

## Back on Track

Lung cancer care after  
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# USC health

2025  
ISSUE ONE

A PUBLICATION OF KECK MEDICINE OF USC

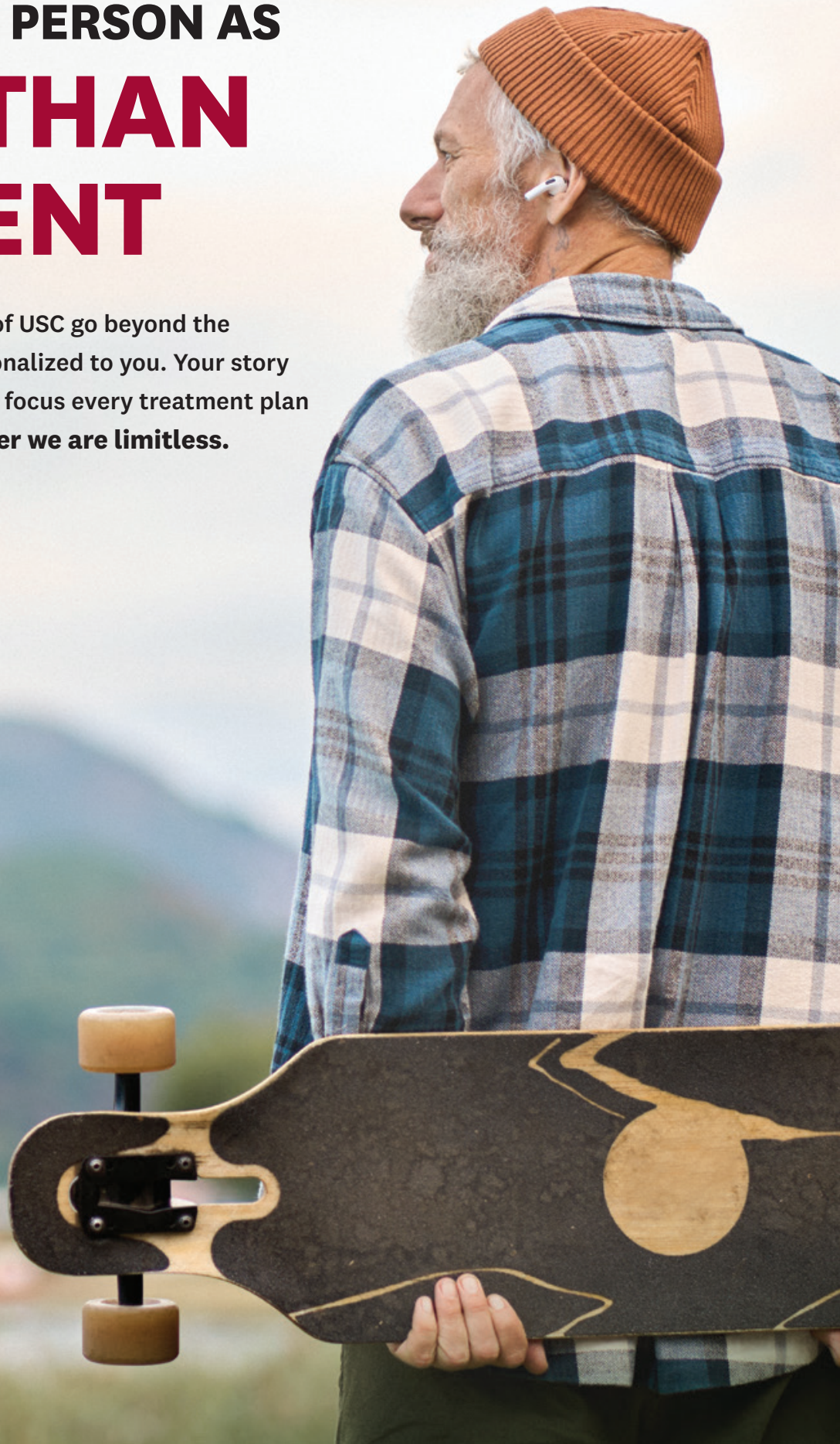
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2025  
ISSUE ONE

# Check In



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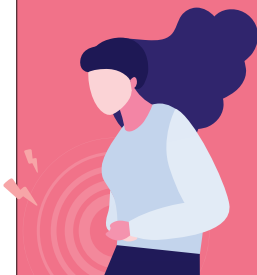
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Keck Medicine of USC is one of only two university-based medical systems in the Los Angeles area. Its internationally renowned physicians and scientists provide world-class patient care at Keck Hospital of USC, USC Norris Cancer Hospital, USC Verdugo Hills Hospital, USC Arcadia Hospital and more than 80 outpatient facilities throughout Los Angeles, Orange, Kern, Tulare, Ventura and Clark counties.

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 2024-25 Best Hospitals and among the top three hospitals in Los Angeles and top six in California. The medical center was also nationally recognized among the top 50 in 8 medical specialties.

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# Vitals

## Studies Reveal Need for HPV Awareness

The human papillomavirus (HPV), a common sexually transmitted infection, accounts for 70% of all throat cancers, according to the National Cancer Institute. While HPV is more commonly associated with cervical cancer, throat cancer is now the most common HPV-related cancer.

**H**owever, most American adults are unaware that HPV can cause it and are not taking advantage of the HPV vaccine.

These are the conclusions of two recent studies from the USC Head and Neck Center, part of Keck Medicine of USC and the USC Caruso Department of Otolaryngology – Head and Neck Surgery, that examined public knowledge of the link between HPV and throat cancer and HPV vaccination rates among adults.

The research suggests that less than one-third of Americans associate HPV with throat cancer and less than 7% of eligible adults have

completed the HPV vaccine's full course.

"This data is very worrisome because knowledge is the first step toward disease prevention," says Daniel Kwon, MD, a head and neck surgeon with Keck Medicine and lead author of a study examining trends in HPV vaccination rates for adults.

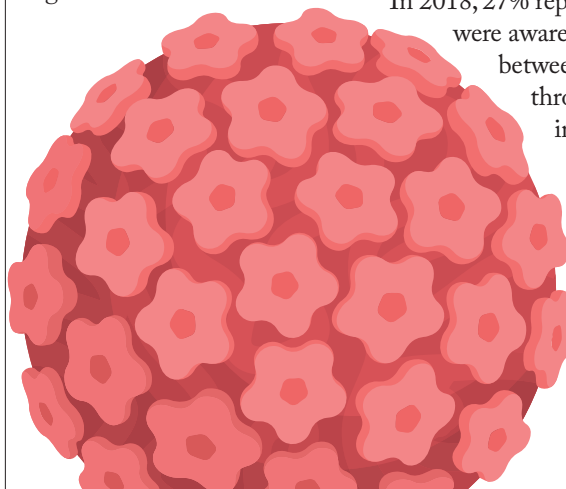
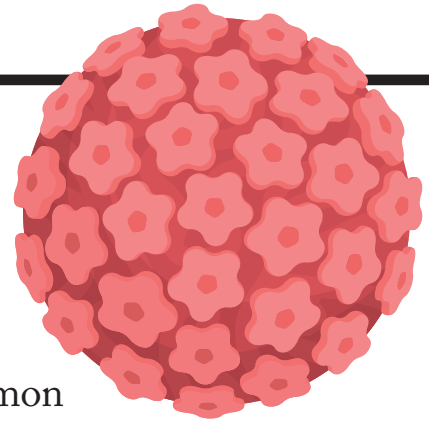
Dr. Kwon and fellow researchers compared data between the 2018 and 2020 iterations of the National Cancer Institute Health Information National Trends Survey, which tracks Americans' knowledge about cancer and related health information.

In 2018, 27% reported they were aware of the link between HPV and throat cancer; in 2020, that number barely moved upward to 29.5%.

"These results are particularly disheartening because since the vaccine eligibility was expanded in 2018, health advocates have issued many guidelines and recommendations about HPV and throat cancer," Dr. Kwon says. "Clearly, more efforts are needed to educate the public about this risk."

In a second study, USC Head and Neck Center researchers discovered that only 6.5% of those surveyed were fully vaccinated, and only 15.8% had received any HPV vaccination.

Many factors play into the low rate, according to lead author Niels Kokot, MD, a head and neck surgeon with Keck Medicine. He cites not only a lack of knowledge of the link between HPV and cancer, but also a lack of advertising about the HPV vaccine as well as growing vaccine hesitancy.





## Can You Steam Away Prostate Cancer?

Keck Medicine of USC is participating in a national, multisite clinical trial examining whether a water vapor system that uses small, targeted amounts of steam to kill cancer cells is a safe and effective treatment for prostate cancer.



Jessica Reynolds

Researchers hope that steam may offer patients a less invasive way of controlling or curing cancer.

“The most common therapies for prostate cancer often cause life-altering side effects, and we are investigating if this new treatment may not only treat the cancer, but also offer our patients overall better quality-of-life outcomes,” says Andre Abreu, MD, a Keck Medicine urologist and lead investigator of the Keck Medicine trial site.

The trial is designed for patients with intermediate-risk prostate cancer, meaning that the tumor is localized in the prostate gland and has not spread to other organs. This type accounts for approximately one-third of all localized prostate cancers, according to Dr. Abreu.

Traditional treatments for prostate cancer, when necessary, include surgery or radiation. These techniques are generally effective but can cause side effects, including impotence, urinary incontinence and bowel dysfunction.

“We are exploring if steam may be effective at destroying cancer cells without damaging the surrounding organs,” Dr. Abreu says.

Another potential advantage is that, unlike surgery, the water vapor therapy is an outpatient procedure. And unlike radiation, which usually involves multiple sessions, the water vapor therapy is designed for one application.

During the procedure, doctors use an ultrasound and prostate mapping to guide a thin catheter through the patient’s urethra and into the area of the tumor.

Once the catheter is positioned, a fine needle is deployed in the tumor. Doctors then release a targeted 10-second burst of steam from the needle, and more bursts as needed, to destroy the tumor.

Keck Hospital of USC is the only Los Angeles-area site participating in the study.

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“We are exploring if steam may be effective at destroying cancer cells without damaging the surrounding organs.”

Andre Abreu, MD

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## what's the Word?

