

## Second Act

Perfect-match bone marrow transplant  
saves a musician's life | Page 10

# USC health

2022  
ISSUE TWO

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KECK MEDICINE OF USC

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# Check In



## Vitals

**2-9**

| Bringing Care to Ukraine | U.S. News & World Report Rankings |  
| Protection for Black and Brown Skin | Living Liver Donation | Bariatric Surgery Myths |  
| Meet Our Staff | Pancreatic Cancer Signs | Stop Severe Bleeding

## Examinations

COVER STORY

**10**

After a bone marrow transplant saved him from a rare cancer, Mike Snow urges everyone to consider becoming a donor



Robotics and water jets treat enlarged prostate via a new, minimally invasive procedure

**21**  
Ripple Effect



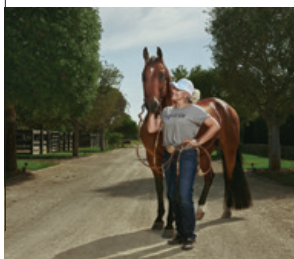
**24**  
Hope Within Reach



Rosa Maria Villalpando is the world's first stroke patient to receive vagus nerve stimulation outside of a clinical trial



**16**  
Get the facts on  
**back pain**



**18**  
Giving Cancer the Boot  
An equestrian sidelined by Hodgkin lymphoma is ready to ride again

## Consultations

**26-31**

USC Arcadia Hospital

Cardiac Care at  
USC-VHH

Hail to the Chiefs

Long COVID Clinic

Honoring ER Nurses

## Clinical Trials

**31**

## Labwork

**32-34**

IBD and Depression

Cochlear Implants in  
Deaf Children

SIR-T Immunotherapy

Alcohol and Liver  
Transplant

## Perspective

**36**

## Locations

**37**



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Keck Medical Center of USC, which includes Keck Hospital and USC Norris Cancer Hospital, was ranked among the top hospitals nationwide on U.S. News & World Report's 2022-23 Best Hospitals and among the top three hospitals in Los Angeles and top five in California. The medical center was also nationally recognized among the top 50 in 8 medical specialties.

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# Vitals

## Bringing Care to Ukraine

Four Keck Medicine of USC trauma surgeons recently visited the war-torn nation, where they treated civilian and military patients and taught critical skills to medical teams.



Kenji Inaba, MD

**Kenji Inaba, MD, and Matthew Martin, MD, who delivered surgical training and assistance in Ukraine.**

“Part of the reason I chose my specialty was to prepare for missions like this,” says Lydia Lam, MD, a trauma surgeon at Keck Medicine of USC.

She and Meghan Lewis, MD, also a trauma surgeon at Keck Medicine, taught emergency practices, including advanced trauma life support — a protocol for addressing injuries most likely to result in death — to support overburdened surgeons who have little experience in trauma surgery.

Kenji Inaba, MD, chief of trauma, emergency surgery and surgical critical care at Keck Medicine, overlapped with Matthew Martin, MD, a trauma surgeon at Keck Medicine, on separate trips.

Working with Ukrainian surgeons and surgical residents, the pair treated military injuries spanning the “entire spectrum of trauma and emergency general surgery,” says Dr. Inaba, who has traveled with Dr. Lam for earthquake relief efforts in Haiti and Nepal.

They also consulted on civilian injuries and provided instruction to Ukrainian physicians and surgeons, trainees, law enforcement and soldiers.

The participants have deep roots in delivering on-the-ground care. Dr. Inaba also serves as a reserve police officer in the Los Angeles Police Department, and he is the department’s first and only chief surgeon. Before joining Keck Medicine, Dr. Lewis served in the U.S. Navy, where she treated sailors in overseas medical centers.

For Dr. Martin, the mission was a return to working in a combat zone, which he did for 24 years as a U.S. Army trauma surgeon — including deployments to Afghanistan and Iraq.

The Keck Medicine surgeons all traveled with nongovernmental organizations, and they plan to maintain contact with the Ukrainian personnel.

“One of the most fulfilling things a surgeon can do is to give back to society, providing care for those in need and teaching others how to continue doing so after you leave,” Dr. Inaba says.



# Keck Medical Center of USC Earns 8 Specialty Rankings in U.S. News and World Report

**K**eck Medical Center of USC, which includes Keck Hospital of USC and USC Norris Cancer Hospital, has once again been recognized as one of the nation's best hospitals in the U.S. News & World Report Best Hospitals rankings.

The medical center ranked among the top 50 nationwide in eight specialties in the 2022-23 report, including two that placed in the top 10: Gastroenterology and GI surgery at No. 6 and Urology at No. 8. Both specialties, plus Cancer and Orthopedics, rose significantly since last year.

"These results reflect our ceaseless dedication to providing patients with the highest standards of care," says Rod Hanners, CEO of Keck Medicine of USC.

Keck Medical Center also ranked among the top 10 hospitals in California and top three hospitals in the Los Angeles metro area — designations that place the academic medical center in the top 25 hospitals nationwide.

It was also rated High Performing, the highest rating possible, in 16 out of 19 common procedures and conditions.

The ratings were awarded for abdominal aortic aneurysm repair, aortic valve surgery, back surgery (spinal fusion), colon cancer surgery, heart attack, heart bypass surgery, heart failure, hip fracture, hip replacement, knee replacement, lung cancer surgery, pneumonia, prostate cancer surgery, stroke, transcatheter aortic valve replacement (TAVR) and uterine cancer surgery.



## How Keck Medical Center of USC ranked:

- **Gastroenterology and GI Surgery (No. 6)**
- **Urology (No. 8)**
- **Geriatrics (No. 12)**
- **Cancer (No. 18)**
- **Cardiology & Heart Surgery (No. 19)**
- **Pulmonology & Lung Surgery (No. 25)**
- **Orthopedics (No. 30)**
- **Ear, Nose & Throat (No. 35)**

## Protection for Black and Brown Skin

No skin tone is immune to skin cancer. Pigment in the skin can provide some protection against the sun's ultraviolet rays, but it isn't always enough to prevent harmful damage.

Nada Elbuluk, MD, a clinical associate professor of dermatology at Keck Medicine of USC and founder of the USC Skin of Color and Pigmentary Disorders Program, shared tips to stay safe.

### Don't delay care

Skin cancer in people of color is often diagnosed at later stages. "By then, it's more aggressive, there's a risk of metastasis and a higher risk of morbidity, depending on how involved the surgical removal will be," Dr. Elbuluk says. See a doctor at the first sign of concern; they'll typically biopsy the affected area and determine next steps.

### Check your hands and feet

A larger proportion of melanomas in people of color are found on the palms, soles and nails, Dr. Elbuluk says. Look for moles that are changing in color or shape, or that have a noticeably dark spot. On the nails, skin cancer can present as a pigmented streak or a dark brown or black pigmentation that extends onto the cuticle.

### Examine and protect yourself

Conduct a monthly skin self-examination and report any new or changing growth to your doctor, says Dr. Elbuluk, who urges people of all skin tones to see a dermatologist annually. Apply sunscreen with an SPF of 30 or higher every two hours while outdoors — and don't forget sunglasses, a broad-brimmed hat and protective clothing.





# Living Liver Donation: A Friendship for Life

Ricardo Carrasco III



**W**hen Walter Cervantes learned he needed a new liver in 2002, he hesitated to ask his friend and flight attendant colleague, Rosie Lewis. That's because living liver donation — in which a healthy person gives a portion of their liver to a patient in need — was still a new concept.

"Rosie was one of my favorite flying partners," says Walter, 75, a Pasadena resident who was diagnosed with hepatitis C in 1999. "I loved her sense of humor, her warmth and her kindness toward the passengers."

It should have come as no surprise that Rosie was eager to help. This year, the pair celebrated the 20th anniversary of the surgery, which took place at Keck Hospital of USC.

"It's like gaining a new family member when you're old," says Rosie, 69, who gave a part of her liver to Walter when she was 46. "You're tied together."

Keck Hospital is a pioneer of living-donor liver transplant, performing its first procedure in May 1999, says Yuri S. Genyk, MD, co-director of Keck Medicine's USC Transplant Institute.

"Our program is one of the largest and most successful programs in the U.S.," Dr. Genyk says, "as well as the only program in Southern California offering liver recipients this lifesaving option."

Patients who receive organs from living donors often see big postsurgical benefits, such as immediate organ function, decreased rejection risk and longevity of the organ. (The liver is the only organ that regenerates; it can grow to normal size after a few months.)

Walter and Rosie both faced a long recovery. But with expertise and close monitoring from his Keck Medicine post-transplant doctor, Jeffrey A. Kahn, MD, the care team confirmed Walter's liver health was excellent.

Seven years ago, Dr. Kahn — who is also medical director of the Liver Transplant Program at Keck Hospital of USC — prescribed Walter a new drug to fight hepatitis C. The drug eradicated the virus, protecting his new liver from future damage.

Although Walter has retired from the airline industry, he remains close with the friend whose lifesaving gift still leaves him speechless after two decades.

"There are no words to convey all the gratitude I feel for Rosie," Walter says. "Without her, I would not be here."

## Paging 'Dr. Siwa'

Television star and singer JoJo Siwa traded her dance shoes for scrubs during a recent visit to USC Verdugo Hills Hospital. Appearing in a July episode of JoJo Goes, a Facebook Watch series, the 19-year-old learned to take the vital signs of a practice patient, intubate a medical mannequin and put on personal protective equipment (the filming took place in a section of the hospital used only for training). "This is seriously one of my dreams," Siwa said in the Facebook video. "I thought working a shift might change my mind about wanting to work at a hospital, but now I love it even more."



Patienne Cunanan, RN



# 4 Weight-Loss Surgery Myths, Debunked by a Bariatric Surgeon

**N**early 30 million adults in the United States are eligible for bariatric surgery, according to the National Institutes of Health. But only a fraction (about 1%) will proceed. This divide is driven by patient concerns about safety, effectiveness and insurance coverage.

