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

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

In addition to these institute-based books of clinical outcomes, Cleveland Clinic supports transparent public reporting of healthcare quality data. The following reports are available to the public:

- Joint Commission Performance Measurement Initiative (qualitycheck.org)
- Centers for Medicare and Medicaid Services (CMS) Hospital Compare (HospitalCompare.hhs.gov), and Physician Compare (medicare.gov/PhysicianCompare)
- Cleveland Clinic Quality Performance Report (clevelandclinic.org/QPR)

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

We hope you find these data valuable, and we invite your feedback. Please send your comments and questions via email to:

OutcomesBooksFeedback@ccf.org or scan here.

To view all of our Outcomes books, please visit clevelandclinic.org/outcomes.
Dear Colleague:

Welcome to this 2015 Cleveland Clinic Outcomes book. Every year, we publish Outcomes books for 14 clinical institutes with multiple specialty services. These publications are unique in healthcare. Each one provides an overview of medical or surgical trends, innovations, and clinical data for a particular specialty over the past year. We are pleased to make this information available.

Cleveland Clinic uses data to manage outcomes across the full continuum of care. Our unique organizational structure contributes to our success. Patient services at Cleveland Clinic are delivered through institutes, and each institute is based on a single disease or organ system. Institutes combine medical and surgical services, along with research and education, under unified leadership. Institutes define quality benchmarks for their specialty services and report on longitudinal progress.

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

Our practice of releasing annual outcomes books has become increasingly relevant as healthcare transforms from a volume-based to a value-based system. We appreciate your interest and hope you find this information useful and informative.

Sincerely,

Delos M. Cosgrove, MD
CEO and President
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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.
Chairman’s Letter

Dear Colleagues,

Thank you for your interest in the Head & Neck Institute’s 2015 outcomes. Cleveland Clinic set the standard in outcomes reporting, and we are committed to monitoring and reporting these outcomes. We are dedicated to the pursuit of excellence while enhancing the patient experience and safety. Both our inpatient and outpatient engagement scores continue to climb and are among the highest in the nation.

The Head & Neck Outcomes book highlights our success in many areas and details how we are defining and refining the delivery of high-quality patient care. While we report our results in all the subspecialties within the Head & Neck Institute, we are proud to highlight the following achievements from 2015:

• Elderly patients undergoing medialization laryngoplasty show a clinically significant improvement in voice-related quality of life.
• Our minimally invasive skull base program continues to increase the level of surgical complexity with low complication rates.
• Dentistry proved positive response in patients with oral appliance therapy for obstructive sleep apnea.
• Staff conducted multiple intensive studies on squamous cell carcinoma of the oropharynx (HPV positive), including exploration of key distinctions from traditional tobacco-related causes of the disease.

We welcome your feedback, questions, and ideas for collaboration. Please contact me via email at OutcomesBooksFeedback@ccf.org and reference the Head & Neck book in your message.

Sincerely,

Michael S. Benninger, MD
Chairman, Head & Neck Institute
In 2015, Cleveland Clinic’s otolaryngology program was ranked as the No. 7 ear, nose, and throat program in the nation by *U.S. News & World Report* in its annual “America’s Best Hospitals” survey, achieving the best ranking in Ohio.

The otolaryngology program is part of Cleveland Clinic’s Head & Neck Institute, a comprehensive, multidisciplinary institute that also includes general dentistry, oral and maxillofacial surgery, prosthodontics, periodontics, speech language pathology, and audiology. More than 40 faculty members in the institute pool their talents and expertise to achieve excellence in education, research, and patient outcomes and experience.

**2015 Statistics**

Total evaluation and management visits | **62,115**

Total patients new to Cleveland Clinic | **3695**

Days’ wait for a new patient appointment | **10**

Primary surgical cases | **5434**

Admissions | **677**

Average length of stay (days) | **7.52**

APR-DRG<sup>a</sup> severity | **2.26**

---

<sup>a</sup>The 3M<sup>TM</sup> All Patient Refined Diagnosis Related Groups (APR DRG) Classification System is used for adjusting data for severity of illness and risk of mortality. solutions.3m.com/wps/portal/3M/en_US/Health-Information-Systems/HIS/Products-and-Services/Products-List-A-Z/APR-DRG-Software
Tinnitus Management Clinic

Patients with bothersome tinnitus are seen at Cleveland Clinic’s Tinnitus Management Clinic (TMC) following medical clearance from an otolaryngologist. The TMC, directed by the Section of Audiology, is a shared medical appointment that includes a group education session (GES) of 1.5 hours followed by a multidisciplinary team screening (MTS) of 1.5 hours. The team includes specialists in audiology, dentistry, neurology, physical therapy, and psychology.

Patients attending the TMC are asked to complete a follow-up survey. A total of 108 completed surveys were received during the 2010–2015 time period.

Patient Survey Response: Benefit of TMC (N = 108)

2010 – 2015

<table>
<thead>
<tr>
<th>Percent</th>
<th>Beneficial</th>
<th>Neutral</th>
<th>Not beneficial</th>
</tr>
</thead>
<tbody>
<tr>
<td>GES</td>
<td>80</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>MTS</td>
<td>60</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>Both GES and MTS</td>
<td>80</td>
<td>20</td>
<td>0</td>
</tr>
</tbody>
</table>

GES = group education session, MTS = multidisciplinary team screening, TMC = Tinnitus Management Clinic

Patient Survey Response: Likelihood of Recommending TMC to Persons Who Have Bothersome Tinnitus (N = 85)

2010 – 2015

<table>
<thead>
<tr>
<th>Percent</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>TMC = Tinnitus Management Clinic</td>
<td>100</td>
<td>0</td>
</tr>
</tbody>
</table>

GES

- A 1.5-hour presentation is provided by the TMC team (audiology, dentistry, neurology, physical therapy, psychology).
- Each GES is limited to 6 patients, but significant others are encouraged to attend.
- The presentation covers prevalence of tinnitus, anatomy and physiology of the auditory system, tinnitus mechanisms/potential generator sites, common reactions to tinnitus, and functional consequences.