### Nephrolithiasis

noun

[neh-fro-li-THAI-a-sis]

Also known as having kidney stones.

“These solid masses of minerals and salts often develop as a result of dehydration or eating too much sodium, sugar or animal protein,” says Gerhard Fuchs, MD, a urologist with USC Urology, part of Keck Medicine of USC. “Other risk factors include family history, diabetes and being overweight.”

Nephrolithiasis causes pain in the mid-back that radiates to the groin, often with nausea, vomiting or bloody urine.

When a stone can be passed, doctors will provide alpha blockers and IV hydration to help the process. If a stone is 7 mm or larger, a patient will usually need minimally invasive endoscopic surgery. Pain management support is also provided as needed.

“You can minimize your risk of kidney stones by drinking enough water to keep your urine light yellow or clear, eating plenty of fruits and vegetables and maintaining a healthy weight,” Dr. Fuchs says.

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

## Suicide Rates Tripled for Young Male Cancer Survivors

New research from USC Norris Comprehensive Cancer Center, part of Keck Medicine of USC, suggests that among all cancer survivors, male adolescents and young adults (AYA) have the highest rate of death by suicide.

The study, published in JAMA Network Open, also reports that suicide deaths in the AYA male cancer survivor group (ages 15-39) tripled during the 21-year study period. Suicide deaths have also increased for other cancer survivor groups, but the gap between young men and other populations significantly widened over time.

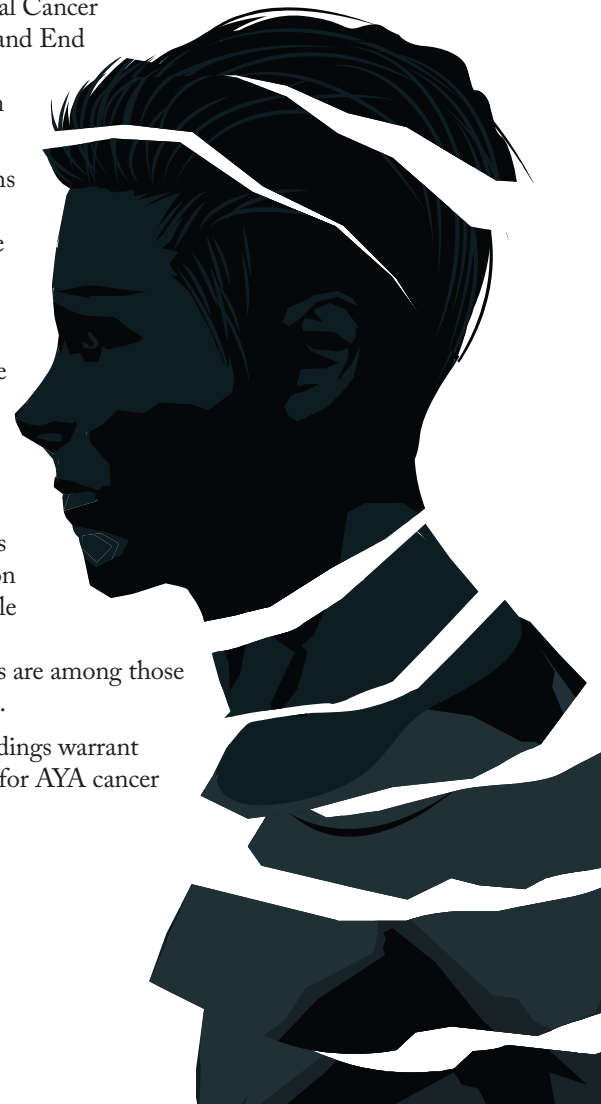
Cancer is becoming more common among young people, and survivors are more likely to struggle with anxiety, depression and thoughts of suicide, according to the American Cancer Society and the National Comprehensive Cancer Network. This study, one of the first to examine suicide rates by gender for AYA patients with cancer, characterized the rising trend among this population as alarming.

Researchers used data from the National Cancer Institute's Surveillance, Epidemiology and End Results Program to assess 4.5 million deaths among cancer survivors between 2000-2021.

The study found that in 2000, 4.9 deaths per 1,000 deaths of male AYA cancer patients were caused by suicide, and the suicide rates for all other age/gender cancer patient groups ranged from 0.4 to 3.1. In 2021, the number for male AYA patients mushroomed to 15.4. The rates were much lower for all other age/gender groups, ranging from 0.6 to 7.4.

Researchers determined that thyroid cancer, testicular cancer and melanomas of the skin were the three most common diagnoses leading to suicide among male AYA cancer patients. According to the American Cancer Society, these cancers are among those with the highest five-year survival rates.

The study authors believe that their findings warrant more long-term support and resources for AYA cancer patients, specifically males.





## What Causes a Bunion?



A bunion forms when the bones of the big toe start pointing toward the other toes.

This irregular bending causes a rounded bump.

“A bunion is one of the most common foot ailments,” says Alexander Peterson, MD, an orthopaedic surgeon with USC Orthopaedic Surgery, part of Keck Medicine of USC.

For some, bunions cause no pain.

For others, skin over the bump becomes red, swollen and tender. Wearing shoes becomes difficult.

Patients can wear wider shoes to reduce pressure on the bunion. Other options include wearing pads over the bump or using gel spacers between the toes.

Sometimes, surgery is needed if walking becomes painful.

Luckily, new minimally invasive techniques use tiny incisions for faster healing, Dr. Peterson says.

Consult a doctor if your bunion pain is interfering with daily activities.

## What Is Heart Rate Variability?

Many fitness trackers can tell you your heart rate variability (HRV). The experts of Keck Medicine of USC explain what this means.

HRV measures the milliseconds between heartbeats and how much they vary in different situations – for example, how much your heart speeds up when you exercise or feel stress, or how much it slows when it’s time to relax.

The higher your HRV, the better your heart can adapt to changing circumstances.

Factors that can influence HRV:

- Age
- Gender
- Genetic factors
- Lifestyle
- Climate

As well as:

- Diabetes
- Heart disease
- Pulmonary conditions
- Anxiety disorders
- Epilepsy

Talk to your doctor about your HRV measurement. If it’s too low, they’ll determine the cause and what you can do to improve your heart’s resilience.



## Class Notes

LEARN SOMETHING NEW WITH KECK MEDICINE OF USC

### Volunteer at USC Verdugo Hills Hospital

**A major pillar of USC Verdugo Hills Hospital is its dedicated core of volunteers. Currently, there are more than 100 dedicated volunteers, ranging from age 16 to 84, who provide their time and talent in many areas of the hospital, including as main office volunteers, meal companions, shuttle escorts and more.**

**Interested in volunteering?**

**Visit <https://www.keckmedicine.org/volunteer-vhh>**

**Or email [vhhvolunteer@med.usc.edu](mailto:vhhvolunteer@med.usc.edu)**



## MEET OUR STAFF



## Common Brain Tumor Symptoms

Everyone has probably experienced a headache. Some might have experienced them so intensely, they wondered if it was something more serious — such as a brain tumor.

“There are many, many different presentations of symptoms depending on the size and location of a tumor,” says Gabriel Zada, MD, a neurosurgeon and the co-director of the USC Brain Tumor Center, part of Keck Medicine of USC.

Brain tumors that are small and not cancerous can cause symptoms that develop slowly, he says. But with cancerous brain tumors, symptoms might come on suddenly.

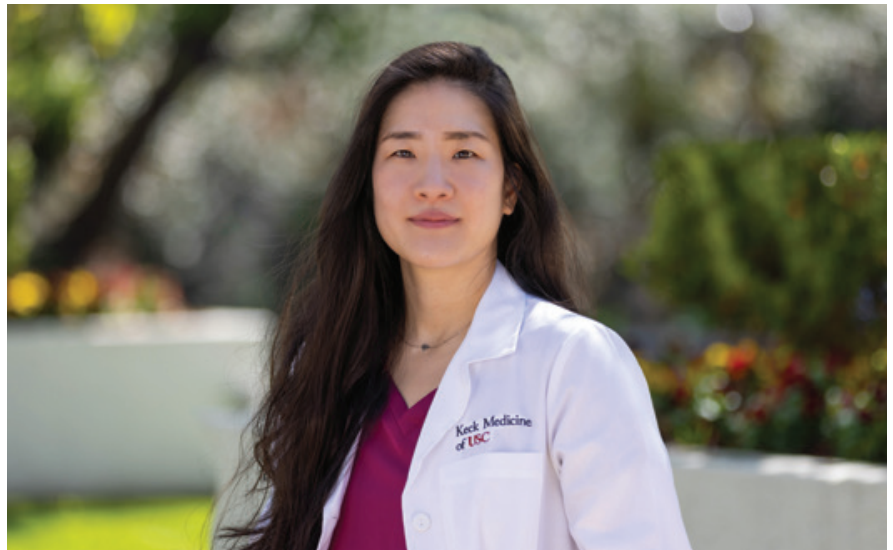
### Common symptoms can include:

- Difficulty speaking or mental confusion
- Dizziness
- Headaches
- Nausea
- Seizures
- Vision loss
- Vomiting
- Weakness

According to Dr. Zada, “if something just doesn’t feel right or the symptoms are out of the ordinary, prolonged or getting worse in severity or duration, then it’s better to reach out to your primary doctor and see if you need to be referred to a specialist.”

## Protection for Brain Health

Jinseo Choi, NP-C, a nurse practitioner for the USC Center for Personalized Brain Health’s Preventive Neurology Clinic at Keck Medicine of USC - Beverly Hills, assists patients in improving their brain health and making lifestyle changes to lower their risk of Alzheimer’s disease and dementia.



© Ricardo Carrasco III

### What does your job entail?

Although numerous factors can contribute to neurodegenerative diseases, I specialize in helping patients who carry the APOE ε4 gene, which significantly increases the risk of Alzheimer’s disease. I perform comprehensive evaluations of each person’s risk profile to determine if they have elevated cholesterol, high blood pressure, prediabetes, obesity, sleep disturbances, depression and anxiety. I then develop personalized brain health strategies and interventions designed to help lower those risks.