Kamran Samakar, MD, a bariatric surgeon at Keck Medicine of USC and director of the USC Metabolic and Bariatric Surgery Program, set the record straight on common misconceptions.

## Myth: “All surgeries are the same”

**Fact:** Several options are available, and a patient’s decision is based on personal and medical factors. Sleeve gastrectomy, the more common choice, removes about 75% of the stomach. As a result, your body makes less ghrelin — the hunger hormone — so you feel full with less food.

Gastric bypass creates a small pouch from part of the stomach and reconnects it to the middle of the small intestine to function as a smaller stomach. This bypasses the rest of the stomach and part of the smaller intestine to limit food intake and calorie absorption.

## Myth: “Weight-loss surgery is highly risky”

**Fact:** The health risks of obesity can be far greater than any associated with bariatric surgery, Dr. Samakar says. In fact, bariatric surgery has been shown to lower the risk of death related to heart disease, diabetes and cancer.

The surgeries are performed laparoscopically via tiny incisions, Dr. Samakar says, adding that the risk of a leak is less than 1% — and the gastric bypass option has a higher likelihood of long-term risks, such as bowel obstructions, ulcers or internal hernias.

## Myth: “It’s just a quick fix”

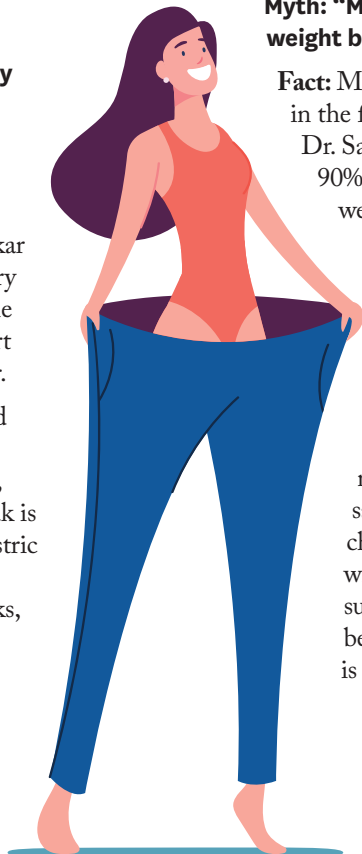
**Fact:** Keck Medicine’s weight-loss surgery program offers extensive pre- and postsurgical care that follows national established guidelines. After a mandatory informational seminar, Keck Medicine dietitians work with candidates to address potential challenges.

Physical and psychological tests are given to help patients “prepare their minds for what their bodies are about to go through,” Dr. Samakar says. After surgery, patients receive multiple follow-up visits in their first year and beyond, if needed.

## Myth: “Most patients gain weight back”

**Fact:** Most weight loss happens in the first eight to 12 months, Dr. Samakar says, and more than 90% of patients retain some weight loss. It’s common to experience some weight gain years later, although it’s typically low.

Long-term success takes work. “You can have surgery in two hours and come out with a whole new anatomy,” Dr. Samakar says. “But your brain hasn’t changed your relationship with food. A medically supervised diet and focus on behavioral and dietary change is essential.”



## Class Notes

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### Diabetes Education

**An experienced registered dietitian will explain the basics of nutrition and diabetes management.**

**These classes are designed for a person newly diagnosed with diabetes, but they can also be helpful for someone who has lived with diabetes and would like a refresher course.**

**Where:** USC Arcadia Hospital

**When:** Monthly, on a Tuesday morning

**How much:** Free

**Other info:** An online-only version of the class is also available (offered in two-part sessions via Zoom).

For more information, contact Victoria Buxton-Pacheco at (626) 898-8788 or email [Victoria.BuxtonPacheco@med.usc.edu](mailto:Victoria.BuxtonPacheco@med.usc.edu)

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## MEET OUR STAFF

## Helping Others Breathe Easier

Elmer Diwa, RRT, RCP, a respiratory care supervisor at USC Arcadia Hospital, has worked as a respiratory therapist for 35 years. Once a stroke recovery patient in the same hospital, he strives to deliver thoughtful care every day.



Ricardo Carrasco III

### What does your job entail?

I work with physicians to help diagnose and treat a range of patients, from premature infants whose lungs are not fully developed to elderly people with lung disease. On a given day, I may be on emergency cases, assisting with an intubation and managing life support. It's personal for me: After my stroke, my hospital colleagues worked hard to make sure I was comfortable. Every time I see a patient, I feel like I'm returning the favor.

### Why did you become a respiratory therapist?

Three decades ago, I was a nursing student learning bedside care. I noticed this gentleman in the ICU operating a device connected to a patient; it looked like a respirator. The man was wearing a lab coat, holding a clipboard, listening to the patient's breath. I thought: "Wow, this is amazing." That's when I started to change my focus to respiratory therapy, and I never looked back.

### What gives you motivation?

When I wake up, I can hardly wait to go to work and care for the patients I saw the day before, because I want to see how my care is starting to help them. When you see a patient transitioning from the emergency room to the intensive care unit, they can be almost lifeless before we start to revive them. It's satisfying to be part of the care that makes a big difference.

what's the

# Word?

## Coccydynia

noun

[kŏk'sī-dīn'ē-ə]



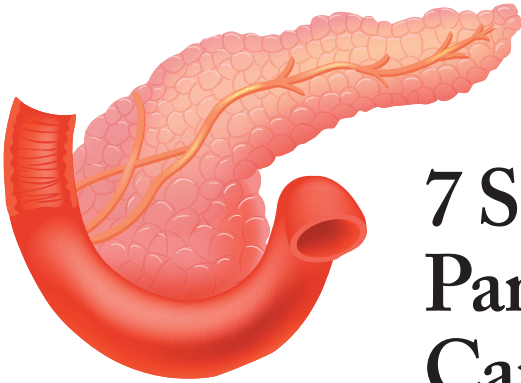
Quite simply: pain in the tailbone.

The coccyx is a small triangular bone at the bottom of the spinal column that can get injured whenever a person falls on their backside.

"Usually, we treat it conservatively at first and try to see if the fracture will heal on its own," says Thomas Chen, MD, PhD, a Keck Medicine of USC neurosurgeon who specializes in spinal surgery. "Patients who don't heal end up having a surgery called a coccygectomy. We make an incision at the base of the coccyx and remove the piece of bone that's loose."

If you are concerned about lingering tailbone pain, our expert physicians can help. To learn more or schedule an appointment, call (800) USC-CARE or visit [KeckMedicine.org/spine](https://www.KeckMedicine.org/spine).





## 7 Signs of Pancreatic Cancer

Pancreatic cancer is the third-leading cause of cancer-related death in the United States. And it's difficult to diagnose early, says Heinz-Josef Lenz, MD, an oncologist at USC Norris Comprehensive Cancer Center, who shared scenarios when you should call your doctor if symptoms persist for more than one week.

1. **Jaundice**  
This condition turns the whites of your eyes and skin yellow due to a buildup of bilirubin, a yellow substance made in the liver.
2. **Itchy skin**  
The same buildup of bilirubin may also trigger itchy skin, or pruritus. See a doctor if your itching doesn't subside.
3. **Changes in stool and urine**  
This is yet another bilirubin-related issue. "You may have darker pee and paler stool than usual," Dr. Lenz says.
4. **Digestive issues or weight loss**  
When pancreatic juices aren't flowing, a lack of appetite, bloating and weight loss can occur. A tumor pressing on the stomach may cause nausea and vomiting.
5. **Abdominal or back pain**  
This is more likely when the cancer develops in the "body" or "tail" area of the pancreas.
6. **Blood clots in legs or lungs**  
It may present in the leg, known as a deep vein thrombosis, or via a pulmonary embolism in the lungs. Still, blood clots are often a sign of other conditions, Dr. Lenz says.
7. **Sudden onset of diabetes**  
Pancreatic cancer can disrupt insulin production. Diabetes generally develops over time; call your doctor if sudden changes arise.



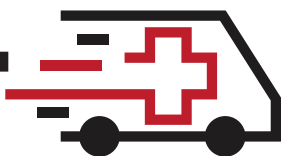
## The *Art* of Imaging

Many areas of medicine, from research to clinical diagnosis and treatment, use advanced technology to see things that the human eye can't — whether it's a patient's internal organs or bones, or something microscopic. Many times, these images can be beautiful as well as informative.



New evidence shows that a gene known as "Sonic hedgehog" plays a critical role in healing large bone injuries in adults, repeating elements of skeletal formation *in utero*. These findings could inform new treatments for substantial bone loss due to trauma or surgical resections to remove cancerous lesions. The images above show the resection of a mouse rib as it heals. (Images by Stephanie Kuwahara and Maxwell Serowoky from Francesca Mariani's Lab in the Department of Stem Cell Biology and Regenerative Medicine)

# 240+



The number of hospitals that look to transfer patients to Keck Medical Center for a higher level of care

# Emergency!

## How to Stop Severe Bleeding



**Bleeding after an injury is the No. 1 preventable cause of death,** says Kenji Inaba, MD, chief of trauma, emergency surgery, and surgical critical care at Keck Medicine of USC — and chair of Stop the Bleed, a national safety and preparedness campaign. He shared critical ways you can assist.

1

### Seek help immediately

If you're alone, call 911 on speaker. If not, have someone else call so you can focus on finding the source of the bleeding (check multiple locations). Give the emergency dispatcher your location.

2

### Apply pressure

Put direct pressure on the wound and don't let up until paramedics arrive. Place a piece of clothing or fabric beneath your hands to help stop the bleeding. Wear gloves, if possible, for protection.

3

### Pack the wound

A deep or large wound requires extra care. If you have medical gauze, use it to pack the incision and resume direct pressure. No gauze? A clean shirt, towel, washcloth or even paper towels will do.