MTS

- Patients are seen individually by each team member for a 15-minute interview, including a review of questionnaires and discipline-specific screening.
- Following the MTS, patients are discharged and a case review is held to determine appropriate recommendations, which are then sent to the patient.
The apnea-hypopnea index (AHI) is a numerical measure that accounts for the number of pauses in breathing per hour of sleep. It is used to assess the severity of an individual’s sleep apnea.

An AHI reduction to < 5, which is considered resolution of obstructive sleep apnea (OSA), or < 10 (very mild OSA), or a percentage reduction in AHI from baseline that is considered “clinically meaningful” (typically 50% AHI reduction) defines successful oral appliance therapy treatment.¹

Oral appliance therapy uses a mouth guard-like device worn only during sleep to maintain an open, unobstructed airway. These devices prevent the airway from collapsing by supporting the jaw in a forward position. For many, oral appliances are more comfortable to wear than a continuous positive airway pressure (CPAP) mask. The devices are also quiet, portable, and easy to maintain. Research suggests that oral appliance therapy can be very effective for mild to moderate apnea and offers a higher patient compliance rate than found with a CPAP mask.

Reference
At Cleveland Clinic, patients with head and neck cancer benefit from multidisciplinary care involving a complete assessment by surgical, medical, and radiation oncologists. Individualized treatment plans for patients with these malignancies are developed through the collaborative efforts of all specialists. For patients with localized disease, surgery or radiation therapy is the mainstay of their care plan. The head and neck cancer care team is actively involved in cooperative group research studies and also conducts in-house clinical trials to maximize value and to ensure that patients receive quality care that increases survival and improves quality of life.

**Oropharyngeal Cancer**

**Percentage of Patients With Grade ≥ 3 Toxicity or Unresolved Grade 2 Toxicity (N = 197)**

2002 – 2012

![Graph showing the percentage of patients with grade ≥ 3 toxicity or unresolved grade 2 toxicity](image)

- 3-D CRT = 3-field radiation therapy
- 5-FU = fluorouracil
- CTX = cetuximab
- IMRT = intensity modulated radiation therapy

*P* value < 0.001

*P* value < 0.001

*P* value < 0.032

57/129

54/123

7/30

9/68

12/74

2/37

Non-5-FU CTX

Daily RT Non-5-FU CTX
Evidence about the benefits of intensity modulated radiation therapy (IMRT) for patients with human papillomavirus (HPV) associated oropharyngeal squamous cell carcinoma (OPSCC) is sparse. The institute compared outcomes data from patients treated with IMRT and those treated with 3-field radiation therapy. Nearly all patients treated with IMRT and non-5-FU based chemotherapy have minimal significant late effects.

**Percentage of Patients Requiring a Feeding Tube (N = 197)**

**2002 – 2012**

<table>
<thead>
<tr>
<th>Percent</th>
<th>3-D CRT</th>
<th>IMRT</th>
<th>5-FU</th>
<th>Non-5-FU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiation</td>
<td>90/129</td>
<td>30/68</td>
<td>93/123</td>
<td>27/74</td>
</tr>
<tr>
<td>CTX</td>
<td>6/30</td>
<td>12/30</td>
<td>37/74</td>
<td>9/37</td>
</tr>
<tr>
<td>Daily RT</td>
<td>9/129</td>
<td>6/129</td>
<td>93/123</td>
<td>27/74</td>
</tr>
<tr>
<td>Non-5-FU CTX</td>
<td>4/68</td>
<td>9/68</td>
<td>37/74</td>
<td>9/37</td>
</tr>
</tbody>
</table>

3-D CRT = 3-field radiation therapy, 5-FU = fluorouracil, CTX = cetuximab, IMRT = intensity modulated radiation therapy

**Reference**

Care of patients with OPSCC requires an understanding of the important differences in the pattern and timing of distant metastases between human papillomavirus-initiated (HPV+) and HPV- OPSCC. After chemoradiotherapy (CRT) is completed, distant metastases in patients with HPV+ OPSCC occur significantly later than in patients with HPV- disease.\(^1\) The natural history of this disease may require alternative surveillance strategies depending on HPV status.

**Reference**


### Distant Control Rate for Patients With HPV+ and HPV- OPSCC (N = 291)

**1996 – 2013**

<table>
<thead>
<tr>
<th>Months After Start of Radiotherapy</th>
<th>HPV+</th>
<th>HPV-</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>252</td>
<td>39</td>
</tr>
<tr>
<td>20</td>
<td>191</td>
<td>22</td>
</tr>
<tr>
<td>40</td>
<td>109</td>
<td>16</td>
</tr>
<tr>
<td>60</td>
<td>62</td>
<td>12</td>
</tr>
<tr>
<td>80</td>
<td>36</td>
<td>7</td>
</tr>
<tr>
<td>100</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>120</td>
<td>8</td>
<td>2</td>
</tr>
</tbody>
</table>

Number at risk

<table>
<thead>
<tr>
<th>HPV+</th>
<th>HPV-</th>
</tr>
</thead>
<tbody>
<tr>
<td>252</td>
<td>39</td>
</tr>
<tr>
<td>191</td>
<td>22</td>
</tr>
<tr>
<td>109</td>
<td>16</td>
</tr>
<tr>
<td>62</td>
<td>12</td>
</tr>
<tr>
<td>36</td>
<td>7</td>
</tr>
<tr>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
</tr>
</tbody>
</table>

Log-rank \(P = 0.01\)
Overall Survival After Distant Metastatic Failure in Patients With HPV+ and HPV- OPSCC (N = 291)
1996 – 2013

Percent

Months After Recurrence of a Distant Metastasis

Number at risk

<table>
<thead>
<tr>
<th>Months</th>
<th>HPV+</th>
<th>HPV-</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>28</td>
<td>9</td>
</tr>
<tr>
<td>20</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>40</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>60</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>80</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>100</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>120</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Log-rank $P < 0.001$
**Laryngeal Cancer**

There is conflict in the literature about the most effective treatment protocol (ie, surgical or nonsurgical) for patients with advanced squamous cell carcinoma of the supraglottic larynx. The institute conducted a retrospective review of patients treated at Cleveland Clinic for stage III or IV squamous cell carcinoma of the supraglottic larynx to determine whether a surgical or nonsurgical protocol would result in higher overall survival and better functional outcomes.\(^1\) There was no significant difference in overall outcomes; however, larynx preservation rates and voice function scores were superior in the nonsurgical group.