### What makes your approach different from primary care?

Because our practice focuses on individuals at a higher risk of Alzheimer’s disease and dementia, our treatment goals differ from those in standard primary care. People with a strong family history or other high-risk factors often need tighter cholesterol, blood pressure and blood sugar management to help reduce the risk. Additionally, we prioritize medications that offer protective benefits for the brain.

### What do you like doing in your free time?

I prioritize activities that support both my physical and cognitive well-being. I love spending time with my family, exploring new neighborhoods in the city, caring for my garden and staying active through regular exercise. I’m also an avid reader of the latest Alzheimer’s prevention research so I can continually bring cutting-edge practices to my patients in the clinic.

## Understanding Genetic Testing for Breast Cancer

Certain gene mutations are linked to a higher risk of breast cancer. BRCA1 and BRCA2 are the most well-known.

“But several others are associated with high breast cancer risk,” says Amanda Woodworth, MD, CPE, a breast surgical oncologist with USC Norris Comprehensive Cancer Center, part of Keck Medicine of USC. “That’s why we recommend panel testing, which covers a larger number of genes.”

If you’ve been diagnosed, knowing about mutations helps determine your treatment options.

If you haven’t been diagnosed but are concerned, talk to your doctor.

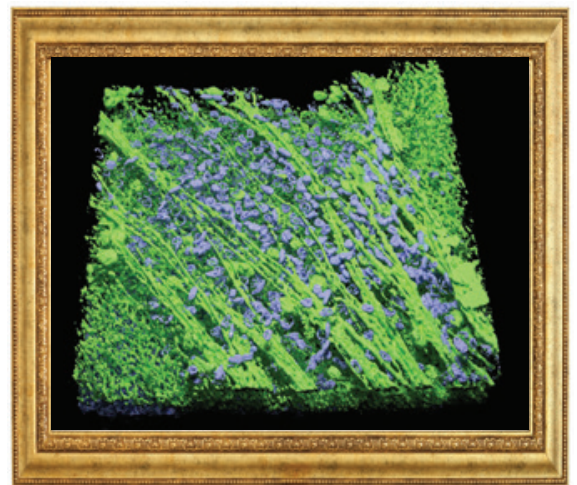
If they think you could have a mutation, they’ll send you to a genetic counselor or someone who can offer genetic testing — either through a blood or saliva test.

After a few weeks, the specialist will contact you to discuss your results and whether you want to take preventive measures, tell family members or choose certain cancer treatments.



## 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 cannot. These images can be beautiful as well as informative.



(Image by medical animator Jim Stanis, MS, of the USC Mark and Mary Stevens Neuroimaging and Informatics Institute, based off research by Michael S. Bienkowski, PhD, assistant professor of physiology and neuroscience for the Keck School of Medicine of USC.)

**At the back of the inner eye, retinal cells (purple) bring light signals to retinal ganglion cells (green). Here, the light signals are converted into nerve signals, which then travel to the brain. Visual models like these can show the retina at different stages of retinitis pigmentosa, a progressive disease that leads to vision loss. Understanding these changes can help scientists determine how to slow this vision loss.**

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# The Big Question

Anxiety over your health or the health of a loved one can be overwhelming. How can you manage this anxiety on a daily basis? Two Keck Medicine of USC experts share their advice.

## What are the best strategies for managing health anxiety?



There are three facets of health anxiety:

- 1) worry over aging and loss of function,
- 2) stress about a disease that you have,
- 3) fear of a disease in the news or a condition you don't have.

To address the first type, accepting that aging is a normal process is a huge help. If you're specifically worried about things like mobility, strength and balance, then it's important to practice these things. Even adding simple stretching to your routine can improve your mindset so you no longer feel that you're marching toward the worst reality.

For anxiety around a diagnosed disease, stay in good communication with your clinician and be explicit about your concerns. The worst-case scenario in your head or in articles online might not be what your doctor thinks is happening to you. They can help vet your worries and give a balanced perspective.

In terms of worrying about diseases or conditions you don't have, really be intentional about remembering that everything in the media isn't your reality. Everything that's happened to somebody else isn't necessarily going to happen to you.

### Steven Siegel, MD, PhD

Chief Mental Health and Wellness Officer  
USC Psychiatry and Behavioral Services

Anxiety is big and it's everywhere. There are many layers and roots to it, and it affects anyone from patients to family members and providers. The best skill you can have to manage it is to identify where it's coming from.

If you are seeking a solution for a troublesome symptom, often anxiety stems from wondering if anyone can help you. As clinicians, it's important for us to address your concerns. We can help relieve your stress by clearly explaining your diagnosis and reassuring you about the available treatments we offer for your condition. In this situation, the most important thing you can do is ask your provider all your questions.

Postoperative depression is also a cause of anxiety for cardiology patients. After a major surgery, it's very common to experience a deconditioning period — both physically and mentally.

The best course of action for this is to understand this period is completely normal and not permanent. We can offer medications to relieve symptoms, but many times just understanding that this is a normal part of recovery can help ease your mind.

### Jai Chung, NP-C

Nurse Practitioner  
Cardiology and Internal Medicine

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

# What Causes Age-Related Vision Loss?

## The most common cause of vision loss after age 65 is age-related macular degeneration (AMD).

Hossein Ameri, MD, PhD, an ophthalmologist with the USC Roski Eye Institute, part of Keck Medicine of USC, explains this progressive condition.

### What is a macula?

The macula is the part of the retina (light-sensitive cells in the back of the eye) in charge of our central vision.

### Why does it degenerate?

“The light-sensitive cells in the retina create byproducts, which get cleared away by other retinal cells,” Dr. Ameri

says. “As we age, the retina’s ability to do this decreases. The by-product collects under the retina, leading to dry AMD.”

In some cases, new blood vessels form under the retina and leak fluid, causing “wet AMD.”

### What are the symptoms?

None, at first. As AMD progresses, a person will notice blurriness or distortion in their central vision. Over time, these disruptions get bigger and turn into blank spots.

### Can AMD be treated?

“We have great eye-injection treatments for wet AMD,” Dr. Ameri says. “For dry AMD, although eye injections can slow its progression, the best treatment is prevention, which primarily involves a healthy diet.”

When AMD results in vision loss, a low-vision optometrist can offer helpful resources, such as magnifiers and accessibility apps.



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# Back on Track

Linda Kneidinger, an avid athlete and nonsmoker with no family history of cancer, was shocked by her lung cancer diagnosis. Her USC Norris treatment team got her back on track.

BY JENNIFER GREBOW



# Examinations

**A**t 54 years old, Linda Kneidinger was in prime shape. An avid athlete who regularly ran 10Ks and half marathons, played numerous sports and maintained a healthy diet, Linda had always been in excellent health.

"I've always been the person to whom doctors would give a 'gold star,' telling me my health was great," she says. "I was fortunate to grow up with healthy habits, in part because my dad was a family physician."

When Linda was diagnosed with lung cancer in July 2024, she — and her family and friends — were shocked. "I do not have a family history of cancer at all," she says. "I've never smoked. If someone was going to get lung cancer, no one suspected that I'd be the one."

Linda's primary care physician gave her a shortlist of medical specialists to consult. Linda chose Graeme Rosenberg, MD, a thoracic surgeon with USC Norris Comprehensive Cancer Center, part of Keck Medicine of USC.

## Asymptomatic lung cancer diagnosis

Linda's lung cancer was discovered by chance. In May 2024, Linda's primary care physician sent her to get a calcium CT scoring test to measure the level of calcium in her coronary arteries because her cholesterol levels had risen. It was on this CT scan that the physician noticed an abnormality in Linda's lungs and referred her to a specialist.

Linda says she knew Dr. Rosenberg was her first and only choice once she met him.

"A lot of people told me I should get at least two, maybe three, different medical opinions, but as soon as I met Dr. Rosenberg, I just felt like this was the right person," she says. "He's the one who confirmed there were several markers indicating the possibility of cancer in the right middle lobe of my lungs."

After ordering and reviewing the results of a PET scan, a pulmonary function test, a transbronchial biopsy (removal of some lung tissue) and a sample of her lymph nodes, Dr. Rosenberg confirmed that Linda had non-small cell lung cancer. The cancer was still at an early stage (1B), and Dr. Rosenberg performed a lobectomy to remove Linda's right middle lobe in July 2024 at Keck Hospital of USC.

Linda explains why she opted for surgery. "Dr. Rosenberg is aggressively pro-health and knew how important health was to me. This is why he suggested being aggressive with treatment and going with surgery," she says.



**Learn more about USC Norris' lung cancer services. Call (800) USC-CARE or scan the QR code.**

"She recovered really well at home, and relatively quickly," Dr. Rosenberg adds. As a testament to Linda's grit, he mentions that she ran a 5K race just two and a half months after her lobectomy.

## Rising trend among nonsmokers

Linda is among a growing number of relatively young, healthy, nonsmoking adults — particularly women — being diagnosed with lung cancer.

"It's a common misconception that lung cancer is a smoker's disease," Dr. Rosenberg says. "In fact, I treat more nonsmoking lung cancer patients than smoking-related lung cancer patients these days. It's been a trend over the last 10 to 15 years."

Short of detecting lung cancer by luck, detecting it in nonsmokers is especially difficult, "because most lung cancers are asymptomatic until they're in an advanced stage," he says.

Linda, like many nonsmoking lung cancer patients, didn't present with any apparent risk factors or symptoms. It was later determined that Linda had an EGFR gene mutation, which is a mutation commonly linked to lung cancer and most often found in nonsmoking women at a younger age.

Fortunately, EGFR is one of the gene mutations for which a specific, targeted drug has been developed. A month after her lobectomy, Linda was prescribed the daily oral drug to prevent her cancer cells from multiplying.

She will continue taking it for three years and will be monitored long-term by both Dr. Rosenberg and USC Norris medical oncologist Jorge Nieva, MD.

"When you identify a gene mutation for which there is a targeted therapeutic," Dr. Rosenberg says, "our surgeons, medical oncologists, pathologists and radiation oncologists then have the option of considering, in a multidisciplinary fashion, whether to pursue that additional therapy."

