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 volume 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 mean we necessarily 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 (www.qualitycheck.org)
- Centers for Medicare and Medicaid (CMS) Hospital Compare (www.hospitalcompare.hhs.gov)
- Leapfrog Group (www.leapfroggroup.org)
- Ohio Department of Health Service Reporting (www.odh.ohio.gov/healthStats/hlthserv/hospitaldata/hospperf.aspx)

Our commitment to providing accurate, timely information about patient care will also help patients and referring physicians make informed healthcare decisions. We hope you find these data valuable. To view all our Outcomes books, visit Cleveland Clinic’s Quality and Patient Safety website at clevelandclinic.org/quality/outcomes.
Dear Colleague,

On behalf of Cleveland Clinic, I am pleased to present our 2008 Outcomes books. The primary purpose of our annual Outcomes book initiative is to promote quality improvement at Cleveland Clinic, thereby optimizing the care we provide to our patients. Measuring and reporting outcomes reflects our organizational commitment to accountability, transparency and results.

Each year, external stakeholders are requiring hospitals to report more and more quality and patient safety data. We view our Outcomes books as voluntary supplements to the required public reporting and an opportunity to share selected innovations with colleagues across the country.

Designed for the physician reader, each book in the annual series focuses on care provided by one of our patient-centered clinical institutes. We hope you find the content informative.

Sincerely,

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

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I am pleased to present our 2008 Outcomes, a condensed review of our medical and surgical results, trends and approaches in the Dermatology and Plastic Surgery Institute. Our physicians and staff are dedicated to continuous improvement in both the quality of our medical, surgical and aesthetic services, and the experience of our patients.

Among the institute’s major advancements this year was our successful completion of the first near-total face transplant in the United States. You’ll find an overview of this exciting innovation on the following pages. We also have advanced the treatment of psoriasis, improved the quality and safety in our Mohs surgery frozen section lab, and added CT scanning to improve revascularization during DIEP breast reconstruction procedures.

We continue to refine our techniques and improve our treatment of dermatologic conditions, as well as our aesthetic and reconstructive procedures to bring state-of-the-art care to our patients. We hope that the information in this Outcomes book will serve as a valuable tool and reinforce your confidence in the quality of care our institute offers. We consider you a partner in the care of your patients and will continue to improve our communications with you regarding your patient’s diagnosis, treatment options and outcomes. Please contact us about your experiences and let us know how we can better serve you.

Frank A. Papay, MD, FACS
Chairman, Cleveland Clinic Dermatology and Plastic Surgery Institute
Institute Overview

The first year anniversary of the Dermatology & Plastic Surgery Institute has witnessed medical breakthroughs in clinical research and healthcare management. By combining the departments of Dermatology and Plastic Surgery, we have increased the networking among specialties to produce advanced state-of-the-art care and aesthetic services for patients with complex dermatological and plastic surgery reconstructive needs. In addition, it has allowed us to enhance our residency and fellowship programs, building leadership in both medical fields. The institute also defines new interdisciplinary approaches to education, research and patient care.

Cleveland Clinic's Dermatology & Plastic Surgery Institute offers services in several specialty areas including:

- clinical and cosmetic dermatology
- dermatopathology
- dermatologic surgery
- cutaneous oncology
- Mohs micrographic surgery and reconstruction
- pediatric dermatology
- industrial and environmental dermatology
- facial cosmetic surgery
- cosmetic breast surgery and breast reconstruction
- body contouring including liposuction
- plastic surgery after massive weight loss
- pediatric plastic surgery including craniofacial surgery
- hand surgery
- microsurgery
- complex wound repair
- reconstruction after cancer.

The institute’s dermatologists and plastic surgeons are located at 11 sites throughout northeast Ohio including our main campus, Lutheran Hospital and family health centers in Beachwood, Chagrin Falls, Independence, Lorain, Strongsville, Solon, Westlake, Willoughby Hills, and Wooster.

