

Winter 2016

# Better Medicine

Lehigh Valley Health Network

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# Dos and Don'ts of Prescribing Antibiotics for Upper Respiratory Infections

By Debra Carter, MD and Glenn Kratzer, MD

*About the authors: Debra Carter, MD, is vice chair, department of pediatrics, ambulatory affairs, and practices at LVPG Pediatrics–Trexlerstown. Glenn Kratzer, MD, practices at Lehigh Valley Internists.*

It's a scenario every primary care provider or pediatrician has handled. A patient comes in with an upper respiratory infection (URI). The exam is unremarkable, with nothing that suggests a bacterial illness. But the patient has been miserable for days and wants more than assurances he'll feel better soon. "Doctor," he pleads, "can't you give me an antibiotic?"

Even though the vast majority of URIs are viral, antibiotics are still being prescribed for them, which contributes to the growing problem of antibiotic resistance. Patients may pressure their providers for antibiotics, but some providers themselves have developed a habit of overprescribing and created the expectation in patients.

## Treat wisely

How to deal with these demands? Remember a little education goes a long way. Gently explain antibiotics won't alleviate symptoms or shorten the course of the illness. Suggest comfort care measures, including over-the-counter pain medications, saltwater gargles and antihistamines (note that over-the-counter cold medications are not recommended for children under age 4). [The Centers for Disease Control and Prevention](#) and the [Association for Professionals in Infection Control and Epidemiology](#) also offer useful handouts that explain proper antibiotic use. Many patients and parents are simply seeking reassurance their



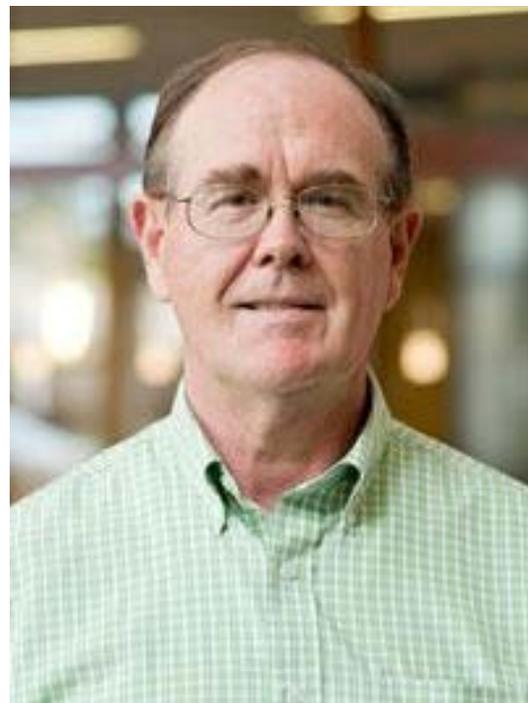
Debra Carter, MD  
Pediatrics

symptoms do not indicate something more serious.

At the same time, it's important to recognize the zebra in the herd of horses. Be on the alert for high fever, shortness of breath and the coughing up of blood, which may indicate pneumonia. Persistent illness for more than 10 days or a worsening course of symptoms after initial improvement may signal acute bacterial sinusitis (for which the American Academy of Pediatrics released updated treatment guidelines in 2013).

### **Promote prevention**

Finally, it's wise to review the basics of prevention: proper hand-washing; avoiding crowds; not sharing eating utensils; sneezing or coughing into the crook of the elbow; and getting a flu shot. Patients hear these messages constantly, but they carry added weight when their providers reinforce them.



**Glenn Kratzer, MD**  
General Internal Medicine

— *Winter 2016*

To learn more about LVHN's guidelines for antibiotic use, call 610-402-CARE.

# Hemophilia Treatment Center Offers Comprehensive Services

## Highly specialized treatment improves morbidity, mortality

Comprehensive care at specialized treatment centers such as the Hemophilia Treatment Center (HTC) at Lehigh Valley Hospital (LVH)–Muhlenberg reduces morbidity and mortality for children and adults with hemophilia.<sup>1,2</sup> LVH's Hemophilia Treatment Center is one of only seven HTCs in Pennsylvania.<sup>3</sup>

## About hemophilia

An X chromosome-linked genetic mutation, hemophilia affects an estimated 20,000 males in the United States, and approximately two-thirds of people with hemophilia have a family history of the blood disorder.<sup>4,5</sup> People with hemophilia may experience spontaneous bleeding due to partial or complete deficiencies of coagulation factors VIII or IX. Depending on the severity, hemophilia can cause musculoskeletal system bleeding; cranial bleeding, which may result in seizures and paralysis; and death if bleeding is uncontrolled or occurs in a vital organ.<sup>4</sup> Other complications may include heart disease, renal disease, obesity and reduced quality of life.<sup>4,5</sup>

## Expertise with a rare condition

Although there is not yet a cure for hemophilia, the highly specialized treatment and volume-based expertise HTCs provide in managing the condition reduces emergency department visits, hospital stays and illness-related absences from school or work.<sup>6</sup> "Hemophilia is a rare disease, which is why HTCs are crucial in ensuring that patients receive optimal treatment and ongoing disease management," says Adam Kotkiewicz, DO, with LVPG Hematology



Adam J. Kotkiewicz, DO  
Hematology-Oncology  
[Watch a video to learn more about him.](#)



Arnette Hams, RN, BS, OCN  
Clinical Services

Oncology–Muhlenberg.

LVH's HTC is part of a national network of federally funded HTCs. Providing access to multidisciplinary health professionals, LVH's center emphasizes preventive care that reduces complications and improves quality of life for the nearly 150 patients who receive ongoing treatment for hemophilia or

Von Willebrand disease, another bleeding disorder. "These are lifelong conditions, and I've watched many of our patients grow up," says Arnette Hams, RN, BS, OCN, HTC nurse manager. "Our focus is on providing services that allow patients to lead full lives in their own communities."

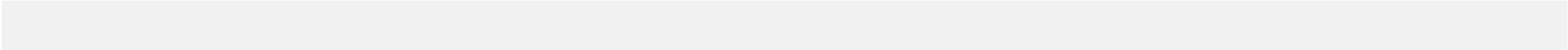
### **Coordinated care throughout the Lehigh Valley**

Patients from 20 Pennsylvania counties receive coordinated care from the center's hematologists, hemophilia nurses, laboratory technologists and pathologists, physical therapists and social workers. Other specialists, such as orthopedists, genetic counselors, nutritionists and vocational and financial counselors, are available.