**Reference**


**Overall Survival in Nonsurgical and Surgical Treatment Groups (N = 235)**

1990 – 2013

![Graph showing overall survival rates for nonsurgical and surgical treatments.](image-url)

<table>
<thead>
<tr>
<th>Years After Treatment</th>
<th>Nonsurgical</th>
<th>Surgical</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>138</td>
<td>97</td>
</tr>
<tr>
<td>5</td>
<td>49</td>
<td>31</td>
</tr>
<tr>
<td>10</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td>15</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

\(P = 0.61\)
Voice and Swallowing Scores for Nonsurgical and Surgical Groups as a Function of Time (N = 235) 1990 – 2013

Mean Voice Score

<table>
<thead>
<tr>
<th>Months After Treatment</th>
<th>Nonsurgical</th>
<th>Surgical</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>130</td>
<td>94</td>
</tr>
<tr>
<td>1</td>
<td>119</td>
<td>92</td>
</tr>
<tr>
<td>3</td>
<td>123</td>
<td>85</td>
</tr>
<tr>
<td>6</td>
<td>119</td>
<td>81</td>
</tr>
<tr>
<td>12</td>
<td>110</td>
<td>72</td>
</tr>
<tr>
<td>24</td>
<td>89</td>
<td>52</td>
</tr>
<tr>
<td>36</td>
<td>67</td>
<td>39</td>
</tr>
<tr>
<td>60</td>
<td>55</td>
<td>37</td>
</tr>
</tbody>
</table>

Number of Patients
Nonsurgical 130 119 123 119 110 89 67 55
Surgical 94 92 85 81 72 52 39 37
Head and Neck Squamous Cell Carcinoma

Cumulative Incidence of Severe Late Dysphagia Due to Head and Neck Squamous Cell Carcinoma (N = 62)

1996 – 2012

<table>
<thead>
<tr>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>20</td>
</tr>
<tr>
<td>40</td>
</tr>
<tr>
<td>60</td>
</tr>
<tr>
<td>80</td>
</tr>
<tr>
<td>100</td>
</tr>
</tbody>
</table>

Months After End of Chemoradiotherapy

NG = nasogastric tube, Proactive PEG = proactive percutaneous endoscopic gastrostomy, Reactive PEG = reactive percutaneous endoscopic gastrostomy

Despite the efficacy of standard therapeutic options for organ preservation therapy of locoregionally advanced, HPV- head and neck cancers, severe late dysphagia remains an issue. In a retrospective study of the impact of feeding tube choice on severe late dysphagia after definitive chemoradiotherapy, Cleveland Clinic researchers found the use of reactive nasogastric feeding tubes produced the best outcomes.¹

Reference
Outcomes for p16 Positive Squamous Cell Carcinoma of Oropharynx

The survival curves represent treatment outcomes of patients with p16 positive oropharyngeal (tonsil and base of tongue) squamous cell carcinoma treated at Cleveland Clinic from 2009 to 2015. Overall survival rates are illustrated for advanced stage disease, III (N = 37) and IV (N = 336).

Overall Survival Rate, Stages III and IV (N = 373)
2009 – 2015

The 6-year overall survival for stage III was 98%.
The 6-year overall survival for stage IV was 79%.
Hearing Outcomes After Cochlear Implantation With a Slim Straight Electrode Array

Studies have suggested that preservation of low-frequency residual hearing in cochlear implant recipients improves speech understanding, particularly in complex listening environments.\(^1\)\(^-\)\(^3\) Cleveland Clinic’s Hearing Implant Program has utilized the Cochlear™ Nucleus\(^\text{®}\) CI422 and CI522 slim straight electrode arrays for hearing preservation in appropriate patients. From 2013 through 2015, 35 patients with potentially usable low-frequency hearing were implanted with this device. Patients experienced improvement on standardized speech recognition measures based on degree of hearing preservation. Preoperative speech recognition scores were converted to standard scores, indicating the difference between 100% and the patient’s current score. Postoperative scores were compared with this standard, and the percentage of possible improvement was determined. Scores were categorized based on degree of hearing preservation (minimal/no preservation = 0% to 25% hearing preserved; partial, \(\geq 25\%\) to < 75% hearing preserved; complete, \(\geq 75\%\) hearing preserved).\(^4\) Although nearly all recipients demonstrated benefit with their cochlear implant, results suggested that more substantial improvement in speech understanding was achieved for patients with complete (\(\geq 75\%\)) hearing preservation from 125 Hz through 1500 Hz than for patients with partial, minimal, or no hearing preservation.

Speech Recognition Improvement With Hearing Preservation Electrode Array (N = 35)

2013 – 2015

<table>
<thead>
<tr>
<th>Speech Recognition Ability</th>
<th>Minimal/no hearing preservation</th>
<th>Partial hearing preservation</th>
<th>Complete hearing preservation</th>
</tr>
</thead>
<tbody>
<tr>
<td>AzBioQuiet(^a)</td>
<td>50</td>
<td>30</td>
<td>80</td>
</tr>
<tr>
<td>AzBioNoise(^a)</td>
<td>20</td>
<td>20</td>
<td>70</td>
</tr>
<tr>
<td>CNC Words(^b)</td>
<td>30</td>
<td>20</td>
<td>80</td>
</tr>
</tbody>
</table>

\(^{a}\)AzBio sentences consist of sentences presented in quiet or in a background of multitalker babble by 2 male and 2 female speakers at a typical rate of speech.\(^5\)

\(^{b}\)CNC words consist of individual words presented in quiet, which minimizes the contextual cues present in sentence material.\(^6\)
References


Medialization Laryngoplasty in the Elderly

Medialization laryngoplasty is a well established treatment for the management of vocal fold paralysis and glottic insufficiency. However, there has been little focus on the experience of elderly patients undergoing the operation.

