

# Making a Difference

## Surviving & thriving

Teen and her family are grateful they could  
find highly specialized care locally

### When the doctor becomes the patient

Hyden physician lives to tell about  
the benefits of networked care

### Pro golfer finds help for Parkinson's

Indiana golfer rallies his own resources  
and those of friends to fight back

### UK HealthCare at Turfland

New facility offers convenience for UK Family  
& Community Medicine patients and others



# Making a Difference



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When high school student Emily Dawson was stricken with bone cancer, it took a host of UK HealthCare specialists to ensure she would not only beat the cancer but come through it with the best options for her future.



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Beloved Hyden internist, Roy Varghese, MD, credits his survival of a massive heart attack to the love of family, faith and excellent care across three hospitals.



## 16 Get up, dress up, show up.

Indiana pro golfer Doug Kuntz credits his ability to keep doing what he loves to excellent medical care from UK HealthCare, being in good shape, and a daily pep talk he gives himself.



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New UK HealthCare location now open at Turfland

Summer 2015

*On the cover:*  
Student Emily Dawson has returned to the sport of archery at Paul Laurence Dunbar High School following complex orthopaedic surgery and chemotherapy to combat osteosarcoma found in her leg.

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Michael Karpf, MD

Each patient story in this issue clearly shows the benefits of collaborating across medical and surgical disciplines. Today's best medicine is about teamwork, and that comes through loud and clear.

From Emily Dawson and her family we see the real benefit of having advanced subspecialty care here in Lexington. Before Drs. O'Donnell and Wagner joined our team, a case like Emily's would have had to seek treatment out of state. Instead, she was able to have chemotherapy, surgery, more chemotherapy, physical therapy and follow up near where she lives. Not only did she receive the kind of care available only at the nation's top academic centers, she received it surrounded by her entire support system.

We see teamwork of a different kind in the story told by Hyden physician Roy Varghese. Stricken by a heart attack, Dr. Varghese experienced several transitions of care: from Mary Breckenridge ARH, to Hazard ARH, to UK Chandler Hospital. Each of these hospitals belongs to the Gill Heart Affiliate Network – sharing evidence-based practice and protocols to improve heart care. At every step along the way, this physician received life-saving care critical to his remarkable recovery.

Finally, Parkinson's patient Doug Kuntz demonstrates the caliber of our care. Doug drives three hours one way to see Dr. Slevin and his team. Doug is thankful for the medical management; enabling him to continue work as a golf pro and play the game he loves. Impressed by the promise of our advanced therapies and clinical research, Doug has raised \$150,000 for the Kentucky Neuroscience Institute and its work on Parkinson's and similar diseases.

Words cannot express how proud I am of the entire UK HealthCare team. We have made astounding progress as a system, and we remain committed to improving quality, safety, efficiency, access and service. I offer my sincere thanks to the UK HealthCare family. You are making a real difference in the lives of people in Kentucky and beyond.

And on behalf of the people of UK HealthCare, we thank those of you who trust us with your care.

Sincerely,

Michael Karpf, MD  
Executive VP for Health Affairs  
UK HealthCare® / University of Kentucky

We are meeting  
the needs of the  
**Commonwealth**  
and beyond





# It takes ‘a village’ to treat a teen’s tumor

**I**n October 2013, Emily Dawson’s right knee began to hurt. The active and athletic 15 year old had run in a 5K mud run; three days later, the tall, thin Lexington teen couldn’t walk. Her mom, Andrea, ran to Rite-Aid for crutches.

Emily was puzzled. She hadn’t fallen or bumped her knee. “Maybe you ripped your meniscus,” her mom said.

The Dunbar High School student’s knee returned to normal after several days’ rest and over-the-counter pain medications. A few weeks later, she spent an afternoon walking around the mall with friends. Again she was unable to put weight on her leg, but again, with rest and pain medications, the pain abated. Off and on throughout the fall, the knee hurt.

X-rays showed nothing; the pain was thought to be meniscus-related or “growing pains,” common among teens. It was recommended that if the pain had not resolved by January, Emily would have an MRI.

On Dec. 17, her mother’s 43rd birthday, Emily posed in front of the fireplace, brown hair touching her shoulders, her long legs bent, arms wrapped behind her knees.

*Emily Dawson is back to archery practice with the team at Dunbar High School, l.-r., Daniel Dawson, Emily’s brother; Jillian Bruce; Serena Fister-Mesch; Emily; Hailey Townsend; and Cameron Northcutt.*

Moments later, as she walked over to the Christmas tree to grab a birthday present for her mother, Emily fell to the floor in excruciating pain, unable to get up or move.

“I can’t move my leg; something is wrong,” her mother recalls Emily said. Emily’s dad, Matt, cut away the leg of her jeans to check her right knee. It was swollen twice its normal size.

Still, the family hoped the problem was a torn meniscus. But an MRI the next day showed something much worse, and completely unexpected: A broken leg.

“She didn’t fall. How do you break a leg without falling?” said Andrea to their doctor.

Shaken, the doctor said, “Unhealthy bone due to a tumor.”

Emily and Andrea began to cry as the realization set in that a tumor could mean cancer.

## **Focus on this: It is treatable and beatable**

Her doctor suspected Emily had osteosarcoma, primary bone cancer, and he knew exactly who to call. Two days later, the Dawsons were in the office of Patrick O’Donnell, MD, PhD, a surgeon at the Markey Cancer Center who specializes in orthopaedic oncology. With his addition to the staff three years ago, UK Chandler Hospital became one

of only two hospitals in Kentucky where surgeries are performed on osteosarcoma patients.

Osteosarcoma is an extremely rare form of human cancer. According to the American Cancer Society, there are about 800 new cases in the United States each year and about 400 of those are in children and teens. Based on the MRI, O’Donnell was nearly positive Emily had osteosarcoma, but a biopsy would give confirmation. If she did, Emily would need a course of treatment that would last nearly a year.

Like all families faced with such news, the Dawsons were stunned. O’Donnell, a parent himself, makes a point to deliver information to distraught families in small pieces. “When a family gets a new diagnosis of cancer, there is good data that shows the family and patient stop listening,” he said. “I try to deliver the information like layers of an onion and give important news up front.”

Looking back, Andrea Dawson appreciates the approach. “He didn’t overwhelm us with all of the facts at once. That was one of the things we really loved about him. If he had told me all that her treatment entailed, I would have gone in the nuthouse.”

As gentle as he was in delivering the news, O’Donnell was adamant about the need to start chemotherapy immediately, which would knock



“He didn’t overwhelm us with all of the facts at once. That was one of the things we really loved about him. If he had told me all that her treatment entailed, I would have gone in the nuthouse.”

– Andrea Dawson, Emily’s mother

Of oncology orthopaedic surgeon Patrick O’Donnell, Andrea said, “He always wanted to make sure we could feel comfortable in an uncomfortable situation.” Here, Andrea discusses Emily’s future care with O’Donnell and Tracy Profitt, APRN.

Emily out of a family cruise the following week to celebrate her grandparents’ anniversary. “He was bold, but he knew what was right for the patient,” said Andrea.

“It is the rarest type of cancer,” said O’Donnell, “but also the most aggressive, so you have to be aggressive surgically and also with the chemotherapy.”

He gave the Dawson family a piece of good news, a hope to hang onto. O’Donnell said he believed Emily’s cancer could be cured. He uttered a phrase that would become a mantra for the Dawsons over the next year. “I told them, ‘The big thing I want you to remember is that Emily’s cancer is treatable and beatable.’”

And they did. “It is treatable and beatable, and we are going to get it.’ He said that many times,” said Andrea.

**A plan to attack the tumor**

From late December 2013 to August 2014, Emily would be in and out of Kentucky Children’s Hospital as she underwent rounds of chemotherapy, limb salvage surgery and additional chemotherapy. She would spend 82 nights there.

