



Markey  
Cancer Center

An NCI Comprehensive Cancer Center

UNIVERSITY OF KENTUCKY MARKEY CANCER CENTER  
**2024 ANNUAL REPORT**

# A FUTURE **FULL OF HOPE**

**“WE’RE W  
TOGETH  
A CANCER  
TOMORR**

WORKING  
ER FOR  
ER-FREE  
ROW.”

B. MARK EVERS, MD, FACS



MARKEY CANCER CENTER

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The UK Markey Cancer Center 2024 Annual Report is a publication of UK HealthCare Brand Strategy.

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*Left: A rendering of the new UK Cancer and Advanced Ambulatory Building slated for completion in 2028. (accurate as of December 2023).*

# NEW POSSIBILITIES

At the UK Markey Cancer Center, we're laser-focused on one mission — creating more cancer-free tomorrows for everyone. When I look at what we do here, I see a future full of hope.

We're Kentucky's National Cancer Institute-Designated Comprehensive Cancer Center. But we're so much more than that. Our impact reaches far beyond Lexington, into every corner of the Commonwealth, across the country and around the globe.

Here's how Markey is bringing new possibilities to life, every single day.

A world-class institution like Markey thrives because of our dedication to groundbreaking research and innovative treatments. We're in rare company as one of only 57 Comprehensive Cancer Centers in the U.S. And it shows.

Markey's researchers are changing the world's understanding of how cancer works. Their pioneering breakthroughs are improving the lives of people with lung cancer, colon cancer and many others. Our trailblazing clinical trials give more patients brighter futures. Plus, targeted therapies developed right here at Markey are altering the way we treat cancer.

Our unique expertise makes us nationwide leaders in tobacco research. We're using that knowledge to find ways to cut down on tobacco use in rural communities. And we're leading a national program to get more cancer patients to quit smoking.

The UK Markey Cancer Center Affiliate Network is a national model. It shows that relationships with community hospitals lead to improved cancer care for everyone. A novel collaboration between our affiliate network and the Lexington VA Health Care System, which will expand advanced cancer treatments for veterans, is proof of this. Community researchers at Markey engage people across the Commonwealth in the quest to prevent cancer. Our faculty fosters a new generation of leaders committed to fairness and compassion. At our new same-day clinic, cancer patients get the extra support and care they need to cut down on emergency room visits.

The best of the best work here — our doctors, nurses, researchers, pharmacists, social workers, therapists, volunteers and many more. I'm proud of the work they do every day for the people of Kentucky.

By 2028, we will open a transformative, new cancer ambulatory building, designed with purpose and built for the future. It will be a space that represents our commitment to cancer patients everywhere.

Our promise is to Kentucky. Our possibilities are for everyone. ■



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B. Mark Evers, MD, FACS  
Director, UK Markey Cancer Center



# TWO LIVES SAVED

## A MULTIDISCIPLINARY TEAM UNITES TO NAVIGATE ONE OF THE MOST COMPLEX CASES IMAGINABLE

It took a dedicated team of over 100 doctors, nurses, and other professionals from UK HealthCare to save Sarah Custer and her baby.

The critical factor was a new drug resulting from a clinical trial that ultimately put Sarah's cancer into remission. It's the type of treatment only available at specialized institutions like the UK Markey Cancer Center, Kentucky's Comprehensive Cancer Center designated by the National Cancer Institute.

### **Stage 4 Lung Cancer**

Sarah and her husband, Dave, were living a quaint life with their growing family in Columbia, a small town in south-central Kentucky, when she received a daunting cancer diagnosis.

In early August 2021, the young couple contracted COVID-19 while Sarah was pregnant with their third child, Isabel. After a few weeks, Dave's cough went away, but Sarah's lasted into September. By month's end, she was coughing blood and vomiting.

Scans showed a large soft-tissue mass blocking both airways in her lungs and causing respiratory failure. She was struggling to breathe and needed 10 liters of oxygen. Dr. Ashish Maskey, Markey's director of bronchoscopy and interventional pulmonary, suspected Sarah had stage 4 lung cancer.

*"I can't describe to you the volume that this thought echoed through my mind — 'Dear God, why me?' My second thought was, 'Well what are we going to do now?' And third, 'What are my husband and children going to do without me?' That became the leading fear in my head."*

**SARAH CUSTER**





Maskey's sense of urgency in developing a plan prioritizing both Sarah's and Isabel's needs gave the Custers hope. Before deciding how to proceed, he needed to biopsy the mass in Sarah's lungs and place a stent to improve her breathing. That called for a bronchoscopy, a typically routine surgery. However, this one would be difficult given the circumstances, as fluctuations in oxygen level during the procedure could have harmed both Sarah and baby Isabel. So, Sarah had to be placed on extracorporeal membrane oxygenation, or ECMO — a heart-lung machine representing the most advanced form of life support.

Cardiologists Dr. Rajasekhar Malyala and Dr. Jonathan Steyn oversaw the ECMO as Maskey performed the bronchoscopy. Dr. Sumit Dang and Dr. John O'Brien — both specialists in high-risk pregnancies — monitored Isabel's vitals throughout. Sarah was off ECMO a few days later, breathing easier and considering options to treat her cancer while prioritizing her unborn daughter's safety.

#### **'We Had to Save Both'**

But after 12 days at home, Sarah was rushed back to Lexington. The lung mass had grown, dislodging the stent and sending her into respiratory failure. Her life and Isabel's were in jeopardy.

"It literally felt like I was trying to suck my life's air through a straw that somebody was pinching," Sarah said.

The cancer had spread rapidly to her brain, spine and hips. She also had fractured vertebrae in her back that required surgery.

"When I talked to Sarah, she said, 'Save my baby,'" Maskey said. "But when she went on the ventilator, her husband said, 'Save my wife.' But it's not a choice. We had to save both."

O'Brien delivered Isabel by C-section at 32 weeks before Maskey placed a new stent. Throughout her multiple surgeries, Sarah was intubated — with a tube inserted into her throat to open her airway. Doctors waited about a week to take the tube out. Soon after she awoke, Sarah held Isabel for the first time, not knowing if she'd get the chance again.

#### **Targeted Cancer Drug**

Around that time, the results from Sarah's initial biopsy came in. Dr. Ralph Zinner, director of Markey's thoracic oncology program, explained that Sarah had "an extraordinarily high concentration" of a rare mutation of anaplastic lymphoma kinase (ALK), a gene that helps in the development of the gut and nervous system in embryos. About 4 percent of lung cancers test positive for ALK, and of that 4 percent almost all are adenocarcinoma non-small cell lung cancer, as Sarah's was.

After some setbacks, Sarah started a course of treatment that included alectinib. This targeted cancer drug blocks the activity of ALK. Alectinib, sold under the brand name Alecensa, was first approved for use by the U.S. Food and Drug Administration in 2015. In late 2017, it gained first-line treatment approval for ALK-positive metastatic non-small cell lung cancer. In April 2024, it gained FDA approval as a first adjuvant treatment.



*Right:* Dr. Ralph Zinner meets with Sarah and her husband to go over her progress.

Sarah's cancer receded as quickly as it had spread, and she was able to hold Isabel again — this time knowing it wouldn't be the last.

**Cancer-free**

A year later, Sarah was officially declared cancer-free. Alectinib's effectiveness in treating cancers like Sarah's, as observed through ongoing clinical research at Markey and other leading hospitals, has been eye-opening.

"Her tumors not only shrank, but shrank incredibly rapidly," Zinner said. "It just suggests profound efficacy, and we are seeing patients on this drug having no evidence of cancer coming back years and years later."

**'Never a One-doctor Show'**

Sarah and Isabel's journey required the kind of specialized team of medical experts you only find at one of the nation's best hospitals.

*"It's never a one-doctor show, right? Interventional pulmonary was there. Cardiothoracic was there. Anesthesia was there. Neonatology, OB-GYN, orthopedics, radiation oncology, medical oncology. It's the collaborative work of highly specialized fields of medicine that gave her a second chance at life."*

**DR. ASHISH MASKEY**

"...All that training that we did is meant for these isolated, rare cases where we really put our skill to work. It is the biggest gratification for us to be able to help somebody and have them do well," Maskey said. ■





# BEYOND BORDERS

## THIS GLOBAL PLATFORM PROPELS CANCER RESEARCH AND FOSTERS COLLABORATION

A collaborative effort started at the UK Markey Cancer Center is advancing cancer education, research and mentorship on a global scale.