Patients aged 65 and older undergoing medialization laryngoplasty at Cleveland Clinic’s Voice Center were retrospectively reviewed from 2008 to 2015. Indications were recorded along with medical comorbidities. Outcomes included outpatient vs inpatient care postoperatively, surgical complications, voice outcome measures, revision rate, and follow-up.

The center performed the procedure on 113 elderly patients (aged 65 to 92, average age 73) between 2008 and 2015. Postoperatively, voice handicap index scores improved an average of 50%, and complete glottic closure was observed in 85% of patients (N = 96). The overall surgical complication rate was < 7%; the incidence of major surgical complications was 1%. Three patients (3%) required revision medialization surgery.

Medialization laryngoplasty is a safe, viable, and successful option for elderly patients with vocal handicap. With few exceptions, patients achieve a clinically meaningful improvement in their voice-related quality of life with a low complication rate.

Postoperative Change in Voice Handicap Index Score for Elderly Patients (N = 113)

2008 – 2015

Preop = preoperative, VHI = voice handicap index
Dental implants are routinely placed in the maxilla and mandible to replace missing teeth or to provide greater retention for removable prostheses (such as dentures or partials). Many patients undergo rehabilitation after cancers or tumors of the oral cavity are resected and reconstruction is performed.

The institute success rate continues to be at the 95% expected rate.¹

Implant success is commonly defined as implant immobility; no evidence of periapical radiolucency; mean vertical bone loss of < 0.02 mm after the first year of service; no persistent pain, discomfort, or infection; and implant does not preclude placement of a functionally and esthetically acceptable restoration.²

References


Surgical Results of Cochlear Implants

A total of 51 cochlear implants (CIs) were performed on 49 patients during 2015: 8 pediatric and 41 adult patients. Of these, 4 CIs were bilateral, which were all performed in pediatric recipients.

Of the 51 implants placed in 2015, 50 are still functioning and providing benefit. One implant was removed secondary to methicillin-resistant *Staphylococcus aureus* infection. The tables below show the complication rates. Complications were considered major if they required additional surgical intervention or hospitalization. Vertigo was the most common minor problem after CI surgery; 1 patient required hospitalization due to imbalance postoperatively. There were 2 minor intraoperative complications. One dural defect was repaired intraoperatively. One tympanic membrane perforation healed spontaneously. These complications were considered minor because they did not impact activation or require further intervention.

### Major Complications (N = 51)

<table>
<thead>
<tr>
<th></th>
<th>Cleveland Clinic</th>
<th>Reference&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Reference&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infection</td>
<td>2 (3.9%)</td>
<td>1.3%</td>
<td>3.1%</td>
</tr>
<tr>
<td>Vertigo</td>
<td>1 (2.0%)</td>
<td>Not reported</td>
<td>0.9%</td>
</tr>
</tbody>
</table>

### Minor Complications (N = 51)

<table>
<thead>
<tr>
<th></th>
<th>Cleveland Clinic</th>
<th>Reference&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Reference&lt;sup&gt;3&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertigo</td>
<td>4 (7.8%)</td>
<td>29.5%</td>
<td>25%</td>
</tr>
<tr>
<td>Intraoperative complications</td>
<td>2 (3.9%)</td>
<td>Not reported</td>
<td>3.5%</td>
</tr>
<tr>
<td>Facial paresis</td>
<td>0 (0%)</td>
<td>2.3%</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

**References**


Tympanoplasty Outcomes in the Pediatric Population

Tympanoplasty refers to surgical repair of a tympanic membrane perforation. Elevation of the annulus differentiates tympanoplasty from myringoplasty, which restricts repair to the tympanic membrane itself.¹ Success rates of pediatric tympanoplasty range from 75% to 80%²,³ and are affected by multiple factors, including age, presence of eustachian tube dysfunction, and certain syndromes.

Pediatric tympanoplasty outcomes during the past year were reviewed by the 3 physicians in Cleveland Clinic's pediatric otolaryngology section; 24 patients underwent a total of 26 tympanoplasties. The average age at surgery was 12.6 years. One graft failure was noted on follow-up. There was 1 additional patient for whom the exam suggested no perforation; however, the postoperative audiogram had a large volume flat tympanogram suggestive of perforation. This patient has not yet had another follow-up.

Of the 26 tympanoplasties performed, 4 were revision surgeries; tympanoplasty had been attempted prior to surgery by institute physicians. There were no failures in this group. Of 3 children who had syndromes, 1 child had Down syndrome, and 2 children had velocardiofacial syndrome; 1 child had cleft palate. In addition, 2 children had major comorbidities of type 1 diabetes mellitus and common variable immunodeficiency. None of these children had failures.

The overall failure rate was 4%, compared with the national average of 20%. Surgeries were successfully completed on syndromic children and children with significant comorbidities.

### Rates of Successful Tympanoplasties (N = 26)

<table>
<thead>
<tr>
<th>Patient Demographic</th>
<th>Number of Patients (N = 26)</th>
<th>Success Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syndrome or significant comorbidity</td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td>Revisions</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>Overall patients who underwent surgery (excluding 1 patient who had conflicting exam and tympanogram)</td>
<td>25</td>
<td>96</td>
</tr>
</tbody>
</table>

### References

Endoscopic Pituitary Surgery

The Minimally Invasive Cranial Base and Pituitary Surgery Program continues to push the boundaries with expanded approaches and an increased level of surgical complexity. In 2015, the team increased its experience with 2-surgeon, 4-handed transsphenoidal approaches and also substantially increased the volume of other expanded endonasal anterior skull base surgeries, which included a large number of transtubercular, transplanar, transcribriform, transpterygoid, and transclival approaches. Patient outcomes and complication rates (including postoperative cerebrospinal fluid leak) continue to better those in the literature and rival those achieved at other leading centers.