Her chemotherapy regimen included methotrexate, given at the highest possible doses, which required Emily to be in the hospital for four nights as each dose of the chemotherapy was administered. The methotrexate was followed by doses of leucovorin, a rescue medication needed to save normal cells and help prevent unwanted side effects.

Between treatments Emily would go home for three days. About one-third of the way through those treatments, O’Donnell discussed Emily’s surgery with her family. Ten years ago, amputation was the only option for patients with osteosarcoma. Now, in most cases, limb salvage surgery can be done to save a patient’s arm or leg.

During Emily’s nine-hour surgery, any tumor that remained after the chemotherapy was removed, as well as a significant margin of bone above and below the tumor. Because her tumor was at the top of the tibia, O’Donnell removed that bone down to her mid-calf. It was replaced with a titanium rod. Most of her knee joint was replaced with a prosthesis. A portion of her femur or upper leg bone near the knee was also removed and replaced with a titanium rod. After the surgery, Emily was given a few weeks to recover from the surgery and let the long wound down the front of her leg begin to heal. Then, chemotherapy resumed.

**A team approach to care**

During Emily’s treatment and recovery, the Dawson family found support, solace and smiles delivered by caring staff at Kentucky Children’s Hospital and DanceBlue Kentucky Children’s Hospital Hematology/Oncology Clinic.

Like O’Donnell, Tracy Profitt,



Pediatric oncologist Lars Wagner, MD, of the DanceBlue Kentucky Children’s Hospital Hematology/Oncology Clinic, with social worker Rachel O’Farrell, LCSW, CCLS. He refers to her as “the glue that holds the clinic together.”

O’Donnell’s nurse practitioner, became a family friend. “A lot of what I do revolves around making sure they get everything they need and being someone they can contact. It is important to build a trust with the family; they know when they call I will get back with them and they can trust the answer and the recommendations I give them.”

The Dawsons marveled at the attention and accessibility they received from O’Donnell and from Lars Wagner, MD, chief of pediatric hematology and oncology. “They didn’t just talk to us as parents and over Emily. They asked Emily what she liked to do, about her life. Both of them cared right away about her emotions.”

“Dr. O’Donnell and Tracy told me that when we called his office not to give birth dates but to just say, ‘This is Emily’s mom,’ and we’ll know exactly who it is,” said Andrea. It would be Wagner who called the family at 10 one night to deliver the good news

that tests showed there was no sign of cancer in Emily’s lungs.

Rachel O’Farrell, LCSW, MPH, CCLS, a social worker with the DanceBlue Kentucky Children’s Hospital Hematology/Oncology Clinic, worked with the family, visiting with them each time Emily came to the hospital. “We help families who are adjusting to a life-threatening illness. We offer concrete resources, but we also do a lot of not-so-concrete services, like listening, trying to hear every voice in the family, to hear how we can best help and support them.”

That was important to the Dawson family. In addition to handling Emily’s care, her father juggled family responsibilities and his full-time job in Frankfort. Her mother juggled Emily’s care and the needs of her three siblings, Daniel, now 15, Amanda, 11, and Ashley, 8.

O’Farrell suggested ways for Emily to be proactively involved with her treatment. Emily appeared





“We offer concrete resources, but we also do a lot of not-so-concrete services, like listening, trying to hear every voice in the family, to hear how we can best help and support them.”

– Rachel O’Farrell, social worker

at DanceBlue via video conference to tell the volunteers there how their efforts were helping her and other patients at the hospital. She also created and donated several works of art to raise money for cancer causes. One of her favorite programs, also introduced by O’Farrell, was Beads of Courage, where patients earn beads for every procedure they undergo. The beads can be strung on a necklace or bracelet. “It is a creative way for patients to see what they have overcome, what they have done in their journey, and a way to share

that journey with other people,” said O’Farrell.

**Making a teen’s hospital stay brighter**

Being hospitalized is hard for anyone but particularly so for a teen. “I think our teens feel really isolated. It is such a social time in their lives and they are out of school for almost a year,” said Dianna Holtzhauer, RN, CPON, inpatient coordinator for pediatric hematology and oncology. Many programs at the children’s hospital are geared to younger patients, not teens.

Meg Halstead, a certified child life specialist with the hospital’s Child Life program, helped fill the long hours with activities that interested the teen. “Every time Emily was admitted, Meg would hang out with her and talk teenage stuff,” said Andrea. “She would bring her movies, books and creative crafts projects.”

Holtzhauer’s official role in Emily’s treatment was to reiterate doctors’ orders, explain procedures or treatments in lay terms, and ensure that Emily had the equipment and medications she needed and that all her therapies, tests and treatments were scheduled as needed.

“But my secondary and unofficial role was to try and make her stay

easier,” Holtzhauer said. She did that in several ways. When Holtzhauer learned that she and Emily shared a love of baking, Holtzhauer brought in fondant so that the two could make fondant puppies in Emily’s room. When the Dawson family was trying to leave for a family vacation and Emily needed to come to the hospital for an injection, Holtzhauer drove to the Dawsons’ home to give Emily the shot so the family could have more time away between chemotherapy treatments.

Those who encountered Emily marveled at both her maturity and her upbeat demeanor. She looked forward to seeing the nursing team when she returned to the hospital each time for her chemotherapy treatments and during her stay after surgery. The nurses did all they could to add fun and happy moments to her stay.

For example, on Emily’s 16th birthday the nurses surprised her with a party. “They decorated my room and I got a three-layer cake and posters, balloons and streamers,” Emily said. “For my last chemo treatment, the staff there had a party.” Decorations were purple, Emily’s favorite color. Archery, Emily’s favorite sport, was a theme. There were presents and cards and the staff sang a special ‘last chemo’ song.

From the start, Emily worried that she would lose her hair. O’Donnell and Wagner pulled no punches. Yes, they said, you will lose your hair, but it will come back.

Worse than the hair loss was the sickness from the powerful chemotherapy. On days when she felt severely ill, the normally outgoing teen would pull a blanket over her head, a signal to staff that she was having a bad day.

Michael VanHoose, a certified



Dianna Holtzhauer, RN, CPON, left, is the pediatric oncology program’s inpatient coordinator. She spent a lot of time with Emily and drove to the Dawsons’ home once to give an injection when the family needed to go out of town. Michael VanHoose, CPH-T, works in the Meds-to-Beds Program. He found time to joke with Emily about their bald heads.

pharmacy technician with the Meds-to-Beds program, was able to cheer Emily the first time he came to deliver medications. He joked about their mutual lack of hair. “I said, ‘Hey, I like that haircut. It’s low maintenance, like mine, it doesn’t take any time to take care of.’ They told me that was the first time she had laughed in three days.”

He kept up with Emily’s progress and sent a couple of dark chocolate candies to perk her up after one of her treatments.

The service that Meds-to-Beds provides also removed one errand from the Dawson family’s long list. Meds-to-Beds is a concierge service that delivers needed medications to patients in their hospital rooms as they are preparing to leave the hospital. Because Emily’s treatments required her to be in and out of the hospital so much, the Meds-to-Beds

service, which is free for patients, saved her parents many trips to the drugstore to pick up prescriptions. It also ensured that Emily had the medications she needed the minute she arrived home.

And, having the specialized care that Emily needed within a 10-minute drive of their south Lexington home was a godsend for the Dawsons.

“It makes us sad to hear about families that either have to or choose to travel to Cincinnati or Vanderbilt for care when we have such great care here. We are grateful to God for the top-notch level of care that we received here in Lexington,” said Andrea.