The Global Cancer Consortium aims to nurture a collaborative environment that connects participants from around the world through conferences, courses, seminars and workshops. Participants can learn from experts, interact with peers and explore diverse perspectives.

“The consortium offers a unique platform for collaboration in education and research,” said Vivek M. Rangnekar, PhD, the consortium’s chair and founding faculty member. “By providing accessible and high-quality educational and research opportunities, we empower the next generation of cancer researchers and clinicians and ultimately enhance cancer care worldwide.”

### A Global Classroom

The consortium’s educational programs include:

- **Online courses:** Self-paced online courses cover a range of topics, including cancer biology and advanced treatment techniques.
- **Seminars:** Innovative interactive seminars provide opportunities for in-depth discussions and knowledge sharing.
- **Workshops:** Training workshops combined with mentored research projects allow participants to apply their learning and develop practical skills.
- **Training programs:** Specialized training programs, such as precision oncology and cardio-oncology, cater to specific needs.

Beyond formal education, the consortium fosters mentorship and collaboration among its participants. Mentorship programs connect students and early-career researchers with experienced professionals, who provide guidance and support. Collaborative research projects allow participants to work together on cutting-edge initiatives.

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Dr. Vivek Rangnekar has been a pivotal leader in expanding Markey’s presence around the world.

### International Network

Markey formed the consortium in early 2020 with:

- Manipal Academy of Higher Education, Manipal, India
- Saroj Gupta Cancer Centre and Research Institute, Kolkata, India
- Tata Memorial Centre, Mumbai, India
- Mayo Clinic Cancer Center, U.S.

Other institutions have since signed on, including:

- Brown University Cancer Center, U.S.
- China Medical University, Taiwan
- University of Kansas Cancer Center, U.S.
- Institute of Cancer, Sao Paulo, Brazil

The consortium operates through a network of regional chapters in North America, Europe, South Asia and East Asia. Each chapter has its own scientific focus and research training activities. Chapter operations and finances are autonomous but philosophically aligned. All faculty and trainees at participating institutions can attend and participate in consortium activities.

### Prepared for the Future

As the consortium continues to grow and evolve, it is poised to play an even more vital role in addressing the global cancer burden, said Dr. Rangnekar, who is also Markey associate director, professor and Alfred Cohen Endowed Chair at the College of Medicine.

*“Mentorship plays a crucial role in building capacity within the field. By training others, mentors share their knowledge and expertise and inspire the next generation of scientists and clinicians. This creates a ripple effect.”*

**VIVEK M. RANGNEKAR, PHD**

The concept has attracted international attention. Dr. Rangnekar will chair a session on the consortium’s global partnership model at the 2025 Asia-Pacific Association for International Education. The session will also feature Tim Barnes, UK’s executive director of international partnerships and research, Liang-Yo Yang, Dean of Global Affairs and Medicine at CMU Taiwan, and Naveen Salins, MD, dean of research at Manipal. ■

*Below:* Dr. Rangnekar, third from right, and colleagues from India highlight the Global Cancer Consortium’s commitment to international cooperation.

*Right:* Dr. Adebola Adegboyega walks with her fellow congregation members discussing the importance of cancer screenings.

## MARKEY PARTNERS WITH CANCER CENTER IN UKRAINE

In 2024, Markey formed a strategic partnership with the Kyiv Regional Oncology Dispensary (KROD) in Ukraine. The collaboration will focus on promoting cancer prevention and treatment, fostering research collaboration, and facilitating personnel exchanges for training and education.

Markey researcher Vivek M. Rangnekar, PhD, played a leading role in bringing the two centers together. One of his goals is to establish a training program for private physicians in Ukraine.

“Many cancer patients in Ukraine receive initial treatment at hospitals but return to their communities for follow-up care,” Dr. Rangnekar said. “Training private physicians in oncology will help ensure these patients have access to quality care closer to home.”





## INCREASING CERVICAL CANCER SCREENINGS FOR BLACK WOMEN

Black women in the U.S. get cervical cancer screenings at lower rates than their white counterparts. College of Nursing assistant professor Adebola Adegboyega, PhD, RN, wants to better understand the perceived barriers to screening. She also wants to know if there are differences in screening patterns between U.S.-born Black women and African-born Black women living in Kentucky.

Dr. Adegboyega received a five-year grant from the National Cancer Institute in 2020 to study these barriers and facilitators of cervical cancer screening among Black women in the Commonwealth. Her research aims to reduce health disparities in underserved populations by increasing screening rates and improving outcomes.

Participants in the study receive one hour of cervical health education. They then get an HPV testing kit that allows them to collect a sample at home and send it in for testing. The kit is similar to an at-home colon cancer test kit. Those who test positive for HPV receive additional information for follow-up care.

Much of Dr. Adegboyega's previous work has focused on promoting breast, cervical and colorectal cancer screening among African Americans, Sub-Saharan African immigrants and Appalachian Kentuckians using a community-engaged approach. Blacks often have higher rates of late-stage cancer and poorer outcomes. It's important to see if these disparities vary among subgroups, she said.

*“As a Nigerian immigrant, I’m particularly interested in the growing African immigrant population in Kentucky. Lexington, for example, has become a major destination for Africans and other migrants. I aim to amplify their voices and conduct research to identify effective interventions that support their health and well-being.”*

**ADEBOLA ADEGBOYEGA, PHD, RN**



# MARKEY'S GLOBAL REACH

## INTERNATIONAL COLLABORATIONS IN CANCER RESEARCH

Moving the needle against cancer is a global effort. Markey's researchers collaborate with experts around the world, extending our impact and knowledge far and wide. Since July 2023, Markey researchers have made vital contributions to 85 publications that included international colleagues from 46 countries. Nearly 70% of Markey researchers' publications included authors from institutions outside of UK, further proof that Markey's influence reaches far beyond Kentucky.





# NATIONAL INFLUENCE

## MARKEY'S IMPACT EXTENDS FAR BEYOND KENTUCKY'S BORDERS

### Markey Collaboration Expands Cancer Care Access for U.S. Veterans

A new collaboration between the UK Markey Cancer Center and the Lexington VA Health Care System is one of the first of its kind in the nation.

Lexington VA Health Care is the 20th hospital to join the UK Markey Cancer Center Affiliate Network in 2024, providing expanded access to specialized cancer care for veterans. The collaboration is one of the first in the nation between a Veterans Affairs system and a National Cancer Institute (NCI) Designated Comprehensive Cancer Center like Markey.

"The VA is the largest cancer care provider in the U.S. We are thrilled to be working more closely with them to ensure veterans receive the best possible cancer care," said Timothy Mullett, MD, medical director of the Markey Cancer Center Affiliate Network.

The Lexington VA Health Care System serves 83,000 veterans across Central Kentucky. The Markey Cancer Center Affiliate Network provides accessible, high-quality cancer care and support for hospitals around the state. This new collaboration streamlines referrals between Markey and the VA, improves access to clinical trials, and offers veterans specialized cancer care closer to home.

"The VA looked to Markey because of its status as Kentucky's only Comprehensive Cancer Center," said Cheri Tolle, MAEd, CHES, the affiliate network administrative director.

*"The VA and Markey have worked together for many years. This formal arrangement is exciting because it allows us to provide specific programmatic support to them."*

**CHERI TOLLE, MAED, CHES**

As a member of the affiliate network, Lexington VA Health Care System will receive assistance from Markey in pursuing Commission on Cancer (CoC) accreditation. Markey will also provide training and support to VA physicians and supportive care staff.





In addition, the collaboration allows Markey to share the affiliate network’s successes with other parts of the VA system. Mullett, a veteran, sits on a VA committee and recently participated in a panel discussion with the VA’s national director. Markey staff have also learned more about the VA’s teleoncology program, a service that Markey is also exploring.

“We’re learning from the VA, and hopefully they’ll be able to learn from us,” Mullett said. ■

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Lexington VA Health Care System and UK Markey Cancer Center announced the new affiliation, which will give veterans access to the latest cancer treatments and clinical trials. Lexington VA Health Care System leadership Russell Armstead (left) and Anna Rose (top).