Hams and the center's team educate hemophilia patients on medication adherence and self-management techniques, such as self-administration of factor replacement infusion therapies. They also connect patients and families with support services offered by organizations such as the National Hemophilia Foundation. "We also work closely with hematologists, surgeons and other practitioners in patients' home communities so care plans can be carried out close to home," Hams says.

1. "Mortality among males with hemophilia: relations with source of medical care." J. Soucie et al. *Blood*. 2000; 96(2): 437-42.
2. "Home-based factor infusion therapy and hospitalization for bleeding complications among males with haemophilia." J. Soucie et al. *Haemophilia*. 2001; 7(2): 198-206.
3. "Hemophilia treatment center (HTC) directory."  
[https://www2a.cdc.gov/ncbddd/htcweb/Dir\\_Report/Dir\\_Search.asp](https://www2a.cdc.gov/ncbddd/htcweb/Dir_Report/Dir_Search.asp)
4. "Facts." <http://www.cdc.gov/ncbddd/hemophilia/facts.html>.
5. "Data and statistics." <http://www.cdc.gov/ncbddd/hemophilia/data.html>.
6. "Hemophilia A." <https://www.hemophilia.org/Bleeding-Disorders/Types-of-Bleeding-Disorders/Hemophilia-A>.
7. "The benefits of comprehensive care of hemophilia: A five-year study of outcomes." P. Smith et al. *Am J Public Health*. 1984; 74(6):616-617.

To refer a patient to the Hemophilia Treatment Center, call 610-402-CARE.



# Specialty Medications Are Game-Changers

Only designated specialty pharmacies can dispense these advanced therapies

Health Spectrum Pharmacy now has its own specialty pharmacy division, a designation that allows it to dispense certain novel therapies, including biologics. Biologics are made from living cells and engineered to treat complex chronic or life-threatening conditions, such as multiple sclerosis, rheumatoid arthritis and cancer.

"Some of these therapies have been deemed curative," says Lauren Grantz, PharmD, CSP, director of operations for Health Spectrum Pharmacy at Lehigh Valley Health Network. "They work better than older, inorganic drugs with fewer side effects and can offer patients a better quality of life."



The downside? Most specialty medications require special handling, such as refrigeration. They also are very expensive – in the range of \$5,000 to \$30,000 per month – and involve intensive patient education, monitoring and management. For these reasons, specialty drug manufacturers limit distribution to certain specialty pharmacies – those that demonstrate compliance with their storage, packaging, monitoring and distribution requirements.

## Enhanced patient care

To achieve specialty pharmacy status, Health Spectrum had to establish that the infrastructure existed to maintain the integrity of these therapies. "As a large health system, we already had many of the necessary procedures in place to handle specialty medications properly, such as lab refrigerators whose temperatures are recorded multiple times per day," Grantz says.

Health Spectrum's specialty team provides "high-touch, patient-centered care," which includes contacting patients twice during the first month they're on a specialty therapy and monthly thereafter. Pharmacists also are available to speak with patients at the patient's convenience. "Many of these medications are [subcutaneous] injectables,"



Lauren Grantz, PharmD, CSP  
Pharmacy

Grantz says. "It can be scary for patients to have to inject themselves. Having a pharmacist to talk to provides an extra level of comfort."

If patients are uninsured or can't afford their co-pay, the specialty team can seek out financial assistance. "Many drug companies have robust patient financial assistance programs," Grantz says. All patient data and interactions are documented via TherigySTM, a specialty therapy care management platform that the specialty team uses to track patient compliance and outcomes.

### **Positive feedback**

When physicians prescribe a specialty medication, the process is streamlined. "Physicians can send us a prescription electronically through the patient's EMR or fill out a referral and send it to us," Grantz says. "Now that we have Epic, we take care of the reporting required for insurance preauthorizations so physicians, nurses and case managers can spend more time with their patients. This is often the most time-consuming step in getting patients access to their therapy. If Health Spectrum is not able to fulfill the order due to drug access or payor restriction, we'll take care of transferring the order to a pharmacy that can."

Although Health Spectrum's specialty pharmacy program is relatively new and only focusing on a limited number of disease states, it's off to a great start. "The feedback we've gotten from both patients and physician practices is phenomenal," Grantz says. "We're really looking forward to expanding the program to other LVHN specialties."

To refer a patient to the Health Spectrum Pharmacy–Specialty Division, call 610-402-CARE.

# Introducing the MSK Cancer Alliance in the Lehigh Valley

## Partnership brings new trials, expertise to local physicians

After two-plus years of planning, Lehigh Valley Health Network (LVHN) has formally launched an alliance with [Memorial Sloan Kettering \(MSK\) Cancer Center](#), the world's oldest and largest private cancer center.

The partnership, under the MSK Cancer Alliance, is the culmination of a significant effort to align care standards between the two organizations. It will make hundreds of leading-edge clinical trials available locally for the first time to patients in the Lehigh Valley.

The new partnership delivers three overarching benefits:

- Patients will now potentially have access to more than 800 clinical trials at MSK, as well as the latest discoveries in cancer research, many of which won't be available at other community hospitals for years.
- LVHN physicians can consult on their most complex cancer cases with MSK experts who have experience treating rare cancers and blood disorders, and will visit MSK to observe new techniques.
- Both institutions will share educational and clinical resources, align oncology programs and clinical metrics, and begin tracking data on quality, outcomes and patient satisfaction.

"The alliance allows us to introduce the newest and most effective standards of cancer care in the community setting," says hematologist oncologist Suresh Nair, MD, medical director of LVHN's cancer program. "MSK has more active clinical trials availability right now than anyone else. Patients in the Lehigh Valley with both rare and common cancers will now have access to those trials."

## Expanded trials

LVHN is opening five MSK trials, with plans to open 50 in the coming year. Trials will be opened based on the needs of the patient population. Some MSK trials are for very rare conditions, and there may be just one case in Lehigh Valley per year. But when such circumstances arise, that patient can be enrolled very quickly.



"We can select from a menu of more than 800 trials based on the needs of local patients," Nair says.

The partnership also benefits the progress of cancer research at large.

"In the molecular targeted age, to find cures for rare cancers, you need access to the patients," Nair says. "By having our patients as part of their network, MSK has access to more DNA targets to develop treatments for."