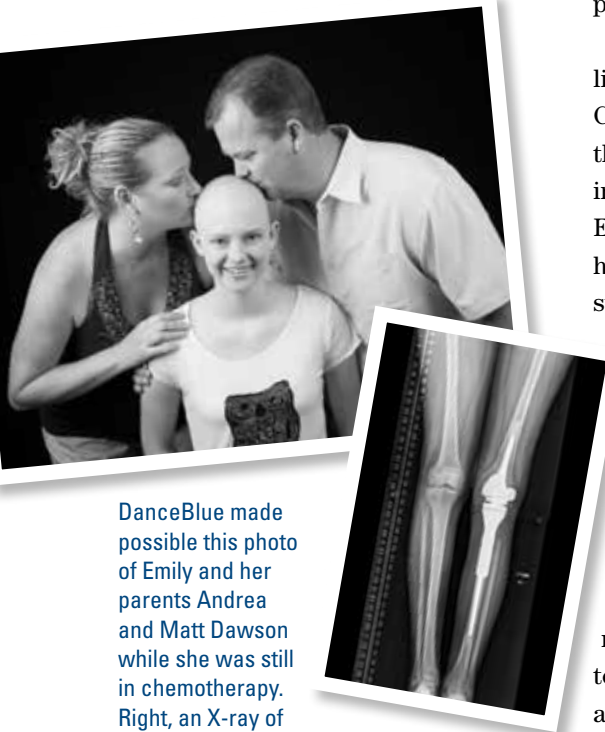
**A return to real life**

Last fall, Emily returned to school. She’s on Dunbar’s archery team, and she recently organized a team service project for the children’s hospital. The team bought stuffed

animals, blankets and fun pillows for patients; a small group of her teammates delivered the gifts.

Emily’s return to archery is a result of the therapy she has been doing with Christi Ingram, a physical therapist in the outpatient physical therapy clinic at Kentucky Clinic. “We focused on getting her back to archery versus a high-impact activity,” said Ingram. In working toward improved mobility with her right leg, Ingram encouraged Emily by talking about things that are important to a teen. “I said, ‘You want to get your driver’s license and go to the prom, don’t you?’” Emily has since accomplished both goals.

Tests have shown that Emily’s heart and hearing were not impacted by the chemotherapy. Tests have not yet been done to see if the fertility preservation treatment overseen by Leslie Appiah, MD, director of



DanceBlue made possible this photo of Emily and her parents Andrea and Matt Dawson while she was still in chemotherapy. Right, an X-ray of Emily’s leg with titanium rods and a knee prosthesis replacing the cancerous bone.





Christi Ingram, DPT, used thoughts of driver's license and prom to motivate Emily through physical therapy. "It's quite a challenge for a person in chemo and radiation to undergo orthopaedic physical therapy at the same time," she said.

oncofertility, has been successful.

Because Emily's chemotherapy had to start immediately, the Dawsons had little time to make the difficult decision about her fertility. However, after Emily and her family had an initial discussion with the oncology team about risks to fertility, Appiah met with them to discuss options in detail. She explained that because Emily's chemo had to start quickly, there was no time to stimulate eggs and harvest them. Instead, she recommended that Emily receive injections of Lupron®, a drug routinely given for menstrual suppression during cancer therapy that has been found, in some investigational studies, to protect the ovaries from chemotherapy.

Six months after Emily's chemotherapy ended, Appiah met with the family to explain to them, in detail and with hand-drawn diagrams, the stages of egg development after chemo and other options for the future should her

fertility preservation treatment be unsuccessful.

Although she missed a year of school, Emily is expected to graduate on time. The time she spent at Kentucky Children's Hospital and the medical professionals she met there have made her rethink her career goals. "I always wanted to be a vet, but I have decided I like people more than animals, and I would like to be a nurse practitioner. Whenever the nurses or nurse practitioners came into my room, they had so much fun getting to know the patient."

She feels comfortable at UK and thinks it would be a good fit for her college career, but regardless, she will be back. "She will see me for follow ups and testing the rest of her life," O'Donnell said. O'Donnell expects the visits to remain happy ones because chemotherapy was so effective in treating Emily's cancer. "Emily has

every reason to believe that the cancer will not come back," he said.

The many days she spent at Kentucky Children's Hospital has made it feel like a second home. "Every time we're back for scans or appointments she always asks to go up and visit the children's hospital and say hi to all of the nurses," said Andrea.

"When patients still want to come back and see people who work here, that is saying something about the children's hospital," said Holtzhauer.

Emily's upbeat attitude makes those who have treated her look forward to seeing her as well. She likes to joke with Dr. O, as she calls O'Donnell.

"Emily is taking anatomy," said her mom. "So she says to Dr. O'Donnell, 'Guess what Dr. O? I got a 110 percent on my anatomy bone test because I know my bones so well. It's my favorite class.'" ■



Emily has returned to archery and is scoring well enough to be on the traveling team.

**"I would like to be a nurse practitioner. Whenever the nurses or nurse practitioners came into my room, they had so much fun getting to know the patient."**

— Emily Dawson, a surviving and thriving cancer patient

## Oncofertility program aims to preserve fertility in cancer patients

Chemotherapy and radiation are often effective treatments for cancer. But those therapies can also damage the reproductive system, a reality that has led to a new area of medicine called oncofertility.

Oncofertility was officially established as a field of study in 2009, four years after the American Society of Clinical Oncologists became the first medical organization to set guidelines for fertility preservation.



Leslie Appiah, MD, helped the Dawson family make a difficult decision about how to protect Emily's fertility before her chemotherapy began.

In 2014, Leslie A. Appiah, MD, was hired as director of oncofertility within UK Women's Health Obstetrics & Gynecology and Norton Healthcare. She was previously with Cincinnati Children's Hospital Medical Center where she created an oncofertility program. At UK, Appiah is assisted by Charity Rogers, RN, a clinical research nurse.

"The idea behind oncofertility is that patients are receiving chemotherapy or radiation that will affect their ability to have children in the future, and in the past, we did not do a great job of identifying them and counseling them about their options," said Appiah. "Many patients would come out on the other side of their cancer therapy and into survivorship and not be able to conceive and then feel regret."

Appiah's goal is to consult with patients before they begin chemotherapy or radiation. Around 2,000 patients seen at UK HealthCare each year have cancer and are younger than age 45, making them possible candidates for fertility preservation.

Not all of those patients will be treated with chemotherapy or radiation and not all will be concerned about fertility preservation, but for those who are, Appiah will explain the options available.

"The conversation starts with the oncologist, who can identify those patients who do want further discussion," said Appiah. "If they do, we can meet with them and pursue the option they desire."

In her first year, Appiah has focused on creating a streamlined, automated process for oncologists to consult with her program.

"We want to make it easy for oncologists to consult with us in a seamless fashion so we see them in a timely manner and don't delay a patient's cancer treatment."

Although the oncofertility program is in its infancy, Appiah expects it to grow quickly. In addition to cancer patients, those with diseases that are commonly treated with chemotherapy medications, such as lupus and sickle cell anemia, are candidates for fertility preservation. Eventually, the program could extend to those who have reproduction issues because of genetic issues or disorders of sexual differentiation.

Treatments for fertility preservation differ according to a patient's age, gender and the treatment they are undergoing. The most common approach is to collect and freeze sperm, eggs or embryos for the future, but those treatments are not an option in every case. For example, when a patient has an aggressive form of cancer, chemotherapy must start immediately. In those cases, doctors cannot wait the two weeks required for the ovaries to be stimulated with drugs before harvesting.

As an alternative, women can take injections of Lupron®, a drug that has been found in some investigational studies to protect the ovaries from the effects of cancer treatments.

Appiah expects to begin offering a newer procedure, ovarian tissue freezing, this summer. In this procedure, doctors remove an ovary from a female patient and freeze the tissue prior to cancer treatment. "When she is ready to use it, we can transplant the tissue into the pelvis and it will restore her hormonal function as well as allow her to conceive. Soon there may be options to stimulate growth of eggs outside of the body instead of transplanting the tissue," said Appiah.

Work will then begin on a similar program for men. "Once we get our ovarian tissue protocol going we are going to start work on testicular tissue freezing," Appiah said.

A point sometimes overlooked in discussions of oncofertility is that "it isn't just about having babies" as hormonal issues and other problems are also vital to overall health, said Appiah. "Oncofertility is about reproductive health as a complete picture." ■





Dr. Roy and Lilly Varghese with Mary Breckinridge ARH CEO Mallie S. Noble who rushed to the hospital when Varghese asked for her. She followed the ambulance to Hazard with Lilly. “Seventeen miles to Hazard felt like two hours,” she recalled.