## MARKEY HOSTS IMPORTANT CANCER CONFERENCES

The Markey Cancer Center hosted and supported two significant national and international cancer conferences in 2024.

The HPV Cancer Center Consortium national meeting was held in April in Lexington by Markey and the National Cancer Institute. The annual conference focused on raising awareness about HPV (human papillomavirus) vaccination.

“Researchers at Markey and across the country are working to understand how to get more children vaccinated against HPV,” said Pamela Hull, PhD, associate director of Population Science and Community Impact at Markey. “By bringing researchers and healthcare providers to Markey, we were able to work toward developing innovative strategies and ultimately reducing the burden of HPV-related diseases.”

Lexington was selected as the host city and Markey supported the International Cancer Education Conference (ICEC) in September. ICEC is the annual meeting of the American Association for Cancer Education, the Cancer Patient Education Network and the European Association for Cancer Education. Markey staff provided logistics and led the conference planning committee.

The conference highlighted unique Markey programs to an international audience:

- The Appalachian Career Training in Oncology (ACTION) Program that encourages young people to pursue careers in the cancer field
- A lung cancer screening education program administered through community health workers
- A program to address disparities in home radon testing and mitigation in rural Kentucky

“It was a great national opportunity to show off the Markey Cancer Center in Lexington and also welcome everyone to the Bluegrass State,” said Markey Cancer Center Affiliate Network administrative director Cheri Tolle, MAEd, CHES.



## **EVERS ELECTED TO NATIONAL CANCER GROUP'S BOARD OF DIRECTORS**

B. Mark Evers, MD, director of the UK Markey Cancer Center, was recently elected to the Association of American Cancer Institutes (AACI) Board of Directors. This prestigious appointment recognizes Evers' exceptional leadership and contributions to cancer research and treatment. Under Evers' guidance, Markey became Kentucky's only National Cancer Institute (NCI) Comprehensive Cancer Center in 2023.

"The AACI represents the top-tier academic and cancer research centers in the U.S. and Canada," Evers said. "I'm eager to contribute to the AACI's mission to enhance the impact of these renowned institutions."

## **KENTUCKY'S CANCER CARE SETS NATIONAL STANDARD**

Timothy Mullett, MD, recently concluded his term as chair of the Commission on Cancer (CoC) of the American College of Surgeons (ACS). He leveraged the UK Markey Cancer Center's expertise to advance cancer care nationwide during his tenure.

Mullett is medical director of the Markey Cancer Center Affiliate Network, which requires CoC accreditation. Under Mullett's leadership, the CoC developed a pathway for accreditation for rural hospitals.

"There is a significant disparity in rural cancer programs being CoC accredited, and Kentucky seems to have solved that," Mullett said.

The work done by Mullett and others at Markey to provide tobacco treatment for cancer patients also led to a national treatment initiative that is now a standard for all CoC programs.

## **MARKEY NAVIGATION CHAPTER WINS NATIONAL AWARD**

The UK Markey Cancer Center-led chapter of the Academy of Oncology Nurse and Patient Navigators (AONN+) recently won a national award for its leadership in innovative programming, collaboration and professional commitment.

The Kentucky Oncology Navigation Network (KONN) is the only AONN+ chapter in the Commonwealth providing resources, education and support to staff who offer navigation services to cancer patients. Markey Cancer Center Affiliate Network quality assurance coordinators Sabrena Fulkerson, BSN, RN, and Kristal Vaughan, RN, founded the KONN chapter, which has membership representation from Markey and its affiliate network hospitals. Within Kentucky, there are over 70 hospital members throughout the state.

Creating the chapter positioned Fulkerson and Vaughan as leaders in oncology navigation.

"We've forged strong relationships with the AONN+ leadership. We've also played a pivotal role in helping other states establish their own chapters, most recently in South Carolina," Fulkerson said.

"The more that you can reach across state lines, the more you learn and the more quickly you can collaborate to get patients the resources they need," Vaughan said.

## CANCER INFOCUS: A POWERFUL TOOL FROM MARKEY USED BY CANCER CENTERS NATIONWIDE

A tool created by the Community Impact Office in 2022 - Cancer InFocus - gives vital data insights to researchers and community organizations. It has caught the attention of the National Cancer Institute (NCI) and led to a UK Markey Cancer Center study documenting undiagnosed cancer cases during the COVID-19 pandemic.

Cancer InFocus combines the gathering of publicly available data with interactive visualization dashboards. Users can identify areas with a high prevalence of certain cancer risk factors, monitor cancer incidence and mortality rates, assess resource availability, and more.

### Nationwide Impact

Cancer InFocus pulls over 150 metrics from national sources and assembles datasets curated by cancer center catchment areas or U.S. state. These datasets can be accessed online at [cancerinfocus.org](http://cancerinfocus.org). Code for turning these datasets into interactive dashboards is available to all U.S. cancer centers through a no-cost licensing agreement with the University of Kentucky. Markey's own dashboard—Cancer InFocus: Kentucky—can be found at [cancerinfocus.uky.edu](http://cancerinfocus.uky.edu).

Over 30 institutions, including one-third of the NCI-Designated Cancer Centers, use Cancer InFocus. Markey is even building a custom version for the NCI's Center for Cancer Research.

"Cancer InFocus is a way for Markey to contribute to the fight against cancer around the country and be a resource for other cancer centers," said Todd Burus, a data scientist with the Community Impact Office. "The less time and resources hospitals use pulling data and building software programs, the more they have to invest in reducing the cancer burden in their communities."

### Cancer and COVID-19

The COVID-19 pandemic continues to impact people's lives long after the virus first appeared. A Markey study published in JAMA Oncology showed that more than 134,000 cancer cases went undiagnosed in the U.S. during the first 10 months of the pandemic.

Burus was the study's lead author. Krystle A. Lang Kuhs, PhD, MPH, an associate professor in the College of Public Health and co-leader of the Cancer Prevention and Control Research Program at the Markey Cancer Center, was the senior author.

"Those cases will get diagnosed eventually, and they could potentially overwhelm the health care system," Kuhs said. "They're probably going to show up at a later stage than they would have normally, so they're going to be more complicated to treat. This has a real potential to increase cancer-related mortality."

### Data-driven Research

Burus leveraged his day-to-day work with Cancer InFocus and his talent for pulling data sets together for the research paper.

"Markey supported the vision of Cancer InFocus and provided the tools to put those national data sets together," Kuhs said. "Cancer InFocus is having unintended positive impacts and allowing us to do things we wouldn't have normally been able to do."

Almost 5,000 media outlets cited the article, and it was in the top 99% of all papers for the attention it received.

While the study was not the first paper to discuss COVID's effects on cancer, it was the first written in accessible language for a lay audience, Kuhs noted.





# EXTINGUISHING TOBACCO USE

## MARKEY RESEARCHERS WANT TO STAMP OUT SMOKING AND ITS HEALTH RISKS

While smoking rates have gone down in suburban and urban areas in recent years, rates haven't declined as much in rural areas. The University of Kentucky is home to a new research center focused on changing that.

The Appalachian Tobacco Regulatory Science Team (AppalTRUST) will study tobacco product use and the impact of regulations in Appalachian Kentucky.

"There's still a large disparity, but it's under-recognized because rural communities are so diverse and patterns of tobacco use in those communities are different than in urban communities," said Shyanika W. Rose, PhD, MA, associate professor with the College of Medicine Department of Behavioral Science and the Center for Health, Engagement and Transformation (CHET).

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Dr. Shyanika Rose is one of the multi-PIs AppalTRUST project leads and presented an overview of the project to the rest of the team.

### **Tobacco Use in Rural Kentucky**

AppalTRUST is funded by a \$19 million cooperative agreement from the National Institutes of Health (NIH) and the Food and Drug Administration (FDA). Researchers will examine how differences in rural areas impact access to tobacco products and use, along with the potential impacts of proposed new regulations.

The research will focus on two areas of Kentucky — three counties in northeast Kentucky on the outskirts of an urban area and five more rural counties in southeast Kentucky.

AppalTRUST includes:

- A large survey project
- An investigation of marketing to 18- to 24-year-olds
- A study looking at the impact of proposed tobacco product regulations in rural Kentucky

Retail audits will look at how product availability varies depending on how rural an area is and ways to consider regulations that might reduce tobacco harms in those communities. People living in these local counties have been hired to collect the field data.

