Winter 2025

VUMC Quarterly

Vanderbilt Health News Digest for the Federal Policymaker

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ADVANCEMENTS IN PATIENT CARE

Vanderbilt Transplant Center the nation's third busiest, sets world record for heart transplants in 2024

Read the full stories by Matt Batcheldor on VUMC News



The Vanderbilt Transplant Center (VTC) performed 875 lifesaving procedures among its adult and pediatric solid organ transplant programs in 2024. Through dramatic growth, the VTC is now the nation's third busiest transplant center by volume, saving 136 more critically ill patients in 2024 than in 2023.

VTC also set a world record in 2024 by performing 174 adult and pediatric heart transplants, 36% more heart transplants than performed in 2023. "Equally important to achieving our volume is a widespread heart failure outreach presence and the tremendous efforts of our multidisciplinary team in shepherding patients quickly through an extensive transplant evaluation process while simultaneously taking care of their heart failure," said Kelly Schlendorf, MD, section head of Heart Failure and Transplantaion.

In 2024, more than 500 patients were referred to Vanderbilt for heart transplant consideration from more than 15 states, including patients considered too high risk for transplant at other programs. *(1/13/25; 2/22/25)*

Q&A: new Jim Ayers Tower at VUMC to expand health care services for region

Read the full story by Rebecca Warren on VUMC News

In October 2024, VUMC announced its new medical tower will be named the Jim Ayers Tower in honor of Jim and Janet Ayers' philanthropic legacy and abiding interest in improving the lives of Tennesseans. The 15-story building is the largest expansion to date for Vanderbilt University Hospital. Located between 21st Avenue and Medical Center Drive, the Jim Ayers Tower is expected to open its first floor in October 2025.

"With 470,000 square feet of space, the Jim Ayers Tower will initially open with 180 new adult inpatient beds, and there are five shelled floors for future expansion. The building will also include radiology services and a spacious lobby. During this expansion, we are adding 600 new parking spaces to the Central Garage and 44,000 square feet of space for operating rooms in the adjacent Medical Center East building," according to VUMC President and CEO Jeff Balser, MD, PhD. "Among a vast array of specialized services, the Jim Ayers Tower enables expansion of our cardiac, transplant and neuroscience programs, allowing VUMC to provide these high-acuity and advanced services for many more people than today." *(12/12/24)*

Vanderbilt-Ingram Cancer Center Lebanon opening celebration

Read the full story by Tom Wilemon on VUMC News



Clinicians and community leaders celebrated the opening of a new Vanderbilt-Ingram Cancer Center Lebanon clinic location on Feb. 3, 2025. At this facility, a multidisciplinary team offers cancer patients medical oncology, surgical oncology consultations, infusion services, palliative care and pain management. Plans are in place to add gynecological oncology services this year.

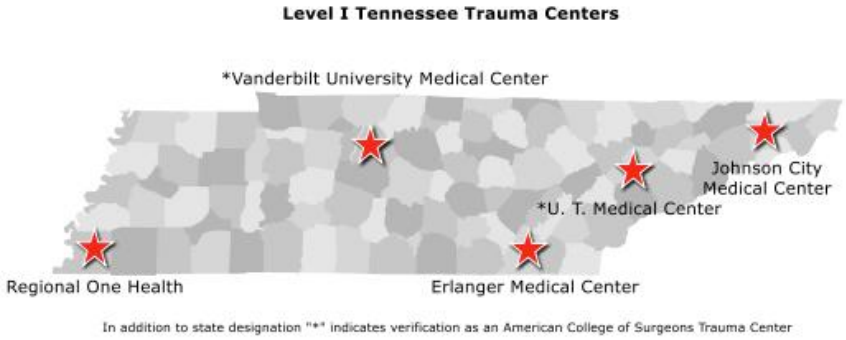
The Cancer Center's Lebanon location relocated from space inside Vanderbilt Wilson County Hospital due to increased patient demand. *(2/6/25)*