# Faith, family and modern medicine

Heart network relationships  
pay off for Kentucky physician  
facing his own health crisis

When faced with a crisis or medical emergency, it is common to seek the comfort and support of immediate family members and close friends. But when Roy Varghese, MD, and his wife Lilly recently faced a life-threatening medical emergency, their four daughters were all hundreds of miles and several hours away.

It was the Vargheses’ extended community family that came to their aid and comfort in those first critical hours. Today, they credit the love, prayers and support of their community and the highly skilled and timely medical care provided by ARH and UK HealthCare specialists for saving Roy Varghese’s life.

For more than three decades, Varghese has provided primary care for residents of Eastern Kentucky. Always in relatively good health, it was a bit of a surprise when the physician suddenly became a patient and nearly lost his life to a heart attack.

Roy Varghese had uncomfortable symptoms – much like indigestion – throughout the day. When the pain persisted through dinner, he told his wife it was time to go to the hospital.

## Physician suddenly becomes patient

After a full day of treating patients in his busy office and rounding on patients at Mary Breckinridge ARH Hospital in Hyden, Ky., Varghese headed home for dinner. He had been experiencing minimal symptoms of abdominal discomfort – much like indigestion – throughout the day. When the pain persisted through dinner, he told his wife it was time to go to the hospital.

Little did he know then how critical that timely decision would be in saving his life.

Emergency physicians at the hospital in Hyden quickly assessed Varghese, and an EKG revealed he was experiencing an acute inferior myocardial infarction (AMI), or heart attack, which occurs when blood flow stops to part of the heart causing damage to the heart muscle.

The most common symptom of an AMI is chest pain or discomfort that may travel into the shoulder, arm, back, neck or jaw. Often it is in the center or left side of the chest and lasts for more than a few minutes. Occasionally, it may simply feel like heartburn. Shortness of breath, nausea, feeling faint, a cold sweat or feeling tired may also occur.

According to Varghese, about 30 percent of people experiencing an AMI have atypical symptoms like his, but always, time is of the essence in

seeking medical attention, as an AMI may cause heart failure, an irregular heartbeat or cardiac arrest.

Mallie S. Noble, community CEO at Mary Breckinridge ARH Hospital recalls getting a call from the emergency department (ED). “Dr. Varghese asked the staff to call me and I was at the hospital within 10 minutes,” she said. “I am not sure what I expected, but when I arrived it was clear that his condition was critical.”

“It is hard to explain how difficult it was to see this man who is always so energetic and vibrant in such dire condition,” said Noble. “He has cared for five generations of my family; he’s been there to hold my hand at the bedside of both my mother and my grandmother when they passed. He has done the same, and so much more, for countless other families in our community.”

Noble said she held Varghese’s hand and prayed with him briefly, then assured him she would take care of his wife, Lilly, who was alone in the waiting room.

After arriving at the hospital, Varghese’s condition quickly worsened and he developed tachycardia, a very rapid and dangerous heart rate, which required an electric shock to restore normal heart rhythm. ARH doctors administered life-saving, stabilizing therapies to begin treating the heart attack and quickly transferred Varghese to Hazard ARH Medical

Center for more advanced cardiac care.

Kermit Creech, RN, ED nurse at Mary Breckinridge who had been providing care since his arrival, accompanied Varghese in the ambulance. Noble transported Lilly Varghese by car, following closely behind the ambulance. Family friend and colleague P. I. Narayan, MD, and his wife also arrived at Hazard ARH to support the Vargheses.

“It was such a comfort to have Mallie there, and also the Narayans,” said Lilly Varghese. “The Narayans are like family, and we are originally from the same region in India. Our shared culture and language was especially comforting.”

Varghese had lost consciousness when he reached Hazard. STEMI protocols had been implemented in advance of his arrival so that the catheterization lab was ready and waiting to begin administering care. STEMI, ST segment elevation myocardial infarction, is the more serious of two types of heart attack.

Varghese’s colleagues, Gill Heart Institute Appalachian Heart Center cardiologists Vidya Yalamanchi, MD, and Rao Podapati, MD, and ARH cardiologist Syed Bokhari, MD, worked together to perform diagnostic heart catheterization and a life-saving coronary angioplasty to reopen blocked coronary arteries and restore blood flow to the heart.

“Heart disease occurs when





UK Drs. Rao Podapati, and Vidya Yalamanchi, in the Hazard cath lab at left, assisted ARH cardiologist Syed Bokhari, right, as he opened blocked vessels to restore blood flow to Varghese's heart. "It was not looking good," remembered Podapati when Varghese was sent to Lexington for more advanced care.

coronary arteries become narrow in places due to the buildup of cholesterol-laden plaques," said Bokhari. "During angioplasty, we use X-ray imaging to guide a catheter to the blocked artery. At the blockage a balloon is inflated to open the artery, restoring blood flow. A stent is often placed at the site of the blockage to help keep the vessels open."

Bokhari performed the angioplasty on Varghese, placing five stents in the right coronary artery, which was completely blocked from top to bottom. However, the heart attack had caused extensive damage and, as a result, Varghese was in cardiogenic shock, a serious condition that occurs when the heart has been damaged so much it is unable to supply enough blood to the organs of the body.

In the meantime, the Vargheses' four daughters, three of whom are physicians themselves, were enroute to Eastern Kentucky. Nisha Varghese, MD, an endocrinologist, recalls the drive from her home in Louisville.

"I understood Dad had a heart attack and they were taking him to

Hazard for a catheterization, but I remember praying in the car and thinking they would just get the blockages open and everything would be OK by the time we got there," she said. "But when we arrived and learned that he had to be intubated and was in cardiogenic shock, I knew medical intervention would not be enough. We needed supernatural intervention."

### Heart care has come a long way in Eastern Kentucky

When Yalamanchi first came to practice in Hazard 28 years ago, patients presenting with symptoms such as Varghese's would rarely survive.

"Back then, we didn't even have the basic diagnostic equipment for detecting heart disease," he said. "And certainly did not have the ability to perform diagnostic catheterizations and life-saving interventions."

Yalamanchi credits the advancement of cardiac care in the region to the medical staff in Hazard for their commitment to enhance patient care, along with support from key mentors

at UK HealthCare. Yalamanchi was proctored and trained to perform diagnostic catheterizations in the early 1990s by David Booth, MD, and John Gurley, MD, two UK Gill Heart Institute cardiologists. According to Yalamanchi, both Booth and Gurley have been great mentors to help build the services currently available in Hazard.

And ironically, Varghese, who is currently chief of staff at Mary Breckinridge ARH Hospital, has been highly instrumental in the recruitment and retention of the cardiologists who now serve the community.

"Today we can intervene in a timely and effective manner and even have the ability to perform open heart surgery right here in our community," said Yalamanchi. "We've come a very long way."

### Life-saving continuum of care

Despite the best efforts of the skilled and dedicated team at Hazard ARH, Varghese remained unconscious and on a ventilator. "His

## Advancement of cardiac care in Eastern Kentucky can be credited to a medical staff in Hazard committed to enhance patient care supported by key mentors at UK HealthCare.

blood pressure and oxygen levels were extremely low," said Nisha Varghese. "The team at ARH had done what they could to stabilize him, but time was of the essence and he needed more intensive care at a tertiary center."

In very critical condition, Varghese was flown to UK Albert B. Chandler Hospital in Lexington for the advanced cardiac care available from the UK Gill Heart Institute. While every phase of his care was critical to saving his life, Varghese experienced significant complications that would mean a very long period of recovery.

"Cardiogenic shock causes low blood pressure, low oxygen levels and a fluid overload that can lead to heart failure," said David Booth, MD, one of the team of physicians who assumed care for Varghese at UK. "Dr. Varghese's right ventricle was not effectively pumping blood to the lungs, causing very low blood

pressure and poor oxygenation."