Our Department of Dermatology provides world-renowned expertise in the diagnosis and management of a full spectrum of dermatologic conditions. One of the fastest growing services, Mohs micrographic surgery, provides the highest cure rate for high-grade, non-melanoma skin cancers while sparing the normal tissue and skin. In 2008, Cleveland Clinic dermatologists performed over 2,500 Mohs procedures. We now offer Mohs surgery at our family health centers in Independence and Beachwood, along with main campus. In addition, we improved patient access in 2008, for those patients with complex dermatologic problems. The availability of reconstruction by plastic surgery for particularly large or complex Mohs surgical defects optimizes cosmetic outcome and function. The Dermatology Department continues to meet community responsibilities by participating throughout the region in skin cancer screening days, activities related to National Skin Cancer Week, and other community events. Both departments participate in health talks and educational forums for patients, potential patients, and families.

During 2008, the institute focused on minimally invasive techniques in facial cosmetic surgery. This includes using alternatives to face and neck lift surgery, short-scar facelifts, and minimally invasive facelift techniques. The addition of other light-based modalities, including laser, continued to advance our nonsurgical efforts in facial rejuvenation. In 2009, the institute plans to adopt other modalities that tie into antiaging with the advent of Lifestyle 180 in the Wellness Institute.
Institute Overview

Dermatology Volumes

Surgeries

The total number of Mohs micrographic surgeries has steadily increased.

Phototherapy Treatments

Ultraviolet light treatments have more than doubled since 2004.
Laser Treatments

Treatments

Number

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Botox - Cosmetic

Treatments

Number

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<tr>
<td>2008</td>
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Institute Overview

Institute Combined Laser Hair Removal

Treatments

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<th>Plastic Surgery</th>
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<tbody>
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Plastic Surgery Volumes

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Botox - Cosmetic

Treatments

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</tr>
<tr>
<td>2008</td>
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Facial Cosmetic Surgeries

Number

Primary and Secondary Rhinoplasties

Surgeries

Number
Institute Overview

Cosmetic Breast Surgery

Surgeries

Number

Body Contouring

Surgeries

Number
Breast Reconstruction

Surgeries

Number

Recon TRAM
Recon w/Prosthesis
Recon w/Latisimus Dorsi Flap
Oncoplasty

DIEP Flap Reconstruction (Microsurgery)

Surgeries

Number
DIEP Breast Reconstruction (N = 86)

2008

Surgeries

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Success Failure

Endoscopic and Open Carpal Tunnel Surgery

Surgeries

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<tr>
<td>50</td>
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</tbody>
</table>

Endoscopic Open

2004 2005 2006 2007 2008
Surgeries

DIEP Breast Reconstruction (N = 86)
Alopecia areata (AA) is a life-altering condition manifested by hair loss. Our dermatologists specializing in this relatively common disease describe this condition using “Bergfeld’s Clinical Classification:”

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Mild patchy &lt; 25% of scalp</td>
</tr>
<tr>
<td>II</td>
<td>Moderate patchy ≤ 25 to &lt; 50%</td>
</tr>
<tr>
<td>III</td>
<td>Severe patchy ≥ 50% to &lt; 75%</td>
</tr>
<tr>
<td>IV</td>
<td>Extensive patchy ≥ 75% to &lt; 100%</td>
</tr>
<tr>
<td>V</td>
<td>Diffuse form of AA</td>
</tr>
<tr>
<td>VI</td>
<td>Alopecia totalis 100% of scalp</td>
</tr>
<tr>
<td>VII</td>
<td>Alopecia universalis</td>
</tr>
</tbody>
</table>

The cause is unknown, but hypothesized to be an autoimmune condition. The most effective mode of therapy for Type III is a contact sensitizer, Diphenylcyclopropenone (DPCP). When rubbed onto human skin it produces an allergic contact dermatitis after about 14 days. The hair regrowth is due to the production of T suppressor cells in the treated area which inhibits the autoimmune reaction to the hair-specific antigen. The concentration of DPCP and amount of application depends on the extent of the hair loss, but the usual concentrations are between .001 percent and 2 percent.

Other additional therapies used in conjunction with DPCP include:

- Intraleusional corticosteroid (Triamcinolone) injections on the scalp or eyebrow. New hair growth appears within four weeks, and this treatment is repeated every four to six weeks as necessary.
- Anthralin cream 0.5 percent to 1 percent (Dritho-Scalp®).
- Minoxidil, over-the-counter topical twice daily.
Before and after treatment with DPCP 0.3% or 0.4% to eyebrows twice/week and intralesional 2.5mg trimacrinolone injections every four to six weeks for five treatments.