Rural communities often face limited access to tobacco cessation resources and health care support, making it more challenging to quit smoking.

“The tobacco industry has very specific ways they target their marketing in rural communities to be appealing and to make tobacco very prevalent and very cheap,” Rose said.

The information learned from AppalTRUST will apply to many other rural areas across the U.S.

“What we discover can affect national tobacco policy,” said Mikhail Koffarnus, PhD, vice chair for research and associate professor in the Department of Family & Community Medicine.

AppalTRUST will give the FDA real-world data on how tobacco products are used and marketed in rural Appalachia, according to Ellen J. Hahn, PhD, RN, FAAN, and AppalTRUST associate director.

“Rural populations are often ignored in studies of tobacco use and tobacco marketing,” Hahn said. “AppalTRUST will benefit the entire country as it will shine a light on the diversity of rurality and inform the policies that regulate tobacco products.”

### **Markey Leader Spearheads National Program to Help Smokers Quit**

Patients who use tobacco don’t just have a higher risk of getting many cancers. They also have worse survival rates for any cancers they do develop.

A national program led by the American College of Surgeons (ACS) has helped cancer programs build and improve their smoking cessation services. Beyond Ask is a follow-up to the ASC Commission on Cancer (CoC) Just Ask quality improvement program. Both programs were spearheaded by Markey Cancer Center thoracic surgeon and researcher Timothy Mullett, MD, MBA, FACS, during his time as CoC chair. Mullett is the medical director of the Markey Cancer Center Affiliate and Research Networks.



### One Step Further

Just Ask surveyed how programs assess and treat patients who smoke. Beyond Ask goes further, asking programs to take steps to help patients quit smoking.

The CoC created resources for participating sites and offered webinars and incentives for participation.

“We provided them the tools in an easy-to-use package that they could deploy in very small programs all the way up to large academic facilities and network hospitals,” Mullett said.

Tobacco research and treatment leaders at the University of Kentucky contributed to the project’s design.

After one year of the Beyond Ask quality improvement program, nearly 80% of cancer programs offered patients help. The success of Beyond Ask also led the CoC to begin developing nationwide tobacco treatment standards for member institutions. ■

*“We’re getting more patients referred to effective tobacco treatment and we were pretty excited to see that.”*

**TIMOTHY MULLETT, MD, MBA, FACS**

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Above: Dr. Timothy Mullett is the chair emeritus of the Commission on Cancer and one of the co-leaders of the Beyond Ask initiative.



## MARKEY'S CANCER MOONSHOT

A UK Markey Cancer Center researcher is bringing hope to people receiving treatment for advanced-stage lung cancer.

Laurie McLouth, PhD, was awarded a \$2.8 million grant from the National Cancer Institute (NCI) Cancer Moonshot Scholars Program to conduct a five-year clinical trial of a novel hope-based intervention called "Pathways." The trial will determine whether Pathways can reduce symptoms of depression, increase positive emotions and improve the quality of life for people undergoing treatment for advanced-stage lung cancer.

Pathways encourages patients to identify, set and pursue important goals. The goals can vary widely, from improving relationships with loved ones to quitting smoking and walking again. "We're hoping to leave people with a goal pursuit skill set that they can keep applying throughout their cancer journey," McLouth said. "That way, no matter what's happening, they always feel like they can come back to what is most important to them and see that there are still things they can do that matter. Cancer does not have to rob them of those core pieces of who they are."

The intervention was designed with patient and provider feedback. Most of Pathways occurs during patient infusion appointments. The intervention can be delivered by a range of team members, including nurses, nurse practitioners and social workers. This allows it to

reach as many people as possible — even if they're treated at a hospital that doesn't have specialty mental health services.

*"Historically, we've struggled to reach rural populations, older adults and men with psychosocial interventions. Our hope is that Pathways overcomes some of the barriers they face."*

**LAURIE MCLOUTH, PHD**

The Moonshot grant also led McLouth to present her research at a White House Demo Day in Washington, DC, to the National Cancer Institute Council of Research Advocates. She's encouraged that the Moonshot program funded a psychosocial intervention in advanced stage cancer. "They really are interested in addressing all facets of cancer, from prevention and early detection to drug discovery and supportive oncology," she said.





# ADVANCING OUR UNDERSTANDING OF CANCER

## UK RESEARCHERS PAVE THE WAY FOR NEW CANCER TREATMENTS

As a comprehensive cancer center, basic research is critical to our approach to understanding cancer. Discoveries made in the lab provide the building blocks for breakthroughs and innovations in cancer treatment. Researchers at the University of Kentucky and the UK Markey Cancer Center are at the forefront of groundbreaking discoveries in lung, colorectal and many other cancers.

“Basic research is the driving force behind any new treatment option,” said Tianyan Gao, PhD, associate director for basic research at Markey. “We have to understand the basic mechanisms of tumor initiation and progression for us to develop new treatments.”

Markey lab scientists work hand-in-hand with clinical scientists to bridge the gap between laboratory discoveries and patient care. This collaboration allows them to identify promising research findings that can be turned into clinical trials, ultimately leading to new treatments for cancer patients.

### NCI Grants Awarded to Study Lung Cancer

UK researcher Houfu Guo, PhD, received a \$2.6 million grant from the National Cancer Institute (NCI) to study a newly discovered enzyme linked to lung cancer growth. Guo is an assistant professor in the UK College of Medicine’s Molecular and Cellular Biochemistry Department.

The five-year grant will allow his lab to delve deeper into the role of this enzyme, which his recent research shows, plays a key role in allowing lung cancer cells to spread.

Guan-Yu Xiao, PhD, an assistant professor in the UK College of Medicine, will use an early career grant of \$747,000 from the NCI to investigate the cellular processes that drives lung cancer to spread to other parts of the body.

Lung adenocarcinoma is a common form of lung cancer with limited treatment options. The cancer often stops responding to treatments or spreads. Xiao’s lab identified a protein that plays an important part in this process. By targeting the protein, researchers may be able to develop new drugs to prevent the cancer from spreading.

### Colorectal Cancer Alliance Awards Grant to UK Researcher

Yekaterina Zaytseva, PhD, received a grant from the Colorectal Cancer Alliance to test new drug combinations for colorectal cancer. The two-year grant is one of the first five grants given by the alliance to speed up the development of new treatments for colorectal cancer.

By identifying effective drug combinations, Zaytseva hopes to improve patient outcomes and bring life-saving therapies to Markey. Zaytseva, an associate professor in the Department of Toxicology and Cancer Biology, also studies how environmental toxins contribute to high rates of colorectal cancer in Appalachian Kentucky.

### Liver Cancer Researcher Receives Young Investigator Award

Robert Helsley, PhD, assistant professor in the Department of Internal Medicine, recently received the prestigious Walter A. Shaw Young Investigator Award from the American Society for Biochemistry and Molecular Biology (ASBMB) for his outstanding contributions to lipid research.

Helsley's findings on the link between fatty acid metabolism and liver cancer could shed light on new treatment targets for liver cancer. He will present his latest findings at the ASBMB annual meeting. ■

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*Right: Dr. Mautin Barry-Hundeyin (left) and Dr. Kathleen O'Connor (right) were presented with Markey Women Strong grants by one of the program's founding members, Katie Alford (center), at this year's Markey Cancer Center Research Day.*



## RESEARCHERS HONORED WITH MARKEY WOMEN STRONG GRANTS

Two UK Markey Cancer Center researchers investigating treatments for breast and stomach cancer received \$50,000 Markey Women Strong research grants.

Markey Women Strong is a philanthropic program of the University of Kentucky Markey Cancer Foundation that supports women-led cancer research. The program is in its eighth year and has awarded over \$800,000 in grants. Member philanthropists are men and women who contribute \$1,000 annually. A group of past grant recipients peer reviews the initial applications.

The 2025 Markey Women Strong Distinguished Researchers are:

- **Mautin Barry-Hundeyin, MD**, a surgical oncologist whose research focuses on how a type of white blood cell called macrophages influences the development and progression of stomach cancer
- **Kathleen O'Connor, PhD**, who is researching better ways to use chemotherapy to cure triple negative breast cancer, which is aggressive and often hard to treat

Markey Women Strong members actively participate in selecting grant recipients by reviewing applications, hearing presentations from applicants and voting on the most promising research projects.

