th>Acne</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>250</td>
<td>150</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

* Actinic keratoses/nonmelanoma skin cancer
Multiple viral warts on the dorsal hands of a 64-year-old woman, before and after long-incubation red light PDT (six treatments). A five-hour incubation with methylaminolevulinate (MAL) was followed by exposure to 60 J/cm² of red light at a wavelength of 630 nm. Treatment with 5-fluorouracil, imiquimod and salicylic acid preparations, cryotherapy, and laser therapy had failed.
Granuloma annulare before and after five treatments with long-incubation red light PDT in a 45-year-old woman who did not respond to hydroxychloroquine, dapsone, cryotherapy and numerous oral antibiotics.

Numerous actinic keratoses and multiple in situ squamous cell carcinomas on the dorsal foot of a 53-year-old woman before and after seven treatments with long-incubation red light PDT.
Photodynamic Therapy

Acne rosacea before and after two treatments with short-incubation PDT (1.5 hours of incubation with methylaminolevulinate [MAL], followed by 37 J/cm² red-light exposure).

Cystic acne in a 19-year-old man before and after five treatments with red light PDT. The patient was referred for PDT because oral antibiotics failed and he had a comorbid condition that made him ineligible to receive isotretinoin.
Multiple and extensive \textit{in situ} squamous cell carcinomas on the right temple of a 78-year-old man before and after five treatments with red light PDT. A five-hour incubation with methylaminolevulinate (MAL) was followed by 60 J/cm\(^2\) of red light PDT at a wavelength of 630 nm. The tumors had failed to respond to 5-fluorouracil and imiquimod. Mohs surgery would have been very challenging, given the extent of this tumor.

Recalcitrant viral warts in a 22-year-old man with CD4-deficient lymphocytopenia, which resulted in numerous viral warts on his hands, arms, knees and feet. These warts were remarkably improved after the addition of red light PDT.
Dermatofibrosarcoma protuberans (DFSP) is an uncommon cutaneous malignant neoplasm that is locally aggressive and slow growing, demonstrates an infiltrative growth pattern, and has a relatively high rate of recurrence after surgical excision. DFSP most commonly occurs on the trunk and proximal extremities in the third and fourth decade of life, sometimes at the site of prior trauma. However, it can occur in infants and children.

Surgical excision has been the treatment of choice for this tumor. Despite this treatment, the recurrence rate using undefined surgical margins is 49 to 53 percent. A wide excision, using defined surgical margins of ≥ 3 cm down to and including the fascia, drops the recurrence rate to 11 to 20 percent. Most recurrences occur within three years of excision.

Mohs micrographic surgery is performed by Mohs fellowship-trained dermatologists. It is most commonly used to treat high-risk nonmelanoma skin cancers, specifically basal and squamous cell carcinomas. It is the treatment of choice for DFSP and is usually performed under local anesthesia. This microscopically controlled surgery involves the removal of the involved cutaneous and subcutaneous tissue, detailed mapping, and tangential frozen-section histology in order to examine the entire lateral and deep surgical margin. If the margins are positive, the Mohs surgeon repeats the procedure by serial excisions at only the specific sites of residual tumor until no tumor is found. If this tissue is clear of tumor (as determined by the Mohs surgeon in his or her role as pathologist), the Mohs surgeon then repairs the surgical wound. For very large tumors or for pediatric patients, the Mohs surgeon collaborates with a plastic or facial plastic surgeon, who performs the reconstruction under general anesthesia. This procedure results in tissue conservation and a superior cure rate for DFSP. In the medical literature, the recurrence rate after Mohs micrographic surgery for DFSP is 0 to 6 percent.