Before | January 4, 2008
After | June 6, 2008

Before and after treatment with anthralin (Dritho-Scalp®) 0.5% & minoxidil 2% twice daily to scalp.

Before | January 4, 2008
After | June 6, 2008
Before and after treatment with .06% DPCP twice per week to scalp, and intralesional triamcinolone 5 mg/ml every six weeks.
Psoriasis is an inflammatory dermatosis that affects approximately two percent of the population. The disease severity can range from occasional plaques that resolve with topical medications to erythroderma covering 100 percent of the body surface area. Moderate to severe psoriasis can cause significant disability and poorer quality of life. In recent years, several studies have found an increased link between psoriasis and metabolic syndrome, as well as increased markers of systemic inflammation, suggesting that psoriasis itself may confer an increased risk of mortality.

Traditionally, the treatments available to psoriasis patients include topicals, UV light therapy, and systemic medications. Topical and UV treatments are relatively low risk and well tolerated, but are not always effective for patients with more severe disease. Systemic medications, including acitretin, methotrexate, and cyclosporine, may be effective for severe disease but carry a harsh side effect profile.

Given the systemic inflammation present in psoriasis patients, it is not surprising that biologic agents, specifically ones that block TNF-α, have been found to be effective in treating moderate to severe psoriasis. Currently, three anti-TNF medications have been FDA approved for treatment of psoriasis.

**Results:**

Since 2001, Cleveland Clinic has treated psoriasis patients who are recalcitrant to traditional medications with anti-TNF agents. In a chart review of psoriasis patients seen in our dermatology clinic who were treated with anti-TNF agent for a minimum of six months, we found that 93.8 percent showed improvement (n=97).
Cutaneous T-cell Lymphoma (CTCL) is a rare type of non-Hodgkin's lymphoma. It manifests in the skin, blood, lymph nodes, and other internal organs. CTCL presents in the skin as patches, plaques, tumors, and erythroderma. As a rare disease, only about 1,900 new cases are diagnosed yearly in the United States. Staging of disease (I to IV) at the time of diagnosis is a predictor of survival. Decreased survival correlates with increased tumor burden.

Cleveland Clinic patients may receive multiple modality therapy, which includes ultraviolet radiation (narrow band ultraviolet B, ultraviolet A, psoralen plus ultraviolet A), electron beam radiation, topical and systemic bexarotene, vorinostat, extracorporeal photopheresis, and/or various systemic chemotherapies.

Of the early staged IA to IIA CTCL patients at Cleveland Clinic treated with bexarotene capsules, 59 percent had improvement of either a complete or partial response.
Dermatofibrosarcoma protuberans (DFSP) is an uncommon cutaneous malignant neoplasm that is locally aggressive, slow growing, demonstrates an infiltrating growth pattern, and has a relatively high rate of recurrence. DFSP most commonly occurs on the trunk and proximal extremities, in the third and fourth decade of life. However, it can occur in infants and children. Most recurrences occur within three years of excision.

Surgical wide excision has been the treatment of choice for this tumor. Despite this treatment, a recurrence rate using undefined surgical margins is 49 percent to 53 percent. A wide excision, using defined surgical margins of 3 centimeters or more, down to and including the fascia, drops the recurrence rate to 11 percent to 20 percent.

Mohs micrographic surgery 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 horizontal frozen section histology in order to examine the entire surgical margins. If the margins are positive, the Mohs
surgeon repeats this 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 the 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, recurrence rate after Mohs micrographic surgery is zero to six percent.

Forty-four patients with DFSP were treated at Cleveland Clinic with Mohs micrographic surgery from 2001 through 2008.

Based on the potential for recurrence within the standard period of three years, the recurrence rate was calculated for 24 of the 27 patients (three were unavailable for follow up) treated with Mohs micrographic surgery from 2001 to 2005. The resulting recurrence rate at three to seven years was only four percent.
The mean age of our elderly population undergoing facelift surgery was 70 with the eldest being 89. A total of 68 elderly patients was included in this data. Of those, 61 patients (89.7 percent) had a necklift performed in addition to their facelift procedure, and 24 patients (35.3 percent) underwent additional cosmetic procedures such as browlift and/or blepharoplasty at the time of their facelift surgery.
Major complications included two facial hematomas and two incidences of facial/auricular nerve weakness. None of these patients had long-term sequelae related to their complications.

