Dear Friends:

Summer is now upon us, and everywhere we find ourselves surrounded by new growth. It is no different with our department. This year we are adding three new members to our faculty. All are former residents who are now completing distinguished otolaryngology fellowships.

Dr. Matt Kircher is finishing a two-year otology/neurotology fellowship at the highly regarded Michigan Ear Institute in Detroit, Michigan. Matt will have expertise in all aspects of ear and skull base diagnosis and surgical management. He will join Drs. Leonetti and Marzo in our nationally recognized otology/neurotology skull base program.

Dr. James Jaber is concluding a two-year head and neck surgery fellowship at the prestigious University of Pittsburgh. He is trained in all aspects of head and neck cancer surgery and will work with Drs. Borrowdale and Bier-Laning, further enhancing the busiest, most highly regarded head and neck tumor service in the Chicagoland area. In addition, James is an MD, PhD, who brings both basic science and translational research experience to Loyola. He will work with Dr. Eileen Foecking in our research division to create additional research projects to complement our clinical programs.

Finally, Dr. Amy Pittman is completing a microvascular reconstructive fellowship at the University of Oregon Health Sciences. When she begins at Loyola in August, she will perform reconstructive vascular flap closures for our head and neck oncology surgeons.

Please join me in welcoming them back to Loyola. I look forward to watching Matt, James and Amy blossom.

Sincerely,

James A. Stankiewicz, MD
Professor and Chair
Department of Otolaryngology-Head and Neck Surgery
Patients in need of expert laryngology care have a team of specialists available at Loyola University Health System. Board-certified otolaryngologists Steven Charous, MD, clinical associate professor, and Scott Kaszuba, MD, clinical assistant professor, are both fellowship trained in laryngology. Individually, each physician has many years experience in laryngology; combined, they have provided care to thousands of adult and pediatric patients in the Chicago area.

With so much experience, Loyola's laryngologists have handled every type of airway, voice, or swallowing complaint, from persistent hoarseness and cough, to difficulty swallowing, airway obstructions, and extraesophageal reflux. Whether common or complex, Loyola's experts have likely treated such conditions.

**Expert diagnosis and treatment**

Improving the airway is perhaps the most urgent of otolaryngological procedures, and all airway issues require expert attention. Swelling of the larynx, subglottic stenosis, tumors, and laryngeal resection can become serious airway emergencies. In these cases, airway stabilization and reconstruction surgery is often required. Loyola's laryngology surgeons can perform minimally invasive laser surgery to restore patency, as well as open techniques that may involve resection, followed by grafts and flaps of the larynx or trachea.

Cancers of the throat or larynx may not only be life-threatening, they may also impinge on other critical functions. Conservation laryngeal surgery is often applied to preserve as much normal tissue as possible. By utilizing an endoscopic approach, surgeons can decrease the need for tracheotomy, while simultaneously optimizing the voice and swallowing functions following resection.

Swallowing, one of life's most basic functions, is another area that is critically important to any patient experiencing difficulty. For example, Zenker's diverticulum, a relatively common condition in which a pocket develops in the throat that collects food (and can cause choking and aspiration), can be treated with either open or endoscopic techniques, depending on the patient's anatomy and the size of the diverticulum. Whether due to stroke, Parkinson's disease, aging, or some other reason, symptoms such as choking, coughing while eating, food sticking, or having food or liquids "go down the wrong pipe" require evaluation by a swallowing expert.

Voice is part of our identity, a very personal expression of our individuality. While most changes in voice are temporary and easily resolved, a persistent change may indicate a more severe condition. As specialists in the care of the "professional voice," both Drs. Charous and Kaszuba are skilled at providing a variety of treatments to optimize vocal outcomes. "Any vocal impairment, for any length of time, can be devastating to both physical and mental health," says Dr. Charous, who is also medical director of the voice center.

One example of a voice problem Loyola's experts treat is spasmodic dysphonia, or muscle spasms in the vocal cord that result in a strained voice. In these cases, Botox™ injections are used to relax the vocal cords and improve the voice. This treatment usually provides significant improvement, but must be repeated every 3-6 months to sustain the voice. Medical management may also be employed.

Any surgical treatment of the voice may include the use of high-power microscopes and an assortment of lasers. Advanced surgical techniques, such as the use of micro-flaps to minimize scarring and improve post-operative results, are expertly performed by Loyola laryngologists.