Sixty patients with DFSP treated at Cleveland Clinic with Mohs micrographic surgery from 1954 through 2009 were followed for an average of 34 months. There were two recurrences (3.3%). Of note is that one patient had two separate DFSPs that arose two years apart, both during pregnancies. Seventy-six patients treated at Cleveland Clinic with wide local excision for DFSP with up to 3 cm margins by other surgeons were followed for an average of 59 months, with 22 recurrences (28.9%), illustrating the superior cure rate of Mohs surgery and its potential for sparing normal tissue.
Treatment of DFSP*: Mohs Micrographic Surgery vs. Wide Local Excision
1954 – 2009

<table>
<thead>
<tr>
<th></th>
<th>Mohs Micrographic Surgery</th>
<th>Wide Local Excision</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. patients</td>
<td>60</td>
<td>76</td>
</tr>
<tr>
<td>Mean follow-up duration (months)</td>
<td>34</td>
<td>59</td>
</tr>
<tr>
<td>No. recurrences</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>Percent recurrences</td>
<td>3.3%</td>
<td>28.9%</td>
</tr>
</tbody>
</table>

* Dermatofibrosarcoma protuberans

DFSP on upper back of 22-year-old woman
Lichen planopilaris (LPP) is a progressive, inflammatory, scarring type of hair loss that results in complete destruction of hair follicles. Its cause is unclear, but inflammatory reactions with faulty lipid and peroxisome metabolism have been implicated. Peroxisome proliferator-activated receptor agonists may have a role in the treatment of LPP. We report further treatment results with pioglitazone, a diabetes medication that effectively improved symptoms in 22 patients with LPP. Treatment with daily oral pioglitazone for an average of seven months resulted in significantly decreased erythema and pruritus, decreased hair loss, and decreased number of areas flaring on the scalp.

**Clinical Improvement in Patients Treated With Pioglitazone for LPP (N = 22)**

*2010 – 2012*

<table>
<thead>
<tr>
<th>Percent</th>
<th>Decreased Erythema</th>
<th>Decreased Pruritus</th>
<th>Decreased Hair Loss</th>
<th>Decreased Flares</th>
<th>Decreased Use of Other Medications</th>
<th>New Hair Regrowth</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>75</td>
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<td>25</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Most Common Adverse Effects in Patients Treated With Pioglitazone for LPP (N = 22)
2010 – 2012

* Lower extremity, genital and facial edema. The most commonly experienced side effect was edema in the lower extremities.
Facelift in Massive Weight Loss Patients

Traditional methods for facial rejuvenation are inadequate after massive weight loss (MWL). Eight patients over an eight-year period who underwent rhytidectomy after massive weight loss (>100 lbs) were identified. Three out of eight (37.5%) patients also underwent supplementary procedures (nasolabial fold excision or submalar implants). Preoperative and postoperative photographs of the eight patients were shown in random order to five blinded reviewers independently to estimate age. The reviewers were asked to estimate an apparent age for each patient.

The results demonstrate that the preoperative apparent age of MWL patients was 4.8 years greater than their actual age. This was significantly greater than the excess apparent age of 2.3 years in non-MWL patients. Rhytidectomy in MWL patients was less effective in reducing apparent age than it was in non-MWL patients. Rhytidectomy alone in MWL patients resulted in an age reduction of 2.6 years, while rhytidectomy alone in non-MWL patients resulted in age reduction of 3.2 years. Rhytidectomy with ancillary procedures provided an apparent age reduction of 3.9 years. The combination of adjuvant procedures with facelift surgery in MWL patients achieved a greater reduction in excess apparent age compared with facelift alone. Postoperative photographs were taken at least one year postoperatively, so preoperative and postoperative actual ages may differ slightly. In three patients, the preoperative age was higher than the postoperative age, which indicates variability among the age-estimating evaluators.

In conclusion, apparent preoperative age exceeds actual age more significantly in MWL patients when compared with other rhytidectomy patients. Further work will include enlisting more independent blinded reviewers to evaluate apparent age.
Preoperative and Postoperative Real and Apparent Ages in Massive Weight Loss Patients (N = 8) 2002 – 2010

Preoperative and Postoperative Real and Apparent Ages in Non-Massive Weight Loss Patients (N = 8) 2002 – 2010
Preoperative front view (left). Postoperative front view four months after bilateral rhytidectomy with a deep-plane facelift and endoscopic browlift (right).