4

### Use a commercial tourniquet

If none of the above measures stop a gushing bleed from a limb, consider a commercially available tourniquet if one is available. Wrap it tightly a few inches above the injury.

5

### Provide comfort

A calm heartbeat can help slow bleeding. Speak encouragingly to the injured and ask them to take deep breaths. If the patient is cold, offer a blanket; keeping the body warm may help the blood clot.

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# The Big Question

Seeing a new doctor for the first time can be scary. Coming to an appointment prepared and proactive can ease your nerves — and help establish a strong relationship. Two physicians from Keck Medicine of USC weigh in on the Big Question:

**How can I prepare for my first visit with a new doctor?**



As a primary care physician, I view my role as that of health adviser, coach and guide. The first meeting focuses on learning past medical history, current concerns and ultimate objectives.

It is quite helpful for me if patients know their prior diagnoses, medications, immunizations, family medical histories, allergies, past treatments and medications that were ineffective.

In my experience, some patients face anxiety about new medical encounters. They may fear not being heard or allowed to tell their full story without interruption. They may have concerns about being believed and acknowledged in expressing health concerns.

I operate from a place of trust, as I remember the advice of one of my earliest medical school instructors: Patients will teach you about disease if you listen and allow them to. Thus, before any medical decision-making, my first step is to listen.

**Patrice Tully, MD**  
Primary Care Physician  
USC Family Medicine



First, think about how you can effectively communicate your goals and all necessary components of your health history that will help your doctor achieve them.

If you have symptoms for which you are seeking diagnosis and treatment, be prepared to define them clearly — including when they began, their frequency and duration, and what you have tried to improve them.

Be at ease and believe that your doctor wants to help you. When a doctor meets you, it's their goal to make you feel welcome, create trust, listen to properly capture your history and symptoms, formulate a diagnosis, plan further work-up if necessary and develop a treatment plan.

Your physician will try their hardest to meet your goals within your first encounter, but it may not be possible in every case. The first visit may serve to represent the establishment of care and the formation of a doctor-patient relationship with a pact to continue working consistently to meet your health goals.

**Kristina Voss, MD**  
Ophthalmologist  
USC Roski Eye Institute

To make an appointment, call (800) USC-CARE or visit [KeckMedicine.org](https://www.KeckMedicine.org)



## Examinations

# Ready for an Encore

BY KATE FAYE



*A bone marrow transplant with a 100% genetic match gave Mike Snow a new lease on life. "It felt like a rebirth," he says.*

Kremer Johnson Photography



## After a bone marrow transplant at USC Norris Cancer Hospital helped him recover from a rare cancer, Mike Snow urges everyone to consider becoming a donor.

**M**ike Snow was driving on a Los Angeles freeway with his wife, Susanne, when he nearly fainted at the wheel. Soon after, he began to experience severe bleeding from his gums and debilitating fatigue. He was too weak to even play music, a heartbreaking setback for the lifelong drummer, pianist and guitar player.

Mike was hospitalized for several days in May 2019. Doctors diagnosed him with myelofibrosis, a rare, chronic blood cancer that impedes the production of red blood cells.

"I was scared as hell," says Mike, who was 68 at the time.

A regimen of two to three blood transfusions a week over eight months brought no relief. The patient was told he would need a bone marrow transplant — a procedure where stem cells are filtered from donated marrow and injected into a recipient's bloodstream.

Once inside, the injected cells travel to the bone marrow and create healthy blood that can override the disease.

### Leading Transplant Center

Mike was referred to George Yaghmour, MD, a bone marrow transplant specialist at USC Norris Comprehensive Cancer Center, part of Keck Medicine of USC. The doctor's compassion and knowledge quickly made an impression on Mike and his wife.

"He was down to earth, and he gave us an honest description of how it was going to go and what my chances were," Mike says.

Dr. Yaghmour warned the Pasadena couple, who first fell in love in 1975, that bone marrow transplants for myelofibrosis patients can be difficult.

"The outcome for transplant for myelofibrosis is lower than average, and very challenging," says Dr. Yaghmour, who is also associate director of the USC Norris Blood and Marrow Transplant and Cell Therapy Program. "The disease is very trying for a patient in terms of transplant because the risk of graft rejection and relapse is high."

Still, his candor reassured Mike that he was in good hands.

And the patient was at the top transplant center in Southern California: While the national average success rate for bone marrow transplants is around 71%, Keck Medicine averages a success rate of over 85%, according to Dr. Yaghmour.

### A Perfect Match

To find a good match between donor and recipient, a group of specific markers in donated bone marrow are compared to those of the patient. The more markers that match, the higher the chance of a positive outcome.

"If you've ever thought about donating bone marrow, please do so. You could not just change somebody's life, you could save somebody's life."

Mike Snow

Roughly two months after adding Mike's name to the national registry for bone marrow patients — which can be found at BeTheMatch.org — his care team found a 25-year-old woman in Alabama who was registered as a living donor. She had only been on the registry for two weeks.

In an extraordinary stroke of luck, the donor was a 100% match.

Mike's procedure was scheduled for March 2020, but then the COVID-19 pandemic hit. The Snows faced a nerve-racking wait as USC Norris and Keck Medicine staff worked to determine a safe date to resume the treatment plan.



George Yaghmour, MD

“We were pretty nervous about what was going to happen,” Mike says. “Because by then, we’d already heard how gruesome this illness could be if things didn’t work out.”

After a few months, USC Norris was ready.

Dr. Yaghmour would perform the bone marrow transplant on July 7, 2020 — Mike’s 69th birthday. The hospital also assigned a designated transplant coordinator to help Mike prepare for the big day.

### ‘It Felt Like a Rebirth’

Mike spent one month as an inpatient at USC Norris Cancer Hospital, where he spent the first week in chemotherapy and receiving low-dose radiation to bring his blood ingredients to zero.

The transplant involved Dr. Yaghmour injecting three bags of stem cells from the donated bone marrow into a vein in Mike’s neck. After weeks of preparation, the procedure itself took 15 minutes.

Then, the recovery process began.

“The first 100 days post-transplant are the hardest part of the process, due to the preparation being so hard on the body,” Dr. Yaghmour says.

Mike attests to this, saying that he didn’t feel much different at first, and that the initial side effects manifested as the same symptoms he’d been suffering for roughly a year.

But his recovery was remarkable. Three weeks after the procedure, Mike began to see some improvement, and it was enough to confirm the

transplant’s success. Despite his physical weakness, Mike was elated to know he would eventually recover.

“It felt like a rebirth,” he says.

### Getting Better All the Time

While regaining his strength in the hospital, Mike took up another instrument: the ukulele.

“I hadn’t thought much about the ukulele,” says Mike, who composed two songs and a poem from his bed. “But then I thought, ‘That’s a small instrument. It doesn’t take up much space. And it’s not very loud, so it won’t bother the other patients.’”

In fact, he credits his creative endeavors for helping him through his physical and emotional recovery.

One month after the transplant, Mike was walking and getting

stronger every day. Observing his patient, Dr. Yaghmour took note of the support the patient received from his loved ones.

“He has an amazing partner in Sue,” Dr. Yaghmour says. “But we were all a team, honestly. And that is important — having a team like a family to help patients through the process.”

In Mike’s first two blood draws after discharge, his care team saw strong improvement: His platelet count had jumped from 5,000 to 80,000, and the tally would only grow from there.

Today, his count is excellent at 172,000, and Mike is back to his diverse musical pursuits.

Mike and Susanne have reached out to the bone marrow donor to express their gratitude and even forge a friendship. They also remain grateful to the care team who managed the journey.

“I wouldn’t think of going anywhere but USC Norris,” Mike says.

Mike, now 71, encourages everyone to find out if they’re qualified to donate bone marrow. More people in the registry, after all, makes it more likely that a person in need can receive a crucial transplant.

“If you’ve ever thought about donating bone marrow, please do so,” Mike says. “You could not just change somebody’s life — you could save somebody’s life.”

To learn more or schedule an appointment, call (800) USC-CARE or visit [KeckMedicine.org/BoneMarrowTransplant](https://www.keckmedicine.org/bonemarrowtransplant)

## 5 Reasons to Become a Bone Marrow Donor

### It’s a critical resource

Bone marrow transplant can treat over 70 diseases. Every three minutes, a child or adult is diagnosed with one of these diseases.

### It is easy to sign up

Registering to donate is quick, simple and can be done by mail. Prospective bone marrow donors may back out at any time, for any reason.

Source: BeTheMatch.org

To learn more about becoming a bone marrow donor, visit [BeTheMatch.org](https://www.bethematch.org)

### It’s crucial for health equity

Racially and ethnically diverse donors are desperately needed, as those patients are 20% to 50% less likely to find a match than white patients.

### It doesn’t hurt to give

Bone marrow donation is usually an outpatient procedure, and recipients get anesthesia. A nonsurgical blood stem cell withdrawal is even easier; it’s used 85% of the time.

### It costs donors nothing

Donors are not responsible for any medical bills tied to their donation or the transplant process.





*Mike Snow taught himself the ukulele while recovering at USC Norris Cancer Hospital*





# Heart and Soul

BY CANDACE PEARSON

With the help of a mechanical pumping device, Zuleyma Santos is thriving while she awaits a heart transplant — and advocating for greater awareness of heart disease in young women.

**Z**uleyma Santos cuddled two-day-old Savanna to breastfeed, enjoying a quiet moment to bond before leaving the hospital. Awaiting them at home were husband, Christopher Valdez, and their 2-year-old son, Christopher Jr. (C.J.).

Suddenly, Zuleyma felt like she was suffocating.

“Something’s wrong,” she cried, quickly handing her baby to a nurse. “I can’t breathe!”