Paralysis of one or both vocal cords is a relatively common disorder that can be the result of neck or lung surgery, tumors, or for unknown reasons. Currently, Loyola laryngologists are conducting research to refine surgical techniques and explore the use of nerve grafts to help these patients regain vocal cord mobility. This exciting research may not only be used for vocal cord paralysis, but may eventually be applied to other areas of the body suffering nerve injury.

Loyola's combination of experience, technique and equipment is crucial, because as every physician knows, the difference between a good result and a deficit may be a matter of millimeters. "The fellowship training both Dr. Charous and I underwent is the foundation for our ability to perform minimally invasive techniques," says Dr. Kaszuba.

While some laryngological problems are straightforward, others are more difficult to assess. Unsuspected reflux (or laryngopharyngeal reflux disease) is a common cause of symptoms such as cough, hoarseness, the need for throat clearing, and that "lump in the throat" sensation that patients experience.

The use of 24 hour pH monitoring, which records the number of times acidic and non-acidic reflux enters the esophagus, can help determine the amount, degree, and significance of a patient's disease. It can also help determine if the current treatment is adequate. Evaluation of the entire esophagus for evidence of reflux or lesions is done endoscopically in clinic; no sedation is needed.

Both Drs. Charous and Kaszuba are skilled with the use of other advanced diagnostics such as laryngovideostroboscopy, used for capturing and recording vocal cord movement in greater detail and in slow motion. This allows for comparison pre- and post-treatment, and allows patients to actually see what is happening with their voice.

**Teamwork is essential to success**

"Loyola offers a number of advantages to patients, most notably comprehensive care," says Dr. Kaszuba.

As part of a tertiary care health system, Loyola laryngologists are able to call upon the expertise of radiologists, medical oncologists, radiation therapists, gastroenterologists, and neurologists as needed. "I'm particularly proud of our ability to provide multi-specialty input," says Dr. Charous. "It
As "airway experts" otolaryngologists are frequently involved in obtaining more permanent airways in critically-ill patients requiring mechanical ventilation. Yet, despite the frequency with which we perform tracheotomies in this population, there is a dearth of evidence-based outcomes literature, which can be used to help predict which patients may benefit from a tracheotomy in a given clinical situation. The critical care literature, on the other hand, has seen multiple evolutions of more global outcome prediction models for the critically ill.

These models may be viewed as attempts to objectively quantify a patient's overall level of illness in order to make prognostic and mortality predictions. This is commonly achieved by addressing the function of individual organ systems; each organ system is given a numeric score, based on a specific range of commonly obtained laboratory and vital sign values. These individual scores are then added to give an aggregate score.

In the present study, two similar and highly-validated outcome prediction models were used: the Logistic Organ Dysfunction System (LODS) and the Sequential Organ Failure Assessment (SOFA). In both of these models, a high score indicates a worse prognosis. Our objective was to apply these models to the subset of critically ill adult patients undergoing tracheotomy, and to assess whether they could be used preoperatively to help guide clinical decision-making.

Methods
Initially, 138 patients who underwent tracheotomy by the ENT service at Hines VA Hospital between January 2006 and June of 2011 were identified. Forty-four of these patients were excluded as their tracheotomy was performed for head and neck cancer, leaving 94 patients enrolled in the study. Data collected included all clinical and laboratory data necessary for the calculation of the LODS/SOFA scores, as well as background and outcomes data regarding intubation, decannulation, and mortality. The LODS/SOFA scores were calculated for each patient using data collected in the 24 hours prior to the tracheotomy, or earlier, if not available during that time period.

Results
Not surprisingly, the patient population was overwhelmingly male. The average time intervals from tracheotomy to key outcomes varied widely, including disposition (48.5 days), getting off of mechanical ventilation (20.1 days), and decannulation (70.1 days) (Figure 1). The majority of these patients were eventually transferred to ventilator weaning facilities, nursing homes, or died in-house. Similarly, only 27 patients were eventually decannulated, representing 35.5% of the total patients discharged/ transferred from the hospital.

Sadly, 74 of the 94 total patients are now deceased, with the overall average time to death being 218 days from tracheotomy. More specifically, 33% of patients were deceased within 90 days, and over half of the total patients died within 180 days of tracheotomy. The average LODS score for this patient population was 4.9, while the average SOFA score was 5.8 (Range: 0-12 for both).

Looking more specifically at the critical score data, one can see that the correlation between higher LODS and SOFA scores and in-house death was statistically significant (Figure 2), but that the correlation between high score and death within 90 days of the tracheotomy was only significant for the LODS score. Neither score was significantly correlated with death within 180 days of the procedure, or eventual decannulation. There was also a statistically significant correlation between having a lower LODS score preoperatively and being free of mechanical ventilation 14 days post-operatively.