Because Linda's tumor was early-stage, her treatment plan focused on this daily oral medication and not chemotherapy,



**“It feels really nice to know there are other people out there advocating for you.”**

Linda Kneidinger

---

immunotherapy or radiation. “Those decisions were made based on her specific pathology,” Dr. Rosenberg says. “None of her lymph nodes showed positive cancer signs, so our focus turned to addressing her genetic mutation.”

### **Drug advancements and next steps**

While great progress is being made in developing gene-specific drugs for lung cancer patients, more work also needs to be done to screen for and detect lung cancer early on in patients not obviously at risk of the disease.

“We need to continue investigating the independent risk factors we can use to plan screening protocols,” Dr. Rosenberg says.

Also, he adds, if lung cancer is suspected, seeing a specialist is important.

“If an abnormality is found on a patient’s imaging — imaging that was obtained for some other reason — you need either a thoracic surgeon, a pulmonologist or someone with expertise in lung pathology to help decide on next steps, because these can be very complex.”

Dr. Rosenberg says Linda’s outlook is good. “This was identified early and was treated aggressively,” he says. “She had favorable pathology both in that the cancer was early-stage and not in the lymph nodes, and she had a mutation that we have a drug for.”

Linda says she’s grateful for the care she received from the entire medical team at Keck Medicine.

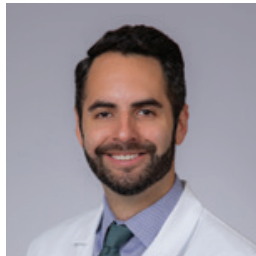
“Dr. Rosenberg speaks my language,” she says. “He has a positive mindset and assured me before surgery that if, by the end of the year, I wanted to run a half marathon, I could.”

She adds: “I’m so grateful for the way everyone at Keck Medicine operates as a team. I’ve read so many stories on social media about lung cancer patients having a hard time getting information from one doctor, then having to give the information to another doctor, and going back and forth.

“At Keck Medicine, this was all taken care of for me. They even coordinate appointments for me. It feels really nice to know there are other people out there advocating for you.”



**Jorge Nieva, MD**



**Graeme Rosenberg, MD**







*Linda Kneidinger in Echo Park.*



# Breath of Fresh Air

BY ROBIN HEFFLER

Salvador Barba dealt with lifelong limitations due to severe sinusitis. Now, thanks to a USC Caruso otolaryngologist, he's ready to build a ranch.







**Learn more about USC Caruso's sinus and nasal disorders care. Call (800) USC-CARE or scan the QR code.**

**F**or most of his life, Salvador Barba has struggled with something others might take for granted: being able to easily breathe through his nose.

"I've always had sinus issues," says Salvador, 51, a Rancho Cucamonga resident and part owner of a fruit-importing business. "It started getting bad in my late 20s. My nose was almost always stuffy. I had headaches, continuous mucus when it wasn't stuffy and asthma flare-ups. I couldn't play baseball as much as I wanted because I had trouble breathing when I ran."

It also took an emotional toll.

"I felt terrible because when I was speaking to people, both as a child and as an adult, they made fun of the way I sounded," he says.

Salvador turned to community ear, nose and throat (ENT) physicians, who diagnosed him with allergic rhinitis and chronic sinusitis with polyps.

Medical therapy, including medications and other nonsurgical treatments, were tried first with no improvement. Per his doctor's recommendations, Salvador then underwent two endoscopic sinus surgeries.

Unfortunately, his condition continued to worsen.

### Connecting with expert care

About 10 years ago, with no significant improvements, Salvador was referred to Bozena Wrobel, MD, an otolaryngologist and rhinologist with the USC Caruso Department of Otolaryngology - Head and Neck Surgery, part of Keck Medicine of USC, who is highly experienced in treating difficult sinus conditions with the latest techniques.

There was new hope on the horizon for Salvador, but it would not be a quick fix.

It took three more surgeries, including a highly specialized sinus frontal drill-out (also known as the modified endoscopic Lothrop procedure) as well as endoscopic medial maxillectomies to achieve stabilization of Salvador's disease.

Management of Salvador's severe inflammatory disease also required the involvement of a Keck Medicine allergist and immunologist, who provided treatment both with allergy immunotherapy and two different biologic injections.

Unfortunately, Salvador ended up being in the very small percentage of patients who did not benefit from either of these treatments.

Continued on Page 35

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**"Now, I can fly anywhere in the world and not be afraid of my ears popping or sinuses acting up."**

Salvador Barba

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**Bozena Wrobel, MD**

**Salvador Barba at his ranch overlooking Lake Mathews.**



# Listen to Your Gut

BY KATE FAYE

When abdominal pain strikes, it can be hard to focus on anything else. Five Keck Medicine of USC experts explain common causes and how to treat them.

## Digestion problems

“The digestive system — or gastrointestinal (GI) tract — is a large network of organs, and each one is vulnerable to different conditions or illnesses,” says gastroenterologist James Buxbaum, MD. Differentiating between the many possibilities depends on location and type of pain. Three common examples include:

**Celiac:** Pain and nausea after eating gluten.

**Pancreatitis:** Severe pain in the upper-central abdomen.

**Inflammatory bowel disease (IBD):** Cramping, diarrhea (sometimes with blood) or constipation.

**Treatment options:** Dietary adjustments, quitting alcohol and smoking, medications.

## Urinary tract infections (UTIs)

UTIs are common in people with female urinary tracts. “It’s normal to get one or two infections a year,” says urogynecologist Elodi Dielubanza, MD. “But if you’re getting them more frequently, talk to your doctor so they can investigate the root cause. And stay hydrated — urinating flushes away UTI-causing bacteria.”

### Symptoms:

- Acute lower abdominal pain.
- Painful, burning urination.
- Blood in urine.
- Fever (sometimes).

**Treatment:** Antibiotics.

# What's causing your abdominal pain?

### Gynecological conditions

“For people who menstruate, severe pain that occurs monthly can suggest a gynecological condition such as endometriosis or fibroids,” says gynecologist Anna Reinert, MD.

#### Endometriosis symptoms:

- Debilitating pain for one to several days.
- Usually does not show up on imaging.

#### Fibroid symptoms:

- Feeling of fullness or weight in the pelvic area.
- Heavy menstrual flow.

**Treatment options:** Medication, minimally invasive surgery.



### Gallbladder stones

Genetics, a fatty diet and blood disorders like sickle cell anemia can lead to gallstones, which “can cause inflammation or block bile flow after a fatty meal, leading to biliary colic,” says Mohd Raashid Sheikh, MD, MHA, a hepatobiliary surgeon.

#### Symptoms:

- Sharp pain in the upper-right abdomen.
- Pain may radiate to right shoulder.
- Nausea or vomiting (sometimes).

**Treatment:** Gallbladder removal.



### Urinary retention

“Urinary retention occurs when the bladder doesn’t empty completely,” says urologist Juliet Han, MD. “Causes include an enlarged prostate, uncontrolled diabetes, nerve injuries, bladder tumors or pelvic organ prolapse. It can lead to discomfort and, if untreated, affect kidney function, so seeing a doctor is important.”

#### Symptoms:

- Lower abdomen fullness or pain.
- Not voiding urine for a long time, or small, frequent voids.

**Treatment options:** Foley catheterization, medications, surgery or pessary.

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



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## Examinations

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# All Heart

Ken Cochran, a retired LAFD firefighter, is living his best life now that the USC Transplant Institute saw him through a yearslong journey to a new heart.

BY CANDACE PEARSON



**Learn more about the USC Transplant Institute. Call (323) 442-5849 or scan the QR code.**

**F**ormer firefighter Ken Cochran is all heart. From an early age, he wanted to help others. In high school, he volunteered as a Big Brother and with Red Cross blood drives. At 17, he went on a ride-along with a neighbor who was a firefighter.

“I was hooked from the first moment — both by the action and the chance to be useful,” Ken says.

After training as an EMT, he joined the Los Angeles Fire Department (LAFD) at age 24, starting at Station 25 in Boyle Heights. He spent the bulk of his career — 14 rewarding years — at Station 33 in South Central L.A.

Over those years, Ken fought many fires, breathed in smoke and other toxic substances, and witnessed fatalities and other sad events. “You have to be able to go from a deep sleep to respond to an alarm within seconds,” he says, “and on the way to the call, your heart’s going bam, bam, bam!”

One day, Ken was part of a crew battling a commercial-building fire when he felt massive chest pain. At age 40, he was having a heart attack.

During surgery, doctors placed stents in two of his coronary arteries. Ken’s heart muscle was so damaged that it forced his retirement from the front lines. He set out to find a new purpose.

Once recovered, he trained in the treatment of post-traumatic stress disorder and volunteered with the United Firefighters of Los Angeles City’s Center for Health and Wellness Program. He also provided first aid and wound care for homeless people.

Determined to get his health back, he ate healthy meals, exercising daily. Even so, his heart weakened so much over the next decade that, in July 2016, his cardiologist referred him to the USC Transplant Institute, part of Keck Medicine of USC, with the hope of finding him a heart transplant.

“I was highly impressed by the patient care of the Keck Medicine team,” Ken says. “I hit the jackpot.”

## Journey to a new heart

Ken couldn’t know then that his journey to a new heart would take several more years — or that Keck Medicine would be by his side the entire way.

“Ken’s an amazing story of what happens when an incredibly motivated patient meets an incredibly motivated medical team,” says Ajay Vaidya, MD, a Keck Medicine cardiologist and medical director of heart failure, transplant and mechanical circulatory support with the USC Advanced Heart Failure Center.

Because Ken’s heartbeat was dangerously fast and irregular, the team embedded a combination pacemaker/defibrillator in his chest. The cardioverter defibrillator would shock the heart back into rhythm and the pacemaker would maintain it.

Ken also moved up the list of transplant candidates, until he was next on the list. He began a series of tests to evaluate his ability to handle the surgery. He passed them all, with just one exam remaining with a urologist.

The news came as a jolt: Ken had prostate cancer.

It meant that, before being able to have his heart transplant, he would have to test cancer-free for a year. In August 2020, Andre Abreu, MD, a urologic oncologist with USC Urology, part of Keck Medicine, successfully removed Ken’s prostate. Following surgery, Ken waited.

After a year, he made the deadline, but by then had end-stage heart failure.