Physicians can begin referring patients for MSK clinical trials immediately. Their patients will receive the highest quality of cancer care through this partnership, while being treated close to home.

### **One of just two sites**

MSK created the alliance to bring the latest and most effective cancer treatment to community settings – where more than 80 percent of cancer care is delivered – faster. To achieve this, MSK has been extremely selective. Community providers must have well-established, high-quality cancer care resources in place and the ability to align their entire cancer program with MSK quality standards. After reviewing potential partners nationwide, LVHN was one of just two sites initially selected.

"This is not a typical relationship, which is why it was two years in the making," Nair says. "MSK is investing significant resources in these sites, and considered quality, infrastructure and capabilities. We are ranked among the top 100 oncology programs in the country by Becker's Hospital Review, and among the top 50 for cancer care by CareChex. These factors, as well as the national reputation of our clinicians, played a major role. Our selection is a tribute to the high quality of care that exists in our network."

### **Multidisciplinary expertise**

Another factor in LVHN's selection was the strength of its cancer disease management teams. Through this framework, the first step for any newly diagnosed patient is an evaluation by multidisciplinary clinics (MDCs) to jointly determine the most appropriate course of treatment. Teams include surgeons, medical oncologists and radiation oncologists with subspecializations in the patient's specific cancer, as well as genetic counselors and clinical trial coordinators. Patients leave the MDC visit with a single, cohesive written plan with input from all their providers. They work with a nurse navigator who coordinates their care through every step of the process. The MDCs also function as rapid second opinion services.



Suresh Nair, MD  
Hematology oncology  
[Watch a video to learn more about him.](#)

LVHN has long-established teams for breast, lung, prostate and gynecological cancers, and has launched new MDCs for melanoma, upper gastrointestinal and colon-rectal cancers as part of the alliance. LVHN experts will remain in constant contact with complementary teams at MSK to consult on cases. Effectively, patients can be co-managed by local experts working alongside MSK specialists in rare cancer types.

"MSK's Center for Molecular Oncology analyzes a patient's full genome and their tumor's genome to find rare mutations that may be targetable," Nair says. "As a result, the pace of progress in targeted therapies is now very fast. How we treat a cancer may change from month to month. Our disease management teams are extremely nimble and can continually update their approach based on new knowledge."

To refer a patient to an oncology clinical trial, call 610-402-CARE.

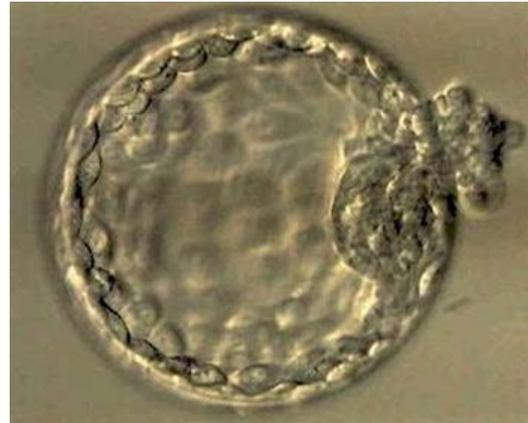


# Fertility-Sparing Treatments Available for Women With Cancer

## Gynecologic oncologists and reproductive endocrinologists offer therapies

Given the toxicity of chemotherapy and radiation, a cancer diagnosis in young patients once meant giving up the dream of having a family or more children.

However, with advances in care, "we're moving beyond the era of, 'if I have cancer, I just want to be alive,'" says Richard Boulay, MD, with [LVPG Gynecologic Oncology—1240 Cedar Crest](#). "With cure rates up, patients want to be able to go on with their lives just like others who haven't had to go through cancer treatment. And one of their biggest issues is preserving their fertility."



Women with cancer can cryopreserve their eggs or embryos before undergoing chemotherapy.

To meet the needs of these young patients, Lehigh Valley Health Network (LVHN) offers the latest in fertility-sparing treatments. Patients are typically identified in their regular obstetrician/gynecologist's (ob/gyn's) office. "If there's a suspicion of a malignancy on a biopsy or ultrasound, we refer patients to ob/gyn oncology," says Patrick McIntyre, MD, with [LVPG Obstetrics and Gynecology—1245 Cedar Crest](#).

The latest fertility-sparing techniques aim to protect fertility without impacting a patient's chances for recovery or long-term survival. "The treatments typically involve doing less than the standard therapy while still maintaining good tumor control," Boulay says.

In a 27-year-old patient diagnosed with an immature (malignant) teratoma at 12 weeks gestation, for example, Boulay and his team elected to remove the affected ovary and withhold chemotherapy until after the patient delivered a healthy baby girl via cesarean section at 34 weeks. Amending the standard treatment protocol – which is to surgically remove the cervix, uterus, fallopian tubes, ovaries

and several lymph nodes, and then administer a full course of chemotherapy – proved successful. The patient went on to have two additional healthy, full-term pregnancies.

In another area of fertility-sparing care, women with Hodgkin's disease and lymphoma or early breast cancer who desire pregnancy can be given Lupron (leuprolide) during chemotherapy. It potentially preserves ovarian function by reducing estrogen production.

Some patients with ovarian cancer also can be given chemotherapeutic agents that are less likely to cause infertility. Similarly, for women with early or advanced cervical cancer, traditional treatment includes hysterectomy. But with fertility-sparing surgery, just a portion of or the entire cervix is surgically removed. "After this procedure, patients can still get pregnant," Boulay says.

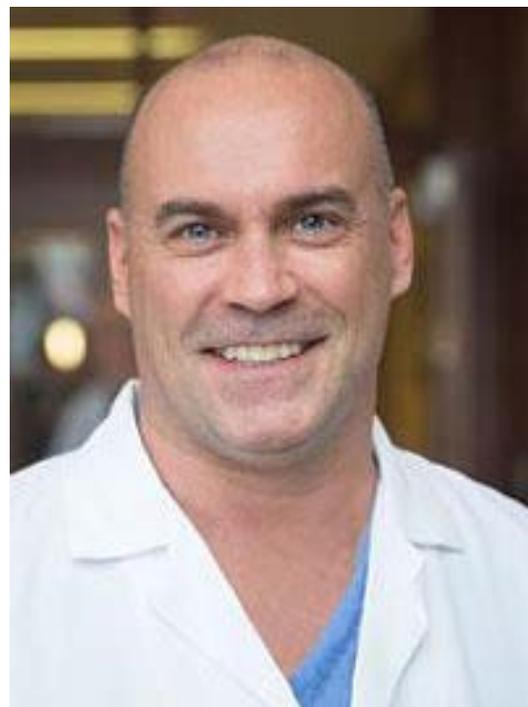
### **Partnering with reproductive endocrinology**

As an added precaution, "patients past puberty have the option of cryopreserving their eggs or embryos before undergoing chemotherapy," says Wendy Schillings, MD, LVHN's chief of reproductive endocrinology and infertility. Human oocyte cryopreservation is a recently FDA-approved method that's particularly advantageous for women with cancer who don't currently have a partner.