"It is difficult to describe my father's condition when he arrived at UK medical center," said Nisha Varghese. "The heparin drip had caused serious bleeding and every part of his body was unbelievably swollen. She remembers that her father was on three vasopressor agents to help raise his blood pressure but nothing seemed to be working.

Word of Varghese's medical emergency had spread quickly in the small Eastern Kentucky communities, and Noble said calls poured in with patients and friends asking how they could help. "The family told us to ask everyone to pray," she said.

Varghese remained unconscious for a week at Chandler Hospital as cardiologists Booth, Melina T. Aguinaga-Meza and Alison Bailey worked to regulate his blood pressure and oxygen levels.

"There were just so many things

UK cardiologist David Booth and cardiac interventionist John Gurley have been involved in improving cardiac care in Eastern Kentucky for many years. Varghese has known Booth for 35 years.





Melina Aguinaga-Meza, MD, center, in the Cardiothoracic ICU at UK Chandler Hospital. She suggested nitric oxide when the family balked at putting Varghese on extracorporeal membrane oxygenation (ECMO). It was the first time she had tried this approach since its benefit was mostly anecdotal. It was a good call.

“The UK doctors were so very responsive and open to our suggestions. The ability to maintain good dialogue in the midst of a highly emotional situation was very comforting, and I am so thankful for that.”

— Nisha Varghese, MD, Roy’s daughter



not working,” recalled Nisha. “At one point, the UK doctors felt that Dad might only have hours to live if we couldn’t find a way to raise his blood pressure and get more oxygen into his bloodstream.”

It was during this most critical time, said Booth, that Gill cardiologist Aguinaga-Meza suggested the use of inhaled nitric oxide.

“Inhaled nitric oxide is a

pulmonary vasodilator which has a relaxing factor that reduces resistance in the lining of the arteries, making it easier for the weakened right ventricle to get the job done,” said Booth. “Administering the nitric oxide allowed the right ventricle to recover over about a 72-hour period and Dr. Varghese’s condition began to dramatically improve.”

“The UK doctors were so very responsive and open to our suggestions,” said Nisha. “The ability to maintain good dialogue in the midst of a highly emotional situation was very comforting, and I am so thankful for that.”

While Roy Varghese credits in large part the seamless continuity of care between ARH and UK HealthCare along with the skilled cardiologists for saving his life, he and his family do not discount the influence of a power even greater than medicine.

“The support and prayers we received from our community were tremendous,” said Nisha. “Food, transportation, hospital visits and,

most importantly, the prayers from a huge extended ‘family’ among the medical community, patients and friends. It is such a testimony to the power of prayer and a God who heals through the hands of great physicians.”

“At the point where it seemed that there may be nothing more the UK doctors could do to save me, my family and friends in Eastern Kentucky, and across the world in India, joined together in 24 hours of continuous prayer, and the next day I regained consciousness,” said Varghese. “The God above has done this for me.”

Noble remembers when she received another call from the hospital. This time it was from a bed at Chandler Hospital just hours after Varghese was taken off of the ventilator.

“His voice was a little hoarse from being intubated, but he called to thank me for being there for his family, and then he inquired about one of my family members who had been critically ill and under his care in the days just before his heart attack,” she said. “That’s why he is so well-loved and respected in our community, because he loves and cares for his patients like they are his family.”

Less than a week later, Varghese was discharged from Chandler Hospital and transferred to an outpatient cardiac rehabilitation center in Cincinnati where he spent a month continuing his recovery before returning to home and work in Hyden.

“His recovery has been remarkable, and I am so grateful he is alive and well,” said his friend and colleague Narayan, who had stayed in Lexington to support the family during that most critical week. “He is a dear friend but also a father-figure to me and a leader in our community.”

Today Varghese, who continues his cardiac rehabilitation by walking three miles daily, is all the more passionate about his life-long interest in research to better understand the causes of heart disease and, more important, how to prevent it. “I believe there is a tremendous opportunity for us to learn so much more about the disease process and to educate the public about prevention,” he said. “And certainly it is vitally important that anyone experiencing unusual symptoms seek medical attention immediately.”

“If I had ignored what my body was telling me, I have no doubt I would have had a silent heart attack and died at home that day.” ■

## STEMI protocols save critical time during heart attacks



When electrocardiogram (EKG) testing and other warning signs indicate a patient is in the midst of a heart attack, ARH and UK HealthCare protocols call for the activation of the cardiac catheterization team while the patient is still enroute to the hospital. Once the patient arrives, the team, led by a physician who specializes in treating heart disease, assesses the patient and the EKG to determine whether they should perform an emergency angioplasty, a minimally invasive procedure to open blocked blood vessels.

Studies show that when facilities activate cardiac catheterization teams while patients are enroute, more than 86 percent of those patients are able to receive a potentially life-saving cardiac catheterization within the recommended time frame of 90 minutes or less from the time the patient first receives medical examination. In many cases paramedics are determining the patient is having a heart attack even before they reach the hospital emergency department and transmitting that information to the receiving hospital.

For every 30 minutes saved, a heart attack patient’s survival greatly increases. UK HealthCare’s goal is to have the heart attack patient undergoing treatment in 90 minutes or less from the time paramedics reach the patient. When paramedics rule that the patient is having a heart attack before reaching the hospital, the patient is taken directly to the catheterization lab and bypasses the emergency department (ED). This prevents the patient from spending precious time in the ED undergoing another evaluation and allows treatment to begin upon arrival to the hospital. The reduction in the time it takes for a heart attack patient to be treated is what makes this protocol so important.



# Get up, dress up, show up.

An Indiana golfer relies on UK HealthCare to help with challenges posed by Parkinson's disease

Six years post-diagnosis, Doug Kuntz is amazed he can still enjoy golf. "I get on the course and get in the zone. All of a sudden it's like I don't have Parkinson's."



**W**hen pro golfer Doug Kuntz says disability is not his gig, the statement masks a depth of insight few people achieve.

Before 5 a.m. Kuntz inches out of bed, muscles stiff, tendons tight, to swallow the first of four-to-five daily rounds of medication. At that point, he can barely stand.

By daybreak, he arrives at his office in the Richmond Elks Lodge & Country Club and his Parkinson's disease symptoms are draining from his body. His nerves fire on point, flexibility replaces rigidity, and he plows through paperwork before stepping onto the course with the day's first appointments.

Kuntz, 56, of Richmond, Ind., will say this as-yet incurable disease he's fended the past six years was not ever part of his life plan.

"But, I hate to put it this way, Parkinson's has made me a better man," he said from atop the ninth green on a bright May morning.

Experts at the Kentucky Neuroscience Institute (KNI) Movement Disorders Clinic manage Kuntz's case. They are assisted in no small measure by his high-gear work ethic, enthusiastic optimism, and drive to keep himself in shape.

Kuntz's wife, Marianne, family, community members and fellow Parkinson's patients all benefit from his newfound appreciation for life, ability and the people surrounding him.

Probably the most public showcase of this is Pro's Players Fore Parkinson's, an annual golf

tournament he founded in 2010. In four years, the tournament raised and donated more than \$230,000 to Parkinson's research at KNI and through the Michael J. Fox Foundation, as well as a rehabilitation program in Richmond, Rock Steady Boxing.

"The tournament has become a signature event of Wayne County," Kuntz said.



Doug with wife, Marianne, during the 2015 Pro's Players Fore Parkinson's tournament.

## Parkinson's affects a body's ability to control its muscles

Parkinson's is a progressive neurological disease. Its motor symptoms tend to start with problems such as stiffness, slowness and hand tremors or "pill rolling," the rubbing together of the thumb and index finger.

As the disease progresses, patients experience difficulty with walking, balancing and standing.

## Faced with a dopamine drought, the nervous system does a poor job controlling the body's muscles.

Nonmotor symptoms can include loss of sense of smell, gastrointestinal problems, difficulty swallowing or breathing, and cognitive impairment.