This data confirms that chronologic age is a poor predictor of adverse outcomes when evaluating the risk of elderly people undergoing facelift surgery. In the absence of any significant systemic disease, facelift surgery can be safely performed in the elderly population.
60-year-old female

Preoperative

Postoperative 5 years

front view

profile view

front view

profile view
Facelift Surgery in the Elderly

63-year-old female

Preoperative

Postoperative 7 months
64-year-old female

Preoperative

Postoperative 1 year

front view

profile view

front view

profile view
Breast cancer patients who need mastectomy now have three reconstruction options:

- implant placement;
- transverse rectus abdominus myocutaneous (TRAM) flap which makes use of the patient’s own tissue and requires the use of the rectus abdominis muscle with incorporation of overlapping fat tissue;
- deep inferior epigastric perforator (DIEP) free-flap reconstruction.

The DIEP reconstruction is dedicated to the preservation of the rectus abdominis muscle and its function. Other advantages to this procedure are the minimal donor site morbidity and the experience of less discomfort by the patient when compared with the TRAM flap procedure.

From August 2007 to September 2008, Cleveland Clinic’s plastic and reconstructive surgery team implemented the abdominal wall CT angiogram (CTA) as a novel and accurate tool to improve presurgical planning. This has resulted in a decrease of the surgical time and of the morbidity for this patient population.

The purpose of the CT angiogram is to accurately predict the perforators’ location and character. In this study, the CTA was performed one to three weeks preoperatively on 67 patients, who were scheduled for DIEP reconstruction following mastectomy. Nonionic contrast was used to scan the area from the ischial tuberosity to mid-liver. The bilateral dominant perforators were located and the subfascial and intramuscular course was then determined. Intraoperatively, a doppler was used based on the CTA findings to correlate dissection anatomy with the CTA. There is a relationship between the number of perforators used to perfuse the flap and morbidity. The more perforators used, the more dissection, which leads to a higher morbidity. Therefore, ideally, we want to keep the flap with minimal disruption to the muscle by taking only the necessary perforators.

In 95.7 percent of the cases, the CTA accurately predicted the perforator location within 8 mm. These surgeries resulted in only one flap failure and two reoperations; one for venous congestion due to mal-positioning of the drain and another due to hematoma. In conclusion, the CT angiogram provides accurate information about the course of the DIEP, as well the location and numbers of perforators. It is the road map; near infrared spectroscopy (NIRS) supplements the information provided by CTA and allows us to predict which perforators contribute substantially to the perfusion of the flap. It helps us to decide which perforators, and how many perforators, are needed for adequate perfusion of the flap. In short, NIRS allows us to validate our flap design intraoperatively. This may allow us to design and harvest our flaps more precisely, and may ultimately lead to flaps that are more reliable with potentially less risk of fat necrosis.
Right DIEP and matching left mastopexy

Results following DIEP, demonstrating abdominal donor preservation as well as aesthetically reconstructed breast.

Right DIEP and left matching mastopexy
Patient Satisfaction with Nipple Preservation

From 2001 to 2008, Cleveland Clinic breast surgeons performed 141 nipple sparing mastectomies (NSM) with immediate breast reconstruction by the plastic and reconstructive surgery team. Of the 141 patients asked to rate their satisfaction with various aspects of the nipple areolar complex (NAC) following this NSM and reconstruction, 78 patients responded.
Aspects of the Nipple Areolar Complex Patients Would Change if possible (N = 78)
2001 – 2008

Percent Respondents

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<th>Appearance</th>
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<th>Position</th>
<th>Sensation</th>
<th>Arousal</th>
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Patient Survey Items

Retrospective Procedure Choice (N = 78)
2001 – 2008

Percent Respondents

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<th>Maybe</th>
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Patient Survey Items
Within the last decade, newer mastectomy techniques have continued to improve. Nipple sparing mastectomy (NSM) can be performed safely in the appropriately selected patient and has become an accepted technique in the treatment of carefully selected early stage breast cancers. Historically, the nipple areolar complex (NAC) was removed to maximize oncologic safety. More recent reports in the literature have shown that preservation of the NAC is oncologically safe.