Preoperative profile view (left). Postoperative profile view (right).
In November 2009, a new material emerged on the surgical scene; kryptonite bone cement was FDA-approved for cranioplasty applications. It is a nontoxic, low exothermic, porous material composed of fatty acids and calcium carbonate that provides bonelike strength and adhesive properties. It can be used alone or combined with other allografts and has been proven to promote tissue ingrowth. This synthetic compound may be a potential replacement for bone because of its strength and adhesive properties. Although the intended postoperative result is occasionally affected by variable expansion, kryptonite has been successfully used in cranial reconstruction at Cleveland Clinic.

In a study of seven patients who were appropriate candidates, the surgeon utilized kryptonite in addition to an implant or plate in five surgeries and used kryptonite independently in two. The patients were followed postoperatively to assess for aesthetic result, infection and strength of reconstruction. The aesthetic outcome of surgery was considered “excellent” if both patient and surgeon were satisfied, “good” if only the patient was satisfied, and “poor” if both the patient and the physician were dissatisfied. Aesthetically, six of our patients were classified as excellent, and one patient was classified as good. We used the Whitaker classification of surgical results to evaluate our surgical outcomes. Two revisions were performed, one unrelated to the cranial reconstruction and the other resulting directly from the undesired expansion of the kryptonite. In this case, a second surgery was indicated to burr mild excess bulk for improved contour. There were no significant complications, including infection, observed postoperatively. Please see summary on page 26.
## Kryptonite in Cranioplasty

### Patients, Surgical Interventions, Complications and Outcomes

<table>
<thead>
<tr>
<th>Patient</th>
<th>Age</th>
<th>Date of Surgery</th>
<th>Diagnosis</th>
<th>Surgery</th>
<th>Complications</th>
<th>Whitaker Classification of Surgical Results</th>
<th>Patient Satisfaction With Postoperative Result</th>
<th>Postoperative Revision</th>
<th>Postoperative Follow-up (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>55</td>
<td>4/13/2010</td>
<td>Left parietal skull defect</td>
<td>Polyetheretherketone implant and kryptonite</td>
<td>None</td>
<td>I</td>
<td>Satisfied</td>
<td>None</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>42</td>
<td>3/15/2011</td>
<td>Fibrous dysplasia (McCune-Albright syndrome) involving frontal, parietal and temporal bones</td>
<td>Kryptonite and resorbable mesh</td>
<td>None</td>
<td>II</td>
<td>Satisfied</td>
<td>Forehead was more protuberant postoperatively than planned and was burred at a later date</td>
<td>13</td>
</tr>
<tr>
<td>3</td>
<td>82</td>
<td>11/24/2010</td>
<td>Frontal skull deformity</td>
<td>Titanium mesh and kryptonite</td>
<td>None</td>
<td>I</td>
<td>Satisfied</td>
<td>None</td>
<td>14</td>
</tr>
<tr>
<td>4</td>
<td>9</td>
<td>6/22/2010</td>
<td>Acquired frontal skull deformity</td>
<td>Kryptonite</td>
<td>None</td>
<td>I</td>
<td>Satisfied</td>
<td>Scalp scar revision (unrelated to surgery)</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>17</td>
<td>9/20/2011</td>
<td>Right temporal defect</td>
<td>Titanium mesh plate and kryptonite</td>
<td>None</td>
<td>I</td>
<td>Satisfied</td>
<td>None</td>
<td>7</td>
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<tr>
<td>6</td>
<td>62</td>
<td>3/8/2012</td>
<td>Right temporal defect</td>
<td>Titanium mesh plate and kryptonite. Temporalis muscle suspension.</td>
<td>None</td>
<td>I</td>
<td>Satisfied</td>
<td>None</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>36</td>
<td>2/21/2012</td>
<td>Left temporal defect</td>
<td>Bone graft with kryptonite. Temporalis muscle suspension.</td>
<td>None</td>
<td>I</td>
<td>Satisfied</td>
<td>None</td>
<td>2</td>
</tr>
</tbody>
</table>