About 60,000 cases are diagnosed in the U.S. annually, according to the National Parkinson Foundation. In 2013 Parkinson's disease caused about 25,000 deaths, according to the U.S. Centers for Disease Control and Prevention.

Parkinson's attacks dopamine-producing cells in two tiny structures called substantia nigra deep in the brain's center. Dopamine is used by nerves in those areas to communicate messages to nerve cells in other parts of the brain. Faced with a dopamine drought, the nervous system does a poor job controlling the body's muscles.

Researchers have linked genetics with certain cases and suggested environmental factors, such as injury and exposure to certain toxins including pesticides, may contribute to the disease. However, the underlying cause of Parkinson's largely remains a mystery.

"When I was diagnosed six years ago, I basically didn't know what Parkinson's disease was," Kuntz said.





Physician assistants Julie Gurwell and Lindsey Krompak are on hand – alongside outreach coordinator Janet Greene (not pictured) – to fully support patients of the UK Movement Disorders Clinic.

**Cause remains a mystery; regular exercise is key**

In late 2007 at the club, a colleague asked why Kuntz was holding one arm up to his chest, something Kuntz had not noticed. “After about a year of going through all the tests and processes you’d expect anybody to go through, I was diagnosed with Parkinson’s disease in February 2009,” he said. His stepdaughter, P.J., and her husband had gone to the University of Kentucky and knew of Parkinson’s expert John Slevin, MD, a neurologist who directs the UK Movement Disorders Clinic and serves as vice chair of research at KNI. “Doug has a very healthy attitude about his disease,” Slevin said. “He realizes it’s progressive. He’s taking it on and making a difference in the

Parkinson’s community.” During one of their initial appointments, Slevin told Kuntz that regular exercise would be key in prolonging health. “He told me to figure on seven-to-10 years of playing golf because I work out and was already in good health,” Kuntz said.

**Personalized care from Slevin and the clinic staff have kept Kuntz a patient despite the three-hour drive.**

Personalized care from Slevin and the clinic staff have kept Kuntz remain a patient despite the three-hour drive between Richmond, Ind.,

and Lexington. “I’ve heeded everything he said. If I feel it’s not working, I am not hesitant to call him up and he’ll mix up the medications,” Kuntz said. “Because we can handle it that way, I only go in once or twice a year.” Slevin said Kuntz is at an early-to-moderate stage of the disease, relatively easily controlled by medication. “It’s not curable (so) it’s all symptomatic treatment,” said Slevin, who has spent more than three decades treating Parkinson’s patients at UK HealthCare. “On the other hand, most patients don’t die of Parkinson’s disease per se; however, they may die of some complication. For example, if their medications aren’t working well and they’re really not

moving around a lot, they may get pneumonia. “I frankly tell a lot of patients that I care for, especially older ones,” Slevin continued, “that ‘my job is to keep you active and not let Parkinson’s interfere with your life so that ultimately you die quickly of a heart attack or a stroke or, preferably, in your sleep.’” During postdoctoral training in neuropharmacology at Johns Hopkins University, Slevin became interested in Parkinson’s disease. “The research we were doing was all about neurotransmitters and the two really go hand-in-hand,” he said. “I figured I should get into Parkinson’s in more depth.” That was 35 years ago and UK HealthCare’s patients have benefitted ever since. They receive empathy, patience and expert care. “Most newly diagnosed patients will go through the stages – disbelief and anger – before accepting it,” he said. “You have to be empathetic and understand that it’s a lot for a person to absorb. It will take time.” Often Slevin tells new patients to research the disease online for themselves. “See if you agree with me, then come back and we’ll create a treatment plan,” he said. “I educate my patients because they need to understand this doesn’t end with the first visit. This will span the rest of their lives, and we need to treat it for the long term.”

**Patients come from far and wide**

Drawing patients from afar is not unusual for the Movement Disorders Clinic. “I treat a fair number of patients who come from out of state. Generally,

people in the surrounding region will read about our program on the Internet or hear about me from a patient or caregiver. We also get referrals from neurologists and primary care physicians in the region, both for care of difficult cases and for potential inclusion into clinical trials,” Slevin said. “It’s important to be able to accommodate these new patient referrals. Of course, we want to provide them with state-of-the-art care, but also we want to be able to offer them the opportunity to participate in cutting-edge clinical research.” Accomplishing this requires two elements; the first is a team, second is patients. As one of two physician assistants on the team, Julie Gurwell, PhD, PA-C, is integral to both research and patient care. Gurwell provides routine clinical care including case management. She conducts research with patients including administering standardized tests to score changes in muscle abilities over time. “I see my role as multifactorial. Not only prescribing medications but in counseling, in helping to steer their care toward other providers such as physical therapists and speech therapists,” she said. “They may need help with daily activities – bathing and cooking – and we direct them to the right resources.” Slevin, Gurwell and fellow physician assistant Lindsey Krompak, PA-C, constitute the first line of Parkinson’s experts patients will encounter. “We are fortunate to have such a multidisciplinary team. Patients at UK have all these resources built into a comprehensive program,”



**“I treat a fair number of patients who come from out of state.... It’s important to be able to accommodate these new patient referrals. Of course, we want to provide them with state-of-the-art care, but also we want to be able to offer them the opportunity to participate in cutting-edge clinical research.”**

– John Slevin, MD  
Vice Chair of Research  
Kentucky Neuroscience Institute



Gurwell said.

Kuntz said he benefits from that front-line access.

“When I feel like my medications are not working for me, I call them up. Maybe a couple or three times a year. It seems like they know from my conversations with them exactly where I’m at and get me straightened out,” he said.

The clinic’s outreach coordinator, Janet Greene, meets with patients to give advice and guidance from a unique perspective: Greene has Parkinson’s disease.

“Patients see her, that she’s working and making the most of herself. She’s not only a guide for patients but an inspiration, too,” Slevin said.

Maintaining a large patient population facilitates the search for new methods, drugs and therapies. “If you don’t have the patients, you don’t do the research,” said Slevin.

“(On our team) we now have two

physician assistants, a movement disorders fellow, a research nurse coordinator and me. We’re in the process of hiring additional neurology faculty with expertise in movement disorders and clinical research,” he said.

UK HealthCare places high priority on operating a robust research enterprise. Since setting a goal in its 2004-2020 strategic plan to increase research, UK HealthCare has added laboratory space, expanded research income, recruited dozens of investigators, translated lab findings into clinical methods, and increased its number of clinical trials.

**Using connections and a love of golf to give back**

Facing Parkinson’s, Kuntz quickly grasped the big-picture importance of research. Seeking to use his journey through the disease for greater good, Kuntz – often referred to by his nickname, Pro

– channeled his energy, magnetic personality and extensive list of contacts into the Pro’s Players Fore Parkinson’s golf tournament.

“We have an 18-hole round on Saturday and 18-hole round Sunday,” Kuntz said. Ever increasing in scope, the tournament now includes a 5K run, dinner and auction.

“We fill the thing every year with 160 players, our max, but we’re going to bump it to 180 for 2016,” he said.

The 2015 tournament, held in April, attracted dozens of players from distant states including Montana, Minnesota and Georgia. Kuntz said it raised about \$67,000, pushing the five-year total to approximately \$300,000.

“That’s pretty awesome for a town of 36,000 people. We’re making a difference,” Kuntz said.

Slevin and KNI researchers are grateful for the funding.

**New delivery method improves the effect of Parkinson’s medications**

“The money from his golf tournament is directly supporting the research we do here,” said Slevin, who along with KNI researchers and an international team of investigators, recently concluded clinical trials for a Parkinson’s drug and its delivery system.

The method continuously injects a newer gel form of the longstanding Parkinson’s drug combination carbidopa and levodopa into the patients’ small intestines through a portable infusion pump. During a news conference at UK in April, Slevin said the method circumvents problems commonly arising in late-stage Parkinson’s patients who take pill-forms of levodopa.