Richard Boulay, MD  
Gynecologic oncology

[Watch a video to learn more about him.](#)



Patrick McIntyre, MD  
Obstetrics and gynecology

[Watch a video to learn more about him.](#)

Overall, "fertility-sparing treatment is a big decision for young patients already dealing with a cancer diagnosis," Schillings says. Patients often need to decide quickly too. Still, "it's a relief to have the option."

To refer a patient for fertility-sparing treatment, call 610-402-CARE.



Wendy Schillings, MD  
Reproductive endocrinology

# How ECMO Helps Patients Heal from Hypothermia, Other Conditions

Technology has advanced in past 10 years

By James Wu, MD

*About the author: James Wu, MD, is a cardiothoracic surgeon with LVPG Cardiac and Thoracic Surgery—1250 Cedar Crest. He's part of a team that's used ECMO therapy on more than 140 patients in the past three years, including Justin Smith.*

The recent story about Justin Smith, the young man found frozen in a snow bank last February and brought back to life, has raised awareness of a therapy called extracorporeal membrane oxygenation, or ECMO. While ECMO is considered a last-resort option for someone with cardiac or respiratory failure, it's a technology that's a proven lifesaver.

ECMO technology has advanced in the past 10 years. It began to get major interest from the medical community because of how it helped adults with severe acute respiratory distress syndrome (ARDS) improve in-hospital survival during the 2009 H1N1 pandemic.

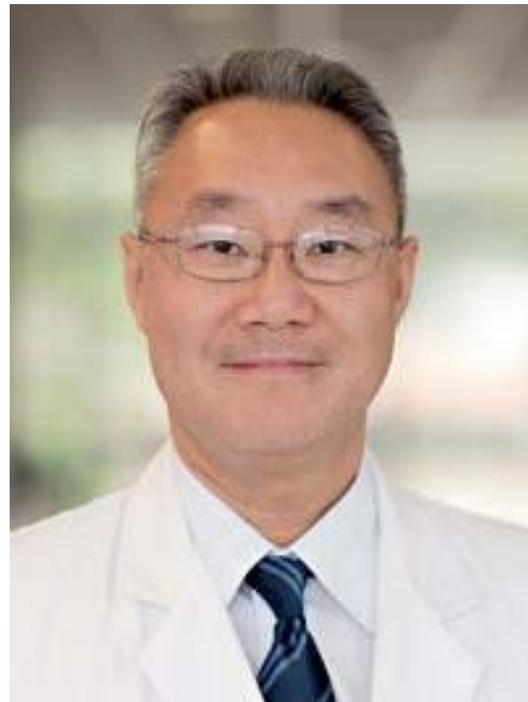
Those results were reported in the Journal of the American Medical Association (JAMA) in 2011.<sup>1</sup>

## How it works

In essence, ECMO treatments allow an injured or infected organ – most often the heart or lungs – time to heal.

There are two types of ECMO treatments for adults:

**Venovenous (VV) ECMO** – In this procedure, blood is drawn from the venae cavae through a catheter. That blood is then run through the ECMO machine, which removes carbon dioxide and adds oxygen. Then the blood is



James Wu, MD

Cardiothoracic surgery

[Watch a video to learn more about him.](#)

pumped back into the body. This type of ECMO allows a person's lungs to rest and heal.

**Venoarterial (VA) ECMO** – This procedure drains blood from the right atrium, then oxygenates the blood and returns it to the arterial system. This type of ECMO allows both the lungs and heart to rest and heal.<sup>2</sup>

## When it's used

ECMO can support people with numerous conditions, including ARDS, hypothermia, severe breathing and heart-related problems, burns, drug overdose and trauma. The use of ECMO often peaks during influenza season, from November through March.

Lehigh Valley Health Network introduced ECMO treatments for adults in 2013. Since then our team has cared for more than 140 patients on ECMO.

As recommended by groups such as the Extracorporeal Life Support Organization (ELSO), effective ECMO care requires a team of specialists, including cardiologists, pulmonary and critical care physicians and infectious disease doctors. This team is supported by surgeons, physician assistants, perfusionists and specially educated nurses. We all work together for ECMO to succeed.



In the past three years, ECMO has helped a man from Birdsboro rebound from a severe bout with ARDS. It's helped a pregnant woman from Minersville recover from a severe case of the flu and safely deliver her baby. And it helped Justin Smith survive despite spending 12 hours in the cold, with no pulse or respiration, and a body temperature of 18 degrees Celsius. As long as we can use ECMO, we can provide a higher level of care that wasn't available before.

[Watch a video about how ECMO works, and watch Justin Smith's survival story.](#)

1. "Referral to an extracorporeal membrane oxygenation center and mortality among patients with severe 2009 influenza A(H1N1)." M. Noah et al. JAMA. 2011; 306(15):1659-68.
2. "Position paper for the organization of extracorporeal membrane oxygenation programs for acute respiratory failure in adult patients." A. Combes et al. Am J Respir Crit Care Med. 2014; 190(5):488-96.

To refer a patient to LVHN's Heart and Vascular Center, call 610-402-CARE.

# WATCHMAN™ Offers New Nonvalvular AF Treatment Option

## Implant reduces stroke risk

Patients with nonvalvular atrial fibrillation (AF) may benefit from a new catheter-delivered heart device that physicians at Lehigh Valley Hospital (LVH) are now implanting. LVH is among the first hospitals in Pennsylvania to use the WATCHMAN™ implantable left atrial appendage (LAA) closure technology, providing a nonpharmacological alternative to anticoagulation therapy.<sup>1,2</sup>

## Treatment breakthrough

AF affects more than 5 million Americans, mainly ages 65 and older, and rates are projected to rise as the population ages.<sup>3</sup> Oral anticoagulation is the standard of care to reduce the risk for stroke, but warfarin-associated risk for bleeding, drug-drug interactions, the burden of monitoring and nonadherence are significant.<sup>4,5</sup>



The WATCHMAN™ device provides a nonpharmacological alternative to anticoagulation therapy.