“It was going to take him time to grow strong enough for a transplant,” says Raymond Lee, MD, a Keck Medicine



“I’m going to take very good care of this heart.  
I’m going to do a lot of wonderful things with it.”

Ken Cochran

cardiac surgeon and director of mechanical circulatory support and heart transplant. “We wanted to give him that chance.”

The pacemaker was no longer sufficient. In April 2022, Dr. Lee implanted a left ventricular assist device (LVAD) in Ken’s chest, which would help Ken’s heart pump better. Some heart failure patients, who may not want or qualify for a heart transplant, receive an LVAD as a final treatment option, helping to sustain them and improve their quality of life. For others, like Ken, the LVAD is a bridge to transplant.

“We’re able to take on the highest-acuity cases like this because of all of our teams that work together — transplant, ventricular assist device, intensive care, post-op and nursing,” Dr. Lee says. “Each one is phenomenal.”

### A place to heal

Most patients go home after LVAD surgery, but Ken’s arrhythmia was life-threatening.

The team formed an innovative plan: Ken would remain hospitalized at Keck Hospital of USC until he was transplant-ready and a heart arrived.

He settled in, determined to make the best of it. “Ken’s optimistic attitude and inspirational ability to fight helped him at every step,” Dr. Vaidya says.

In September 2022, several nurses crowded into Ken’s hospital room, jumping and shouting, “Your heart is here!”

“They were so excited for me,” Ken says. “They had been such a huge part of keeping me alive.”

On Sept. 12, Dr. Lee and Jonathan Praeger, MD, a Keck Medicine cardiac surgeon, transplanted Ken’s new heart — a complex surgery that took over eight hours. “There’s no ‘routine’ transplant,” Dr. Praeger says. “Each patient brings their own issues coming into surgery. Ken had been very sick for a long time.”

The next morning, concerned that Ken’s donor heart wasn’t functioning at its optimum, his medical team placed him on ECMO (extracorporeal membrane oxygenation), which provides temporary support for the heart and lungs.

Within a few days, his heart beating solid, Ken came off ECMO and began rehabilitation. In all, he would stay at Keck Hospital for seven months.

“He went through a really tough situation,” Dr. Praeger says, “and now he’s thriving.”

Two-and-a-half years later, Ken walks daily and works out. In addition to his other volunteering, he restores vintage fire engines at the L.A. County Fire Museum near his Bellflower home. He loves spending time with his two children and four grandchildren.

He’s even back playing bass in his heavy metal rock band, Contusion Blue. For too long, due to his health, he had to give up music. Now, he says, “I can play for hours.”

Ken is safeguarding the gift he’s been given.

“I’m going to take very good care of this heart,” he says. “I’m going to do a lot of wonderful things with it.”



Ken Cochran at the Los Angeles County Fire Museum



Examinations



Kremer Johnson Photography



Andre Abreu, MD



Raymond Lee, MD



Jonathan Praeger, MD



Ajay Vaidya, MD



# Care Through Life

Gynecologists treat patients not only in emergencies but also through many stages of life. Laila Al-Marayati, MD, a gynecologist at USC-VHH, provides an overview of their care.

BY HOPE HAMASHIGE



Learn more about USC-VHH's gynecological services. Call (800) USC-CARE or scan the QR code.

Laila Al-Marayati, MD, at USC Verdugo Hills Hospital.



**M**any medical specialists see patients for a specific medical problem and may not see them again unless that same problem arises later in life. But gynecologists, who specialize in the care of the female reproductive system, see patients throughout their lives, helping them through a variety of medical issues as they age and their needs change.

Laila Al-Marayati, MD, a Keck Medicine of USC gynecologist who practices at USC Verdugo Hills Hospital, discusses how and when to visit a gynecologist and how these specialists help their patients through many important stages of their lives.

### **Which are the most common reasons patients see a gynecologist?**

- Cervical cancer screenings
- Contraception and family planning
- Sexually transmitted infections
- Menstrual problems
- Well-woman exams

### **What are some common symptoms that suggest a patient needs to be seen by a gynecologist?**

- Pain or pressure in the pelvic area
- Bleeding between periods and after menopause
- Vaginal discharge
- Burning sensation during urination
- Swelling, redness, itching or burning in the vaginal area
- Sores or lumps in the genital area

### **What are some of the other conditions, including more serious ones, that gynecologists treat?**

- Infertility
- Gynecologic cancers
- Problems during pregnancy
- Ovarian torsion
- Fibroids
- Ovarian cysts
- Endometriosis
- Polycystic ovarian syndrome

### **When should patients begin seeing a gynecologist?**

It depends on the individual. Most women should begin cervical cancer screening at age 21. Some women will see a gynecologist earlier if they have pain or other problems with their period, or because they are sexually active and need contraception or testing for sexually transmitted diseases.

Women under 21 who are sexually active should be screened every year for sexually transmitted infections, especially chlamydia. Women who are not sexually active by 21 may not need to begin having Pap smears, which screen for cervical cancer, until later.

### **How do patients' gynecologic needs change over time?**

Younger women tend to need contraception, testing for sexually transmitted infections and cervical cancer screenings. At some point, women may begin planning to get pregnant, and some will need medical help to get pregnant.

We also provide prenatal care and care for mothers in the first few months of pregnancy. As women age, they may need treatment for perimenopause, menopause, gynecologic cancers or incontinence, all of which can be treated by a gynecologist.

At all stages of life, gynecologists provide well-woman care and help patients maintain good overall health.

### **What is a well-woman visit, and how does it differ from routine gynecologic visits?**

During well-woman exams, which we like to do with our patients annually, we take stock of our patients' overall health, not only the health of the reproductive system. We discuss a range of medical issues that come up for women.

## **GYNECOLOGICAL SERVICES AT USC VERDUGO HILLS HOSPITAL**

"USC Verdugo Hills Hospital (USC-VHH) offers the full scope of gynecologic services for patients over age 15," says Laila Al-Marayati, MD, a Keck Medicine of USC gynecologist who practices at the hospital.

### **General gynecologists**

"General gynecologists at USC-VHH provide a broad range of outpatient services, including routine exams, but they also perform some types of surgery for benign gynecologic conditions," Dr. Al-Marayati says.

### **On-site subspecialists**

"USC-VHH's subspecialists include gynecologic oncologists, complex family planning specialists, urogynecologists and gynecologic surgeons who specialize in minimally invasive techniques for the treatment of noncancerous gynecologic conditions such as endometriosis and ovarian cysts," Dr. Al-Marayati says.

### **Fertility referrals**

According to Dr. Al-Marayati, USC-VHH can make referrals for patients who need evaluation and treatment for infertility to fertility clinics affiliated with Keck Medicine.

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Matthew Tenser, MD, with USC Arcadia Hospital's emergency department medical director Veronica Vasquez-Montez, MD, MBA.

Ricardo Carrasco III

# Code Stroke

At the first signs of a stroke, the clock starts ticking. The director of neuro-interventional surgery at USC Arcadia Hospital explains why every minute counts.

BY KIMBERLY J. DECKER

A stroke is like a heart attack in the brain: A part of the brain doesn't get the blood flow it needs and is injured as a result. As Matthew Tenser, MD, director of neuro-interventional surgery at USC Arcadia Hospital, points out, "When a part of the brain is injured in a stroke, that tissue doesn't come back."

This makes recognizing stroke symptoms early and seeking immediate help crucial. Dr. Tenser discusses the signs to look for, and how the rapid action of an experienced stroke team makes all the difference.

## What types of strokes are there?

Two kinds: ischemic and hemorrhagic. An ischemic stroke happens when an artery in the brain is blocked, stopping blood flow to that part of the brain. Meanwhile, in a hemorrhagic stroke, an artery in the brain ruptures, causing bleeding in the brain.



Learn more about USC-AH's neurological services.  
Call (800) USC-CARE or scan the QR code.

### What are common stroke symptoms?

The key sign is a sudden change. One minute everything is fine, and the next, the patient could have a sudden onset of weakness or numbness, vision loss or double vision, facial droop, slurred speech or an inability to speak.

Symptoms also occur on one side of the body because each side of the brain controls the opposite side of the body. For example, if the blockage or bleeding is on the right side of the brain, you might have left-side weakness, numbness or trouble seeing on the left. If it's on the left side, you might have the same problems on the right side of the body, often with associated language changes, since the main language centers are usually on the left side of the brain.

### When should you seek medical care?

No matter what the symptoms are, if there's a concern for stroke, call 911. Don't drive yourself to the emergency room. Let the paramedics take you. They'll pre-activate the emergency department, tell them you're coming and wheel you right in. The stroke team will start the testing immediately. You save a lot of time.

Every minute an artery is blocked and causing symptoms, neurons are dying. Delays cause more brain injury and can also limit treatment options. The faster we get the artery open, the better the patient fares.

### What happens when you arrive at the ER?

As soon as a stroke is suspected, the hospital issues what's called a "code stroke." This alerts the ER staff — nurses, neurologists, lab staff, radiologists and radiology techs — so that as soon as the patient hits the door, they're getting evaluated and studied.

Then we try to figure out when the patient was last without symptoms. Again, that's because some treatments are time-dependent. We also try to get as much history as we can, like the patient's

medications and preexisting conditions. Then we do a brief but focused neurological exam. This all occurs over a few minutes.

### How do you determine treatment?

After the initial exam, we'll order a series of CT scans to decide next steps. The patient will get a basic CT scan of the head to see if there's any hemorrhage or a large area of damage, which would be irreversible at that point.

We'll also get a CT angiogram to look directly at the vessels and see if there's any blockage or narrowing of an artery causing the delayed blood flow. A CT perfusion scan can then help us better determine the area already injured and the area still salvageable.

### What are the treatment options?

For ischemic strokes, there are two emergent options. The first is an intravenous thrombolytic — or clot-busting — medication. These are easy and fast to deliver, but they must be given within four-and-a-half hours of when the stroke began. They also carry a risk of bleeding, so if the patient's on a strong blood-thinning medication or has an underlying coagulation problem, we can't use it.

We may also do what's called an angiogram and thrombectomy. An angiogram is a study of the blood vessel from within. We put a catheter into an artery in the arm or leg and then use fluoroscopy, or continuous X-ray, to navigate it up to the brain. If we can see the blockage and reach it, then we use a device that grabs onto the clot and pulls it out. Again, the patient must meet certain criteria for this procedure, but if they do, it can be very effective in saving brain tissue.