Tests revealed the story: Zuleyma, only 35 at the time, had peripartum cardiomyopathy — a form of heart failure that occurs during the last month of pregnancy or the first few months postpartum, weakening the heart. The exact cause is unknown, but the strain of pregnancy, along with hypertension and inflammation, are among the potential risk factors.

“I was young,” says Zuleyma, who was shocked by the diagnosis, “with no family history of heart disease.”

Nearly three years later, she is on a waiting list for a heart transplant. And for now, an implanted mechanical pump does what Zuleyma cannot: help the heart’s main pumping chamber send nutrient- and oxygen-rich blood to the rest of her body.



Raymond Lee, MD



Eugene DePasquale, MD

## Worrisome Symptoms

Doctors at the community hospital where Savanna was born in August 2019 sent Zuleyma home with a prescription and advice to see a cardiologist. When the COVID-19 pandemic hit soon after, getting those appointments wasn’t easy.

About four months later, she began feeling better. “I wanted a normal life,” Zuleyma says. The Panorama City resident went back to her job in fashion retail and taking care of her children and her husband, who was facing cancer.

Then, Zuleyma’s heart condition caught up with her. Peripartum cardiomyopathy is uncommon and can be life-threatening, affecting between 1,000 to 1,300 women in the U.S. each year.



© Kremer Johnson Photography





*An LVAD gives Zuleyma Santos lifesaving cardiac function and mobility; the controller part of the device is hidden in her purse.*

But it can be difficult to detect because symptoms of heart failure can mimic those of third-trimester pregnancy, such as swelling in the feet and legs, and some shortness of breath.

Fatigued and often breathless, Zuleyma spent more days in bed. One night in October 2020, she had so much trouble breathing that she told her mother to call an ambulance.

Zuleyma can't recall being taken to a local hospital or her immediate transfer to Keck Hospital of USC.

She woke in the intensive care unit, only to be told she was in advanced heart failure and would need a new heart.

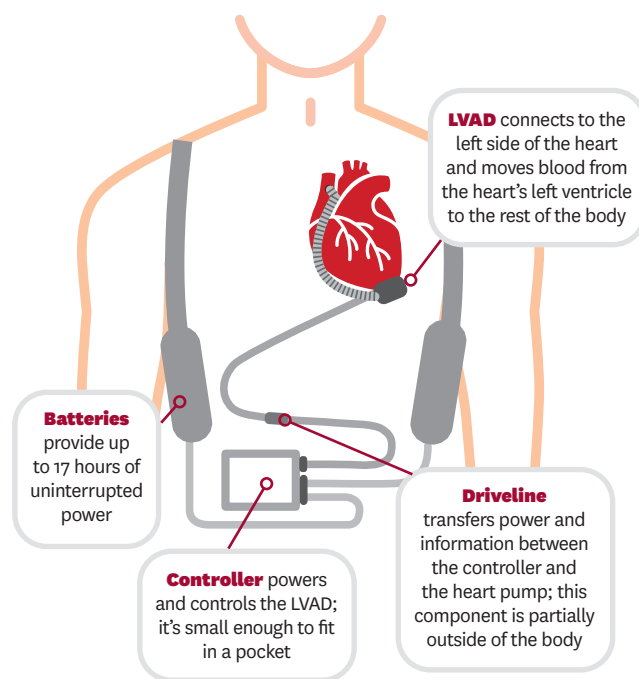
### A Lifesaving Assist

To save his patient's life, Keck Medicine of USC cardiac surgeon Raymond Lee, MD, implanted a left ventricular assist device (or LVAD) in Zuleyma's chest to pump along with her own heart.

But the device she received is designed for short-term support, and with a transplant date uncertain, Zuleyma wanted to go home. Her second surgery took place in December 2020, when Dr. Lee implanted a different LVAD that can support extended use.

Continued on Page 35

### How an LVAD works



# Get the facts on back pain

BY KATE FAYE

**Back pain doesn't always start where you feel it. The experts at Keck Medicine of USC explain common causes that can originate elsewhere in the body — and what the pain is trying to tell you.**

## **Sciatica**

A medical term for a pinched nerve in the lower back, sciatica causes pain to radiate down the body. Causes include a herniated (slipped) disc, spinal stenosis, pelvic injury or a tumor. Arthritic changes may also trigger sciatica. “These conditions can compress the sciatic nerve” and incite pain, says Christopher Ornelas, MD, chief of spine medicine for the USC Spine Center. Treatments include physical therapy, medications and spinal epidural.

## **Muscle strain**

Excess pressure on a muscle or tendon may overstretch it, and those in the lower back often bear the brunt. This injury can happen when people overdo their workouts or make mistakes while lifting. “The most effective treatments are usually nonoperative,” says Ram Alluri, MD, of the USC Spine Center. Among them: rest, ice, physical therapy and over-the-counter anti-inflammatories like ibuprofen.







### **Kidney stones**

These mineral deposits can prompt waves of sharp, cramping pain in your back. “While people can have a genetic predisposition, the risk can be heightened by chronic dehydration, certain medications and a diet with too much protein,” says Gerhard Fuchs, MD, of USC Urology. If you suspect you have a kidney stone, call your doctor. They’ll confirm the diagnosis, then determine the best course of action, such as therapeutic sound waves to break up the kidney stones.

### **Heart attack**

Also known as myocardial infarction, this event commonly presents as pain in the upper back — especially in women (whose heart attack symptoms often differ from men’s). “If you’re experiencing this pain, look for other symptoms such as sweating, shortness of breath and nausea,” says Edris Alderwish, MD, a cardiologist at Keck Medicine. Call 911, then sit on the floor with your knees bent and your head and shoulders supported.

### **Period pain**

Lower back pain is common during menstruation. If over-the-counter pain relievers don’t help, a doctor can determine whether you may have a condition like endometriosis or fibroids. “If period pain is excessive or continues throughout the month, we may order diagnostic imaging,” says Anna Elizabeth Reinert, MD, an OB/GYN at Keck Medicine. Oral contraceptives can treat severe period pain; minimally invasive surgery is most effective for fibroids and endometriosis.

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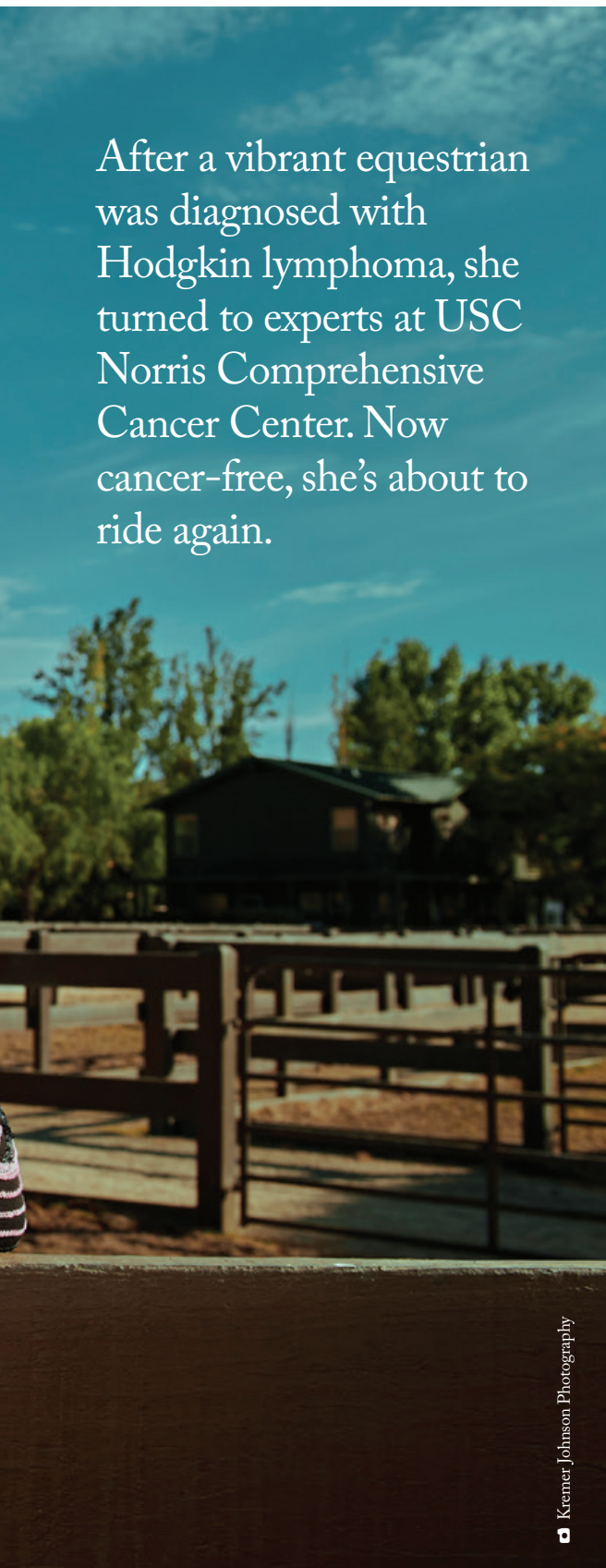
**To learn more or  
to schedule an  
appointment, call  
(800) USC-CARE or visit  
KeckMedicine.org**

# Giving Cancer the Boot

BY HOPE HAMASHIGE







After a vibrant equestrian was diagnosed with Hodgkin lymphoma, she turned to experts at USC Norris Comprehensive Cancer Center. Now cancer-free, she's about to ride again.

Kremer Johnson Photography

**K**ristin Titov is highly accomplished in the world of reining — a competition in which a rider guides a horse through a series of maneuvers — and she endures long, intense practices to prepare.

So, after waking up sore one morning, Kristin didn't suspect a problem.

"I was massaging my neck and felt a bump; I thought it was a knot in a muscle," says Kristin, who sought relief from a chiropractor in the fall of 2020. "He said it looked like a lymph node and told me to see a doctor right away."