"For a sizable proportion of patients with AF, there is a real need for an option to anticoagulants," says electrophysiologist Babak Bozorgnia, MD, with [LVPG Cardiology—1250 Cedar Crest](#). "The WATCHMAN™ device provides that alternative, and is distinguished by robust evidence of efficacy and safety." Clinical trials have shown that the device can be implanted safely, enables patients to discontinue warfarin and compares to warfarin in reducing AF stroke risk.<sup>6-8</sup>

Inserted through a minimally invasive catheterization procedure, WATCHMAN™ is permanently implanted by a team of three Lehigh Valley Health Network (LVHN) cardiologists via a transseptal approach. An access sheath allows the team to get at the LAA, with use of transesophageal echocardiography (TEE) to ensure proper positioning and stability. The deployed device then opens to plug the LAA.

"A multidisciplinary team is required to perform this

procedure safely, and our team draws on its experience with collaboration in LVHN's transcatheter aortic valve replacement (TAVR) program," says Bozorgnia's colleague, interventional cardiologist Nainesh Patel, MD.

### Patient eligibility

The FDA suggests WATCHMAN™ be used only in patients who are at increased risk for stroke and systemic embolism and are recommended for anticoagulation therapy; are deemed by their physicians to be suitable for warfarin; and have appropriate rationale to seek a nonpharmacologic alternative to warfarin.<sup>1</sup> The one-hour procedure is performed under general anesthesia, and patients are typically discharged the next day. "Once the procedure is completed and the device is deployed, the risk is minimal," Patel says. Warfarin therapy is required for approximately 45 days postsurgery while tissue grows over the device.

LVHN's cardiology team expects to implant 60 to 100 WATCHMAN™ devices annually. "Initially, we expect this procedure will be for high-risk patients who cannot tolerate anticoagulation, typically due to bleeding," Bozorgnia says. "There is the potential, though, for wider use in the future for younger patients with highactivity lifestyles."



Babak Bozorgnia, MD  
Electrophysiology

[Watch a video to learn more about him.](#)



Nainesh Patel, MD  
Interventional cardiology

[Watch a video to learn more about him.](#)

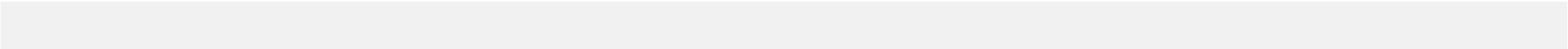
1. "WATCHMAN LAA Closure Technology – P130013." Food and Drug Administration website.

<http://www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/DeviceApprovalsandClearances/Recently-ApprovedDevices/ucm440621.htm>.

2. "Left atrial appendage occlusion: opportunities and challenges." D. Holmes et al. J Am Coll Cardiol. 2014; 63(4): 291-8.
3. "Heart disease and stroke statistics – 2013 update: a report from the American Heart Association." Go A. et

- al. *Circulation*. 2013; 127(1): e6-e245.
4. "Atrial fibrillation and stroke management: present and future." D. Holmes. *Semin Neurol*. 2010; 30(5): 528-36.
  5. "Current issues in patient adherence and persistence: focus on anticoagulants for the treatment and prevention of thromboembolism." P. Kneeland et al. *Patient Prefer Adherence*. 2010; 4: 51-60.
  6. "Percutaneous closure of the left atrial appendage versus warfarin therapy for prevention of stroke in patients with atrial fibrillation: a randomised non-inferiority trial." D. Holmes et al. *Lancet*. 2009; 374(9689): 534-42.
  7. "Prospective randomized evaluation of the Watchman Left Atrial Appendage Closure device in patients with atrial fibrillation versus long-term warfarin therapy: the PREVAIL trial." D. Holmes et al. *J Am Coll Cardiol*. 2014; 64(1): 1-12.
  8. "Safety of percutaneous left atrial appendage closure: results from the Watchman Left Atrial Appendage System for Embolic Protection in Patients with AF (PROTECT AF) clinical trial and the Continued Access Registry." V. Reddy et al. *Circulation*. 2011; 123(4): 417-424.

To refer a patient to the Heart and Vascular Center, call 888-402-LVHN.



# Preventing Stroke in Patients with Carotid Narrowing

## CREST-2 study to determine best practices

When a stroke patient has symptomatic high-grade carotid stenosis, operative revascularization is typically indicated. But what if patients are asymptomatic? Revascularization carries its own risks, including the potential to cause stroke itself. But is medical management enough on its own?

A series of trials in the 1980s and 1990s, including the Asymptomatic Carotid Atherosclerosis Study (ACAS) and Carotid Revascularization Endarterectomy versus Stenting Trial (CREST-1), returned an initial answer. ACAS revealed that operative intervention was superior to medical management alone for asymptomatic patients. CREST-1 determined that endarterectomy and stenting with embolic protection could be equally effective and low-risk, depending on patients' ages and risk factors.

If the same comparison were made today, would revascularization still prove superior? A new trial, CREST-2, aims to find out.

"It's our responsibility to make sure we're offering patients the best option to prevent stroke," says Lehigh Valley Health Network (LVHN) cardiologist Bryan Kluck, MD, with LVPG Cardiology. "It may be that medical therapy has improved so much that the indications for revascularization are wholly different than they were two decades ago. But we must find this out."

## Launching CREST-2

The CREST-2 study seeks to enroll 2,480



Colored 3-D computed tomography angiography scan of a patient's neck arteries shows a stenosis (at center left) of the carotid artery due to atherosclerosis.

participants across the United States and Canada. All patients will receive intensive medical management, including antiplatelet and hypertensive agents, statins and aggressive lifestyle management (exercise, diet, smoking cessation).