---

### Whitaker Classification of Surgical Results

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category I</td>
<td>No refinements or surgical revisions considered advisable or necessary</td>
</tr>
<tr>
<td>Category II</td>
<td>Soft-tissue or lesser bone-contouring revisions advisable; apt to be performed on an outpatient basis or requiring a maximum two-day hospitalization</td>
</tr>
<tr>
<td>Category III</td>
<td>Major alternative osteotomies or bone-grafting procedure advisable (e.g., orbital repositions, onlay bone grafts), since these procedures are less extensive than the original operations</td>
</tr>
<tr>
<td>Category IV</td>
<td>A major craniofacial procedure advisable, duplicating or exceeding the original operation</td>
</tr>
</tbody>
</table>

---

Because of the large volume of patients with malignant melanoma that Cleveland Clinic treats every year, a multidisciplinary Melanoma Clinic was established in which patients may be seen by dermatologists, surgeons, oncologists and radiation oncologists at one time and in one location for the best and most efficient care. Although the data being presented from the Cleveland Clinic Melanoma Registry predate recent drug approval for melanoma, our outcomes compare favorably with data published nationally, and in some stages patients actually have a better survival rate than that documented in multicenter studies.

<table>
<thead>
<tr>
<th>Patient Whitaker</th>
<th>Satisfaction With Postoperative Date of Surgery</th>
<th>Classification of Postoperative Diagnosis</th>
<th>Surgery Complications</th>
<th>Surgical Results</th>
<th>Postoperative Follow-up Result</th>
<th>Revision (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>满意</td>
<td>左额骨缺损 Polyetheretherketone implant and kryptonite</td>
<td>None</td>
<td>I</td>
<td>满意</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>满意</td>
<td>纤维性发育不良 Kryptonite and resorbable mesh (McCune-Albright syndrome) involving frontal, parietal and temporal bones</td>
<td>None</td>
<td>II</td>
<td>满意</td>
<td>前额更肿胀于计划且在后期被磨除</td>
</tr>
<tr>
<td>3</td>
<td>满意</td>
<td>额骨畸形 Titanium mesh and kryptonite</td>
<td>None</td>
<td>I</td>
<td>满意</td>
<td>14</td>
</tr>
<tr>
<td>4</td>
<td>满意</td>
<td>后天额骨畸形 (与手术无关)</td>
<td>None</td>
<td>I</td>
<td>满意</td>
<td>鳞状皮肤修复</td>
</tr>
<tr>
<td>5</td>
<td>满意</td>
<td>右侧颞部缺陷 Titanium mesh plate and kryptonite</td>
<td>None</td>
<td>I</td>
<td>满意</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>满意</td>
<td>右侧颞部缺陷 Titanium mesh plate and kryptonite</td>
<td>Temporalis muscle suspension.</td>
<td>I</td>
<td>满意</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>满意</td>
<td>左侧颞部缺陷 Bone graft with kryptonite.</td>
<td>None</td>
<td>I</td>
<td>满意</td>
<td>2</td>
</tr>
</tbody>
</table>
Early-stage melanoma is primarily treated surgically. Our results of local recurrence after surgery using approaches standardized at Cleveland Clinic reveal excellent outcomes. The T stage is based on depth of invasion. In all groups, we obtained between 95 and 99 percent control of the primary tumor at one year.