Kristin's primary care physician said it was possible she had lymphoma and referred her to Louis VanderMolen, MD, an oncologist with USC Norris Comprehensive Cancer Center in Newport Beach.

Although Kristin had no family history of cancer, she immediately recognized the specialist's name: Dr. VanderMolen had treated her best friend's mother.

"For years, I had heard about this doctor my best friend calls 'the miracle worker,'" says Kristin, a Corona del Mar resident. "She didn't expect her mother to survive her cancer diagnosis, but she beat it working with Dr. VanderMolen and lived to be 92."

After an inconclusive biopsy, Dr. VanderMolen sent Kristin to a surgeon to have her lymph node removed.

On her 43rd birthday, doctors told Kristin that she had Hodgkin lymphoma. It is a cancer of the lymphatic system, which includes the tissues and organs that produce, store, and carry white blood cells that fight infections and other diseases.

### 'Top-Notch' Cancer Care

Hodgkin lymphoma is common in young adulthood and in adults over the age of 65. And while some people experience symptoms such as fever, sweats or unexplained weight loss, Kristin says she felt nothing until she noticed the swollen lymph node in her neck.

Current treatments for Hodgkin lymphoma involve radiation with or without chemotherapy, depending on the stage of the disease.

"The outlook is usually excellent for these individuals," Dr. VanderMolen says. "Over the years, the treatment has become less extensive, shorter in duration and less toxic."

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**"I knew from  
the beginning  
that I could trust  
Dr. VanderMolen."**

Kristin Titov

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Kristin had several rounds of chemotherapy that tested her emotionally and physically. It also prevented her from spending much time with her horse, Pickles, because she boards the animal in Arizona.

Despite her challenges, Kristin never questioned whether she was in the right hands.

"I knew from the beginning that I could trust Dr. VanderMolen," she says. "I also felt that everyone that he referred me to was top-notch, and they all had nothing but respect for him."



*Kristin Titov, pictured at a stable in San Juan Capistrano*

Kremer Johnson Photography

### Back in the Saddle

Kristin credits the entire staff at the treatment center in Newport Beach for delivering a positive experience.

The Newport Beach clinic and infusion center is licensed by USC Norris Cancer Hospital, part of USC Norris Comprehensive Cancer Center.

The clinic, which opened in April, uses the latest technology and includes an on-site laboratory and pharmacy to provide patients with coordinated, personalized care.

“Every time I have a follow-up, it’s like going to a family reunion,” says Kristin, who has finished her treatments and resumed running her western-inspired clothing and accessories business, Hobby Horse, Inc.

With her scans coming back clear of cancer, she is planning to return to reining competitions later this year — and with a stronger spirit and outlook to boot.

“In reining, there’s a saying: ‘One box at a time,’” says Kristin, explaining that a rider’s every maneuver is judged separately during competition, with scores totaled at the end.

“That was also my saying when I was going through chemo, even when it was overwhelming: One box at a time and one treatment at a time.”

To learn more or schedule an appointment, call (800) USC-CARE or visit [KeckMedicine.org/CancerOC](https://www.keckmedicine.org/canceroc)



**Louis VanderMolen, MD**



# Ripple Effect

BY ROBIN HEFFLER

A new, minimally invasive procedure uses robotics and precise water jets to remove excess prostate tissue that causes frequent or difficult urination.

Continued on next page

**A**s the vice president of a medical technology company, Rich Lunsford is a road warrior. The 64-year-old crisscrosses the country twice each week to meet with surgeons and hospital leaders.

Rich thrived on the routine until he became increasingly affected by a condition familiar to many middle-aged men: an enlarged prostate gland, or benign prostatic hyperplasia (BPH).

The condition can block the outflow of urine from the bladder, leading to increased frequency and difficulty in urinating.

“Medications had worked fine at first,” says Rich, who was diagnosed at age 47.

“But toward the end of my 50s, I started going through spurts of urinating four or five times within several hours — and in my 60s, I had to start excusing myself from meetings to find a restroom.”

In April 2021, the problem grew worse. Rich was on a conference call at his home in Steamboat Springs, Colorado, and felt an urgency to use the bathroom, but he was unable to urinate.

“I was in retention,” Rich says. “My wife raced me to the hospital, where they put in a catheter to drain the urine for seven days, and they put me on new meds.”

A second incident prompted Rich to visit a urologist near his own employer’s headquarters in Irvine. The urologist discovered that his patient’s prostate was twice the normal size.



*No longer needing frequent bathroom breaks, Rich Lunsford is back to enjoying recreational activities and travel*



After consulting with other physicians, Rich was told that his best option was a relatively new, minimally invasive procedure known as Aquablation®, or water jet ablation.

By harnessing the strength of water — as seen in clinical functions such as ultrasonic plaque removal — the treatment can remove prostate tissue without affecting the anatomy tied to urinary control and sexual function.

### Quick, Precise Procedure

Rich contacted the developer of the technology to find the best surgeon in the country who could perform water jet ablation. He was referred to Mihir Desai, MD, a urologist at USC Verdugo Hills Hospital and a recognized expert in robotic and minimally invasive surgeries.

“I don’t have to go to the bathroom as frequently now or scope out where the bathroom is at a baseball game. I can be in the car for long periods, and I don’t need an aisle seat.”

Rich Lunsford

USC Urology at USC-VHH began performing water jet ablation three years ago — it was the first West Coast facility to routinely do so, Dr. Desai says — and the team was involved in clinical trials.

“Before the procedure, a detailed map of the prostate is created using an instrument inserted into the urethra and ultrasound imaging, which pinpoint the tissue to be removed,” Dr. Desai says. “Then, a robotic system removes the tissue using a stream of water, which the surgical team can view and control in real time.”

### Life-Changing Outlook

BPH affects more than half of all U.S. men age 60 and older (and 90% of men 85 and over), so water jet ablation offers a safe, reliable option.

Surgical options for enlarged prostate can take hours, but water jet ablation takes about 30 minutes, Dr. Desai says. Most patients spend one night in the hospital and leave without a catheter.

The procedure also reduces the chances of side effects that other options can create, such as sexual dysfunction and incontinence.

About 85% of recipients won’t need short-term revision, Dr. Desai says, adding that the success rate is higher than other BPH procedures — and that it’s realistic to recover the urinary function of 20 years earlier.

“Water jet ablation is very quick, it doesn’t require an incision and it uses high-pressure, room-temperature water,” Dr. Desai says.

Candidates should have significantly enlarged prostates, Dr. Desai says, as well as disrupted urination and a desire to preserve sexual function. Men who cannot safely stop blood thinners are not a good fit because they could bleed during the procedure.

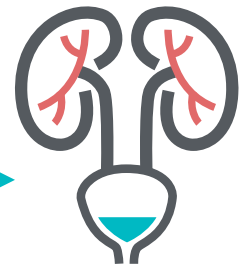
For Rich, who is back on the road, water jet ablation was life changing.

“I don’t have to go to the bathroom as frequently now or scope out where the bathroom is at a baseball game,” he says. “I can be in the car for long periods, and I don’t need an aisle seat. Physical activities like hiking and biking are easier to do.”

To learn more or schedule an appointment, call (800) USC-CARE or visit [KeckMedicine.org/WaterJetAblation](https://www.keckmedicine.org/waterjetablation)



Mihir Desai, MD



### 3 Times Men Should See a Urologist

Mihir Desai, MD, a urologist at USC Verdugo Hills Hospital, advises men to speak up if they have the following symptoms:

1. **Blood in the urine:** This is a critical warning, and it could be due to an enlarged prostate. It could also be a sign of bladder or kidney cancer.
2. **A full-feeling bladder:** Seek medical care if it feels like the bladder is not completely emptying. Over time, this condition can cause kidney failure.
3. **Burning sensation while urinating:** This is a sign of infection. If you also have a fever, go to an emergency room immediately.

# Hope Within Reach

Rosa Maria Villalpando is the world's first stroke patient to receive vagus nerve stimulation outside of a clinical trial, signaling new hope for millions seeking improved mobility.

BY MICHAEL JULIANI

**F**ive years after a stroke paralyzed the left side of her body, Rosa Maria Villalpando still hoped to recover the full use of her left hand for routine yet essential tasks such as curling her hair and typing.

Intensive occupational therapy helped the Downey resident restore, in her estimate, about 85% of her past function. She could once again shower, walk and drive a car without assistance.

"I was in therapy from the moment I was in the hospital," says Rosa Maria, a clinical psychologist and former Univision reporter.

Still, her therapeutic progress had reached a plateau — and it made Rosa Maria more determined to seek other treatments.

Her situation mirrors that of millions of stroke survivors whose upper extremities remain impaired, even after years of rehabilitation.

Rosa Maria recently found new hope. In May, she became the first stroke patient in the world outside of a clinical trial to receive implantation of a vagus nerve stimulation (VNS) device to help improve her mobility.

Charles Liu, MD, PhD, a Keck Medicine of USC neurosurgeon and director of the USC Neurorestoration Center, says VNS technology presents a potential milestone in Rosa Maria's recovery.

And, he says, it creates new optimism for anyone who has suffered a stroke, which is a leading cause of serious long-term disability.

## The 'Wandering' Nerve

VNS, which has been used for two decades to treat other conditions, such as epilepsy, received Food and Drug Administration approval for use in stroke patients following the groundbreaking results of a clinical trial published last year in *The Lancet*.



The study, coauthored by Dr. Liu, showed that stroke patients who received VNS in tandem with task-specific rehabilitation practices regained two to three times more motor function in their upper extremities than those who received only the rehabilitation.

“This idea of improving upon rehabilitation has been, in some ways, the holy grail of people working in stroke rehabilitation,” says Dr. Liu, who was also the study’s lead neurosurgeon.

The VNS device works by applying electrical stimulation to the vagus nerve (Latin for “wandering” nerve), which controls much of the autonomic function of the nervous system that sends messages back and forth between the brain and the body.