“As the disease progresses,



UK neurologist John Slevin, MD, holds an infusion pump and a gel form of a Parkinson’s drug combo. This newly approved form of therapy delivers the drug directly into the intestines, aiding absorption and effectiveness.

**KNI researchers and an international team of investigators recently concluded clinical trials for a Parkinson’s drug and its delivery system that circumvents problems commonly arising in late-stage Parkinson’s patients.**

medications tend to lose their stabilizing effect on Parkinson’s symptoms: a medication dose may not work at all, wear off too early, or even accumulate in the brain too quickly and cause side effects,” he said.

When Parkinson’s impairs gastric function, creating food-movement and stomach-emptying problems, patients who take levodopa pills may have irregular absorption leading to erratic blood and brain levels of the drug. The resulting peaks and valleys allow Parkinson’s symptoms, such as muscle stiffness and slowness, to show through.

“The way to get around that is to deliver levodopa directly to that site where it’s absorbed,” Slevin said.

The pump holds a cartridge of gel-form levodopa, called CLES

Duopa. It allows for continuous delivery of the drug for 16 hours a day through a tube placed through the patient’s stomach wall and threaded into the small intestine.

“This treatment extends our ability to manage the signs and symptoms of Parkinson’s disease beyond where we could earlier,” Slevin said.

Duopa was developed in Europe more than a decade ago but a series of clinical trials were required in the U.S. before approval. With data in hand from U.S. clinical trials – including those conducted at UK HealthCare – the U.S. Food and Drug Administration approved Duopa in January. The same month, the Journal of Parkinson’s Disease published the group’s research.

It is this kind of treatment advancement that helps keep Kuntz motivated to organize the golf tournament every year.

**Life lessons and Parkinson’s**

In addition to research at KNI, tournament proceeds also support Rock Steady Boxing, a rehabilitating workout program Kuntz helped bring to the Reid Hospital in Richmond.

The noncontact, boxing-inspired workout employs speed bags, heavy bags, volleyball, hockey and other methods to increase mobility and independence.

Kuntz holds the program in high regard for the physically intensive exercise he gets three times weekly and for the psychological momentum it affords dozens of participants.

“Because of the tournament and the funds it raises, I’ve had people come up to me and say, ‘Pro, I can tie shoes now whereas I couldn’t before Rock Steady Boxing.’”

As if anyone in Kuntz’s world needed further evidence of his newfound appreciation for life and community, he wrote a book, “The Front Nine,” published at the end of 2014. Part heartwarming collection of tales, photos and newspaper clippings from more than five decades on the links, part homage to those who profoundly impacted his being, the book is a golf bag containing Kuntz’s tools to enjoy, achieve and overcome in life.

As recounted in his book, the teenage Kuntz was roused one post-blizzard morning against his will. Despite protests that nobody would be car shopping, father and begrudging son went to the dealership where his father was a car salesman and young Kuntz set about shoveling.



Since 2010, Doug Kuntz has been able to grow the golf tournament, 5K run, dinner and auction to raise \$300,000 for Parkinson’s disease research and therapy.



Soon a man came by, asked for Bob Kuntz and ended up buying a car. It's one of the reasons why Doug Kuntz adopted a mantra "Get up, dress up, show up."

More than six years post diagnosis, Kuntz credits the club's board of directors with encouraging him to rely on staff for more rigorous aspects of the job, get involved in speaking to community groups and, most of all, get out and play.

"If I were working in a factory, was a fireman or policeman, there's no way I could work every day. I can't move around. I'm too stiff," he said. "But disability is not my gig. I am going to keep going until I can't anymore. As long as I feel like I'm an asset at the club, not a liability, I'm going to be here."

Appropriately, when he's out on the greens, medications at full effect, body in fighting form, Kuntz feels best.

"It still amazes me," he said. "I get on the course and get in the zone. All of a sudden it's like I don't have Parkinson's."

Through the disease, the tournament, his book and his ongoing treatment, Kuntz made a full accounting of who and what matters in his life.

"My thought is this is kind of like being reborn," Kuntz said. "You have a disease, you know you have a disease and it's going to create immobility for you at some point in time. Are you going to just sit around and say, 'Why me?' Or are you going to do something? I chose to be a fighter." ■

CLINICAL RESEARCH

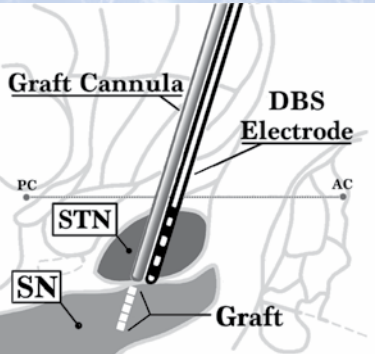
# Nerve grafts into brain may reduce Parkinson's symptoms

A new procedure under study at Kentucky Neuroscience Institute implants nerve cells into the brains of people suffering from Parkinson's disease. Preliminary results indicate the procedure helps control symptoms and may slow the disease's progression.

Five of six participants who've had their one-year exams saw moderate-or-better improvements in their Parkinson's motor symptoms scores. As well, the entire group's average medication level decreased after 12 months.

In total, 13 people have undergone the procedure and patients 7 and 8 are scheduled for one-year exams this summer. Work continues to both refine the method and test it in other affected parts of the brain.

"With these studies we want to figure out how the graft affects patients long-term," said Craig van Horne, MD, PhD, the neurosurgeon and principal investigator on the project.



A graft procedure implants a 6 mm plug of nerve cells taken from the patient's ankle into the brain's substantia nigra (SN) with the aim of rejuvenating dopamine production. The procedure takes place during implantation of electrical leads into the nearby subthalamic nucleus (STN) for deep brain stimulation (DBS), allowing neurosurgeons to use the same point of entry in the skull.

"That support is hugely important to our team and our efforts to identify new treatments," van Horne said. "It provides staff and salary support for our physician assistant, Julie Gurwell, that federal funding doesn't cover."

John Slevin, MD, UK HealthCare neurologist and co-investigator on the study, said the aim is to slow down or even stop the disease progression.

"The procedure is restorative. If one can keep a patient's dopamine neurons alive, then that becomes a step beyond just treating the symptoms," Slevin said. "The underlying cause of the dopamine-cell death in Parkinson's disease has not been identified. We are testing whether this procedure will restore vitality to those dopamine neurons struggling to stay alive."

In Parkinson's disease, neurons die off in two tiny areas deep in the brain's center. Normally, those neurons produce dopamine, a chemical critical in transmitting signals between nerves in the brain.

As dopamine output declines, Parkinson's patients lose muscle control, usually seen as tremors, stiffness and difficulty walking.

Van Horne's procedure takes a pencil-tip-size plug of nerve cells from the patient's ankle and grafts it into one of the two areas. There, the grafted cells release chemicals believed to rejuvenate the brain's weary dopamine-producing neurons.

Donations by Pro's Players Fore Parkinson's, an annual golf tournament in Richmond, Ind., organized by PGA member and Parkinson's disease patient Doug Kuntz, helped fund the research.



UK neurosurgeon Craig van Horne, MD, is leading clinical research investigating whether a nerve graft from a patient's ankle delivered to a key area of the brain can slow or halt progress of Parkinson's disease. Initial results are promising.

Van Horne said the problem with the brain is that after injury it doesn't repair well. But in the peripheral nervous system, repairs happen more readily.

The peripheral nervous system, or PNS, is composed of nerves throughout the body's organs and limbs. In contrast, the central nervous system, or CNS, includes the brain and spinal cord.

"That was a big question in the 1980s, why the peripheral nervous system can regenerate well if its neurons are damaged but the central nervous system does not?" van Horne said.

**"We are testing whether this procedure will restore vitality to those dopamine neurons struggling to stay alive."**

— John Slevin, MD, Co-Investigator

Key findings by other scientists proved it's the environment of chemical growth factors that's different in the PNS, not the neurons themselves.