Patient Demographics (N = 106)

<table>
<thead>
<tr>
<th>Gender (N)</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>57</td>
</tr>
<tr>
<td>Male</td>
<td>49</td>
</tr>
</tbody>
</table>

| Average age (years) | 52 |
| Maximum            | 91 |
| Minimum            | 6  |

Lesion Type (N = 106)

<table>
<thead>
<tr>
<th>Number</th>
<th>Pituitary Lesion(^a)</th>
<th>Meningioma</th>
<th>Cranio-pharyngioma</th>
<th>Chordoma</th>
<th>Epidermoid Cyst</th>
<th>SCCa</th>
<th>Esthesioneuroblastoma</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>69</td>
<td>8</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>15</td>
</tr>
</tbody>
</table>

SCCa = squamous cell carcinoma
\(^a\)Includes macro/micro/cyst
Reconstruction Technique (N = 142)\(^a\)

2015

Number

<table>
<thead>
<tr>
<th>Technique</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasoseptal Flap</td>
<td>54</td>
</tr>
<tr>
<td>Free Mucosal Graft</td>
<td>17</td>
</tr>
<tr>
<td>None</td>
<td>29</td>
</tr>
<tr>
<td>Abdominal Fat</td>
<td>13</td>
</tr>
<tr>
<td>Fascia Lata</td>
<td>2</td>
</tr>
<tr>
<td>Free Flap Vascularized Tissue Transfer</td>
<td>2</td>
</tr>
<tr>
<td>Lumbar Drain</td>
<td>25</td>
</tr>
</tbody>
</table>

\(^a\)Includes 2 endoscopic assisted open base resections

Postoperative Cerebrospinal Fluid Leak (N = 5)

2015

Rate (%)\(^a\)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Endoscopic Skull Base Surgery</td>
<td>2</td>
</tr>
<tr>
<td>Transellar/Pituitary Surgery</td>
<td>1</td>
</tr>
</tbody>
</table>

\(^a\)Rate of leak in literature\(^1\) = 5%

Reference

Keeping patients at the center of all that we do is critical. Patients First is the guiding principle at Cleveland Clinic. Patients First is safe care, high-quality care, in the context of patient satisfaction, and high value. Ultimately, our caregivers have the power to impact every touch point of a patient’s journey, including their clinical, physical, and emotional experience.

We know that patient experience goes well beyond patient satisfaction surveys. Nonetheless, by sharing the survey results with our caregivers and the public, we constantly identify opportunities to improve how we deliver exceptional care.

Outpatient Office Visit Survey — Head & Neck Institute

CG-CAHPS Assessment\(^a\)

2014 – 2015

<table>
<thead>
<tr>
<th>Percent Best Response</th>
<th>2014 (N = 3172)</th>
<th>2015 (N = 6671)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appointment Access (% Always)(^c)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctor Communication (% Yes, Definitely)(^d)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctor Rating (% 9 or 10) 0 – 10 Scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clerical Staff (% Yes, Definitely)(^d)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test Results Communication (% Yes)(^e)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\)In 2013, Cleveland Clinic began administering the Clinician and Group Practice Consumer Assessment of Healthcare Providers and Systems surveys (CG-CAHPS), standardized instruments developed by the Agency for Healthcare Research and Quality (AHRQ) and supported by the Centers for Medicare & Medicaid Services for use in the physician office setting to measure patients’ perspectives of outpatient care.

\(^b\)Based on results submitted to the AHRQ CG-CAHPS database from 3962 practices in 2014

\(^c\)Response options: Always, Usually, Sometimes, Never

\(^d\)Response options: Yes, definitely; Yes, somewhat; No

\(^e\)Response options: Yes, No

Source: Press Ganey, a national hospital survey vendor
Inpatient Survey — Head & Neck Institute

HCAHPS Overall Assessment
2014 – 2015

Best Response (%)

Discharge Information % Yes
Care Transition % Strongly Agree
Doctor Communication
Nurse Communication
Pain Management
Room Clean % Always
New Medications Communication
Responsiveness to Needs
Quiet at Night

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

HCAHPS Domains of Care
2014 – 2015

Best Response (%)

Hospital Rating (% 9 or 10)
Recommend Hospital (% Definitely Yes)

Source: Press Ganey, a national hospital survey vendor, 2015

aBased on national survey results of discharged patients, January 2014 – December 2014, from 4172 US hospitals. medicare.gov/hospitalcompare

bResponse options: Definitely yes, Probably yes, Probably no, Definitely no

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

Based on national survey results of discharged patients, January 2014 – December 2014, from 4172 US hospitals. medicare.gov/hospitalcompare
Overview

Cleveland Clinic health system uses a systematic approach to performance improvement while simultaneously pursuing 3 goals: improving the patient experience of care (including quality and satisfaction), improving population health, and reducing the cost of healthcare. The following measures are examples of 2015 focus areas in pursuit of this 3-part aim. Throughout this section, “Cleveland Clinic” refers to the academic medical center or “main campus,” and those results are shown.

Real-time data are leveraged in each Cleveland Clinic location to drive performance improvement. Although not an exact match to publicly reported data, more timely internal data create transparency at all organizational levels and support improved care in all clinical locations.

Improve the Patient Experience of Care

Cleveland Clinic Overall Inpatient Mortality Ratio

2014 – 2015

Cleveland Clinic Central Line-Associated Bloodstream Infection Rate

2015

Source: Data from the Vizient Clinical Data Base/Resource Manager™ used by permission of Vizient. All rights reserved.