Nipple reconstruction may positively influence many aspects of patient satisfaction and can yield good aesthetic results, although these results are not always ideal. Patients have expressed dissatisfaction with various aspects of their reconstructed NAC, including lack of projection, poor color match, shape, size, texture and position. These problems, as well as the associated cost and risk of additional nipple reconstruction procedures, could be obviated by preserving the native NAC at the time of mastectomy.
Prior to her diagnosis with right breast cancer this patient had previous breast augmentation. The patient was then treated with right nipple sparing mastectomy and reconstruction with cohesive silicone gel. Postoperative views are one year following surgery.
Surgical decompression of peripheral nerves is performed in Plastic Surgery on patients with lower and upper extremity peripheral neuropathy. In 2008, 74 patients suffering from diabetic and nondiabetic neuropathy with evidence of underlying nerve compression were treated using this procedure.

Treated nerves included the common peroneal nerves (CPN), deep peroneal nerves (DPN), superficial peroneal nerves (SPN) and posterior tibial nerves (PTN) in the lower extremity, and the ulnar and median nerves in the upper extremity. Clinical evaluation and preoperative Quantitative Sensory Testing were used to identify patients who would benefit from surgery.

Diabetics and Non Diabetics Undergoing Nerve Decompression (N = 74)

2008

- 24% Non Diabetics
- 76% Diabetics

The nondiabetic group included mostly patients with lower extremity neuropathy of undetermined etiology and those following injury.
Diabetics and Non Diabetics Undergoing Nerve Decompression (N = 268)

2008

Number

80
60
40
20
0

CPN  DPN  SPN  PTN  Ulnar  Median

Nerves
Improvement was achieved in the muscle power of the extensor hallucis longus (EHL) and extensor hallucis brevis (EHB) after surgical decompression of the common peroneal nerve at the neck of the fibula.

The clinical outcome was measured over a mean duration of 8.1 months. Clinical outcome was classified according to the level of postoperative pain, use of neuropathic and narcotic pain medications, return of sensation, improvement in walking distance and return to work.
Cleveland Clinic has placed a renewed emphasis on improving the patient experience by establishing the role of Chief Experience Officer. Recognizing that patients seek more than solely a successful clinical outcome, the mission of the Office of Patient Experience is to create an environment that enhances the well-being of our patients, families and employees in a way that elevates Cleveland Clinic’s reputation as one of the world’s best hospitals.

In 2008, the Office of Patient Experience dedicated teams within the institutes to research and implement innovative patient- and family-based programs that support this mission.

**Outpatient – Dermatology & Plastic Surgery Institute**

**Overall Rating of Outpatient Care and Services**

*2007 – 2008*

Source: Quality Data Management, a national hospital survey vendor
**Rating of Outpatient Provider**  
*2007 – 2008*

![Bar Chart for Rating of Outpatient Provider]

Source: Quality Data Management, a national hospital survey vendor

**Recommend Outpatient Provider**  
*2007 – 2008*

![Bar Chart for Recommend Outpatient Provider]

Source: Quality Data Management, a national hospital survey vendor
Quality and Safety Innovation  
Dermatology Mohs Micrographic Surgery Lab

This frozen section laboratory is an integral part of the Mohs micrographic surgical procedure. To achieve optimal surgical results for our patients and to ensure overall excellence in our practice, the laboratory must function in a highly efficient and effective manner while adhering to institutional and external quality standards. We have a quality management program in place to ensure our high standards.

In order to provide a safer environment for employees, especially those who are or may become pregnant, a decision was made by the Quality Officer of the lab to remove two toxic chemicals, Xylene® (the most commonly used clearing agent in laboratories) and Formalin® (a fixative) from the staining protocol. The replacement reagents Rapid Fixx®, fixative, and ClearSolv®, clearing agent, were placed in the staining lineup.

This decision presented a great challenge to the Mohs lab technician. Although this change eliminated toxic chemicals and created a safer environment, it did not achieve the same color, intensity, or quality of stain on the frozen section slides.

The Mohs lab technician met this challenge. After several attempts combining the nontoxic reagents, alcohols, and tap water, a new protocol was established that actually improved the color, intensity and quality of the stain. The quality of the stain surpassed any that had been achieved before.