Vanderbilt University Hospital reverified as Level 1 adult trauma center

Read the full story by Jill Clendening on VUMC News

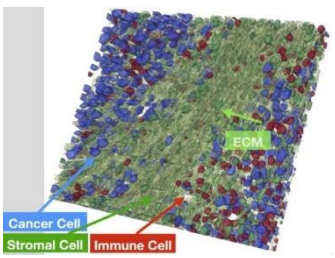
Vanderbilt University Hospital (VUH) has again been verified as a Level 1 adult trauma center by the American College of Surgeons (ACS) Committee on Trauma. The hospital is the only nationally verified Level 1 adult trauma center in Middle Tennessee and one of only 254 adult hospitals in the country with this verification.

Trauma patients come to VUH from a region covering 80,000 square miles, and approximately 9,400 acute trauma patients are treated at the hospital annually. A wide range of injuries are treated resulting from various events such as motor vehicle crashes, gunfire, and falls. *(1/17/25)*



VUMC to launch molecular AI initiative to spur precision medicine

Read the full story by Bill Snyder on VUMC News

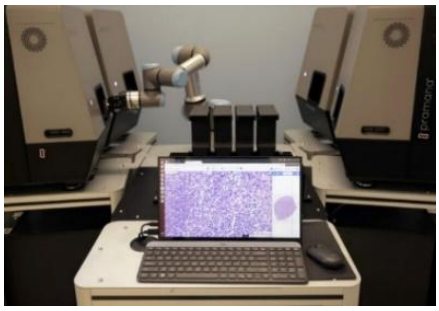


VUMC recently recruited Tae Hyun Hwang, PhD, a world-leading expert in advancing AI imaging techniques, to launch a new Molecular AI initiative to improve analysis of tissue samples from patients with cancer or potential transplant recipients.

The goal is to create 3D models of cellular structures and proteins at a microscopic level in real time by using a specialized laser to scan tissue samples. This could help doctors better predict disease progression and response to therapy, lead to more effective personalized treatments, and potentially predict and prevent rejection of transplanted organs by the body's immune system. *(1/16/25)*

Digital pathology aims to unlock secrets hidden in tissue samples

Read the full story by Leigh MacMillan on VUMC News



A pilot project underway at Vanderbilt Medical Laboratories is expected to digitize 500,000 tissue slides over three years. The goals include identifying new avenues for research, assisting with access to whole-slide images for education and clinical meetings like tumor boards, and inform efforts to use digital pathology for diagnosis.

The project is currently scanning 900 slides per day that include tissues from cancer, liver, and heart biopsies after being examined by pathologists for diagnosis. *(2/3/25)*

New Vanderbilt Health cardiology practice in Clarksville

Read more about Vanderbilt Heart and Vascular Institute



As of February 2025, Vanderbilt patients in northern Middle Tennessee and Southern Kentucky have closer-to-home access to all aspects of preventive cardiology, assessment of symptoms, diagnosis and treatment, rather than having to drive to Nashville.

Formerly part of the CHS system, an interventional cardiology practice in Clarksville has joined VUMC. The new Clarksville clinic team, composed of two Vanderbilt-trained cardiologists and a nurse practitioner, complements Vanderbilt Heart and Vascular Institute's (VHVI's) existing footprint in the Clarksville area, Hopkinsville, KY and approximately two dozen clinical locations across Tennessee.

VUMC has expertise in atrial fibrillation and left atrial appendage closure, Marfan syndrome, and spontaneous coronary artery dissection. The cardio-oncology program is one of the most comprehensive in the world. The geriatric heart program is the first in the nation. VUMC is also one of the only U.S. hospitals with an autonomic dysfunction program, and the only dedicated vascular medicine program in the region.