Cleveland Clinic’s observed/expected (O/E) mortality ratio outperformed its internal target derived from the Vizient 2015 risk model. Ratios less than 1.0 indicate mortality performance “better than expected” in Vizient’s risk adjustment model.

Cleveland Clinic has implemented several strategies to reduce central line-associated bloodstream infections (CLABSI’s), including a central-line bundle of insertion, maintenance, and removal best practices. Focused reviews of every CLABSI occurrence support reductions in CLABSI rates.
Improved screening, risk adjustment, and prevention strategies have supported Cleveland Clinic’s continued improvement with respect to perioperative pulmonary embolism and deep vein thrombosis (AHRQ Patient Safety Indicator 12). Embolism/thrombosis prevention remains a safety priority for Cleveland Clinic.

Source: Data reported from the National Database for Nursing Quality Indicators® (NDNQI®) with permission from Press Ganey.

A pressure ulcer is an injury to the skin that can be caused by pressure, moisture, or friction. These sometimes occur when patients have difficulty changing position on their own. Cleveland Clinic caregivers have been trained to provide appropriate skin care and regular repositioning help while taking advantage of special devices and mattresses to reduce pressure for high-risk patients. In addition, they actively look for hospital-acquired pressure ulcers and treat them quickly if they occur.
Keeping patients at the center of all that we do is critical. Patients First is the guiding principle at Cleveland Clinic. Patients First is safe care, high-quality care, in the context of patient satisfaction, and high value. Ultimately, our caregivers have the power to impact every touch point of a patient’s journey, including their clinical, physical, and emotional experience.

We know that patient experience goes well beyond patient satisfaction surveys. Nonetheless, by sharing the survey results with our caregivers and the public, we constantly identify opportunities to improve how we deliver exceptional care.

### Outpatient Office Visit Survey — Cleveland Clinic

**CG-CAHPS Assessment**<sup>a</sup>

2014 – 2015

<table>
<thead>
<tr>
<th>Best Response (%)</th>
<th>2014 (N = 167,503)</th>
<th>2015 (N = 227,599)</th>
<th>CG-CAHPS 2014 database average (all practices)&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appointment Access (%) Always&lt;sup&gt;c&lt;/sup&gt;</td>
<td><img src="#" alt="Bar Graph" /></td>
<td><img src="#" alt="Bar Graph" /></td>
<td><img src="#" alt="Bar Graph" /></td>
</tr>
<tr>
<td>Specialty Care (% Yes, Definitely)&lt;sup&gt;d&lt;/sup&gt;</td>
<td><img src="#" alt="Bar Graph" /></td>
<td><img src="#" alt="Bar Graph" /></td>
<td><img src="#" alt="Bar Graph" /></td>
</tr>
<tr>
<td>Primary Care (%) Always&lt;sup&gt;c&lt;/sup&gt;</td>
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<td><img src="#" alt="Bar Graph" /></td>
<td><img src="#" alt="Bar Graph" /></td>
</tr>
<tr>
<td>Test Results Communication (% Yes)&lt;sup&gt;e&lt;/sup&gt;</td>
<td><img src="#" alt="Bar Graph" /></td>
<td><img src="#" alt="Bar Graph" /></td>
<td><img src="#" alt="Bar Graph" /></td>
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<sup>a</sup>In 2013, Cleveland Clinic began administering the Clinician and Group Practice Consumer Assessment of Healthcare Providers and Systems surveys (CG-CAHPS), standardized instruments developed by the Agency for Healthcare Research and Quality (AHRQ) and supported by the Centers for Medicare & Medicaid Services for use in the physician office setting to measure patients’ perspectives of outpatient care.

<sup>b</sup>Based on results submitted to the AHRQ CG-CAHPS database from 3962 practices in 2014

<sup>c</sup>Response options: Always, Usually, Sometimes, Never

<sup>d</sup>Response options: Yes, definitely; Yes, somewhat; No

<sup>e</sup>Response options: Yes, No

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

**HCAHPS Domains of Care**

2014 – 2015

Best Response (%)

- **Discharge Information % Yes**
- **Care Transition % Strongly Agree**
- **Doctor Communication**
- **Nurse Communication**
- **Pain Management**
- **Room Clean % Always**
- **New Medications Communication**
- **Responsiveness to Needs**
- **Quiet at Night**

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

Based on national survey results of discharged patients, January 2014 – December 2014, from 4172 US hospitals. medicare.gov/hospitalcompare
Focus on Value

Cleveland Clinic has developed and implemented new models of care that focus on “Patients First” and aim to deliver on the Institute of Medicine goal of Safe, Timely, Effective, Efficient, Equitable, Patient-centered care. Creating new models of Value-Based Care is a strategic priority for Cleveland Clinic. As care delivery shifts from fee-for-service to a population health and bundled payment delivery system, Cleveland Clinic is focused on concurrently improving patient safety, outcomes, and experience.

What does this new model of care look like?

- The Cleveland Clinic Integrated Care Model (CCICM) is a value-based model of care, designed to improve outcomes while reducing cost. It is designed to deliver value in both population health and specialty care.
- The patient remains at the heart of the CCICM.
- The blue band represents the care system, which is a seamless pathway that patients move along as they receive care in different settings. The care system represents integration of care across the continuum.
- Critical competencies are required to build this new care system. Cleveland Clinic is creating disease- and condition-specific care paths for a variety of procedures and chronic diseases. Another facet is implementing comprehensive care coordination for high-risk patients to prevent unnecessary hospitalizations and emergency department visits. Efforts include managing transitions in care, optimizing access and flow for patients through the CCICM, and developing novel tactics to engage patients and caregivers in this work.
- Measuring performance around quality, safety, utilization, cost, appropriateness of care, and patient and caregiver experience is an essential component of this work.
Improving Population Health

Cleveland Clinic Accountable Care Organization Measure Performance

2015

National Percentile Ranking

90th
- Tobacco Screening
- Ischemic Vascular Disease
- Heart Failure
- Falls Screening

80th
- Diabetes
- Hypertension
- Pneumonia Vaccination
- Coronary Artery Disease
- Colorectal Cancer Screening
- Breast Cancer Screening

70th
- BMI Screening

60th
- Influenza Vaccination

40th
- Depression Screening
- Blood Pressure Screening

As part of Cleveland Clinic’s commitment to population health and in support of its Accountable Care Organization (ACO), these primary care ACO measures have been prioritized for monitoring and improvement. Cleveland Clinic is improving performance in these measures by enhancing care coordination, optimizing technology and information systems, and engaging primary care physicians and specialists directly in the improvement work. These pursuits are part of Cleveland Clinic’s overall strategy to transform care in order to improve health and make care more affordable.