Individuals will then be randomly selected for one of three arms:

- Intensive medical management alone
- Medical management in combination with carotid artery stenting
- Medical management with carotid endarterectomy

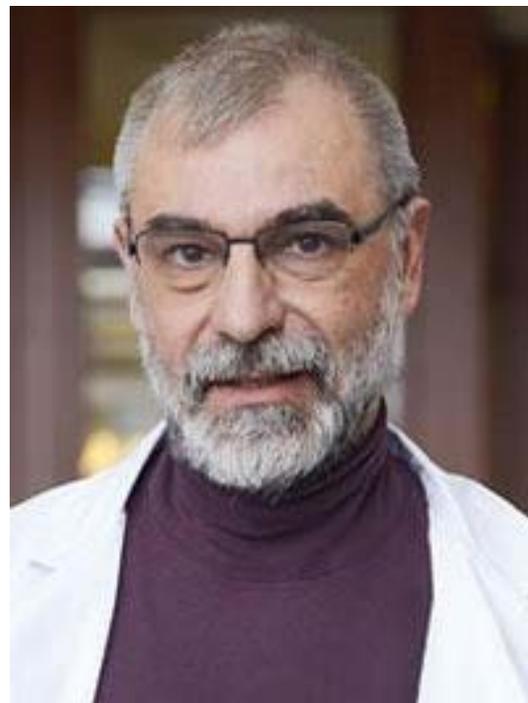
Patients will be tracked an average of five years.

"The trial will tease out who does better among patients who are and are not having revascularization, and how we can appropriately adjust our risk/benefit profiles to do the best thing in each case," says James Guzzo, MD, LVHN's chief of vascular surgery.

### **A strong clinical partner**

LVHN aims to enroll 10 patients in the trial. To qualify, individuals must be 35 or older, have narrowing of 70 percent or greater in at least one carotid artery and have no other serious medical complications.

"In meetings for ACAS, some said it was impossible



Bryan W. Kluck, DO  
Cardiology

[Watch a video to learn more about him.](#)



James Guzzo, MD  
Vascular surgery

[Watch a video to learn more about him.](#)

to do carotid endarterectomy with less than 6 percent stroke risk," says John Castaldo, MD, LVHN's chief of neurology. "Our surgeons were operating with less than 1 percent risk. We have surgeons who have been doing this for over 30 years. These are the people we want in this study to pit the best of surgery against the best medical management."

To refer a patient for the CREST-2 study, call 610-402-CARE.



John Castaldo, MD  
Neurology

# Pocono Health System, LVHN Sign Agreement to Merge

Pocono Health System (PHS) and Lehigh Valley Health Network (LVHN) announced on Dec. 16, 2015, they have signed an agreement for a full-asset merger, pending regulatory approvals.

The PHS Board of Directors and LVHN Board of Trustees, in separate meetings, authorized the agreement.

In May 2015, the two organizations announced they had signed a letter of intent to merge subject to due diligence, the negotiation of definitive transaction documents and approval from regulators.



Pending completion of regulatory approvals, the parties expect the proposed merger to take effect in the first half of 2016.

## 'Hospital of the future' planned

"This agreement takes us one step closer to realizing this merger," said Jeff Snyder, FACHE, FHFMA, president and CEO of PHS. "It will bring continued growth and expansion in health care services for Poconos residents, providing them greater access to the highest-quality clinical care, the most sophisticated technology and advanced health records systems, and the largest and most experienced physician network in the area."

According to the terms in the agreement, LVHN anticipates developing with PHS a hospital of the future in Pocono Township as was announced in late fall 2014 that incorporates the highest level of clinical competence to provide the highest-quality care close to home. The merged entity will also create ambulatory health centers, develop and grow essential clinical services, recruit primary care physicians and increase access to specialists. In addition, LVHN is committed to providing more integrated care to the Pocono region through population health management, which includes sharing a common electronic medical records system.

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## Building on past affiliations

Brian Nester, DO, MBA, FACOEP, LVHN's president and CEO, said, "Pocono Health System is a highly valued

community hospital that cares deeply for the Pocono region. We, at Lehigh Valley Health Network, commend the leadership of Pocono Health System for their exceptional oversight of this vital community asset. We applaud their accomplishments and look forward to making a great system of care even better for our communities."

The decision to merge builds upon a historical affiliation between the two organizations. Pocono Medical Center (PMC) became an accredited trauma center in November 2008 with LVHN serving as the Level I trauma partner.

An agreement with LVHN to provide interventional radiology services commenced shortly thereafter.

### **Partnerships in oncology and children's care**

Most recently, an agreement was reached to have LVHN provide professional services in radiation oncology at the Dale and Frances Hughes Cancer Center beginning in March 2015. Also in 2015, PMC and the Lehigh Valley Children's Hospital announced a partnership with the Monroe County Community Safety Program to educate and provide services in areas that include child car seat safety, distracted driving and accident prevention.

With more than 230 physicians and 2,000 employees, PMC is one of Monroe County's largest employers, offering a full complement of clinical and acute care services for Monroe and surrounding communities. It was recently recognized as being among the top 10 percent in Pennsylvania and as a Best Regional Hospital by U.S. News & World Report.



# Helping Athletes Achieve Their Highest Potential

## Sports medicine, sports performance programs offer treatments and solutions

Professional and elite athletes from around the region, including members of many area professional sports teams, rely on Lehigh Valley Health Network's (LVHN's) sports medicine and sports performance services for injury prevention and treatment, rehabilitation and sport-specific training programs. These same services and deep level of expertise are available to athletes of any age or skill level.

### Targeted treatment

At [LVPG Sports Medicine—One City Center](#), Faisal Al-Alim, MD, leads a team of experts who treat a variety of sports-related and musculoskeletal injuries and chronic issues, including overuse injuries, joint pain and concussion. Al-Alim is a family medicine physician who is fellowship-trained in sports medicine.

"We aim to pinpoint the source of the problem, understand the athlete's goals and offer customized treatments, which may include cortisone injections, medication and rehabilitation," Al-Alim says. "We're able to get injured athletes up to their baseline, where they're painfree, and then refer them to the sports performance team, who can work with them to prevent future injuries and help them achieve their goals."

Al-Alim works closely with the Concussion and Head Trauma Program at LVHN—One City Center to provide baseline concussion testing and administer postinjury impact evaluations. These tests determine the extent of the concussion, helping to decide when athletes are ready to return to their sport.



Nazareth native Sage Karam, who drives for the Chip Ganassi Racing Team in the IndyCar series, is training at LVPG Sports Medicine—One City Center.



Faisal Al-Alim, MD  
Sports medicine

[Watch a video to learn more about him.](#)

## Surgical solutions

For athletes who require surgery, LVPG Sports Medicine offers orthopedic surgeons and a sport-specific rehabilitation team of physical therapists.