PATIENT STORY: rare combination liver transplant and major abdominal surgery

Read the full story by Matt Batcheldor at VUMC News



In September 2024, Reginald Porter of Oak Ridge, TN, received both a liver transplant and Whipple procedure at VUMC after being diagnosed at an area hospital with cholangiocarcinoma, a rare cancer that develops in the bile ducts. After liver transplant, the Whipple procedure is the biggest abdominal surgery that you can do on a patient according to VUMC chief of hepatobiliary surgery Martin Motenovo, MD. The combination procedure was a first of its kind at VUMC.

"This is a patient who went through medical oncology, radiation oncology, hepatology, transplant surgery, surgical oncology, GI endoscopy and interventional radiology," said Dr. Montenovo. "He did remarkably well."

Porter will continue to be seen by Vanderbilt for medical oncology and hepatology. He gives the credit to God and to his Vanderbilt care team. "It was wonderful," he said. "I've never been treated so good in my life. And they let it be known that they were there to help me." *(1/10/25)*

7 hospitals

1,741 licensed beds

Vanderbilt University Hospital
Monroe Carell Jr. Children's Hospital at Vanderbilt
Vanderbilt Psychiatric Hospital
Vanderbilt Stallworth Rehabilitation Hospital
Vanderbilt Wilson County Hospital
Vanderbilt Bedford Hospital
Vanderbilt Tullahoma-Harton Hospital

180+ Clinics

43,000 Employees

Middle Tennessee's largest non-government employer

13 Rural Health Center Clinics



3.3 M
Annual patient visits

213,000
Emergency department visits

80,000
Hospital discharges

809 Organ transplants

3,400
LifeFlight air transports

4,930
Employed clinicians

1,200+
Resident physicians

226,314
Telehealth appointments

Vanderbilt Health Affiliated Network connects **66 hospitals and 7,000 clinicians** across Tennessee to share best practices and transform health care delivery.

$527.7 million

National Institutes of Health grant funding for **Vanderbilt University School of Medicine**.

10th highest in the U.S.

Middle Tennessee's only

Level I Trauma Center and Burn Center for adults and children

Level IV Neonatal Intensive Care Unit

NCI-designated Comprehensive Cancer Center

Nearly $1 billion*

in **total community benefit and investment** including **patient financial assistance, medical research, health professional education, community grants** and unreimbursed costs for **government health programs.**



* Fiscal 2023

LEADING EDGE RESEARCH

VUMC researchers working on advanced life-support tech for battlefield injured

Read the full story by Jill Clendening on VUMC News

VUMC investigators are part of a national team awarded $18.2 million from the U.S. Department of Defense Advanced Research Projects Agency (DAPRA) to develop an advanced life-support system to improve battlefield care for wounded military personnel. The team will develop the core components of an advanced life-support device for automated resuscitation of soldiers with critical blood loss, as well as respiratory support via a novel out-of-the-body oxygen exchange system.

"We are excited for this opportunity to build upon our extensive mechanical circulatory support work…as we develop the means to support and rehabilitate lungs, hearts, livers and kidneys for transplantation," said Matthew Bacchetta, MD, MBA, co-leader of the project. Dr. Bacchetta served in Iraq and Afghanistan and has firsthand experience caring for injured warfighters, including using ECMO in combat situations. *(12/6/24)*

Researchers simulate battlefield blast exposures to reduce impact on soldiers

Read the full story by Craig Boerner on VUMC News



VUMC and VU researchers are studying the impact of blast exposures in the military and strategies to mitigate negative health effects. This project is funded by the Vanderbilt-U.S. Army Pathfinder Program, a partnership that involves the 160th Special Operations Aviation Regiment at Fort Campbell, KY.

An initial challenge was to create a way to understand the effects of blasts on the brain and test how well different helmets reduce blast forces. A special mannequin was created to mimic an actual human head with sensors placed through the eye, optic nerve, and brain to measure changes as they occur (pictured).