### What new treatments are emerging?

Studies are evaluating newer generations of clot-busting medications, which might be more active in "chewing up" clots, and may last longer in the body and have lower risks.

Treatment time windows are starting to change, too. Clinical trials are using more advanced imaging to identify patients who could safely benefit from thrombolytic medications given later on, expanding the population that could be eligible for treatment.

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## NEURO-INTERVENTIONAL SURGERY AT USC ARCADIA HOSPITAL

### Comprehensive stroke care

"We're leaders in treating cerebrovascular disease," says Matthew Tenser, MD, director of neuro-interventional surgery at USC Arcadia Hospital. "We have a comprehensive stroke center, staffed with stroke neurologists, neuro-critical care physicians and neurosurgeons practiced in open as well as endovascular surgery. We provide comprehensive evaluation, treatment and care under one roof, 24/7."

### State-of-the-art rehabilitation facilities

"We have a very robust rehab unit in the hospital," Dr. Tenser says. "As soon as the patient has completed evaluation and testing for acute stroke, we can send them right across the hall, where they can get hours of intense therapy a day. It's a one-stop shop for whatever treatment our stroke patients need — all in the same building."

### Keck Medicine resources

"Since its affiliation with USC-AH began in 2022, Keck Medicine of USC has brought tremendous financial and administrative resources to the neuroscience program," Dr. Tenser says. "Patients, given the need for a knowledgeable and experienced stroke team delivering fast intervention, will benefit from having these additional resources close to home."



# Consultations

## Keck Medicine to Open Comprehensive Pasadena Location



**K**eck Medicine of USC will open a four-story, 100,000 square-foot, state-of-the-art medical office building located at 590 S. Fair Oaks Ave. in Pasadena starting in summer 2025.

The location will significantly expand Keck Medicine clinical care for residents of Pasadena and neighboring communities in the San Gabriel Valley.

“This new location — our largest and most advanced outpatient setting — will bring even more of our research-based clinical care to the Pasadena area, where many of our patients live and work,” says Rod Hanners, CEO of Keck Medicine. “The new location offers state-of-the-art technology and access to acclaimed specialists who translate medical discoveries into groundbreaking treatments and cures.”

Patients will have access to the same expert physicians who treat patients at Keck Medical Center of USC, including researchers and doctors from USC Norris Comprehensive Cancer Center, one of the nation’s top comprehensive cancer

“The new Pasadena medical office building doubles down on our commitment to the health of our community.”

Smitha Ravipudi, MPH

centers designated by the National Cancer Institute; the esteemed USC Cardiac and Vascular Institute; and advanced orthopedic surgery and care by the nationally recognized USC Orthopaedic Surgery team.

The building will provide an airy, nature-filled environment designed to promote well-being. Each of the location’s four floors will be suffused with light from floor-to-ceiling windows, showcasing views of the San Gabriel Mountains. On the top floor, a fully landscaped terrace will open onto a healing garden.

“The new Pasadena medical office building doubles down on our commitment to the health of our community, allowing patients to visit one location for a variety of health care needs while providing access to the high-quality care only an academic health system can offer,” says Smitha Ravipudi, MPH, CEO of USC Care Medical Group and CEO of Keck Medicine Ambulatory Care Services.

The location will feature a wide range of services, including: autoimmune diseases care, such as rheumatology, allergy/immunology and autoimmune skin conditions; cardiovascular care; comprehensive oncology care; infusion therapy; orthopedics and spine care; outpatient imaging; outpatient surgery; pain management; and physical therapy.

As part of the location’s convenient multidisciplinary cancer services, including medical oncology, surgical care, imaging and radiotherapy, Keck Medicine will be the first and only university-based academic health system in Southern California to offer biology-guided radiation therapy. This novel technology sends real-time “signals” about the location of cancer cells, helping radiation oncologists track, target and treat cancer cells while minimizing damage to healthy cells.

The therapy recently received breakthrough device designation from the U.S. Food and Drug Administration and is currently approved for certain patients with lung and bone cancer.

Keck Medicine will also continue to treat patients at its existing Pasadena office, located at 625 S. Fair Oaks Ave., Suite 400, with an expanded range of primary care services, including an emphasis on digestive and metabolic health; brain health and aging; and advanced ear, nose, and throat and ophthalmology services.

## Keck Hospital Earns 'A' Leapfrog Safety Grade

In fall 2024, Keck Hospital of USC earned an "A" Hospital Safety Grade from The Leapfrog Group, an independent national nonprofit watchdog focused on patient safety.

This is the ninth "A" grade the hospital has received since 2019.

"An 'A' grade once again puts Keck Hospital among the safest hospitals in the nation, and reflects the hospital's dedication to maintaining the highest standards of quality and safety protocols," says Marty Sargeant, MBA, CEO of Keck Medical Center of USC, which includes Keck Hospital.

Leapfrog assigns an "A," "B," "C," "D" or "F" grade to general hospitals across the country based on over 30 performance measures reflecting the systems hospitals have in place to prevent errors, accidents, injuries and infections.

"Every year, The Leapfrog Group raises its quality standards, and each time, we successfully meet or exceed these benchmarks," says Stephanie Hall, MD, MHA, chief medical officer of Keck Medical Center. "The entire hospital staff works tirelessly to ensure our patients have the safest environment possible."

The Leapfrog hospital grading system is peer-reviewed, fully transparent and free for the public to view. Grades are updated twice annually, in the fall and spring.

This is the fourth such distinction Keck Hospital has received in 2024. In April, the hospital earned an "A" in The Leapfrog Group's spring Hospital Safety Grade. In July, Keck Hospital earned five stars, the highest rating possible, on the Centers for Medicare & Medicaid Services (CMS) 2024 quality star rating report. And in September, Vizient, Inc. named the hospital a top performer along with a five-star rating, the highest possible.



## Amanda Woodworth, MD, Appointed Co-Chair of American Cancer Society Team



Keck Medicine of USC breast surgical oncologist Amanda Woodworth, MD, has been appointed co-chair of the American Cancer Society's (ACS) National Breast Cancer Roundtable Risk Assessment, Screening, Risk Reduction and Early Diagnosis Priority Team.

According to its website, the National Breast Cancer Roundtable "leads collective action across the nation

so that every person and their support systems will know and understand breast cancer risk and screening needs, and can access timely, high-quality and compassionate screening, diagnosis, treatment and supportive care needed to improve their survival and quality of life."

"I'm very honored to have been chosen as co-chair of this team," Dr. Woodworth says. "I've been treating breast cancer patients for 15 years. My goal is to be out of a job, and the only way to do that is through early detection and prevention of breast cancer."

Dr. Woodworth has been involved in the ACS NBCRT since its inception in 2022, including as a presenter at the organization's first national conference. She has a particular interest in identifying and developing effective breast cancer risk assessment models.

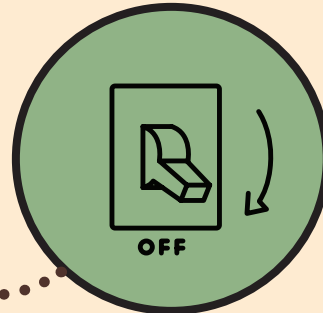
She serves as medical director of breast health for the Keck Medicine and Henry Mayo Newhall Hospital collaboration, a venture that provides comprehensive inpatient and outpatient oncology services on the Henry Mayo campus in Valencia.



# A Look at Keck Medical Center's 2024 Sustainability Impact

Through adoption of innovative software at Keck Hospital of USC, reduced anesthesia gas emissions by 50% starting in September

**Annual impact:** equal to the carbon dioxide emission of an average gas-powered car circling the Earth four times

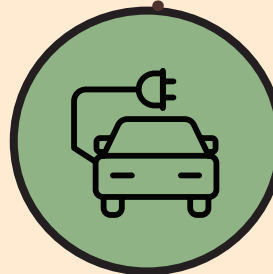


Launched "Turn Off the Lights at Night" campaign in Keck Medical Center of USC operating rooms starting in September

**Annual impact:** equivalent to electricity usage of eight homes

Eliminated battery waste by switching to reusable laryngoscope handles starting in September

**Annual impact:** waste of 3,600 batteries averted



Provided 65,000 hours of electric vehicle charging

**Annual impact:** equivalent to powering 252 EVs for a year



Opened a surplus store for furniture reuse or donation starting in July

**Annual impact:** 150 pieces diverted from landfill

Diverted 62,000 pounds of food waste through composting and donated meals

**Annual impact:** 4,800 meal donations



## USC Norris Cancer Hospital Receives Fourth-Straight Top Hospital Honor

Ricardo Carrasco III



USC Norris Cancer Hospital was named a Top Teaching Hospital by The Leapfrog Group, a leading national patient safety watchdog organization, for the fourth consecutive year.

“The Leapfrog Top Hospital award is one of the most competitive awards a hospital can receive, and we are delighted that USC Norris Cancer Hospital places among the highest-rated hospitals in the nation once again,” says Marty Sargeant, MBA, CEO of Keck Medical Center of USC, which includes USC Norris Cancer Hospital.

To qualify for the distinction, hospitals must rank top among peers on the Leapfrog Hospital Survey, which assesses hospital performance on the highest standards of quality and patient safety. Hospitals are evaluated across many areas of performance, including low infection rates, practices for safer surgery and the capacity to prevent medication errors.

Nearly 2,400 hospitals were considered for the award, and less than 5% of the eligible hospitals earned the honor of Top Hospital. A total of 112 Top Hospitals were selected from four hospital categories: children’s, general, rural and teaching.

“We are proud to be among the nation’s elite hospitals, which is a result of the exceptional efforts of the entire hospital staff, who are committed to providing high-quality, safe care for our patients,” says Stephanie Hall, MD, MHA, chief medical officer of Keck Medical Center.

USC Norris Cancer Hospital’s cancer program is ranked in the top 25 in the country, according to the 2024-2025 U.S. News & World Report Best Hospitals rankings. The hospital is part of USC Norris Comprehensive Cancer Center, which has been designated by the National Cancer Institute as one of the nation’s 51 comprehensive cancer centers, a select group of institutions providing leadership in cancer treatment, research, prevention and education.