Neurosurgeons implant a pulse generator about the size of a matchbox between the skin and muscle of the patient’s left pectoral area, the

same area where a pacemaker would sit. The generator is attached to a set of leads, or coils, placed around the vagus nerve in the neck.

Occupational therapists — or even patients — can prompt the VNS device to deliver electrical stimulation to the nerve as the patient performs tasks to strengthen their affected extremities.

The pairing of electrical stimulation with occupational therapy “changes the state of the nervous system,” Dr. Liu says, “and by changing the system, what the system is able to do is also changed.”

Rosa Maria’s VNS implantation was performed by Jonathan Russin, MD, assistant surgical director of the USC Neurorestoration Center, and Dr. Liu.

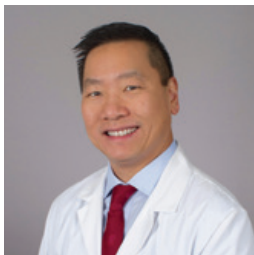
### New Beginnings

The surgeons had done the procedure many times before but pioneering its use for stroke patients — whose progress from therapy typically levels off at the one-year mark — brought new inspiration.

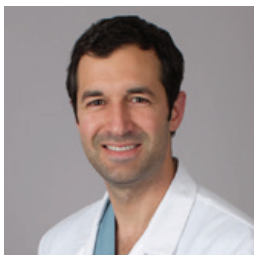
“Before, there was nothing that we could offer to chronic stroke patients from a surgical intervention standpoint,” Dr. Russin says. “Now, there is.”

As Rosa Maria recuperated in Keck Hospital of USC after the 45-minute procedure, she took selfies with her nurses and sent them to Dr. Liu. A few hours later, she was able to go home.

Continued on Page 35



Charles Liu, MD, PhD



Jonathan Russin, MD



Rosa Maria Villalpando is working to regain function of her left hand

Kremer Johnson Photography

KNOW THE  
SIGNS OF A  
**Stroke**



If you experience  
sudden onset of any  
of these symptoms,  
call 911

# Consultations

## Methodist Hospital of Southern California joins Keck Medicine of USC as USC Arcadia Hospital



**M**ethodist Hospital of Southern California in Arcadia is now part of Keck Medicine of USC and is now known as USC Arcadia Hospital. The affiliation was finalized on July 1.

“We are very fortunate to have found a complementary partner in USC Arcadia Hospital,” says Rod Hanners, CEO of Keck Medicine. “Its strength as a long-standing community hospital coupled with our academic health system will secure the legacy of both organizations and better meet the health care needs of the San Gabriel Valley community.”

Founded in 1903, USC Arcadia Hospital is a full-service community hospital with 348 licensed beds offering a variety of services, including advanced cardiovascular care, a comprehensive stroke center and an emergency department approved for pediatrics.

The hospital’s affiliation with USC brings San Gabriel Valley residents convenient access to Keck Medicine’s specialized care, research and breakthrough technology.

“Our hospital will be stronger as part of Keck Medicine of USC,” says Dan Ausman, president and CEO of USC

Arcadia Hospital. “The partnership brings our community expanded access to a full range of physician specialties, technology and clinical services that will benefit our patients, employees and physicians.”

Keck Medicine offers world-class care for both routine and highly complex cases, and it is nationally ranked in eight specialties by U.S. News & World Report.

Over the coming years, Keck Medicine will invest in USC Arcadia Hospital’s equipment, infrastructure and services. Areas of focus include expanded neurosciences, cardiac care and oncology





Ricardo Carrasco III

services, complementing multispecialty outpatient services Keck Medicine currently provides in Arcadia.

Additionally, the health system will develop academic and training programs at USC Arcadia Hospital for residents and fellows.

Keck Medicine has a history of successful collaborations with regional hospitals and health enterprises, improving access to academic medicine in local communities.

With this affiliation, Keck Medicine now has two community hospitals in the northeast area of Los Angeles. USC Arcadia Hospital joins USC Verdugo Hills Hospital, which serves La Cañada Flintridge, Glendale and the greater Foothills community.

### USC ARCADIA HOSPITAL

 **700+**  
PHYSICIANS

**1,900+**  
EMPLOYEES 


 **150+**  
VOLUNTEERS

**348** BEDS 

#### BY THE NUMBERS ANNUAL HOSPITAL STATISTICS

 **39,000+**  
ER VISITS

 **12,000+**  
DISCHARGES

 **4,750+**  
SURGERIES

 **1,100+**  
BIRTHS

# New USC-VHH Lab Treats Cardiac Emergencies Close to Home



Ricardo Carrasco III

**T**he Interventional Radiology and Cardiac Catheterization Laboratory at USC Verdugo Hills Hospital is designed to provide quick, comprehensive emergency cardiovascular care — a critical option for nearby patients when every second counts.

The new facility, known as an IR/cath lab, serves two functions: First, it offers diagnostic tools to view a patient's heart and identify cardiac abnormalities during a critical event.

The lab's on-site interventional radiology team enables fast action via imaging tools such as X-ray, fluoroscopy, computerized tomography (CT), MRI or ultrasound.

Those insights allow doctors to guide small instruments through the blood vessels for lifesaving procedures, such as angioplasty or stenting — both of which previously could not be performed at USC-VHH.

USC-VHH now offers the latest and best technology to deliver robotic-driven imaging and angioplasty. It is among only 20 hospitals nationwide and the first IR/cath lab in Southern California to utilize these tools.

By ensuring that cardiac emergency patients can be treated without delay, the lab delivers “an additional aspect of state-of-the-art care,” says Vaughn Starnes, MD, executive director of the USC Cardiac and Vascular Institute.

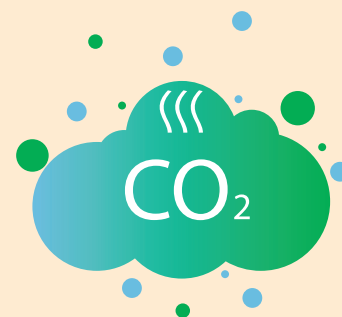
The lab isn't just for USC-VHH doctors. Community physicians also have access, and it's staffed by community specialists alongside Keck Medicine of USC cardiovascular physicians at USC-VHH, who are available to offer academic medical expertise for complex cases.

“The most important factor is the time of delivery of care,” says Armand Dorian, MD, chief executive officer and former chief medical officer of USC-VHH.

For Sue Wilder, who co-chaired the lab's fundraising committee with her husband, Steve, the mission is personal.

When her brother suffered a heart attack several years ago, the nearby hospital didn't have an IR/cath lab to pinpoint the cause or determine the best course of action. She believes it could have saved his life.

“That's why I was passionate about getting a lab here at USC-VHH,” Wilder says.



## Pledging a Greener Future

Keck Medical Center of USC has committed to lowering its greenhouse gas emissions and building a more eco-friendly infrastructure.

By signing the White House Health Care Sector Climate Pledge in July, the medical center has agreed to reduce emissions by a minimum of 50% by 2030, to publicly share its reduction strategies and to develop a climate resilience plan that accounts for local communities at higher risk of climate-related harm.

“Our goal, each and every day, is to ensure the continued well-being of our patients,” says Jon Reuter, chief of operations at Keck Hospital of USC.

Last year, Keck Medical Center joined Practice Greenhealth, the leading nonprofit leadership and networking organization for sustainable health care. Practice Greenhealth introduced the medical center to the White House pledge.

On June 30, the Biden-Harris Administration announced that 61 of the largest U.S. hospital and health sector companies had responded to the pledge, representing over 650 hospitals and thousands of providers.

“To serve our communities to the fullest, we must prioritize environmental and sustainability efforts,” says Marty Sargeant, chief executive officer of Keck Medical Center.

The pledge aligns with USC President Carol L. Folt's aim of achieving carbon neutrality for the university by 2025.



## Hail to the Chiefs

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The chiefs of staff at all three Keck Medicine of USC hospitals are women. A chief of staff acts as the medical staff spokesperson, fosters educational activities and coordinates with the chief executive officer for the betterment of the hospital. Each leader recently spoke about her path and passion for health care.



**Alison Wilcox, MD**  
Keck Medical Center of USC

Dr. Wilcox, a radiologist, attended the Keck School of Medicine of USC as a dean's scholar.

She stayed on to complete her residency and fellowship and then joined the Keck School's radiology department with a specialized interest in cardiothoracic imaging.

Dr. Wilcox later became the program director of the radiology residency program before assuming the role of director of cardiothoracic imaging.

Today, she is the medical director for imaging at Keck Hospital of USC and is starting her second year as the medical center's chief of staff.

"Each of these steps has been incredibly impactful and helpful and brought me to the point where I can be a successful leader," she says. "I think it helps that I'm levelheaded with a lot of common sense, and I like to think I am naturally fair."



**Happy Khanna, MD**  
USC Verdugo Hills Hospital

A pediatrician at USC-VHH since 1990, Dr. Khanna has overseen 90% of the births there, and she is currently chair of the Caduceus Society, a philanthropic group of USC-VHH medical staff.

She celebrated 30 years at the hospital in 2020 — the same year she began her tenure as the first woman chief of staff — and has a reputation fitting to her name.

"I am a friendly person who loves to help people," she says. "A smile and a positive attitude can be a powerful thing."

Dr. Khanna's first year in the job was challenging due to a breast cancer diagnosis, but thanks to the care she received at USC-VHH, she is now cancer-free.

Her first task was to navigate the COVID-19 pandemic's first wave, and she has actively worked to boost collaboration between Keck Medicine physicians and community physicians at the hospital.



**Elizabeth Lee, MD**  
USC Arcadia Hospital

Dr. Lee, a general surgeon in Arcadia, has run a private practice for 27 years. She specializes in many forms of surgery but is currently focused on breast cancer surgery. She is also medical director of USC Arcadia Hospital's Wound Healing Center and Hyperbaric Oxygen Chamber.