Survival outcomes for early stages of melanoma reveal that overall survival was well over 90 percent, and survival of patients excluding nonmelanoma causes of death (disease-free survival) was between 98 and 100 percent.
Cutaneous Melanoma Survival, Stages 2a, 2b and 2c; Patients Diagnosed (N = 81) 2003 – 2007

Finally, our outcomes with higher-stage disease are comparable with those reported in national databases of overall survival with the exception of stage 2a, in which survival is much better than reported data.

Survival, Stages 3a, 3b and 3c; Patients Diagnosed (N = 73) 2003 – 2007
A New Paradigm in Breast Reconstruction for Patients After Massive Weight Loss

High surgical complication rates in the obese patient population are well documented. Breast cancer patients requiring mastectomy often present in various degrees of obesity. Breast reconstruction in the obese population presents unique technical challenges.

Cleveland Clinic’s Plastic Surgery Department offers a paradigm in breast reconstruction for these patients. After completing cancer treatment, patients are encouraged to participate in a lifestyle modification program in which they are referred to Bariatric Medicine to initiate a physician-monitored weight loss program. Once optimum body mass index (BMI) is achieved, patients complete their breast reconstruction using tissue from the lower abdomen. In this study, we performed a retrospective chart review, approved by the Institutional Review Board, evaluating early postoperative complications and the impact of weight loss in the high-BMI population undergoing breast reconstruction using abdominal free flaps.
Comparison of Complications in 182 Consecutive Patients Operated on for Breast Reconstruction (N = 182)
January 2007 – April 2011

Percent Complications

Body Mass Index

N = 32 87 63

Donor Site (N = 32)
Flap Site (N = 57)
These findings demonstrate that obese patients have an increased incidence of complications that include both flap and donor sites. Additionally, higher surgical BMI is related to a higher number of systemic complications. Preoperative weight loss does not decrease flap and donor site complications. However, if patients with high BMI present for delayed breast reconstruction (meaning that the reconstruction will be carried out at a later date, after mastectomy), it is reasonable to postpone the definitive surgery until the desired BMI is attained. Weight loss facilitates the technical aspects of the operation while improving the end result and the overall quality of life.

A 55-year-old woman underwent breast cancer treatment with neoadjuvant chemotherapy, mastectomy and radiation in 2008. BMI was 45 before reconstruction. After a 110 pound weight loss, a left breast reconstruction and contralateral matching mastopexy were performed without complication.
This patient underwent bilateral mastectomies (left) and lost significant weight before definitive reconstructive surgery. Postoperative results are shown (right) after breast and nipple reconstruction.
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 and on the opposite page reflect Cleveland Clinic’s surgical cases between July 1, 2010, and June 30, 2011.

Overall multispecialty mortality was lower than expected; the difference was statistically significant.
Plastic surgery morbidity was higher than expected; however, the difference was not statistically significant.
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 — Dermatology & Plastic Surgery Institute**

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

*2010 – 2011*

Source: Press Ganey, a national hospital survey vendor
Likelihood of Recommending Outpatient Care Provider

2010 – 2011

Percent

Source: Press Ganey, a national hospital survey vendor
Neurostimulation of the Sphenopalatine Ganglion to Control Cluster and Migraine Headaches

Cluster headache is a highly disabling neurologic condition characterized by intense stabbing pain in the area of one eye, often accompanied by swelling, tears and nasal congestion. Often called “suicide headache,” this condition inflicts pain that is recognized as among the most severe known to humans. Sufferers can have headache attacks many times per day, each lasting 15 minutes to three hours. Approximately one in 1,000 people suffer from cluster headaches (Fischera M, et al. Cephalalgia 2008;28:614-618).

For years clinicians have targeted the sphenopalatine ganglion (SPG) to relieve severe headache, primarily by applying lidocaine and other agents to the SPG to achieve a nerve block. The Dermatology & Plastic Surgery Institute’s craniofacial surgeons have recently developed a novel surgical approach and instrumentation to control cluster and, potentially, migraine headaches by placing a neurostimulation implant to neuromodulate the SPG.