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## ‘Day of Discovery’ for Future Health Care Workers

On March 7, USC Verdugo Hills Hospital hosted its annual Healthcare Day of Discovery, welcoming 72 students from local high schools who are interested in pursuing careers in health care. The interactive day featured professional career panels and hands-on activities, such as training in performing CPR, conducting vascular ultrasounds and preparing a sterile intravenous (IV) drip.



Laura Nuño





## Trauma Surgeon Honored for Volunteerism

The American College of Surgeons has named Damon H. Clark, MD, a Keck Medicine of USC trauma surgeon, winner of its annual Surgical Volunteerism Award. The award is intended to honor surgeons who go above and beyond their surgical practices with exceptional contributions to the community.

Dr. Clark, sole winner of the award's domestic category, was nominated by his Keck Medicine surgical colleagues.

"He's as passionate and vocal a patient advocate as you could ever find," says J. Perren Cobb, MD, chief of surgical critical care for Keck Medicine. "And he's putting in 5 to 10 hours a week volunteering and mentoring families on top of what can be more than a 60-hour workweek."

In his nominating letter, Dr. Cobb pointed out that much of Dr. Clark's volunteer work centers around preventing the violence that he often sees the results of as a trauma surgeon.

For example, Clark runs Stop the Bleed training with at-risk youths. While the program involves practical training on what to do in a medical emergency, another layer is in helping at-risk teenagers see themselves as leaders who are first to step up in a crisis.

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"He's as passionate and vocal a patient advocate as you could ever find."

J. Perren Cobb, MD

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## Governor of Guam Visits Keck Medical Center

In December, Keck Medical Center of USC welcomed Lourdes "Lou" Leon Guerrero, MPH, governor of the U.S. territory of Guam, and her staff, who met with executives, toured the facilities and looked in on a patient from their home territory.

The day was a key step in a continuing collaboration between Keck Medicine of USC and the government of Guam to improve the health and well-being of the territory's citizens — including by providing tertiary care in specialties such as oncology, ophthalmology, otolaryngology, urology and cardiac care.



**Lourdes "Lou" Leon Guerrero, MPH, governor of Guam, touring Keck Hospital of USC.**



There are hundreds of **clinical trials and studies** 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.gov](https://clinicaltrials.gov).

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### Testing a T-cell Immunotherapy for Triple-Negative Breast Cancer

Engineered immune cells designed to target cancer cells and activate the immune system have led to significant innovation and new therapeutic opportunities for patients with advanced solid tumors. Patients with advanced, triple-negative breast cancer may overexpress the tumor antigen NY-ESO-1. This trial will test the safety and efficacy of a specific, anti-NY-ESO-1, T-cell-engineered immune cell in the blood, which will target and attack tumor cells in triple-negative breast cancer patients.

#### What should patients expect?

Patients will receive chemotherapy medications for one week prior to T-cell therapy to optimize the effect of the engineered T cells. After chemotherapy, the patient will receive the anti-NY-ESO-1 T cells. They will also receive immunotherapy medication aldesleukin to maintain the population of engineered T cells.

Patients will be closely monitored for treatment response, including blood samples, CT scans and assessment of immune response, which may require a tissue biopsy. Patients will be followed at three, six and 12 months, then yearly for up to 15 years.

#### Who can participate?

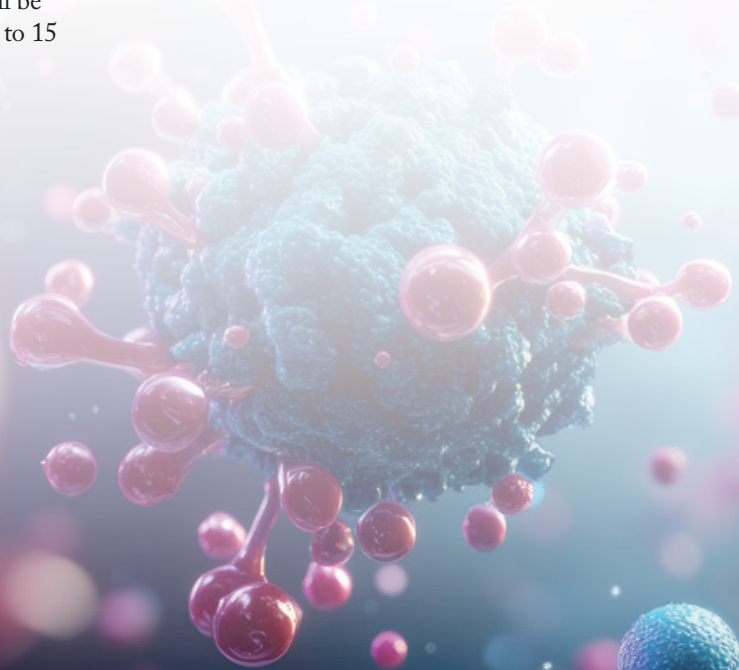
Females 18 years or older with confirmed locally advanced or metastatic triple-negative breast cancer that has either relapsed or not responded to two or more standard types of treatment, including immune checkpoint inhibitors and chemotherapy. Exclusion criteria and more can be found at [clinicaltrials.gov/study/NCT05989828](https://clinicaltrials.gov/study/NCT05989828).

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# Labwork

## Spike in Pandemic Alcohol Use Persists

**A**lcohol use increased during the COVID-19 pandemic and remained elevated even after the pandemic ended, according to a large, nationally representative Keck Medicine of USC study published in the *Annals of Internal Medicine* in November.

From prepandemic (2018) to the height of the pandemic (2020), heavy alcohol use among Americans rose by 20%, and any alcohol use rose by 4%. In 2022, the increases were sustained.

The rise in drinking was seen across all age groups, genders, races, ethnicities and regions of the country, except for Native Americans and Asian Americans. Adults ages 40-49 had the highest increase.

“These numbers reflect an alarming public health issue that could result in severe health consequences for far too many people,” says Brian P. Lee, MD, MAS, a hepatologist and liver transplant specialist with Keck Medicine and principal investigator of the study. “Our results suggest men and women under 50 are at special risk.”

Researchers studied data from the National Health Interview Survey, one of the largest and most comprehensive health surveys in the country. The survey collected alcohol use information as well as demographic and socioeconomic data for more than 24,000 adults.

Heavy drinking was defined as greater than or equal to five drinks a day or 15 drinks a week for men, and four drinks a day or eight drinks a week for women.

Dr. Lee hypothesizes that pandemic stress may have caused drinking to become more normalized. He further speculates that pandemic effects, including disruptions to school and work, may have driven the increases in adults ages 40-49.

“We encourage health care providers to offer more screenings for harmful drinking as well as interventions for at-risk populations,” Dr. Lee says.

“Our results suggest men and women under 50 are at special risk.”

Brian P. Lee, MD, MAS



Find us online  
[KeckMedicine.org/magazine](https://www.KeckMedicine.org/magazine)

## Dementia's Link to Brain Waste Clearance System

**A** Keck School of Medicine of USC study has tested a biomarker linked to vascular dementia and proposed an explanation for how cognitive impairment arises. The findings were published in *Alzheimer's & Dementia: The Journal of the Alzheimer's Association*.

Vascular dementia is the second most common form of dementia following Alzheimer's disease. It has similar symptoms, including problems with memory, decision-making and language.

The condition is usually caused by cerebral small vessel disease (cSVD), which damages the brain's small blood vessels — but researchers don't yet know the exact mechanism linking cSVD to dementia. One theory involves the glymphatic system, which helps clear brain waste.

Researchers from the Mark and Mary Stevens Neuroimaging and Informatics Institute (Stevens INI), part of the Keck School, and the Biomarkers for Vascular Contributions to Cognitive Impairment and Dementia (MarkVCID) consortium, have found new evidence for that theory.

The group analyzed brain scans and cognitive tests from 3,750 people. They then used a technique known as Diffusion Tensor Image Analysis along the Perivascular Space (DTI-ALPS) to determine how well the glymphatic system was functioning in each person based on their brain scans.

They found that people with lower DTI-ALPS scores also performed lower on cognitive tests. The study confirmed that a low DTI-ALPS score is a biomarker for cSVD and suggests that glymphatic damage may be driving cognitive decline.

"The most significant finding is that we found a clear link between DTI-ALPS and cognitive function in all four cohorts, with ages ranging from middle age through older adulthood," says Danny J. J. Wang, PhD, the study's senior author and a Keck School professor of neurology and radiology and director of imaging technology innovation at Stevens INI.

Their results provide a target for researchers seeking to develop treatments for vascular dementia, Dr. Wang says, and may also help with Alzheimer's disease.



## Air Pollution Before Pregnancy Affects Child Obesity

**P**ast research has linked air pollution exposure during pregnancy to a broad range of health problems in children, including respiratory issues and chronic diseases such as obesity and heart problems.

But few studies have focused on the preconception period, typically defined as the three months before a pregnancy begins. Environmental exposures during this time frame can affect sperm and eggs, which are in their final growth stages.

In one of the largest studies to date of preconception environmental exposures, researchers from the Keck School of Medicine of USC, Duke University and Fudan University in Shanghai, China, studied 5,834 mother-child pairs recruited from Shanghai maternity clinics.

They found that greater exposure to air pollutants PM2.5, PM10 and NO2 before pregnancy was linked to increases in body mass index (BMI) or BMIZ, a standardized score that shows how a child's BMI compared to others of the same age and sex.

"These findings imply that the three months before conception are important, and that people who plan to bear children should consider taking measures to lower their air pollution exposure to reduce their children's risk for obesity," says Jiawen Liao, PhD, a postdoctoral research associate in population and public health sciences at the Keck School and first author of the study.

More research is needed to determine whether air pollution exposure before pregnancy directly affects childhood obesity risk. But the findings suggest that people can act now to minimize potential harm, the researchers say, including by wearing a mask or staying inside during poor air conditions, as well as using an air purifier indoors.

The Keck School researchers are planning another study to monitor preconception air pollution exposure in Southern California. They are also testing the use of indoor air purifiers to reduce the risk of heart and metabolic problems among the general population.