"Markey Women Strong encourages female cancer researchers at all levels of their career across the institution," said Michael Delzotti, CFRE, FAHP, President and CEO of the UK Markey Cancer Foundation. "It's an incredibly rewarding experience for our members to be part of this process."

*"The best hope any cancer patient has is good research."*

**EDWARD ROMOND, MD**  
RETIRED MARKEY CANCER CENTER PROFESSOR



# FROM SCIENTIFIC BREAKTHROUGHS TO CANCER TREATMENTS

## MARKEY PATIENTS RECEIVE TOMORROW'S INNOVATIVE THERAPIES TODAY

Targeted therapies have revolutionized cancer treatment over the past decade. New treatments focus on specific molecules and proteins that can find and eliminate cancer cells while minimizing damage to healthy tissue.

The UK Markey Cancer Center is leading the way in researching and offering these groundbreaking treatments, giving patients more treatment options when they need them most.

“Instead of using a hand grenade and throwing it into a room to kill cancer cells, it’s like sending a heat-seeking missile that knows exactly where to go,” said Susanne Arnold, MD, acting associate director of clinical translation.

### **The Promise of BiTE**

One leading-edge targeted therapy being explored at Markey is Bispecific T-cell Engager (BiTE), which helps combat the ability of cancer cells to hide from the body’s immune cells. BiTE therapy can bridge the gap between cancer cells and

immune cells, called T cells, for patients with small cell lung cancer and other cancers.

“BiTEs are essentially two-armed antibodies that can bring together two cells by attaching one arm to a protein on a cancer cell and another protein on a T cell,” said Zhonglin Hao, MD, PhD, co-leader of Markey’s Thoracic Oncology Program. Once the BiTEs bind to both cells, the T cells can get to work destroying the cancer cells.

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Dr. Susanne Arnold serves as Markey's acting director of clinical translation and leads our efforts in developing new cancer treatments at the center.

BiTE therapy has shown promise for patients who didn't respond to other treatments, like chemotherapy and immune checkpoint inhibitors. But researchers need to do more tests, Hao said.

Other innovative new treatments offered to patients through clinical trials at Markey include:

- **CAR T-cell therapy:** CAR T-cell therapy has changed how many blood cancers are treated. Markey also has trials testing how it treats solid tumors, like small cell lung cancer, when it recurs.
- **Radiopharmaceutical therapies:** These therapies use special adaptor molecules that can stick to cancer cells and deliver a radioactive drug designed to kill the cancer.

### Benefits Well Beyond Markey

Markey researchers also participate in the National Cancer Institute's Experimental Therapeutics Clinical Trials Network (ETCTN), helping deliver the next generation of targeted therapies to patients. The research conducted in Kentucky will aid patients nationwide and around the world.

"It's an exciting time because the advances are making a meaningful difference in cancer patients," said John L. Villano, MD, PhD, director of Clinical Neuro-oncology. ■

## RESEARCHING NEW TREATMENTS FOR NEUROBLASTOMA IN CHILDREN

A physician-researcher at Markey is working to develop less aggressive treatments for neuroblastoma in children. By studying the metabolic vulnerabilities of the tumors, Eric Rellinger, MD, hopes to identify new therapies to improve outcomes and reduce side effects in young patients. Rellinger's research is funded by a Centers of Biomedical Research Excellence (COBRE) grant awarded to the UK Center for Cancer and Metabolism (CCM).

"Being a surgeon-scientist, I have a unique perspective on the real-world challenges that face healthcare providers and our patients," Rellinger said. "This is my greatest strength in research, and my goal is to work with teams of people in the CCM to ask questions that are most beneficial to children with pediatric solid tumors."





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Dr. Samuel Awuah and Justin Holmes collaborate on developing gold-based compounds and agents within synthetic chemistry to develop new molecular therapies for cancer patients.



## UK CHEMISTRY PROFESSOR NAMED CO-LEADER OF TRANSLATIONAL ONCOLOGY RESEARCH PROGRAM

Samuel G. Awuah, PhD, is the new co-leader of the UK Markey Cancer Center Translational Oncology Research Program. Awuah collaborates with Susanne Arnold, MD, acting associate director of clinical translation, to lead the program that focuses on translating research findings into clinical practice.

Awuah is an associate professor in the Department of Chemistry at the UK College of Arts and Sciences. He holds a joint appointment in the UK College of Pharmacy's Department of Pharmaceutical Sciences. His research focuses on finding and developing new ways to fight cancer and inflammatory disease.

"My goal is to translate laboratory discoveries into innovative therapies that improve patients' lives at Markey and beyond," Awuah said.



## MARKEY SURGICAL ONCOLOGIST EARNS RESEARCH AWARD

A Markey surgeon and researcher has received a prestigious award aimed at supporting early-stage scientists in their development as clinical trials investigators.

Veronica Morgan Jones, MD, received the Career Development Award from the Robert A. Winn Diversity in Clinical Trials Award Program. The program was created to expand clinical trials access to the underrepresented communities most likely to get the diseases being studied.

Markey will receive \$120,000 annually for two years to allow Jones to devote 40 percent of her time to learning about community-oriented clinical trials. Jones will work closely with her mentor, Reema Patel, MD, associate program director of Markey's Hematology and Medical Oncology Fellowship, and actively participate in Patel's clinical trials.

Jones wants to use her Winn program experiences to create a pilot study for triple-negative breast cancer.

*"I will use what I learn in these next two years to design an equitable and community-oriented clinical trial."*

**VERONICA MORGAN JONES, MD**

# SHAPING THE FUTURE OF CANCER CARE

## MARKEY'S NEW FACILITY WILL COMBINE FULL SPECTRUM OF SERVICES UNDER ONE ROOF

A new era of advanced cancer care and research is taking shape in Kentucky.

The UK Cancer and Advanced Ambulatory Building, slated for completion by 2028, will redefine the patient and caregiver experience. The new home to the UK Markey Cancer Center, the 550,000-square-foot space will also house advanced imaging, a spine center and ambulatory surgery space. It's a world-class facility built to match the exceptional care and groundbreaking research at Kentucky's National Cancer Institute-designated Comprehensive Cancer Center.

### Patients First

When patients first enter the building in a few years, they'll find a welcoming, comfortable space designed with their needs in mind.

The building will be home to all of Markey's outpatient clinics and a full range of cancer care services, including infusion therapy, imaging, labs, urgent care, pharmacy, palliative care, integrative health and rehab — all under one roof. The facility will also feature expanded space for Markey's leading-edge clinical trials.

"Patient experience is the driving force behind every aspect of this building's design," said Samantha O'Bryan, director of ambulatory clinical operations.

The Markey building team visited other nationally renowned cancer centers around the country — including the MD Anderson Cancer Center in Houston and the Lurie Cancer Center at Northwestern University in Illinois — to gain insights into the innovations and best practices these centers use in their spaces. The Markey team returned to Kentucky ready to incorporate fresh perspectives into the design, including modern approaches to patient flow, aesthetics and digital technology.

The new building's design focuses on reducing patient stress while ensuring comfort and convenience. Patients will easily access the building via valet parking, covered walkways and a new attached garage. Ample green space will provide a warm welcome and places for rest and rejuvenation.

Electronic stations like airport kiosks will streamline the check-in process, with friendly face-to-face registration

also available. When patients arrive, they'll get blood work and X-rays before heading to their appointments, ensuring doctors have timely access to the results.

"That's not the way it works at most cancer centers, and it's not the way it works at our cancer center right now because we use several different locations," said Frederick R. Ueland, MD, chief medical officer and director of oncology clinical services. "In the new building, everything will be in one location. This thoughtful design sets our building apart, making the patient journey easier and more efficient."

### Shaping the Space Together

Key stakeholders, including patients, families and staff, helped shape the interior design. Markey's Patient Advisory Group gave input on everything, including the clinical and meditation spaces as well as the retail offerings and the cafe.

Advisory group members shared their views on the unique needs of patients and caregivers. They stressed the need for a space that meets clinical needs and promotes healing.





Dr. Fred Ueland, Markey's chief medical officer and director of oncology clinical services, discusses new building concepts with Patient Advisory Board member, Erica Radhakrishnan.