The investigational neurostimulation system is a novel, miniaturized implantable stimulator about the size of an almond that is designed for treating severe headache, including cluster headache and migraine. The neurostimulator is delivered through a surgical incision in the gum, leaving no external scars or cosmetic effects. Its electrodes are introduced near the sphenopalatine ganglion behind the maxilla or upper jaw, just underneath the orbit. The lead tip of the implant is placed next to the SPG nerve bundle behind the cheekbone.

Using an external remote controller similar in size to a large cell phone, patients deliver stimulation as needed to relieve the headache. The controller is held over the cheek. When the headache is treated, the remote controller is simply removed from the cheek, turning off the stimulation therapy.

Once the neurostimulator has been shown to be functional, an initial “titration” period of stimulation allows the stimulation settings to be set and refined for the patient. This is followed by an experimental period in which patients’ headaches are randomized to one of three “doses” of stimulation, including a placebo — a rigorous trial design used in headache studies.

To test the system, a multicenter study is currently under way. It includes seven leading headache centers from six countries across Europe and will ultimately include up to 40 patients with cluster headaches. Thirty patients have already been enrolled in the study. Of those, stimulation data from the therapy titration period are available for seven patients. The primary end point of pain relief within 15 minutes was met in 67 percent of headaches treated (N = 48). Importantly, more than 70 percent of patients experienced a reduction in the frequency of their headaches by 50 percent or more compared with the four-week period before the study enrollment. This reduction was only seen once patients began using stimulation.

These results are extremely encouraging. Few treatment options today are able to serve cluster headache patients this well. Current treatments include preventive and acute abortive drugs, including expensive injectable medications and inhaled oxygen. Some patients are not candidates for these medications, and others experience significant side effects or have cardiovascular risk factors that place them at risk for taking them. We are hopeful that this novel approach might offer promise for many cluster headache patients.

We look forward to continued studies of our surgical approach for cluster headache as well as for migraine, with the hope that our work may one day offer relief to millions of people.
**Multicultural Skin Center**

Many dermatologic conditions disproportionately affecting African-Americans, Hispanics and Asians often pose a therapeutic dilemma for the dermatologist. Cancers affecting the skin, such as cutaneous T-cell lymphomas, disproportionately affect African-Americans and have a higher mortality. In this population, even cancers with low prevalence such as malignant melanoma and squamous cell carcinoma have much higher mortality rates. Systemic diseases with skin manifestations such as lupus erythematosus, scleroderma and sarcoidosis have a higher prevalence and poorer outcomes for African-Americans, Hispanics and Asians. Skin disorders such as hidradenitis suppurativa and keloids, although without systemic manifestations, greatly affect quality of life and are disproportionately present in African-American patients.

One of the greatest needs is the effective management of pigmentary disorders. The darker skin of African-Americans, Asians (including Asian Indians) and Hispanics poses an increased risk of adverse events such as scarring and hyperpigmentation from many cosmetic procedures that address skin discoloration. Consequently, procedures such as chemical peels, microdermabrasion and laser therapy are not frequently offered to this group as treatment options. Yet evidence suggests that when done cautiously and with the right knowledge, these procedures can be done safely and effectively.

In 2011, the Multicultural Skin Center was created in the Dermatology & Plastic Surgery Institute. Our goal is to expand knowledge of specific skin conditions that disproportionately affect African-Americans, Hispanics and other minorities with increased pigmentation through the creation of a database that tracks demographic data and quality-of-life and outcome measures. This database will facilitate further understanding of these skin disorders and lead to more medical, surgical and cosmetic treatment options and improved outcomes for this group. We have an ethnically diverse staff with a wide range of expertise including specialties in pigmentary disorders, connective tissue disease, laser and cosmetic therapy, and surgical procedures to meet the needs of this population.
Skin Conditions That Disproportionately Affect Blacks Compared With Whites