Reduce the Cost of Care

Cleveland Clinic Health System Orthopaedic Surgery Cost per Case

2014 – 2015

Development and implementation of care paths has improved outcomes and care coordination while reducing unnecessary variations in clinical practice. These efficiencies have reduced the total cost of care. The Total Joint Arthroplasty care paths that were implemented in 2013 have led to year-over-year reductions in the cost per case for these procedures. Additional cost reductions were experienced in 2015 as these care paths were refined and sustained.

Change in Cost per Case

As part of Cleveland Clinic’s commitment to population health and in support of its Accountable Care Organization (ACO), these primary care ACO measures have been prioritized for monitoring and improvement. Cleveland Clinic is improving performance in these measures by enhancing care coordination, optimizing technology and information systems, and engaging primary care physicians and specialists directly in the improvement work. These pursuits are part of Cleveland Clinic’s overall strategy to transform care in order to improve health and make care more affordable.
Head & Neck Institute
Appointments/Referrals
216.444.8500 or 800.223.2273, ext. 48500

Dentistry
Appointments/Referrals
216.444.6907 or 800.223.2273, ext. 46907

On the Web at clevelandclinic.org/hni

Staff Listing
For a complete listing of Cleveland Clinic’s Head & Neck Institute staff, please visit clevelandclinic.org/staff.

Publications
Head & Neck Institute staff authored 67 publications in 2015. For a complete list, go to clevelandclinic.org/outcomes.

Locations
For a complete listing of Head & Neck Institute locations, please visit clevelandclinic.org/headnecklocations.
Additional Contact Information

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

General Information
216.444.2200

Hospital Patient Information
216.444.2000

General Patient Appointments
216.444.2273 or 800.223.2273

Referring Physician Center and Hotline
855.REFER.123 (855.733.3712)
Or email refdr@ccf.org or visit clevelandclinic.org/refer123

Request for Medical Records
216.444.2640 or
800.223.2273, ext. 42640

Same-Day Appointments
216.444.CARE (2273)

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

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

Cleveland Clinic Abu Dhabi
clevelandclinicabudhabi.ae

Cleveland Clinic Canada
888.507.6885

Cleveland Clinic Florida
866.293.7866

Cleveland Clinic Nevada
702.483.6000

For address corrections or changes, please call
800.890.2467
Overview

Cleveland Clinic is an academic medical center offering patient care services supported by research and education in a nonprofit group practice setting. More than 3400 Cleveland Clinic staff physicians and scientists in 140 medical specialties and subspecialties care for more than 6.6 million patients across the system, performing more than 208,000 surgeries and conducting more than 640,000 emergency department visits. Patients come to Cleveland Clinic from all 50 states and more than 180 nations.

Cleveland Clinic is an integrated healthcare delivery system with local, national, and international reach. The main campus in midtown Cleveland, Ohio, has a 1437-bed hospital, outpatient clinic, specialty institutes, labs, classrooms, and research facilities in 42 buildings on 165 acres. Cleveland Clinic’s CMS case-mix index is the second highest in the nation. Cleveland Clinic encompasses more than 150 northern Ohio outpatient locations, including 18 full-service family health centers, 3 health and wellness centers, 9 regional hospitals, an affiliate hospital, and a rehabilitation hospital for children. Cleveland Clinic also includes Cleveland Clinic Florida; Cleveland Clinic Nevada, which includes the Lou Ruvo Center for Brain Health in Las Vegas and urology and nephrology services; Cleveland Clinic Canada; and Sheikh Khalifa Medical City (management contract). Cleveland Clinic Abu Dhabi is a full-service hospital and outpatient center in the United Arab Emirates (UAE), which began offering services in spring 2015. Cleveland Clinic is the second-largest employer in Ohio, with more than 49,000 employees. It generates $12.6 billion of economic activity a year.

Cleveland Clinic supports physician education, training, consulting, and patient services around the world through representatives and offices in Canada, the Dominican Republic, El Salvador, Guatemala, Honduras, Panama, Peru, Saudi Arabia, Turkey, and the United Arab Emirates.

The Cleveland Clinic Model

Cleveland Clinic was founded in 1921 by 4 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.

Cleveland Clinic established family health centers in surrounding communities beginning in the 1990s. Cleveland Clinic Florida was established in 1987. Marymount Hospital joined Cleveland Clinic in 1995, followed by regional hospitals including Euclid Hospital, Fairview Hospital, Hillcrest Hospital, Lutheran Hospital, Medina Hospital, South Pointe Hospital, and affiliate Ashtabula County Medical Center. In 2015, the Akron General Health System joined the Cleveland Clinic health system.

Internally, Cleveland Clinic services are organized into patient-centered integrated practice units called institutes, each institute combining medical and surgical care for a specific disease or body system. Cleveland Clinic was also one of the first academic medical centers to establish an Office of Patient Experience to work with institutes to ensure the best outcome and experience for every patient.