"I am just very, very grateful for our service members," said Tonia Rex, PhD, project co-lead. "They volunteer to preserve our liberties, and this is our way that we serve them, that we can give back." *(2/13/25)*

AI tested for alerting clinicians of suicide risk at VUMC clinics

Read the full story by Paul Govern on VUMC News

A new study published in *JAMA Network Open* from VUMC researchers shows that AI-driven clinical alerts can help doctors identify patients at risk for suicide, potentially improving prevention efforts in routine medical settings.

A team led by Colin Walsh, MD, MA, found promising results that the Vanderbilt Suicide Attempt and Ideation Likelihood model (VSAIL) could effectively prompt doctors to screen patients for suicide risk during regular clinic visits. The study was funded by the National Institute of Mental Health and the U.S. Food and Drug Administration's Sentinel Initiative. *(1/3/25)*

Alzheimer's study details abnormal gene expression tied to blood vessel growth

Read the full story by Paul Govern on VUMC News

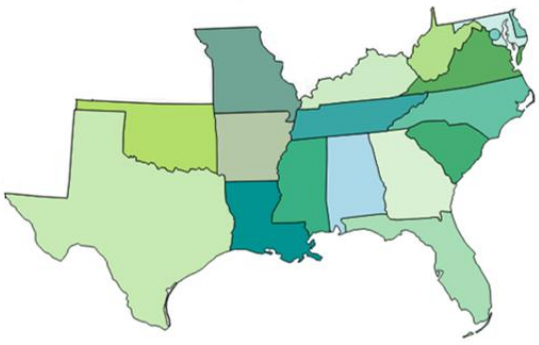
In a study reported in *Alzheimer's & Dementia*, VUMC scientists at the Vanderbilt Memory & Alzheimer's Center identified specific ways that key blood vessel growth genes behave differently in various types of brain cells in people with Alzheimer's disease, pointing to potential new treatment approaches.

The team analyzed brain tissue from deceased donors who had participated in long-term studies of aging and memory. Examining gene expression cell by cell, they focused on genes involved in blood vessel development. The researchers found that expression levels of one gene, called FLT1, are higher in both blood vessel cells and immune cells in the brains of people with Alzheimer's disease. FLT1 expression was associated with worse cognitive performance. This study was funded by National Institute on Aging. *(1/15/25)*

Southern Environmental Health Study recruiting participants

Read the full story by Tom Wilemon on VUMC News

The Southern Environmental Health Study was initiated in 2021 with funding from the National Cancer Institute (NCI) and led by VUMC researchers to understand how chemical exposures and genetics influence risk of developing cancer.



The study is ramping up recruitment efforts in hopes to enroll 35,000 participants from 17 southern states and Washington D.C. Participants must be between 40-70 years old and will take annual surveys, wear a wrist band for seven days, and optionally donate blood, urine, or saliva. The wristbands are made of silicone and designed to collect chemicals in the participants' environment, which will be analyzed for the presence of more than 1,500 chemicals. The study is longitudinal with a plan to follow participants for 10-20 years to observe associations between cancer incidence and exposures to chemicals over time. *(11/11/24)*

Study shows urine test for prostate cancer could be used at home

Read the full story by Craig Boerner on VUMC News

Prostate cancer is the most common form of cancer for men in the United States. While some prostate cancers are life-threatening, many are slow growing or benign lesions. A new study published in *The Journal of Urology* shows that a simple at-home urine test for prostate cancer is highly accurate for ruling out the presence of life-threatening prostate cancers discovered during annual physical exams. The MyProstateScore 2.0 (MPS2) urine test works by analyzing urine for the presence of 18 genes associated with prostate cancer.

"Patients with a negative test result can confidently avoid having to undergo MRI or biopsy. In the current study, this noninvasive urine test would have allowed patients with an elevated PSA to avoid 34%-53% of unnecessary biopsies," said Jeffrey Tosoian, MD, MPH, director of Translational Cancer Research at VUMC.