The surgical team includes orthopedic surgeon Neal Stansbury, MD, who is fellowship-trained in sports medicine. Stansbury offers procedures including anterior cruciate ligament repair, hip arthroscopy, fracture treatment, rotator cuff repair and many others. He combines 20 years of experience with a passion for exploring the latest technology and techniques.

"Orthopedic sports medicine is a very dynamic field," he says. "Every procedure I do is dramatically different from the way I did it 20 years ago. There's a constant demand for better outcomes and decreased disability times."

## Sports performance

The sports performance program at LVHN—One City Center helps athletes address weaknesses, prevent injuries and reach maximum on-field performance.

Athletes are put through a series of tests to measure mobility, strength, motor control, stability and any faulty or compensatory movements that could lead to future injury. They then work with certified strength and conditioning coaches to design a cross-training program to maximize proper movement patterns unique to their bodies. Finally, they apply those patterns to enhance sport-specific skills.



Neal Stansbury, MD  
Orthopedic surgery

[Watch a video to learn more about him.](#)

Sports performance offers leading-edge training technologies, including:

- **Dartfish video analysis** – This system provides immediate visual feedback and in-depth movement analysis of angles, speed and trajectory to remediate, restore and maximize performance. By capturing video and breaking it down frame by frame, experts can analyze everything from a runner's gait to a pitcher's throwing technique. The videos can be stored and viewed for side-by-side comparisons to track an athlete's progress.
- **Zephyr™ Technologies BioHarness** – This instrument provides real-time physiological and biometric feedback, including heart rate, breathing, posture and peak acceleration, to gauge intensity and duration of a training session.
- **Wattbikes** – These indoor bikes replicate the feel of the road while providing cycling-specific performance data, including cadence, power and pedal technique.

These training technologies are available to any athlete, including professionals, amateurs and "weekend warriors." The staff regularly collaborates with athletic trainers of local high school and college teams to design rehabilitation and training programs for student athletes.

"We understand and appreciate passion at all levels of athletic performance," says Stansbury, himself a former elite cyclist. "Now we have a fully integrated system that places treatment, rehabilitation and training resources under one roof for complete continuity of care."

### **LVHN Serves the Region's Sports Teams and Venues**

LVHN serves as a health care partner for numerous professional and scholastic sports teams and venues, including:

- Lehigh Valley Phantoms, the top minor-league affiliate of the Philadelphia Flyers hockey team. LVHN providers work with the Philadelphia Flyers medical staff in following protocols for treating Phantoms player injuries. LVHN also is the medical provider for all events held at the Phantoms home arena, the PPL Center in Allentown.
- Valley Preferred Cycling Center, the epicenter of cycling in the United States and home to the Velodrome, one of the fastest outdoor cycling tracks in the world.
- Pocono Raceway, host of NASCAR and IndyCar races.
- Lehigh Valley SteelHawks – LVHN is now the official health care provider for the local American Indoor Football league team.
- Eastern Pennsylvania Conference (EPC) – LVHN provides physician and athletic training services, plus medical supplies, at EPC scholastic championship playoff events.
- LVHN Via Marathon, the third-fastest marathon in the country, held locally each September.

To refer a patient for sports medicine treatment at LVHN, call 888-402-LVHN.

# Exceeding Expectations for Orthopedic Services

The Center For Orthopedic Medicine–Tilghman at Lehigh Valley Health Network (LVHN)–Tilghman has a well-earned reputation for state-of-the-art orthopedic care. Its clinicians also strive to create an outstanding experience for patients.

Judging by Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey scores, they are succeeding.

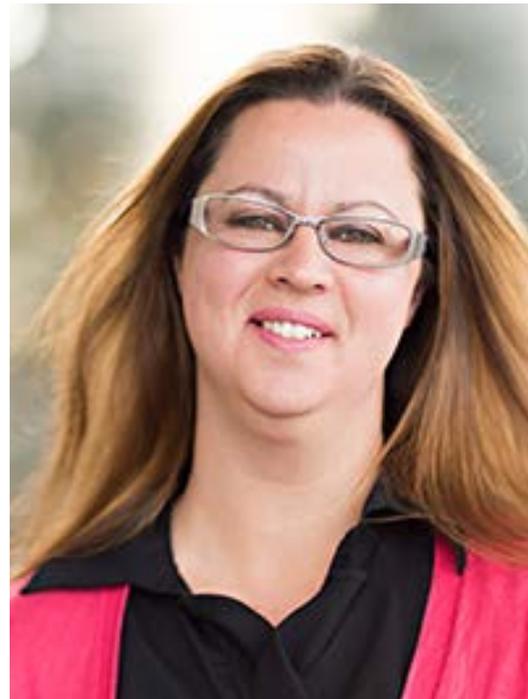
During fiscal year 2015, the center exceeded its HCAHPS targets in every area tracked – in many cases by significant margins. The center earned elite scores in communication with doctors and ranked in the 99th percentile of HCAHPS scores in the following areas:

- Overall hospital rating
- Communication with nurses
- Responsiveness of staff
- Hospital environment
- Discharge experience

Overall, more than nine in 10 patients would recommend the center to family and friends, placing it in the 99th percentile nationally.

"We focus on patient engagement from before surgery, through every department and discipline, to discharge and beyond," says Melissa Rasmussen, BSN, RN, PCCN, director of clinical services for the center. "We pride ourselves on our total team commitment to making the patient's experience the best it can be."

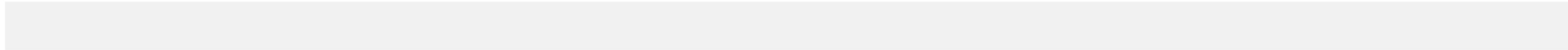
To refer a patient to the Center for Orthopedic



Melissa Rasmussen, BSN, RN, PCCN

Medicine—Tilghman, call 610-402-CARE.

Clinical services



# Otolaryngology Expertise Close to Home

## ENT specialist now available through LVPG

Primary care providers are the first line of defense against ear, nose and throat (ENT) problems, and many such cases are treated effectively in their offices. However, some complaints may be signs of serious underlying issues that require next-level care.

Lehigh Valley Health Network (LVHN) now offers otolaryngology expertise at the newly opened [LVPG Ear, Nose and Throat–17th Street](#) practice in Allentown.