In undergraduate research using goldfish, van Horne and one of his professors implanted PNS cells into the fishes' CNS. Their results showed the graft must touch the surrounding CNS cells for the graft's release of chemical growth factors to be effective.

During his neurosurgery residency at Brigham and Women's Hospital in Boston, van Horne trained in deep brain stimulation, or DBS, a treatment for certain mid- and later-stage Parkinson's disease patients.

DBS uses a pacemaker to pulse electricity through one or more lead wires threaded through the skull and into key parts of the brain. The surgery to implant DBS leads would offer a key opportunity for van Horne's future graft procedure.

In later years, his research pinpointed Schwann cells – a type of support cell in the PNS – as producers of several chemicals that encourage regrowth in injured neurons.

In laboratory experiments, he found that incorporating both Schwann

cells and neurons from the PNS helped the grafts live longer in the brain. In essence, the Schwann cells create a supportive environment. Recalling how the goldfish model provided its own graft tissue, van Horne and several of his students drew up a clinical trial that included all of the related findings.

"Couldn't you just do that with a clinical trial – harvest the patient's own peripheral nerve cells? The body is not going to reject it immunologically. So we took all that and designed a trial," he said.

It made sense to plant the graft during the DBS implantation surgery. The DBS leads are inserted near where the graft must go. By combining the procedures, van Horne could use the same burr hole in the skull, lowering risk and causing less discomfort for patients afterward.

Though designed in Boston, van Horne's clinical trial found a willing atmosphere and necessary funding assistance at UK and its Center for Clinical and Translational Science (CCTS).

In mid-2011 the CCTS received a five-year, \$20 million award from the National Institutes of Health to help move innovative projects like van Horne's from design to reality. That and an offer to join the College of Medicine faculty played heavily in his decision to move to Kentucky in November 2011.

In coming years, the researchers plan to continue to track participants, perform more procedures and test variations.

"What we are really going after is the (Parkinson's disease) progression," van Horne said. "We'll look at it at two, three, four, five years out. We're asking whether we can keep that process from getting worse, stop it all together or maybe improve it long term."



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The **UK HealthCare website** – [ukhealthcare.org](http://ukhealthcare.org) – now uses responsive Web design, making reading and navigation easy with little resizing, panning or scrolling. No matter which device you favor – desktop computer, tablet or mobile phone – our website content moves freely across all screen resolutions and all devices to fill the space.



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- An icon for your iPhone and Android home screens can quickly be created to link to any page you wish on the UK HealthCare website so with one touch you can return to pages you use often.
- **Android phone:** using the Chrome browser, click the three little dots in the upper right-hand corner of the page you want to bookmark, then select Add to Home screen. The icon then shows on the home screen.
  - **iPhone:** using the Safari browser, click the share button at the bottom center of the page you want to bookmark, then choose the “Add to Home Screen” icon. You can change the name of the icon if needed; it will show on your home screen.

Shriners Hospitals  
for Children  
moving into our  
neighborhood

In 2017, Shriners Hospitals for Children – Lexington will move from Richmond Road to a new five-story medical office building on South Limestone across from Chandler Hospital. The new facility, which will include an ambulatory surgery center, will be called Shriners Hospitals for Children Medical Center.

Construction is underway at the corner of South Limestone and Conn Terrace on land owned by UK but now leased by Shriners Hospitals for Children.



The new state-of-the-art ambulatory care center has been designed to better meet the orthopaedic needs of children and their families in a five-state region. UK pediatric orthopaedic surgeons, who have been contracted to serve as the medical staff for the Lexington Shriners Hospital since the 1970s, will have offices and clinics in the new facility and will continue to serve as their medical staff. Shriners’ patients will have convenient access to Kentucky Children’s Hospital if inpatient care is needed.

Shriners is leasing the top two floors (44,000 square feet) of the new building to Kentucky Medical Services Foundation for UK Ophthalmology & Visual Sciences faculty offices and eye clinic. Last year UK eye clinics in Lexington served 36,500 patient visits.

Recognized for quality

We’ve been designated  
Baby-Friendly for our  
gold standard of care

UK HealthCare has received prestigious international recognition as a Baby-Friendly designated birth facility. The global hospital initiative is sponsored by the World Health Organization (WHO) and the United Nations Children’s Fund



**Baby-Friendly Hospital**

(UNICEF). The initiative encourages and recognizes hospitals and birthing centers that offer an optimal level of care for breastfeeding mothers and their babies.

Other awards are:

- 2015
- UK Family & Community Medicine clinic designated Level III Patient-Centered Medical Home
  - Gill Heart Institute receives Gold Quality Achievement Award, American Heart Association
  - Eastern State Hospital (managed by UK HealthCare) given 2015 Quality Award, Kentucky Hospital Association
  - UK women’s health program earns Top 100 hospital ranking, Becker’s Hospital Review

Late 2014

- Second Excellence in Life Support designation for Albert B. Chandler Hospital and Kentucky Children’s Hospital, Extracorporeal Life Support Organization (ELSO).
- Listed among “100 Hospitals and Health Systems with Great Oncology Programs,” Becker’s Hospital Review



Gain information from UK HealthCare blogs at: [ukhealthcare.net](http://ukhealthcare.net)

Browse topics from menus especially for cancer patients to children’s cleft care, maternity tips and more.

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Allyson Lovell –  
congestive heart failure

No one suspected heart failure when this vibrant 23-year-old said she was having trouble breathing. By the time her cardiologist realized Allyson’s heart was failing, it was pumping at only 8 percent efficiency. She was immediately sent to the UK Gill Heart Institute where she got a level of care unmatched in Kentucky.



Audrey Robinson –  
advanced colon cancer

When Audrey learned she had advanced colon cancer, she and her husband, Don, considered going to a cancer center out of state. Then a friend told them they had a world-class cancer center right here in Lexington. Audrey’s battle has not been easy, but 10 years later, with the help of Markey Cancer Center, she’s still living her life – and that’s a victory.



Jon Wes & Gardner Adams –  
sudden cardiac arrest /  
Brugada syndrome

He usually turned right when starting his run at the Arboretum. This evening, Jon Wes decided to go left. It was a decision that saved his life. A little more than six miles into his jog, his heart stopped and he collapsed. The 26-year-old athlete had just dropped dead from sudden cardiac arrest. Bystanders performed CPR and UK Gill Heart Institute specialists sprung into action to save his life and find the cause. The answer would lead them to test everyone in his family.

ADVANCED MEDICINE FOR KENTUCKY

THAT’S WHY WE’RE HERE.

SECOND CHANCES

> Visit [ukhealthcare.info](http://ukhealthcare.info)



## UK HealthCare at Turfland New convenient location is now open!



UK HealthCare at Turfland, our new outpatient center on Harrodsburg Road, is now open.

UK HealthCare has relocated and consolidated some of its primary care and specialty outpatient clinics in the newly remodeled building and occupies all 85,000 square feet of the first floor. The new facility is easy to access from most parts of Lexington, offers plenty of free surface parking and is all on ground level – no stairs to climb!

**UK Family & Community Medicine**, which formerly saw patients at the Kentucky Clinic building on the UK campus and at Kentucky Clinic South on Harrodsburg Road, has been consolidated at the Turfland location and recently awarded the highest level of designation (Level III) as a Patient-Centered Medical Home.



**They are currently taking new patient appointments; existing patients have access to same-day appointments when sick.**

Other clinics and services at Turfland include:

- UK Sports Rehabilitation and UK Sports Medicine (formerly on Perimeter Drive)
- Occupational Medicine
- Travel Medicine
- Eye Center (to come)

Pharmacy, lab and radiology services are conveniently located onsite.

Coming later this year, Turfland will also be home to UK Oral Health. UK College of Dentistry practitioners in general dentistry, orthodontics, and oral & maxillofacial surgery will begin taking patients at this location.

If you have questions or would like to schedule an appointment, call UK Health Connection at **859-257-1000** or **800-333-8874**.