## PFAS in Drinking Water Linked to Rare Cancers

Communities exposed to drinking water contaminated with manufactured chemicals known as per- and polyfluoroalkyl substances (PFAS) experience up to a 33% higher incidence of certain cancers, according to research from the Keck School of Medicine of USC.

The study, published in January in the *Journal of Exposure Science and Environmental Epidemiology*, is the first to examine cancer and PFAS contamination of drinking water in the U.S.

PFAS, used in consumer products such as furniture and food packaging, have been found in about 45% of drinking water supplies across the United States. Past research has linked the chemicals, which are slow to break down and accumulate in the body over time, to a range of health problems, including kidney, breast and testicular cancers.

The Keck School researchers conducted an ecological study, which uses large population-level datasets to identify patterns of exposure and associated risk.

They found that between 2016 and 2021, counties with PFAS-contaminated drinking water had higher incidence of certain types of cancer — including digestive, endocrine, respiratory and mouth and throat cancers — which differed by sex.

“These findings allow us to draw an initial conclusion about the link between certain rare cancers and PFAS,” says Shiwen (Sherlock) Li, PhD, a postdoctoral researcher in the Department of Population and Public Health Sciences at the Keck School and first author of the study. “This suggests that it’s worth researching each of these links in a more individualized and precise way.”

While providing a road map for researchers, the findings also underscore the importance of regulation. Starting in 2029, the EPA will police levels of six types of PFAS in drinking water, but stricter limits may ultimately be needed, Dr. Li says.

## Research Briefs

### Studying LA Wildfires’ Health Effects

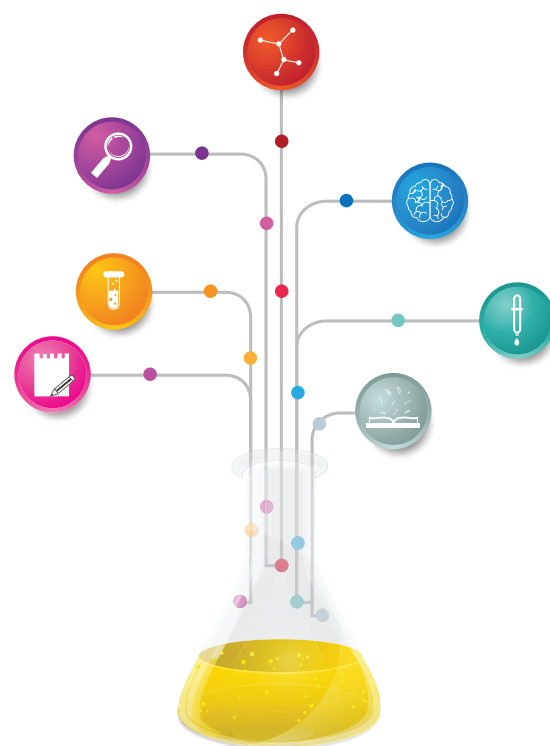
The Keck School of Medicine of USC’s Project Firestorm study will analyze the mental and physical health effects of the recent Eaton and Palisades fires in Los Angeles. Researchers will collect epidemiological data from a cohort of 9,000 USC faculty, staff and students who participated in a previous COVID-19 study. The goal is to guide recovery and response strategies for future urban wildfires.

### Liver Disease Risk Elevated By Preexisting Conditions

While some heavy alcohol drinkers develop advanced liver disease, others do not. A Keck Medicine of USC analysis found that three preexisting health conditions may make heavy drinkers up to twice as likely to develop advanced liver disease: people with diabetes, high blood pressure or a high waist circumference. The findings were published in *Clinical Gastroenterology and Hepatology*.

### Examining the Brain’s Rewards Response in Autism and ADHD

Researchers from the USC Mark and Mary Stevens Neuroimaging and Informatics Institute at the Keck School gained a grant to study how the brain’s reward system functions and changes over time in people with autism and attention-deficit/hyperactivity disorder (ADHD). These biological insights could hone future personalized interventions.



### New Approach to Slowing Cognitive Decline in Women

Can accelerating the removal of waste buildup in the brain help slow cognitive decline in women? Under a federal grant from the Sprint for Women’s Health initiative, Keck School researchers will study a novel treatment. It will use ultrasound to remove cellular debris accumulated in brain tissue together with a novel drug aimed at improving the brain’s lymphatic system function.

### Fewer New Brain Cells May Harm Verbal Learning, Memory

A decline in new brain cell production may impair verbal learning and memory, affecting how people converse and remember what they hear. Keck School researchers, including from USC Stem Cell, observed this effect in a study they led on epilepsy patients. Understanding this link, they say, could spur new approaches to restoring cognitive function. The study was published in *Cell Stem Cell*.

## Breath of Fresh Air

Continued from Page 15

Dr. Wrobel determined that the highly specialized surgical interventions, along with providing maximum access to his sinuses for treatment with topical medications and close surveillance, would be the most sustainable solution to Salvador's aggressive and recalcitrant chronic sinusitis and polyps.

Salvador now has office visits with Dr. Wrobel about six times a year in the rhinology clinic at Keck Medical Center of USC.

The large, surgically created spaces in his sinuses allow for full in-office management of his flare-ups. Dr. Wrobel is able to do debridements — clearing of his sinuses — as well as endoscopic placement of steroid-diluting dissolvable stents, if needed.

"It's wonderful," Salvador says, "because she's able to suction out anything stuck in my sinuses, and if she sees an infection, can treat it right away. I appreciate that Dr. Wrobel is very passionate about making me healthy, and that her staff have the same attitude."

### Flying anywhere in the world

Successful treatment has enabled Salvador to do things he never before could.

"Now, I can fly anywhere in the world and not be afraid of my ears popping or sinuses acting up," he says. "My family and I are big soccer fans. In 2022, for the first time I went to the World Cup in Qatar. I can also go to parks and be out in the open."

Other new activities include working out with weights and buying a ranch in Riverside County, which he plans to turn into a retirement property where he will go horseback riding, care for cattle and grow an avocado farm.

Dr. Wrobel, who describes Salvador as very personable, warm and kind, says his case shows that "even for patients with very difficult disease, there's a way to help manage it and improve their quality of life."

She also recommends that patients with chronic and severe sinus disease seek a rhinologist's help sooner rather than later, as traditional surgical approaches might not be sufficient for management of this rare yet severe and debilitating disease.

"What she did for me was life-changing," Salvador says. "When I have an appointment with her I always look forward to walking out of there feeling better."

## Code Stroke

Continued from Page 25

Every year, researchers are testing new devices and exploring how to make it easier and safer to get into the brain's blood vessels to remove occlusions. The technology to support these procedures is also always improving, giving us better-quality images and the ability to see vessels from all angles.

### What if your stroke symptoms go away?

Still take the situation very seriously. There's something called a TIA, or transient ischemic attack, which happens when a

brain artery is temporarily blocked and causes symptoms, but then opens up without injuring the brain.

TIAs and strokes share the same mechanisms and risk factors. When these patients come to the hospital, we still admit them and do a complete exam. Studies show that if you experience TIA, your risk of stroke during the following week can be 10% or more.

No matter what your symptoms are and if they are still present or not, we encourage you to call 911 and come to the ER. We're ready to help.

## Care Through Life

Continued from Page 23

So, we may talk to our patients about their diet and exercise and make sure they are up to date with their cancer screenings, including breast cancer screenings and colon cancer screenings, depending on their age.

We may address other common issues that come up for women, like osteoporosis or concerns about their sexual wellness. It is also a time to talk about other questions and concerns they have about their overall health.

### What subspecialties exist in gynecology?

There are issues that come up that gynecologists can sometimes treat, but at other times they refer to a subspecialist. Urogynecologists treat problems with pelvic floor dysfunction, such as incontinence.

Gynecologic oncologists treat patients with gynecologic cancers such as ovarian, uterine and cervical cancer. We also sometimes refer patients dealing with infertility to fertility specialists.

Other subspecialists include gynecologists with expertise in minimally invasive gynecologic surgery, family planning, and pediatric and adolescent gynecology.

### Why is it important to get consultation and treatment for gynecologic problems?

Gynecologists are experts in gynecologic care and are most specially trained in performing pelvic exams and diagnosing gynecologic problems.

Also, there are conditions that are rare and that not all doctors are going to be able to recognize.

For your peace of mind, at the least, it's always worth getting checked out by a specialist.



## Enhancing Acute Rehabilitation Services

After undergoing a complex surgery or completing treatment for a serious illness, all you want to do is get back to your regular life.

For many patients, recovery may involve relearning how to walk, bathe and dress themselves. Some may need to relearn how to communicate with loved ones.

No matter what your needs are, part of strong health care is ensuring that we, as clinicians, are supporting you not just through diagnosis and treatment, but also through the often-daunting recovery process.

Recently, Keck Medicine of USC integrated Keck Hospital of USC's acute rehabilitation unit, a nationally recognized and highly ranked program by U.S. News & World Report, into its esteemed rehabilitation unit at USC Arcadia Hospital (USC-AH), which is accredited by the Commission on Accreditation of Rehabilitation Facilities. USC-AH, already a national leader in acute rehabilitation, is now home to a newly enhanced inpatient rehabilitation facility servicing the Keck Medicine health care system.

Our medical, nursing and therapy teams have the expertise to take care of patients who've had organ transplants and heart surgery, undergone multilevel spine procedures, had large joint replacements, experienced strokes or been diagnosed with neurological conditions such as multiple sclerosis or Parkinson's disease.

The multidisciplinary team — including rehabilitation physicians, specialized therapists, case managers, social workers, nurses and psychologists — work together to ensure each patient has a positive experience and can return home as soon as possible.

Patients and their families are at the forefront of our mission, and our goal is always to help them achieve the best possible outcomes. We're excited about this unification of services and the benefits it holds for our communities.

**Ramzi Ben-Youssef, MD, MHA, and Raymond Gritton, MD, are co-medical directors of USC Arcadia Hospital's acute rehabilitation unit.**



**Ramzi Ben-Youssef, MD, MHA**



**Raymond Gritton, MD**





*Coin-operated telescope in Newport Beach, California.*



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