"You want to set an atmosphere where people feel peaceful and where they feel like they're coming to heal," advisory group member Erica Radhakrishnan said.

The advisory group suggested a hydration option in the pedestrian walkway linking the new building with the UK HealthCare Albert B. Chandler Hospital. The group also provided advice on seating options for the walkway.

"A few of the staff and faculty have been patients here, but most haven't," Ueland said. "The Patient Advisory Group helps us see what we're missing from a patient's and caregiver's point of view."

### Designed for Kentucky

The colors and materials for the interior design are inspired by the character and spirit of Kentucky — from the mountains of Appalachia to the rolling fields of the Bluegrass.

The color palette has calming, soothing shades of blue and teal with natural wood. Each floor has a different color scheme based on a region of Kentucky.

"The colors will help with wayfinding but will also help people feel connected and rooted to home," O'Bryan said.

Ample windows will make waiting spaces inviting and open. A rooftop garden will offer patients and families peaceful views of the garden while receiving infusion therapy.

### A Team Effort

Markey's commitment to comprehensive cancer care is evident in the building's intentional, future-forward design. Several unfinished areas leave room for growth and the evolving needs in the field of advanced cancer research and treatment.

"This building reflects the commitment of our leadership team, our generous donors and our advisory group volunteers. Because of their support, we can offer help to everyone when they need us most," said B. Mark Evers, MD, director of the UK Markey Cancer Center.

Radhakrishnan praised Markey's leadership for their commitment to patient-centered design.

"It's incredible to have such thoughtful and caring leadership," she said. "Dr. Evers and everyone that works with him wanted to get the patient's and caregiver's perspective when designing this new facility." ■



## BY THE NUMBERS

### MORE SPACE

**432,000** square feet of cancer space

**110,000** square feet of green space

**177** exam rooms

**79** infusion chairs

**13** radiology suites

**9** floors

**6** radiation treatment rooms

### MORE PATIENTS

Anticipated increase in visits over next 10 years: **Over 50%**

### MORE HIRES

Anticipated increase of **323 new employees** and **48 new physicians** to take care of the full spectrum of patient needs.



*“With this new facility, Markey will offer opportunities to hundreds of new employees and physicians, drawing on the talents of Kentuckians as well as professionals across the country.”*

**B. Mark Evers, MD, FACS**

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The new cancer and advanced ambulatory building will feature design concepts focused on enhancing patient experience and maximizing natural light in public and patient spaces.

## INNOVATIVE SAME-DAY CLINIC SUPPORTS CANCER PATIENTS WITH URGENT NEEDS

Complex cancer care often comes with challenges and side effects. A new clinic at the UK Markey Cancer Center helps patients avoid unnecessary visits to the emergency department and reduces hospital admissions.

The Cancer Acute Treatment Clinic offers same-day options for patients already receiving treatment at Markey. Advanced practice providers staff the clinic on weekdays. In addition to a comprehensive assessment, they offer a variety of treatments, including blood transfusions, antibiotics, fluids and supportive medications.

The acute clinic will move to the first floor of the UK Cancer and Advanced Ambulatory Building when it opens in 2028. The new clinic will feature a 12-bed expanded space.

The acute clinic is part of a national trend toward offering more advanced cancer care in an outpatient setting, said Frederick R. Ueland, MD, chief medical officer and director of oncology clinical services.

“This is an innovative concept that offers numerous benefits to our patients,” Ueland said. “By providing timely and appropriate care, we can help mitigate complications and improve quality of life for our patients.”





# **A VOICE AT THE TABLE**

**HOW MARKEY RESARCHERS  
WORK HAND-IN-HAND WITH  
COMMUNITIES**



A genetic predisposition to cancer is a daunting reality for some families. One family member gets a cancer diagnosis and then others might find out through testing that they're also at risk.

John A. D'Orazio, MD, PhD, is a pediatric oncologist and researcher at the UK Markey Cancer Center and Kentucky Children's Hospital. He wanted to find ways to support patients and families through the many surveillance tests and appointments that come with an inherited genetic risk.

A partnership planning grant from Markey's Community Impact Office (CIO) gave him the seed money to start an advisory council where patients and families could share their experiences. The grant also funded an inaugural symposium for patients and researchers to come together.

"The goal of CIO funding these grants is to build trust in our community around research," said Caree McAfee, MA, CHES, director of Operations and Evaluation for Community Impact.

Advisory council members shared that emotional and psychological well-being were high priorities, in addition to the latest genetic research advances.

*"Hearing patients and their families tell us what it's like to live with this makes our care more effective, empathetic and intentional. It motivates us to do better for our patients."*

**JOHN A. D'ORAZIO, MD, PHD**

The planning grant turned into a larger CIO Pilot Grant to fund interviews with patients and families. The pilot grant also supported a second symposium in fall 2024.

D'Orazio hopes the community created through the CIO grants will ultimately lead to more support services for patients. "We've brought this community together. They are tight knit and they care about each other," he said. "I don't know that it makes sense for every scientist to have a community panel, but for this one it was powerful."

### **Support for Community-driven Research**

Grants like those D'Orazio received are one of many ways the CIO uplifts research that responds to community-driven needs.

CIO consultation services support Markey researchers in building community partnerships, reaching specific populations, promoting culturally appropriate health education and leveraging data.

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*Previous:* Dr. John D'Orazio, Markey physician and researcher, connects with patients and families to ensure they feel supported.

*Right:* Dr. Pamela Hull leads Markey's Community Impact Office, which seeks to connect our research with communities to help build trust and collaboration.



“Research will be more effective and more impactful if community members and community voices are involved from the beginning, making sure we’re focusing on the right research questions and finding the best ways to include people in the research,” said Pamela C. Hull, PhD, Markey’s associate director of Population Science and Community Impact.

Sharing easy-to-understand information about research studies with the public can help build and sustain trust in cancer research and enhance community perceptions about the value of research in the fight against cancer. The CIO’s Community Research Dissemination Toolkit enhances the skills and capacity of researchers to communicate effectively with non-scientific audiences.

The toolkit, which has been requested by nearly 50 cancer centers, includes communication strategies, plain language guidelines and a glossary with simple alternatives to complex cancer terms. ■



## TACKLING HEALTH DISPARITIES THROUGH RESEARCH

Research shows that smoking, obesity and diabetes can all impact your chances of getting cancer and a host of other diseases. Other factors, like where you live, your income level, and your race or ethnicity can also drive negative health outcomes.

UK ASCEND (Achieving Success in Community-Engaged research to elimiNate Disparities) will train a new generation of scientists to work with communities to conduct research and share findings on health inequities. The program is funded by a five-year, \$3 million grant from the National Institute on Minority Health and Health Disparities, an institute within the National Institutes of Health.

A team of health equity researchers at UK HealthCare conducts ASCEND. The team includes principal investigators:

- **Lovoria Williams, PhD, RN, FAAN**, professor, College of Nursing, associate director of Cancer Health Equity, Diversity and Inclusion and Sally Humphrey Professor of Cancer Health Equity
- **Nancy Schoenberg, PhD**, Marion Pearsall professor of Behavioral Science in the College of Medicine and member of the Executive Committee for the Markey Prevention and Control Program
- **Darwin Conwell, MD**, Jack M. Gill chair in Internal Medicine and professor in the Department of Internal Medicine in the College of Medicine

UK ASCEND programming includes a year-long intensive training in professional development and community-engaged research. In the second year, scholars receive funding to conduct a pilot research project applying their learned skills. “ASCEND supports these early career researchers so they can change the landscape for health disparities,” Conwell said. Research will focus on five key areas: cancer, cardiovascular disease, diabetes and obesity, neuroscience, and substance use disorders.

“I’m proud of UK and our stakeholders across the state for really taking health disparities seriously,” Schoenberg said.

# THE NEXT GENERATION

## MARKEY PREPARES THE CANCER CENTER LEADERS OF TOMORROW



New leaders don't emerge from a vacuum. They're cultivated through experiences with their peers and others in leadership positions.

The new UK Markey Cancer Center LAUNCH Leadership Academy provides that exact opportunity to a select group of early mid-career faculty. This year-long program began in 2023 and just welcomed its second cohort.

"When you do a PhD, there are not necessarily training courses on how to run a lab and be a leader of people and organizations," said Justin X. Moore, PhD, assistant director of community impact at Markey and a member of the program's first cohort.