With several leadership roles under her belt, including chief of the hospital's surgery department and chair of general and vascular surgery, Dr. Lee is prepared for the hospital to begin its next chapter.

"I look forward to the technology and resources Keck Medicine can bring to benefit our staff and patients," she says.

The Arcadia hospital hasn't had a woman chief of staff in nearly three decades, Dr. Lee says, so her role holds special influence. "There are so many bright and motivated women doctors at the hospital, and I hope I encourage them to be part of hospital leadership," she says.



## Clinic Offers Care for Long COVID Patients

**K**eck Medicine of USC has launched the COVID Recovery Clinic, a multidisciplinary program led by a core team of clinicians specializing in primary care, pulmonology and physical therapy to treat patients' broad spectrum of persistent symptoms.

"Given the extremely high number of people experiencing lingering, and oftentimes quite disruptive symptoms, we need to find ways to help patients get back to functioning in their lives," says Caitlin McAuley, DO, a family medicine physician with Keck Medicine and a specialist who works with long COVID-19 patients.

The clinic's core team works together — simultaneously seeing patients in one visit if needed — to create a detailed workup while partnering with a nurse navigator to form an integrated, personalized treatment plan. Patients may be referred to other Keck Medicine specialists.

An estimated 1 in 3 people continue experiencing symptoms for weeks or even months after they have shed the COVID-19 virus, according to the Centers for Disease Control and Prevention. Symptoms may include cough, fatigue, breathlessness, joint pain, brain fog, blurred vision and anxiety.

"As an academic medical center, Keck Medicine is dedicated to learning all we can about long COVID-19 to improve treatment options so we can provide our patients with the care they need and deserve," Dr. McAuley says.

Patients eligible for the COVID Recovery Clinic include those who have had a positive PCR test result for COVID-19 with symptoms persisting eight weeks or more after diagnosis.

**For more information, call (323) 442-9209 or email [covidrecovery@med.usc.edu](mailto:covidrecovery@med.usc.edu)**

## Keck Hospital Honored for High Safety

**K**eck Hospital of USC has received the 2022 Patient Safety Honor Roll Award from the California Health and Human Services Agency and Cal Hospital Compare. This is the second year the award has been issued, and Keck Hospital has received recognition both times. The latest honor roll identified 86 of the state's 323 acute care hospitals as having "high safety" profiles via a ranking process that uses objective, publicly available safety measures — including hospital-acquired infections, sepsis management, patient experience and Leapfrog Hospital Safety Grade.





## Emergency Nurses Earn Top Honors

**F**or a second consecutive time, the emergency department nurses at USC Verdugo Hills Hospital have been honored with a Lantern Award from the Emergency Nurses Association, the professional credentialing organization for emergency nurses.

The award recognizes an emergency department's accomplishments in incorporating evidence-based practice and innovation into emergency care.

"Through all the challenges an emergency nurse can face, our dedicated caregivers remain steadfast in their commitment to incredible patient care," says Jessica Thomas, MSN, RN, associate administrator of nursing at USC-VHH.

The award term is three years; USC-VHH nurses last received the honor in 2019.

"Emergency room nurses are special individuals who are the true definition of what it means to be a hero," says Armand Dorian, MD, chief executive officer of USC-VHH, who also worked for many years as an ER physician.

"This award is a testament to their compassion, resilience and ingenuity."

## Clinical Trials



There are hundreds of **clinical trials and studies** currently taking place at Keck Medicine of USC, giving participants access to novel and potentially promising therapies that may not be available elsewhere. For more information on open clinical trials, visit [clinicaltrials.KeckMedicine.org](https://clinicaltrials.KeckMedicine.org).

### Virtual Reality in Reducing Pain and Anxiety in Cancer Participants Undergoing Painful Procedures

This trial studies how well virtual reality works in reducing pain and anxiety in cancer participants undergoing bone marrow biopsy or lumbar puncture. Virtual reality may impact pain and anxiety during and after the procedure.

#### What should patients expect?

Participants receive the VR intervention during bone marrow biopsy or lumbar puncture lasting until completion of the procedure. The headset will cover both eyes with a strap along the back to hold the headset in place, and a remote control will be available for assistance. VR content will consist of meditation and relaxing techniques through visual and auditory input.

#### Who can participate?

USC Norris Comprehensive Cancer Center patients ages 18 to 70 who have been diagnosed with any cancer and who are undergoing a bone marrow biopsy or lumbar procedure may participate.

Exclusion criteria and more information can be found at [clinicaltrials.keckmedicine.org/clinicaltrials/1479](https://clinicaltrials.keckmedicine.org/clinicaltrials/1479)

#### Principal Investigator:

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# Labwork

## A Connection Between IBD and Depression

Inflammatory bowel disease (IBD) is a chronic condition involving inflammation of the digestive tract, affecting some 1.6 million Americans. Depression affects more than 16 million Americans.

The two concerns may often be connected.

Patients diagnosed with IBD were nine times more likely to develop depression than the general population, a study from Keck Medicine of USC has found. In addition, patients' siblings who did not suffer from IBD were almost twice as likely to develop depression.

Conversely, patients with depression were twice as likely to develop IBD, and their siblings without depression were more than one-and-a-half times as likely to develop IBD.

"This research reveals a clinical overlap between both conditions," says Bing Zhang, MD, a gastroenterologist with Keck Medicine and co-lead author of the study, which was published in the *Journal of Gastroenterology and Hepatology*.

Dr. Zhang and his fellow researchers analyzed the data of more than 20 million people from Taiwan's National Health Insurance Research Database that contains comprehensive medical information on more than 99% of Taiwanese residents.

"The finding that people with IBD are more prone to depression makes sense because IBD causes constant gastrointestinal symptoms that can be very disruptive to a patient's life," he says.

"And the elevated depression risk among siblings of IBD patients may reflect caregiver fatigue if the siblings have a role in caring for the patient."

What surprised researchers was that patients with depression were prone to IBD. This discovery may have to do with the "gut-brain axis," a scientifically established connection between the gastrointestinal system and the central nervous system, which consists of the spinal cord and the brain.

For example, inflammation of the brain — which plays a role in depression — may be linked to the inflammation of the gastrointestinal tract, a hallmark of IBD, Dr. Zhang says.

The researchers are not sure why siblings of patients with depression are more likely to be diagnosed with IBD. There may be a shared genetic susceptibility for either disease that presents differently in family members, Dr. Zhang says.

**"IBD causes constant gastrointestinal symptoms that can be very disruptive to a patient's life."**

Bing Zhang, MD



## Deaf Children with Learning Delays Benefit from Cochlear Implants More Than Hearing Aids

**U**p to three out of every 1,000 infants in the United States are born with profound hearing loss.

Infants with hearing loss typically are first treated with hearing aids, and if these fail to help them develop early language and speech skills, they then become eligible for cochlear implants — considered the gold standard of treatment — at 12 months or older.

But some insurance companies have traditionally denied coverage of cochlear implants to deaf children with severe developmental delays under the belief that the implants will not help them learn to communicate. (Cochlear implants are small, electronic devices surgically placed under the skin that stimulate nerve endings in the ear to provide a sense of sound.)

A Keck Medicine of USC study has found that cochlear implants can make a big difference for infants with hearing loss and severe developmental delays.

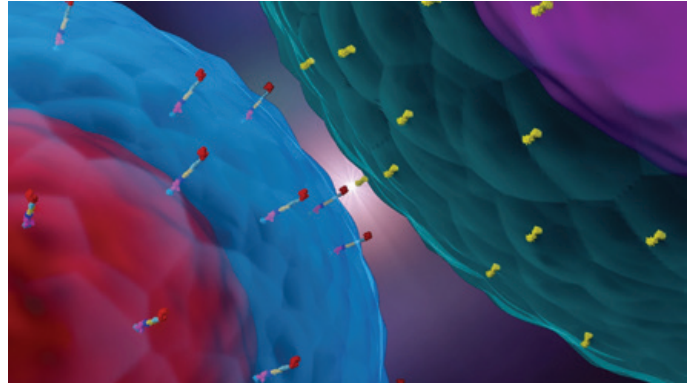
The implants “improve the skills of deaf children with early developmental impairment across the board in every skill tested,” says John Oghalai, MD, an otolaryngologist with Keck Medicine and lead author of the study, which was published in May in the journal *Pediatrics*.

In 2010, researchers identified children with severe to profound hearing loss at two large pediatric cochlear implant centers in Texas and California.

Children were given a baseline assessment in cognition, adaptive behavior, language and auditory skills; some were identified as having learning delays.

All infants began the study wearing hearing aids. From the approximately 200 children enrolled in the study, researchers identified and compared the progress of those who continued to use hearing aids and those who received cochlear implants in the following years.

By the final assessment, children with cochlear implants — including those with learning delays — showed up to almost 25% more improvement in the tracked skills.



## New SIR-T Immunotherapy Targets Prostate Cancer

**A** USC Norris Comprehensive Cancer Center research team has developed an innovative treatment for prostate cancer, a disease that affects 1 in 8 men.

Known as synthetic immune receptor (or SIR-T) therapy, the new technology is adapted from chimeric antigen receptor (CAR-T) therapy, which has proven effective for several types of blood cancer — including leukemia and lymphoma.

“We have a homegrown USC technology that shows a lot of promise,” says principal investigator Preet M. Chaudhary, MD, PhD, director of the Blood and Marrow Transplant and Cell Therapy program at USC Norris and chief of the Jane Anne Nohl Division of Hematology and Center for Blood Diseases at the Keck School of Medicine of USC.

In CAR-T therapy, a patient’s T-cells, which are part of the body’s immune response, are extracted and genetically engineered. Once reinjected, the modified T-cells can seek out, bind to and kill cancer cells. But CAR-T therapy has not been effective against solid tumor cancers, such as prostate, breast, brain, gastrointestinal, skin and lung cancer.