"We are the only ENT practice with LVPG, and are fully connected to the LVHN electronic medical record system," says Kevin Kriesel, MD, ENT specialist with the practice. "We have all the capabilities, ranging from expertise to diagnosis and any support that may be required. We can refer within LVHN as needed for imaging, invasive testing, surgery or other procedures we deem necessary close by. We keep everything local to promote better continuity of care."

## Services available

The practice provides a broad spectrum of otolaryngology services for patients of all ages.

Specialists treat disorders of the:

- Ear, including hearing problems, persistent infections, balance disorders, tinnitus and cranial nerve disorders
- Nose, including allergies, problems with smelling, sinus infections and obstructed breathing
- Throat, including diseases of the larynx, upper aerodigestive tract and esophagus, as well as voice and swallowing disorders

Surgical services include endoscopic sinus surgery, myringotomy, laryngoscopy, excision of salivary glands and oral lesions, lymph node biopsy and excision, septoplasty and many others. The practice's specialists possess decades of combined experience and fellowship training in cancer care, with expertise ranging from addressing common conditions to evaluating and treating complex cancers.



[Kevin Kriesel, MD](#)  
Otolaryngology

Audiology services also are available at the practice. Tasha Reck, AuD, works with Kriesel to evaluate patients for possible hearing problems, as well as balance and related disorders.

### **When to refer**

Providers should refer patients with airway obstructions, swallowing issues or decreased hearing, especially cases of sudden onset. In particular, they should watch for symptoms that may be signs of cancer.

"If a patient is hoarse for four to six weeks and not responding to treatment, we should look at the vocal cords," Kriesel says. "Ear pain of unknown cause for several weeks could be a sign of a head or neck cancer, as well as persistent lumps in the neck. Additionally, if patients have sudden hearing loss, it's important to come in immediately, as we may be able to salvage their hearing."

Providers can also refer for:

- Recurring sinus infections or nosebleeds that cannot be managed successfully
- Recurrent sore throat or noisy breathing in adults or children
- Any condition that requires a second opinion

To refer a patient to an ENT specialist, call 610-402-CARE.



Tasha Reck, AuD  
Audiology

# Additional Expertise in Pediatric Neurology

## Expanding department improves patient access

To meet the growing demand of the pediatric neurology patient population, Lehigh Valley Children's Hospital is committed to increasing local access to this service line.

As a result, pediatric patients now have a choice of four Lehigh Valley Health Network (LVHN) pediatric neurologists from whom to receive care. Joining Muhammed Sheikh, MD, in the department are Sameh Morkous, MD, chief of the pediatric neurology section, and board-certified pediatric neurologist Zuhal Ergonul, MD, PhD.

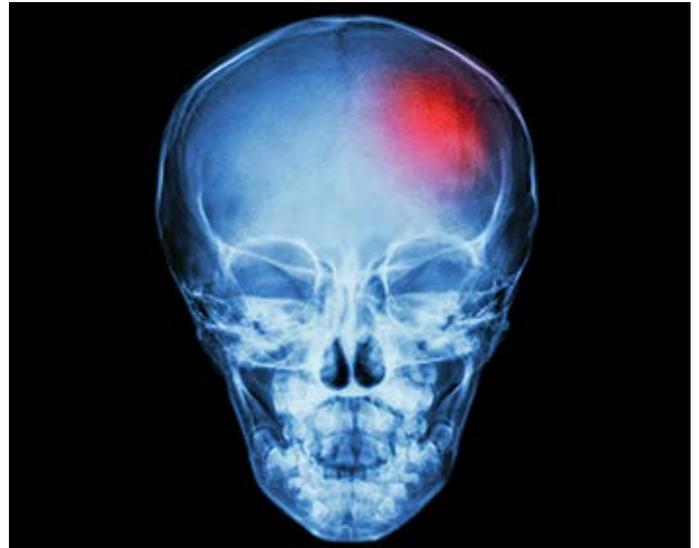
Ergonul is one of the few neurologists nationwide with a subspecialty board certification in both pediatric neurology and headache medicine. Similarly, Morkous is one among a select group of pediatric neurologists in the United States who also is fellowship-trained in sleep medicine.

## Patients for pediatric neurology referral

Although the majority of Morkous's practice is pediatric patients with seizures or epilepsy, a focus of his dual specialization in pediatric neurology and pediatric sleep medicine is the intersection between epilepsy and obstructive sleep apnea (OSA), which overlaps in 1 percent of the pediatric epilepsy population.<sup>1,2</sup>

"If patients with intractable seizures are screened for and found to have sleep apnea, their seizures may be better controlled by treating the sleep problem," Morkous says.

He also will see patients with general pediatric neurology problems, like dysmorphic features, such as an abnormal size and shape of the head, headaches and symptoms related to sleep apnea, including snoring and episodes of breathing



## Meet Our Two New Pediatric Neurologists



cessation during sleep.

Sameh Morkous, MD  
Pediatric neurology

Ergonul's clinical concentrations are concussion in children and childhood primary headache disorders, such as migraine, in addition to other general pediatric neurology conditions, including seizures and developmental delay.

### **A wealth of experience and expertise**

A graduate of the Alexandria University School of Medicine in Egypt, Morkous practiced previously for six years in Danville as part of the Geisinger Health System; he completed a sleep medicine fellowship at University Hospitals Case Medical Center in Cleveland. He also is a clinical assistant professor in the department of pediatrics in the school of medicine at Temple University.

"I'm excited to be a part of LVHN's expanding pediatric neurology department and to help improve access so patients won't have to travel far for specialty care," Morkous says.



Zuhul Ergonul, MD, PhD  
Pediatric neurology

After receiving her medical and doctorate degrees, respectively, from Ankara University and Hacettepe University in Turkey, Ergonul completed a postdoctoral associate in physiology and biophysics from Weill Cornell Medical College in New York City. She was previously an instructor in pediatrics there.

1. "Pediatric sleep disordered breathing/obstructive sleep apnea." American Academy of Otolaryngology—Head and Neck Surgery. <http://www.entnet.org/content/pediatric-sleep-disorderedbreathingobstructive-sleep-apnea>.
2. "Epilepsy fast facts." Centers for Disease Control and Prevention. <http://www.cdc.gov/epilepsy/basics/fast-facts.htm>.

To refer a patient to pediatric neurology, call 610-402-CARE.