A Clinically Integrated Network

Cleveland Clinic is committed to providing value-based care, and it has grown the Cleveland Clinic Quality Alliance into the nation’s second-largest and northeast Ohio’s largest clinically integrated network. The network comprises more than 5900 physician members, both employees and independent physicians from the community. Led by its physician members, the Quality Alliance strives to improve quality and consistency of care; reduce costs and increase efficiency; and provide access to expertise, data, and experience.
Cleveland Clinic Lerner College of Medicine

Lerner College of Medicine is known for its small class sizes, unique curriculum, and full-tuition scholarships for all students. Each new class accepts 32 students who are preparing to be physician investigators. In 2016, Cleveland Clinic is building a 165,000-square-foot multidisciplinary Health Education Campus as the new home of the Case Western Reserve University (CWRU) School of Medicine and Cleveland Clinic’s Lerner College of Medicine, as well as the CWRU School of Dental Medicine, the Frances Payne Bolton School of Nursing, and physician assistant and allied health training programs.

Graduate Medical Education

In 2015, nearly 1900 residents and fellows trained at Cleveland Clinic and Cleveland Clinic Florida, which is part of a continuing upward trend.

U.S. News & World Report Ranking

Cleveland Clinic is consistently ranked among the top hospitals in America by U.S. News & World Report. It has ranked No. 1 in heart care and heart surgery since 1995. In 2015, 4 of its programs were ranked No. 2 in the nation: gastroenterology and GI surgery, nephrology, rheumatology, and urology.

Cleveland Clinic Physician Ratings

Cleveland Clinic believes in transparency and in the positive influence of the physician-patient relationship on healthcare outcomes. To continue to meet the highest standards of patient satisfaction, Cleveland Clinic physician ratings, based on nationally recognized Press Ganey patient satisfaction surveys, are published online at clevelandclinic.org/staff.
Resources

Referring Physician Center and Hotline
Call us 24/7 for access to medical services or to schedule patient appointments at 855.REFER.123 (855.733.3712), email refdr@ccf.org, or go to clevelandclinic.org/Refer123. The free Cleveland Clinic Physician Referral App, available for mobile devices, gives you 1-click access. Available at the App Store or Google Play.

Remote Consults
Anybody anywhere can get an online second opinion from a Cleveland Clinic specialist through our MyConsult service. For more information, go to clevelandclinic.org/myconsult, email myconsult@ccf.org, or call 800.223.2273, ext. 43223.

Request Medical Records
216.444.2640 or 800.223.2273, ext. 42640

Track Your Patients’ Care Online
Cleveland Clinic offers an array of secure online services that allow referring physicians to monitor their patients’ treatment while under Cleveland Clinic care, as well as access test results, medications, and treatment plans. my.clevelandclinic.org/online-services

DrConnect (online access to patients’ treatment progress while under referred care): 877.224.7367; drconnect@ccf.org or visit clevelandclinic.org/drconnect

MyPractice Community (affordable electronic medical records system for physicians in private practice): 216.448.4617

eRadiology (teleradiology consultation provided nationwide by board-certified radiologists with specialty training, within 24 hours or stat): 216.986.2915; starimaging@ccf.org

Medical Records Online
Patients can view portions of their medical record, receive diagnostic images and test results, make appointments, and renew prescriptions through MyChart, a secure online portal. All new Cleveland Clinic patients are automatically registered for MyChart. clevelandclinic.org/mychart

Critical Care Transport Worldwide
Cleveland Clinic’s fleet of ground and air transport vehicles is ready to transfer patients at any level of acuity anywhere on earth. Specially trained crews provide Cleveland Clinic care protocols from first contact. To arrange a transfer for STEMI (ST-elevation myocardial infarction), acute stroke, ICH (intracerebral hemorrhage), SAH (subarachnoid hemorrhage), or aortic syndrome, call 877.379.CODE (2633). For all other critical care transfers, call 216.444.8302 or 800.553.5056.

CME Opportunities: Live and Online
Cleveland Clinic’s Center for Continuing Education operates the largest CME program in the country. Live courses are offered in Cleveland and cities around the nation and the world. The center’s website (ccfcme.org) is an educational resource for healthcare providers and the public. It has a calendar of upcoming courses, online programs on topics in 30 areas, and the award-winning virtual textbook of medicine, The Disease Management Project.

Clinical Trials
Cleveland Clinic is running more than 2200 clinical trials at any given time for conditions including breast and liver cancer, coronary artery disease, heart failure, epilepsy, Parkinson disease, chronic obstructive pulmonary disease, asthma, high blood pressure, diabetes, depression, and eating disorders. Cancer Clinical Trials is a mobile app that provides information on the more than 200 active clinical trials available to cancer patients at Cleveland Clinic. clevelandclinic.org/cancertrialapp
**Healthcare Executive Education**

Cleveland Clinic has programs to teach people from outside the organization how it operates a major medical center. The Executive Visitors’ Program is an intensive, 3-day behind-the-scenes view of the Cleveland Clinic organization for the busy executive. The Samson Global Leadership Academy is a 2-week immersion in challenges of leadership, management, and innovation taught by Cleveland Clinic leaders, administrators, and clinicians. Curriculum includes coaching and a personalized 3-year leadership development plan. [clevelandclinic.org/executiveeducation](http://clevelandclinic.org/executiveeducation)

**Consult QD Physician Blog**

A blog from Cleveland Clinic for physicians and healthcare professionals. Discover the latest research insights, innovations, treatment trends, and more for all specialties. [consultqd.clevelandclinic.org](http://consultqd.clevelandclinic.org)

**Social Media**

Cleveland Clinic uses social media to help caregivers everywhere provide better patient care. Millions of people currently like, friend, or link to Cleveland Clinic social media — including leaders in medicine.

Facebook for Medical Professionals [facebook.com/CMEclevelandclinic](http://facebook.com/CMEclevelandclinic)

Follow us on Twitter [@cleclinicMD](http://twitter.com/cleclinicMD)

Connect with us on LinkedIn [Clevelandclinic.org/MDlinkedin](http://Clevelandclinic.org/MDlinkedin)
This project would not have been possible without the commitment and expertise of a team led by Erika Woodson, MD; Eric Lamarre, MD; and Christine Fleckenstein.

Graphic design and photography were provided by Cleveland Clinic's Center for Medical Art and Photography.