### **Camaraderie with Peers**

The first LAUNCH cohort – made up of four participants from related fields – delved into topics such as leadership, negotiation, team management and conflict resolution. The program included seminars delivered by Markey and campus-wide leaders, mentorship from Markey senior leaders, and a focused leadership project.

One of the most powerful aspects of the program was the camaraderie among the fellows, who built relationships, shared their perspectives and learned from each other's experiences. The monthly seminars gave the cohort a valuable opportunity to network and exchange ideas.

"That ability to get together and talk through things is indispensable to your development as both a cancer researcher and a future leader," said Aaron Kruse-Diehr, PhD, a health equity researcher with the Markey Cancer Prevention and Control (CP) Research Program.

Sally Ellingson, PhD, assistant professor of biomedical informatics, not only appreciated learning about how the cancer center works behind the scenes, but also found a lot of value in meeting a new group of peers.

"Sometimes, you naturally collaborate within familiar circles, which can limit exposure to new ideas," she said. "This experience expanded my knowledge and allowed me to connect with like-minded researchers outside of my usual network."

### **Learning from Leaders**

Preparing the next generation of leadership is essential for cancer centers like Markey, said program director Lovoria Williams, PhD, RN, FAAN, associate director of Cancer Health Equity, Diversity and Inclusion and Sally Humphrey Professor of Cancer Health Equity (*pictured above*).

*"LAUNCH helps them understand what it takes to be a leader within the cancer center."*

**LOVORIA WILLIAMS, PHD, RN, FAAN**

The program allowed the participants to learn directly from experienced Markey leaders and pick their brains during question-and-answer sessions.

"You can only learn to be a better leader if you learn from leaders," said Reema Patel, MD, associate program director of Markey's Hematology and Medical Oncology Fellowship. "Hearing from people doing it well and learning from them can elevate how you progress in your own programs or departments."



LAUNCH provided unique insights to the role of each leader and the inner workings of an NCI Comprehensive Cancer Center.

"I saw it as an opportunity to grow a bit more as a leader and to understand some of the inner workings of the larger cancer center," Moore said.

#### Career Impacts

The supportive network of LAUNCH will continue to benefit the original fellows in their careers, they said. The program was refined based on their feedback, and a new group of three fellows already started the program in late 2024.

Ellingson serves on the executive committee for the largest conference in her field of high-performance computing and will be the inclusivity chair for 2025. LAUNCH enhanced her leadership toolkit.

"The program gave me new perspectives and a shared vocabulary around diversity, equity and inclusion, which has helped me better frame conversations and initiatives," she said.

Patel also emphasized the necessity of uplifting diverse perspectives in leadership positions.

*"It's so important to make sure that everyone is being heard and listened to and has a seat at the table, and if somebody doesn't have a seat at the table, how do you bring them on, or how do you encourage those at the table to have a voice?"*

**REEMA PATEL, MD**

Moore said the program shaped how he views himself as a leader.

"The two major things I take home are understanding who you are as a leader and trying to not lead from a place of fear and trepidation but leading with intentionality and authenticity," he said. ■



Reema Patel,  
MD



Justin X. Moore,  
PhD



Aaron Kruse-  
Diehr, PhD



Sally Ellingson,  
PhD



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MOMENTUM's structure has provided Markey trainees (left to right) Viral Oza, Marirah Geisen and Dr. Daniel Plaugher with career tools for success.

# BUILDING MOMENTUM: MARKEY'S COMMITMENT TO CANCER RESEARCH EDUCATION

At the UK Markey Cancer Center, education reaches far beyond the classroom.

Markey's Oncology Mentoring, Education, Networking and Training Umbrella (MOMENTUM) Program is a defining part of our designation as an NCI Comprehensive Cancer Center. MOMENTUM offers a supportive education and training community for cancer researchers at all levels, from K-12 to postdoctoral scholars and even early career faculty members. Through transdisciplinary programs, this trainee program and its network provides students with the skills, knowledge and connections to thrive in their academic journey and beyond.

MOMENTUM uses multi-faceted programming, professional development and career-stage appropriate activities across all training levels. The program allows trainees to engage in Markey's breadth of transdisciplinary research, research programs and shared resource facilities. The result is a set of comprehensive efforts to enhance training and provide pathways to career development and enhancement. The MOMENTUM programs were

an essential component of Markey's comprehensive status designation from the NCI.

"MOMENTUM is a community network and series of opportunities that shape the next generation of leaders in the field," said Kathleen O'Connor, PhD, associate director of Cancer Education and Mentoring.

A key component of the trainee network is mentorship. Early career faculty are assigned a mentorship committee. The committee guides their research, reviews grant applications and provides feedback. Faculty serve as mentors for graduate students and postdoctoral scholars, who in turn provide mentorship to high school and undergraduate students.

"It's a great learning experience for our graduate students and postdocs for when they go on to have labs of their own and have to mentor their own students," says cancer education coordinator Erin Oakley, PhD.

A fellowship bootcamp also teaches graduate students and postdoctoral scholars how to write competitive

grant proposals. Experienced mentors guide trainees through the grant writing process, from developing strong research questions to crafting a compelling narrative.

Since 2018, the MOMENTUM program has impacted 2,517 trainees, including 155 Appalachian students.

Of the trainees who were part of the fellowship bootcamp and submitted a funding application for their research, 68% were funded. Participants also earned Kentucky's first and second ever predoctoral to postdoctoral fellow transition awards from the NCI. ■



### SUCCESSFUL GRANT APPLICATION

#### Viral Oza

Graduate Research Assistant; Molecular and Cellular Biochemistry Department; Lab of Jessica Blackburn, PhD

#### *How did the fellowship bootcamp prepare you for your grant application?*

I participated in the bootcamp initially because I was interested in developing a fellowship application. I used many of the resources I learned about during the bootcamp and received a lot of helpful feedback from the grants office. Every session was informative and helpful.

I received a fellowship through the National Cancer Institute. The bootcamp provided the necessary background information and resources for me to write a successful application. I'm very thankful to Markey for organizing this.



### A TRANSFORMATIVE EXPERIENCE

#### Mariah Geisen

5th Year Graduate Research Assistant; Department of Toxicology and Cancer Biology; Lab of Yekaterina Zaytseva, PhD

#### *How has Markey's trainee network helped you?*

As a graduate student, the trainee network has been crucial for advancements in my research and professional development. Most importantly, the trainee network allowed me to apply for and be awarded a predoctoral fellowship.

I have also had the opportunity to strengthen my mentoring skills by mentoring high school and undergraduate students in the lab. As a result of my mentorship, I have received the College of Medicine's STRONG Simpson-Jones Award for Excellence in Teaching and Training.

#### *How has the trainee network prepared you for further education and your career?*

My experience with the trainee network has been transformative. The diverse opportunities for professional development, career planning, networking, mentorship and skill-building have equipped me with essential tools for success as a graduate student and prepared me for a career after graduation. It also provides valuable opportunities to support the community, which I believe is an important aspect of being a well-rounded scientist.



### SUPPORT FOR A CAREER CHANGE

#### Daniel Plaucher, PhD

Postdoctoral Fellow; Department of Toxicology and Cancer Biology; Lab of Christine Brainson, PhD

#### *How has the trainee network helped you?*

I earned a PhD in mathematics and then decided to change my focus to cancer research. As a math major, I'd never written a grant. I started filling out grant applications in my first year thanks to the fellowship bootcamp and support from Dr. Brainson.

From transitioning from math to cancer research to securing a prestigious fellowship, I've had incredible opportunities to grow both personally and professionally. The grant writing fellowship bootcamp, mentorship and research experiences have equipped me with the skills and knowledge I need to be successful.

#### *What are your plans?*

I'm researching immunotherapy for lung cancer. My father was diagnosed with lung cancer shortly after I started and that added a boost because it hit closer to home. I want to continue lung cancer research after I complete my studies.



**TAKING ACTION  
IN KENTUCKY:  
APPALACHIAN STUDENT  
FOLLOWS HIS DREAM OF  
BECOMING A DOCTOR**

The UK Markey Cancer Center's Appalachian Career Training in Oncology (ACTION) Program trains high school and UK undergraduate students from Appalachian Kentucky for cancer research and healthcare careers.