Discussion
In this study, we found that while both scores were significantly associated with in-house death, neither score was significantly associated with long-term outcomes, namely death within six months. In light of the fact that both outcome prediction scores are measures of acuity of illness at the time of tracheotomy, this lack of association is not surprising. It is likely that six months from the procedure is simply too far out for these snapshot-in-time measurements to predict outcomes with any statistical significance. Furthermore, based upon its correlations with both good and bad outcomes, LODS appeared to be the more robust score in this patient population.

With an enlarged data set, it may be possible to determine threshold values of LODS/ SOFA scores predictive of these important outcomes, which would allow these scores to be used prospectively. Such a tool would not only help physicians determine which patients may benefit from a tracheotomy, but would also allow clinicians to give surrogate decision-makers objective data regarding a patient's likely prognosis post-tracheotomy.

Experience and skill
Loyola's laryngologists are published in peer-reviewed journals, have lectured locally, regionally, and nationally, and are known for their expertise in the care of airway, voice, and swallowing disorders. Their long record of successfully treating challenging cases is yet another reason to select Loyola for laryngology care.

Dr. Charous sees patients at the Loyola Outpatient Center on the main campus in Maywood, while Dr. Kaszuba practices at the Loyola Center for Health at Burr Ridge.

To refer a patient to Loyola's laryngology service, please call our Nurse Triage line at (708) 216-3664. Patients who would like to schedule an appointment may call Central Appointment Scheduling at (708) 216-8563.
Lastly, in the context of the increasing emphasis on resource allocation in medicine, and with the possibility of outcomes-based reimbursement on the horizon, such procedure-specific, evidence-based outcome predictions may soon become an important part of everyday clinical decision-making.

Conclusion

This is the first reported use of the validated LODS and SOFA outcome prediction models in the subset of critically ill patients undergoing tracheotomy. While this patient population is known to have a high mortality rate, the use of objective measurements such as LODS can be useful to help guide clinical decision-making, counsel surrogate decision makers, and allocate resources.

Figure 1:

Figure 2:

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<tr>
<th>Critical Care Score Correlations</th>
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<td>Outcomes</td>
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<tr>
<td>Eventual</td>
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<tr>
<td>Decannulation</td>
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<td>Remain Mechanically Ventilated</td>
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<td>14 days after Tracheotomy</td>
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<td>Deceased In-House</td>
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<td>Deceased &lt;90 days after Tracheotomy</td>
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<td>Deceased &lt;180 days after Tracheotomy</td>
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+ Statistically Significant Correlation with p<0.05
- Correlation Not Statistically Significant

Experience Translates Into Better Results: Loyola Center for Cranial Base Tumors

When physicians at the University Medical Center at Göttingen in Göttingen, Germany decided to establish a center for cranial base surgery, Martin Canis, MD, professor and vice-chairman of the Department for Otorhinolaryngology decided to seek out advice from those with considerable expertise in this subspecialty.

A colleague from Munich had previously traveled to the United States to observe the Center for Cranial Base Tumors at Loyola University Health System, under the direction of John P. Leonetti, MD, professor and vice-chairman. "We've had multiple visitors from Germany and China," says Dr. Leonetti. "We welcome anyone who is interested in learning how to provide these advanced services to their patients." In the 26 years that Dr. Leonetti has been in practice, more than 3,000 cranial base tumors have been removed. "The word is out that Loyola is experienced in this field," says Dr. Leonetti. "And we are willing to share our experience with anyone interested in cranial base surgery."

Neurosurgeon Douglas Anderson, MD is co-director of the Center. Other members are Sam Marzo, MD, otology/neurotology surgeon; Richard Borrowdale, MD, head and neck oncology surgeon; Darl VandeVender, MD, plastic and reconstructive surgeon; Vikram Prabhu, MD, neurosurgeon; Kevin Welch, MD, rhinology surgeon; and James A. Stankiewicz, MD, rhinology surgeon and chairman of the Department of Otolaryngology-Head and Neck Surgery at Loyola. Recognized experts in their own right, each member of the team provides many years of experience specific to head and neck surgery.

Each patient's care is determined by the location of the lesion. Typically, those with anterior involvement, including the sinuses or nasal passages, are treated by Drs. Stankiewicz or Welch. Patients with lesions in the middle or posterior skull base are treated by Drs. Leonetti, Marzo, Anderson, and Prabhu, all of whom specialize in treating tumors in these complex regions. When a tumor extends beyond the skull base, Dr. Borrowdale is called upon for his expertise in head and neck surgery. The Center, which Dr. Leonetti refers to as a subspecialty within a subspecialty, was started in 1988.