SIR-T therapy uses different receptors that more closely resemble the body’s natural T-cells. Dr. Chaudhary and his team tested thousands of prototypes over an eight-year period to develop receptors that can safely attack solid tumors, including prostate cancer.

Initial tests in mice yielded promising results. In May, the California Institute for Regenerative Medicine — a publicly funded state initiative for stem cell research — awarded Dr. Chaudhary \$5.8 million to conduct preclinical studies.

This could lead to applying for Food and Drug Administration approval to begin clinical trials of SIR-T therapy in humans.

Dr. Chaudhary’s lab has also received grants from the U.S. Department of Defense to study SIR-T therapy’s effectiveness against melanoma, kidney cancer, lymphoma and a different molecule involved in prostate cancer.



## Why Alcohol Use Shouldn't Delay Liver Transplant

**L**iver transplant patients with established alcohol abuse issues can do as well as, or better than, others who receive new livers — a finding that challenges longstanding selection criteria.

“The assumption has been that liver failure patients who continue to use alcohol are poor transplant candidates because they aren’t motivated to take care of the donor organ,” says Brian Lee, MD, a liver transplant hepatologist at Keck Medicine of USC.

Dr. Lee is senior author of a study published in July in the *American Journal of Gastroenterology* that examined 241 liver transplant patients — including 31 who continued using alcohol against doctors’ advice after being diagnosed with alcohol-related hepatitis. The other 210 patients received transplants for sudden, unexpected liver failure resulting from heavy drinking.

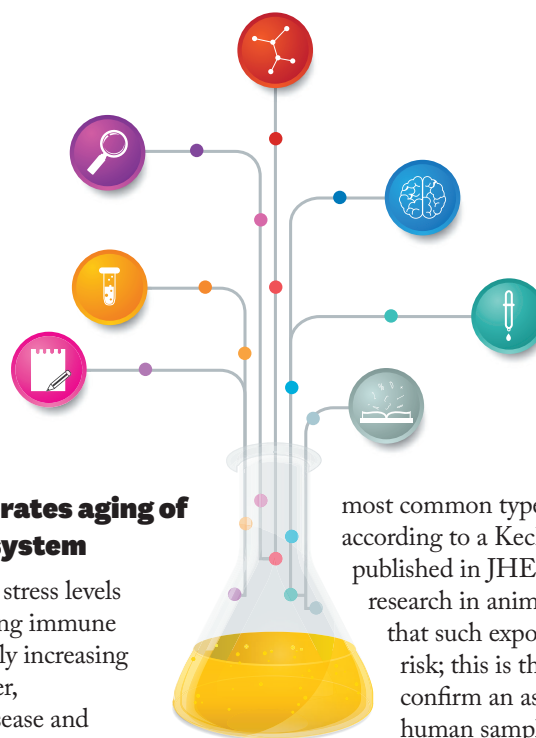
Perhaps not surprisingly, researchers found a higher risk of death among transplant patients who kept drinking after a liver disease diagnosis.

But three-year survival rates were high in both groups: 78% for those with a history of continued drinking after liver disease diagnosis, versus 85% for those with sudden liver failure. (Most patients in both groups were able to stop drinking completely.)

Many centers mandate six months of sobriety before transplantation, even though research shows such abstinence is no guarantee against post-transplant drinking.

Keck Medicine does not mandate a sobriety period. Such a delay in transplantation can be a death sentence for some patients, Dr. Lee says, including those who have no serious symptoms before being diagnosed with end-stage liver disease.

## Research Briefs



### Stress accelerates aging of the immune system

People with high stress levels have older-seeming immune profiles, potentially increasing their risk of cancer, cardiovascular disease and illness from infections. Diet and exercise may help offset immune aging associated with stress, according to research from the USC Leonard Davis School of Gerontology published in the *Proceedings of the National Academy of Sciences*.

### Edible nicotine products rank No. 2 among teens

A first-of-its-kind study has surveyed the popularity of flavored nicotine gums, lozenges and gummies among teens. The products, which often have a high nicotine content, ranked second only to electronic cigarettes: 3.4% of teens had used edible products at least once, while 1.7% had used them in the past six months. The Keck School of Medicine of USC study was published in the journal *Pediatrics*.

### Synthetic ‘forever chemical’ linked to liver cancer

Exposure to a synthetic chemical — perfluooctane sulfate (or PFOS) — used in a wide range of consumer and industrial products is linked to the

most common type of liver cancer, according to a Keck School study published in *JHEP Reports*. Prior research in animals has suggested that such exposure increases the risk; this is the first study to confirm an association using human samples.

### Brain structures differ in people with anorexia

Individuals with anorexia experience significant reductions in three critical measures of the brain, a global team led by the Keck School’s Mark and Mary Stevens Neuroimaging and Informatics Institute has found. The findings, published in *Biological Psychiatry*, could prompt quick treatment for people with anorexia to avoid long-term, structural brain changes tied to a variety of additional medical issues.

### Benzodiazepines don’t increase dementia risks

There is little evidence that older adults prescribed benzodiazepines (drugs commonly used to treat anxiety, insomnia and seizures) are at increased risk of developing dementia, research from the USC Schaeffer Center published in *Alzheimer’s & Dementia* has found. It is unclear, the study’s authors say, whether the drugs prompt this risk or if patients were already experiencing early dementia symptoms.







## Heart and Soul

Continued from Page 15

Zuleyma's LVAD is connected to a 10-pound battery pack she wears over her shoulders and a controller that can fit in her pocket. Zuleyma often stores the controller inside a purse or bookbag to coordinate with her outfits.

"The only thing I can't do," she says, "is jump off a boat into a lake."



Zuleyma Santos and her children, Savanna, 2, and C.J., 4

**"I choose to make my heart disease an ally and not an enemy."**

Zuleyma Santos

Eugene DePasquale, MD, a cardiologist and heart failure specialist with Keck Medicine, suspects Zuleyma may have had a milder case of peripartum cardiomyopathy during her first pregnancy in 2018.

"Younger patients are actually at greater risk of going undiagnosed or misdiagnosed," says Dr. DePasquale, who also treated Zuleyma. "In someone Zuleyma's age and younger, it can be

easy for doctors to forget about the possibility of heart failure." The key, he adds, "is early recognition of a heart condition and referral."

At the Keck Medicine Center for Advanced Heart Failure, a multidisciplinary cohort of specialists — including a dedicated LVAD team — meets weekly to evaluate care for every patient.

For Zuleyma, these experts are faced with having to enhance her body's ability to tolerate a transplant.

### Strength and Support

During her pregnancy, Zuleyma developed antibodies against the proteins that appear on the cells of certain donors, which limited her potential organ pool.

Her Keck Medicine doctors are planning treatments to reduce the antibodies and to find her the best possible match, and they are optimistic.

"The mental side of transplant is half the battle," Dr. Lee says. "Zuleyma is such a positive spirit."

She's now a single mom, with her husband's unfortunate passing in March 2021. But music routinely fills the house as she, C.J. and Savanna dance together to Baby Shark and Sade tunes.

The 38-year-old also volunteers as a Go Red for Women ambassador for the American Heart Association, spreading the word about heart disease as the leading killer of women and the heart risks that can occur during pregnancy.

"I choose to make my heart disease an ally and not an enemy," she says.

Zuleyma hopes her story gives strength to others and compels them to stay grounded amid the unexpected.

"We can't control six months ago or six months from now," she tells others. "We can only control our day to day."

**To learn more or schedule an appointment, call (800) USC-CARE or visit [KeckMedicine.org/LVAD](https://www.KeckMedicine.org/LVAD)**



## Hope Within Reach

Continued from Page 24

"The surgery, which I was really concerned about, was spotless," Rosa Maria says, calling Drs. Liu and Russin "magicians."

This use of VNS could help researchers identify new treatments for stroke and non-stroke injuries of the nervous system, Dr. Liu says, calling it "potentially the beginning of a brave new world of neurorestoration."

Rosa Maria is also looking ahead. Shortly after her procedure, she visited Europe for her 60th birthday. "It was exhausting," she says. "But I didn't have any setbacks."

She now attends three weekly occupational sessions at Keck Medical Center. Although this new stretch of recovery is just beginning, Rosa Maria is optimistic the VNS device will help improve her function.

"Little by little, I know I'm going to get my independence back," she says.

**To learn more or schedule an appointment, call (800) USC-CARE or visit [KeckMedicine.org/VNS](https://www.KeckMedicine.org/VNS)**

## What makes a clinical leader truly exceptional?

The task may seem daunting, but the solutions are often simple.

During more than two decades as an academic otolaryngologist — as well as five years as a department chair at the Keck School of Medicine of USC — I've observed a wide range of leadership styles.

Today, I apply them not only to keep our organization efficient but also to elevate the patient experience, so team members are equipped to deliver world-class care every day.

Here are a few ways I do it:

- I remind my staff that acts both large and small can make a big impact. They might be routine, such as giving directions to a lost hospital visitor, or major (setting aside time to apply for a big grant proposal).
- I recruit energetic colleagues with diverse backgrounds and skill sets to help take our enterprise to the next level — and to foster ongoing collaboration that best serves the needs of all patients.
- I pursue big-picture projects that could change our patients' lives while also keeping daily tasks under control. Yes, these are unprecedented times, but it's no reason to ignore radical ideas.
- I remain accountable. Strong leaders are humble, and they know when to admit they're wrong. They also offer unwavering support to the whole, regardless of any new demands or pivots they face.

Smart leaders champion these values, no matter their line of work. I'm privileged to deliver the concepts at Keck Medicine of USC, where they are critical for every person — and every step — in the care journey.

**John Oghalai, MD, is chair of the USC Caruso Department of Otolaryngology – Head and Neck Surgery**



**John Oghalai, MD**

perspective





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