<table>
<thead>
<tr>
<th>Condition</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutaneous T-cell lymphoma</td>
<td>1.7 times that in whites¹</td>
</tr>
<tr>
<td>Sarcoidosis</td>
<td>35 cases per 100,000 in blacks /10.9 per 100,000 in whites²</td>
</tr>
<tr>
<td>Keloids</td>
<td>19 times that in whites³</td>
</tr>
<tr>
<td>Hidradenitis suppurativa</td>
<td>Greater in blacks⁴</td>
</tr>
<tr>
<td>Discoid lupus</td>
<td>3-4 times that in whites⁵</td>
</tr>
<tr>
<td>Scleroderma</td>
<td>Blacks &gt; whites⁶</td>
</tr>
<tr>
<td>Postinflammatory hyperpigmentation</td>
<td>Blacks &gt; whites⁷</td>
</tr>
</tbody>
</table>

Sources:
## Most Common Skin Conditions in the United States

<table>
<thead>
<tr>
<th>Condition</th>
<th>*Black %</th>
<th>*White %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acne</td>
<td>28</td>
<td>30</td>
</tr>
<tr>
<td>Atopic dermatitis</td>
<td>20</td>
<td>11</td>
</tr>
<tr>
<td><strong>Pigmentary disorders</strong></td>
<td><strong>9.0</strong></td>
<td><strong>1.7</strong></td>
</tr>
<tr>
<td><strong>Seborrheic dermatitis</strong></td>
<td><strong>6.5</strong></td>
<td><strong>1.8</strong></td>
</tr>
<tr>
<td>Alopecias</td>
<td><strong>5.3</strong></td>
<td>–</td>
</tr>
<tr>
<td>Dermatophytosis</td>
<td>4.3</td>
<td>1.1</td>
</tr>
<tr>
<td>Contact dermatitis</td>
<td>3.1</td>
<td>2.2</td>
</tr>
<tr>
<td>Warts</td>
<td>3.1</td>
<td>8.4</td>
</tr>
<tr>
<td>Pityriasis versicolor</td>
<td>2.4</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>Keloids</strong></td>
<td><strong>2.2</strong></td>
<td>–</td>
</tr>
</tbody>
</table>

Source:

* Percentage of total U.S. population
## Cosmetic/Procedural Services Offered in the Multicultural Skin Center

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical peel</td>
<td>Skin discoloration including melasma and PIH*; skin smoothing</td>
</tr>
<tr>
<td>Microdermabrasion</td>
<td>Skin discoloration including melasma and PIH; skin smoothing</td>
</tr>
<tr>
<td>Hyfrecation of DPN “moles”</td>
<td>Removal of DPN** “moles”</td>
</tr>
<tr>
<td>Laser therapy</td>
<td>Hair removal, pseudofolliculitis barbae, hemangiomas, skin discoloration</td>
</tr>
<tr>
<td>Hair loss treatment</td>
<td>Laser hair comb; hair restoration surgery</td>
</tr>
<tr>
<td>Botulinum toxin treatment</td>
<td>Rhytides (wrinkles)</td>
</tr>
<tr>
<td>Keloid removal</td>
<td>Keloids that have not responded to medical therapy</td>
</tr>
<tr>
<td>Chemical fillers</td>
<td>Rhytides (wrinkles)</td>
</tr>
<tr>
<td>Light therapy (UVB and photodynamic therapy)</td>
<td>Acne, hidradenitis suppurativa, warts, skin tumors, keloids, sarcoidosis, vitiligo, eczema, mycosis fungoides</td>
</tr>
</tbody>
</table>

* Postinflammatory hyperpigmentation
** Dermatosis papulosa nigra
In 2008 Cleveland Clinic successfully performed the first U.S. face transplant.

Since that time, five face transplants have been carried out in the U.S. and 24 have been completed worldwide.
Patient with a disfiguring keloid who responded to surgical treatment

Patient with diffuse cutaneous T-cell lymphoma (mycosis fungoides) after treatment with narrow-band UVB.