Next, Dr. Tosoian plans to investigate the accuracy of MPS2 for patients under active surveillance for low-grade prostate cancer. If the test is effective in this setting, use of MPS2 could enable noninvasive monitoring and further reduce the need for biopsies. This study was funded by the National Cancer Institute. *(2/3/25)*

Enlisting volunteers to shape future clinical trials through ResearchMatch

Read the full story by Craig Boerner on VUMC News

ResearchMatch is a national online registry that connects individuals interested in participating in research with researchers conducting health-related studies, at no cost to either party. It is funded by the National Center for Advancing Translation Sciences (NCATS) and managed by VUMC, in collaboration with a network of U.S. research institutions. ResearchMatch has more than 9,300 registered trials from 250 institutions and has matched more than 186,000 individuals with at least one research study.

A new Expert Advice Tool, facilitated by the VUMC team, enables researchers to collect feedback from individuals with specific health conditions or lived experiences. Aggregate feedback can then inform the design of proposed trials before they begin, and assist ongoing trials with recruitment or retention, making research more response to the needs and feedback of research participants. *(2/13/25)*

VUMC study on effects of breathing tube size on patient outcomes

Read the full story by Nancy Humphrey on VUMC News

Approximately 1% of the U.S. population — 2 million to 3 million adults — experience critical illness requiring the placement of a breathing tube each year. Although 60% to 80% of patients survive, about half of those patients experience injury to the voice box from the breathing tube. These injuries may progress to scars that permanently impair the patients' ability to breathe, speak and swallow.

VUMC has been approved for $7 million by the Patient-Centered Outcomes Research Institute (PCORI) to study the effect of breathing tube size on breathing, speaking and swallowing after critical illness. The Tube Size Randomized Trial during Emergency Tracheal Intubation (BREATHE) trial, will compare smaller vs. larger breathing tubes among 3,180 patients undergoing breathing tube placement in seven emergency departments and ICUs. *(12/5/24)*

VUMC study looks at how pulmonary fibrosis unfolds

Read the full story by Nancy Humphrey on VUMC News

A study published in *Nature Genetics* details a unique spatial map of gene expression in 1.6 million cells from the lungs of 35 people with pulmonary fibrosis (PF). PF is a life-threatening chronic lung disease with progressive thickening and scarring of lung tissue. This scarring reduces lung function over time, causing shortness of breath, persistent cough, and fatigue. Most patients require lung transplantation within five years after diagnosis.

The new study used a state-of-the-art gene sequencing method that can measure RNA gene expression levels in individual cells on a tissue slide and match the expression data with the precise location of the cell on an image. This method was used for lung samples from patients who underwent a lung transplant, with or without PF, to understand where molecular changes were occurring in the lungs. The findings could eventually change how early PF can be detected and lead to personalized treatments based on the stage of cellular remodeling. Funding from the National Heart, Lung, and Blood Institute and Department of Veterans Affairs made this research possible. *(2/3/25)*

COMMITMENT TO COMMUNITY

Locks for Children's Safety program

Read the full story by Jessica Pasley on VUMC News



Firearms are the leading cause of death for children and teens in Tennessee, with more than 80 children dying each year due to gun-related injuries. The continued rise in deaths pushed a team at Monroe Carell Jr. Children's Hospital at Vanderbilt to launch a gun safe storage initiative. On Sept. 22, 2024, the hospital launched Locks for Children's Safety.

"Secure firearm storage is an evidence-based solution to reduce unintentional injuries, firearm-related suicide, and firearm homicides among children," said Kelsey Gastineau, MD, MPH, assistant professor of Pediatrics. "One barrier to safe storage is access to affordable storage devices. This program provides free gun locks, no questions asked, to eliminate barriers and foster a safe, judgment-free space for families, employees and community members."

In just four months, more than 3,000 gun locks have been distributed. The locks are sourced from a variety of partnerships with state agencies and are available at multiple locations at Monroe Carell and select other VUMC locations. Picking up a free lock at one of the distribution points is 100% at the discretion of patients, employees, or visitors. *(2/4/25)*

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