Since this new protocol has been in place, pathologists, representing the College of American Pathologists and the Mohs College, visited our laboratory for accreditation purposes, and stated that our slides were the best they had ever seen.
In order to demonstrate the improved quality of the slides, two tissue samples from two different and random patients were selected. We then processed the first of these tissue samples from Case #1 patient and Case #2 patient with the old lineup using Xylene and Formalin. We then processed the second tissue samples from Case #1 patient and Case #2 patient with the new lineup using the nontoxic chemicals, Rapid Fixx and ClearSolv. We photographed the results through the microscope and the improvements are shown below:
In a 23-hour operation, transplant surgeons have given nearly an entire new face to a woman with facial damage so severe that she could not eat on her own or breathe without a hole in her windpipe, doctors at the Cleveland Clinic said here on Wednesday.

The highly experimental procedure, performed within the last two weeks, was the world’s fourth partial face transplant, the country’s first, and the most extensive and complicated such operation to date. Dr. Maria Siemionow led the surgical team, which took turns at the operating table so the doctors could rest, sleep and share expertise.

The woman is eventually expected to eat, speak and breathe normally and even smell again, her doctors said at a news conference. Feeling should return to her face in six months, and most facial functions in about a year, leading to her ability to smile after physical therapy to help train the muscles for that function.

Surgeons have performed multiple reconstructive procedures over the several years that the woman has been under their care, the doctors said, adding that they were left with no conventional treatment options to restore her facial function.

The operation was fiendishly complex, the doctors said. They had to integrate functional components like a nose and lower eyelids, as well as different tissue types, including skin, muscles, bony structures, arteries, veins and nerves. About 77 square inches of tissue were transplanted from the donor.

This is not cosmetic surgery in any conventional sense,” said Dr. Eric Kodish, chairman of the clinic’s bioethics department, who was part of the team that interviewed and evaluated the patient’s understanding of the risks in the experimental procedure.

“Not to downplay the difficulties of having a facial disfigurement, but one can live a long life and be disfigured,” said Stuart G. Finder, director of the Center for Healthcare Ethics at Cedars-Sinai Medical Center in Los Angeles.

But the benefits of a face transplant are not only cosmetic, Dr. Finder said, adding, “The repair of the face can also have significant social consequences — like the ability to speak, or the ability to eat, that can be replaced because of having lips.”

The transplant procedure began at 5:30 p.m. on an unspecified recent day as doctors tried to determine that the arteries and veins in the recipient’s neck, scarred from trauma and earlier surgery, could receive the transplant.

At 8 p.m., surgeons began recovering the donor’s facial tissues, carefully dissecting the arteries, nerves, soft tissue and bones to ensure a good blood supply. That effort took 9 hours, 10 minutes.

Meanwhile, surgeons removed scar tissues from the woman to make room for the facial graft.

At 5:10 the next morning, the surgeons began connecting the patient’s blood vessels to the donor graft vessels. When the graft turned pink and showed no signs of an immediate rejection, they went on to attach the facial graft to the woman’s face. They used microscopes to stitch arteries, veins and nerves from the donor graft to the woman’s head. Her ears and scalp are her own.

By 4:30 p.m., the woman had a new face.
Innovations
This Cleveland Clinic spin-off organization, based on research studies from clinical protocols, was created to achieve a minimal immunosuppressive protocol for kidney transplant patients by the end of 2009.

The goal is to develop TOL-101 antibody as an induction therapy tested first on a solid organ - for use in kidney transplantation and applied to composite tissue allograft transplants such as face and hand transplants within the next 18 months.
The Dermatology and Plastic Surgery Institute staff authored more than 70 publications in 2008.


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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 leadership and focuses the energies of multiple professionals onto the patient. From access and communication to billing and point-of-care service, institutes will improve the patient experience at Cleveland Clinic.

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Now in its fifth year of existence, Cleveland Clinic Lerner College of Medicine of Case Western Reserve University offers all students full tuition scholarships. The program will graduate its first 29 students as physician-scientists in 2009.

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
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Cleveland Clinic is a nonprofit multispecialty academic medical center. Founded in 1921, it is dedicated to providing quality specialized care and includes an outpatient clinic, a hospital with more than 1,000 staffed beds, an education institute and a research institute.

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