"We are also partnering with our neurosurgery colleagues to develop our skull base surgery program, much like Loyola has done," says Dr. Canis. "Working together is always best for the patient."

In Germany, patients are referred to a hospital rather than a particular physician. Their care starts with a clinic visit where their medical needs are identified. When required, they are referred to a surgeon whom they meet one day prior to surgery. The surgeon sees them through the operation and the post-operative care, but follow-up is done through the general clinic, rather than by the surgeon (surgeons are available for consultation if needed). The team of surgeons rotates twice yearly, so a patient may see a different surgeon for subsequent surgery.

"In Germany, subspecialties are somewhat more siloed than they are in the states," says Dr. Canis. Most otolaryngologists in Germany do not specialize. Each day is quite different; a surgeon may treat a patient with sinusitis one day and do a vocal fold surgery the next. The otolaryngology department in Göttingen is known for its expertise with CO2 laser surgery, which was pioneered by a former faculty member. The department also has extensive experience with acoustic neuromas, gliomas, cholesteatomas, and they also offer cochlear implants. They have already begun treating patients with skull base tumors.

Dr. Canis visited programs in Heidelburg, Vienna, and Munich to observe how their skull base surgery programs are designed. Loyola is the only
While at Loyola, Dr. Canis spent the majority of his time with Dr. Leonetti, both in the outpatient setting and in-patient surgery. He estimates he observed five or six skull base tumor surgeries and some 20-25 cochlear implants over his three-week visit. He also spent an entire day with Dr. Sam Marzo, observing tympanoplasties, stapies surgery, and cholesteatoma removal.

"Loyola was great, very professional," says Dr. Canis. "The scheduling and the department structure are well managed and the systems are well thought-out. The clinic is very well structured. I was impressed by the way patients are treated."

"Patients come from quite a distance to see us," says Dr. Leonetti. "As a result, we've created a dedicated set of clinic hours specifically for skull base patients." Drs. Leonetti and Anderson see four to six new skull base tumor cases every Wednesday morning. By doing so in tandem, they are able to provide multi-disciplinary care in a single visit.

"Dr. Leonetti is a great guy and a great surgeon," says Dr. Canis. "He is always very professional. The way he talks to patients and treats them is unique, very good."

Dr. Leonetti credits the Center's success to its multidisciplinary approach, its team of dedicated physicians, and their participation in the North American Skull Base Society. Dr. Leonetti is also very involved in research and actively publishes on issues associated with cranial base surgery. Currently he is conducting studies on facial nerve function, including how to help protect the nerves throughout treatment, and how to help the nerves recover faster.

"Loyola residents are lucky to have such an excellent program for training," says Dr. Canis. "They get to see all of the ENT subspecialties, including the fancy stuff. They can really learn a lot in this program."

Dr. Canis is a specialist in otorhinolaryngology and has additional qualifications in allergy, medical oncology, and medical quality management.

"I had a great time and learned a great deal. I deeply appreciate the opportunity to visit Loyola."

The Center for Cranial Base Tumors recently printed a new brochure about its personnel and services. For a copy, please contact Barbara Torres at (708) 216-3659.

### Director of Audiology Retires

Michael J. M. Raffin, PhD, director of audiology has retired from Loyola University Health System after twenty years of service.

Together with other Loyola audiology and otology specialists, Dr. Raffin published a number of papers and made numerous presentations during his tenure.

Dr. Raffin obtained his master's degree in audiology and speech pathology at California State University at Los Angeles and his PhD in audiology from the University of Iowa, Iowa City.

The faculty and staff of Loyola's Department of Otolaryngology - Head and Neck Surgery wish Dr. Raffin a very happy and well-deserved retirement.

### Mission to Dominican Republic Helps Hundreds of Needy Patients

Loyola's Department of Otolaryngology - Head and Neck Surgery led its fourth medical mission to Santiago, Dominican Republic in February. The mission is conducted in cooperation with the Institute of Latin American Concerns.

Over the nine-day stay, Loyola physicians and volunteers treated a total of 491 patients. The first five days are reserved for clinic, where each patient is evaluated, and those not requiring surgery are treated. The last four days of the mission are dedicated to surgery. This year, surgeons performed 106 surgeries in those four days.