Patient with postinflammatory hyperpigmentation from acne that responded to chemical peels and hydroquinone
Patient with central centrifugal cicatricial alopecia that responded to medical treatment peels and hydroquinone

Patient with numerous dermatosis papulosa nigra ("moles") that were removed with hyfrecation with good cosmesis
Dermatology


Selected Publications


Sellheyer K. PHLDA1 (TDAG51) is a follicular stem cell marker and differentiates between morpheeic basal cell carcinoma and desmoplastic trichoepithelioma. *Br J Dermatol*. 2011 Jan;164(1):141-147.


Selected Publications


**Plastic Surgery**


Cleveland Clinic Dermatology & Plastic Surgery Institute

physicians collectively serve on more than 25 editorial boards of peer-reviewed journals.

Institute Chairman
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Section Head, Craniomaxillofacial Surgery

Institute Quality Improvement Officer
James S. Taylor, MD

Department of Dermatology
Allison T. Vidimos, RPh, MD
Chairman
Kenneth J. Tomecki, MD
Vice Chairman

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Wilma F. Bergfeld, MD
Beverly K. Lehman Cameron, MD
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Anthony Fernandez, MD, PhD
David Hamrock, MD
Golara Honari, MD
Matthew Janik, MD
Rosemary Keskinen, MD
Pooja Khera, MD
George Kuffner, MD
Angela Kyei, MD
Irene Lalak, MD
Edward V. Maytin, MD, PhD
Matthew Molenda, MD
Pamela Ng, MD
Melissa Piliang, MD
Amy Polster, MD
Berna Remzi, MD
Riddell Scott, MD
John Secrist, MD
Carol Slover, MD
Apra Sood, MD
Ursula Stanton-Hicks, MD
James S. Taylor, MD

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Joan Tamburro, DO

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Christopher Weyer, DO
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Melissa Piliang, MD
Ralph Tuthill, MD

Patch Testing Section
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Apra Sood, MD
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Cutaneous Care Center
David Hamrock, MD
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Randall Yetman, MD

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*Section Head*

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Dawn Schell, MD  
Peter Schoenwald, MD  
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*Director*

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Shahpour Esfandiari, MD  
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Samuel Irefin, MD  
Ali Jahan, MD  
Piyush Mathur, MD  
Douglas Naylor Jr., MD  
Nadeem Rahman, MD

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**Dermatology Financial Counselor**
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**Plastic Surgery Appointments/Referrals**
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**Plastic Surgery Financial Counselor**
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**Hospital Patient Information**
216.444.2000

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**Request for Medical Records**
216.445.2547 or 800.223.2273, ext. 52547

**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.

On the Web at clevelandclinic.org/dermatology and clevelandclinic.org/plastics
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

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**Elyria Family Health and Surgery Center**
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Twinsburg Family Health and Surgery Center
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Twinsburg, OH 44087
330.888.4000
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.

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.

**Mortality**

**2010 – 2011**

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

*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.
Improving Quality, Safety and the Patient Experience

Hospital-Acquired Pressure Ulcers — ICUs
2010 – 2011

Patient Falls — Stepdown Units
2010 – 2011

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

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.

*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 over 1800 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. https://www.nursingquality.org/

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Critical Response Outcomes

Medical Emergency Team Event Volume*
2009 – 2011

![Bar chart showing Medical Emergency Team 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 Medical Emergency Team 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.

HCAHPS Rate and Recommend Hospital
2010 – 2011

HCAHPS Hospital Domain Scores
2010 – 2011

“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.
About Cleveland Clinic

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.
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 (ccfcmc.com) 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.
This project would not have been possible without the commitment and expertise of a team led by James Taylor, MD, and Darlene Lyons. Photography by Patricia Shoda and Janine Sot.
Cleveland Clinic

Every life deserves world class care.