Audiologists conducted 120 audiograms and provided sixteen patients with hearing aids, allowing some of them to hear for the very first time.

Donations and volunteers are always welcome. If you would like to help with the next mission in 2014, Please contact Janet Lancsak at (708) 216-9637 for information.
At the Podium

James A. Stankiewicz, MD, chairman, Department of Otolaryngology-Head and Neck Surgery, was a member of the honored national faculty at the Mayo School of Continuous Professional Development's Endoscopic Sinus and Skull Base Surgery 2013.

Dr. Stankiewicz gave two presentations at the meeting: "Complications in ESS and their Management" and "Common Medical-Legal Issues in Rhinology". He also served on several panel discussions including, "Medical Therapy for Chronic Sinusitis: From Simple to Samters", "Common Causes of Failure of Primary Sinus Surgery and Optimizing Outcomes", and "Selection of Approach in Frontal Sinus Surgery".

The meeting took place at the Mayo Clinic Hospital campus in Phoenix, Arizona.

Dr. Stankiewicz was an honored guest speaker at the 8th Annual Sino-nasal Disorders and Allergy Update at the University of Pittsburgh. He spoke on "Complications of Sinus Surgery" and "Overview of Complications of Sinus".

The Connecticut Ear, Nose & Throat Society asked Dr. Stankiewicz to speak at the Annual Education Meeting at the Yale University School of Medicine. The theme of this year's event was "The Art of Otolaryngology: How Images Enhance Education." Dr. Stankiewicz presented a talk entitled, "The Low Skull Base—An Invitation to Disaster".

Kudos

Congratulations to Jeffrey Hotaling, MD (PGY-4) for winning third-place in the annual Lederer-Pierce Resident Research Competition of the Chicago Laryngological and Otological Society. His project, entitled, "Correlation of Critical Score Models with Outcomes After Tracheotomy in Critically Ill Patients" is featured in the Grand Rounds section of this newsletter.

John P. Leonetti, MD, professor and co-director of the center for cranial base tumors, recently celebrated his 30th anniversary at Loyola University Health System. His co-director, Douglas Anderson, MD celebrated his 35th anniversary as a Loyolan.

In Print

James A. Stankiewicz, MD was interviewed and quoted for an article at Next Avenue, a website that features information on work, finance and lifestyle issues for the 50+ audience. The article entitled, "The Surprising Connection Between Your Sinuses and Stroke" discussed the ways that untreated sinus irritation and subsequent inflammation could threaten an individual's health.

Michael J. Loochtan, MD, was first author for an article entitled, "Flexible laryngoscopy in post-seizure lingual hematoma" which appeared in Clinical Neurology and Neurosurgery (2013 March 6).

Meet the Docs

Sam Marzo, MD is the director of the Loyola Hearing and Balance Center and a professor in the Department of Otolaryngology - Head and Neck Surgery at Loyola University Health System.

He was awarded a Chick Evans Scholarship to the University of Illinois in Champaign, Urbana, where he majored in biochemistry. Dr. Marzo then earned his medical degree from Loyola University Stritch School of Medicine, and went on to complete an otolaryngology-head and neck surgery residency, also at Loyola. He then finished a fellowship in otology, neurotology and skull base surgery at the Otology Group in Nashville, Tennessee. Dr. Marzo is board certified in otolaryngology and neurotology.

Today his practice includes the medical and surgical management of diseases of the ear, facial nerve and skull base. Dr. Marzo is an expert in hearing restoration and is one of the most experienced otology surgeons in the Midwest.

He is skilled in all types of ear surgery including cochlear, BAHA, Esteem, and Maxum implants, as well as facial nerve disorders and acoustic neuromas. Dr. Marzo also has ongoing research projects in facial nerve injury and regeneration.

To make a referral to Dr. Marzo, please call Nurse Triage at (708) 216-3664. Patients who wish to make an appointment may call (708) 216-8563.
Recognized as leaders in their field, the faculty of Loyola’s Department of Otolaryngology-Head and Neck Surgery are specialists in rhinology, otology, neurotology, skull base surgery, head and neck cancer, laryngology, voice and swallowing disorders, allergy, sleep disorders, general and pediatric otolaryngology.

The department provides services in locations across the western and southwestern suburbs of Chicago, including Oakbrook Terrace, Woodridge, Wheaton, Homer Glen and Burr Ridge, as well as at Gottlieb Memorial Hospital and the Loyola University Health System main campus in Maywood.

For further information about the department or its services, please contact Jacqueline Burns, Office Manager at (708) 216-8526.