ACTION program participants must be from one of Kentucky's Appalachian counties and members of underserved groups as defined by the National Institutes of Health, including historically underserved minorities, people with disabilities and those from disadvantaged backgrounds.

The Markey Cancer Foundation provides support for the program. "ACTION is a unique program that engages students from the counties where cancer has the greatest impact in Kentucky," said Foundation President and CEO Michael Delzotti. "Support from the foundation's generous donors defrays the costs for these students and enhances and sustains ACTION's impact on Appalachian Kentucky."

The Foundation seeks to fund the ACTION program for the long-term. "Our goal is to create a \$3M endowment, a declaration for the future, so the program will benefit as many students as possible."

Matthew Sanders, a junior UK undergraduate student in agricultural and medical biotechnology, first enrolled in ACTION as a high school sophomore. While in high school, he gained valuable experience through his first research projects and clinical shadowing experiences.

"My participation has opened the doors to many opportunities that I could have never imagined," Sanders said. "Growing

up in a small town in southeastern Kentucky, I had limited opportunities to prepare me for working in a clinical setting, and there were no opportunities for research."

At first, Sanders found transitioning from rural Kentucky to Lexington challenging. "However, everyone that I interacted with was friendly and shared a similar passion of fighting cancer, helping ease the anxiety," he said. As an undergraduate student, he's now collaborating with a PhD student on a comprehensive project.

Sanders' experience with ACTION contributed to his decision to pursue a career in medicine. "It was not until I was in ACTION that I realized that cancer was worse in my hometown than anywhere else in the country," he said. "I have developed a passion to fight the cancer epidemic that plagues Kentucky, and I feel that becoming a physician is the best way to achieve this goal."

Sanders was accepted into the College of Medicine Early Assurance Program, an achievement he said wouldn't have been possible without all he's learned in the ACTION Program.

"My involvement with ACTION has helped me discover my calling," he said. "As a student from Appalachia, becoming a doctor seemed like a dream goal that would most likely prove unattainable."

*"My experiences with ACTION helped me realize that I belong in this profession, and the path is much closer than I had previously thought."*

**MATTHEW SANDERS**

# MARKEY BY THE NUMBERS

## RESEARCH

The UK Markey Cancer Center is the only cancer center in Kentucky designated as a Comprehensive Cancer Center by the National Cancer Institute. Markey is driven by 356 research projects representing \$60.3 million in research funding. As a matrix cancer center, our research portfolio is supplemented by \$3.9 million in education and training funding.

Markey's research efforts across UK include:



**275**

Faculty researchers



**\$60.3M**

Research funding



**\$3.9M**

Education and training  
funding



**356**

Research projects



**49**

Departments



**11**

Colleges

Data as of September 30, 2024

## MARKEY CANCER CENTER VISITS BY KENTUCKY REGION

INPATIENT & OUTPATIENT CALENDAR YEAR 2023

Market UK HealthCare	Area Development District	CY 2023
<b>PRIMARY</b>	Fayette	943
<b>SECONDARY</b>	Bluegrass	1,470
<b>TERTIARY</b>	Cumberland Valley	562
	Lake Cumberland	505
	Kentucky River	335
	Gateway	231
	Big Sandy	259
	Fivco	213
	Buffalo Trace	134
<b>OTHER KY ADDs</b>	KIPDA	31
	Lincoln Trail	94
	Northern Kentucky	46
	Barren River	39
	Green River	10
	Pennyrile	18
	Purchase	22
<b>Unknown Out of State</b>	Unknown Out of State	148
<b>Total</b>		<b>5,060</b>

## CLINICAL TRIALS ACCRUAL

CALENDAR YEAR 2023

**6,423**

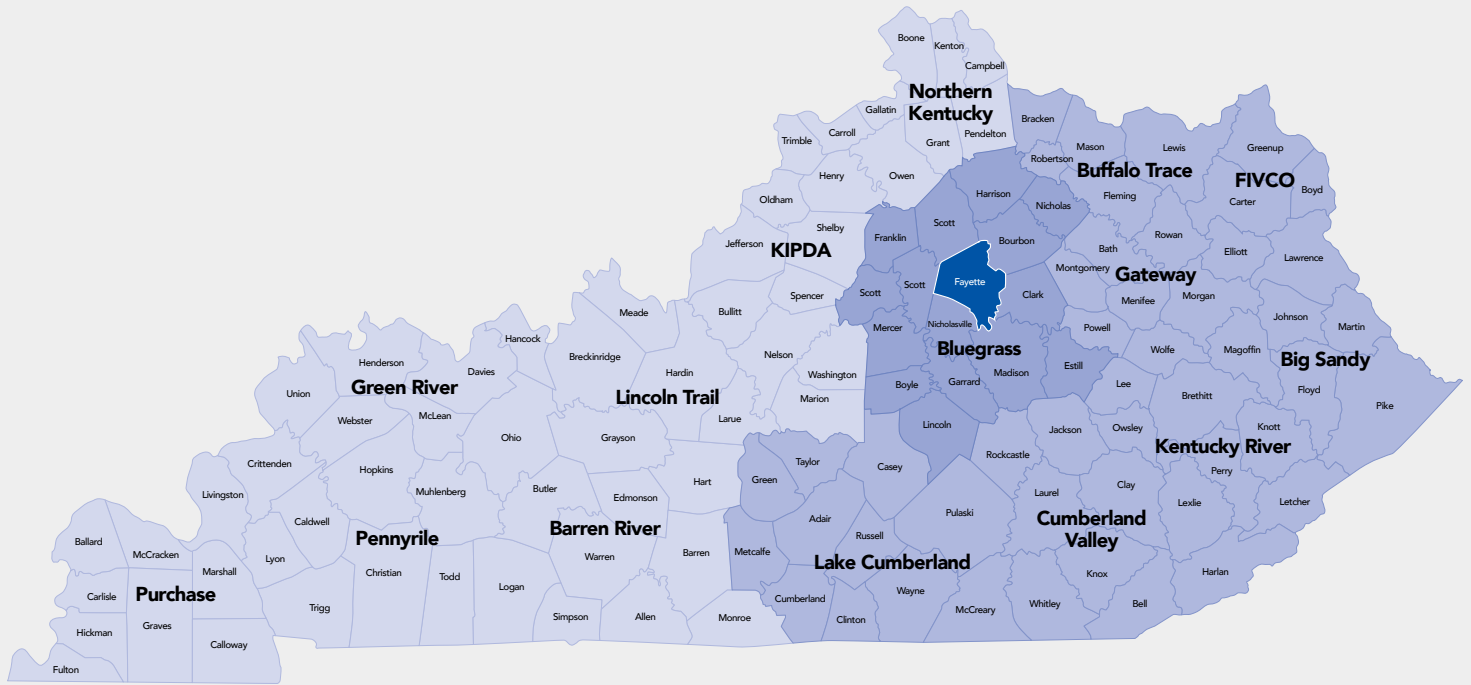
patients accrued

**56%**

from the Appalachia Region

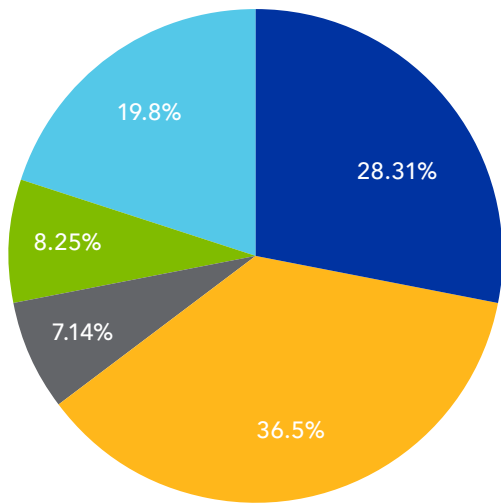
**106%**

increase in five years (3,122 in 2018)



**MARKEY RESEARCH FUNDING SUMMARY: \$60.3 MILLION**

Total costs as of September 30, 2024



- NCI Peer-Reviewed Funding
- Other NIH Peer-Reviewed Funding
- Industry Non-Peer-Reviewed Funding
- Other Non-Peer-Reviewed Funding
- Other Peer-Reviewed Funding

**NEW RECRUITS**

2024 New Recruits at Markey Cancer Center:

**Populations Science and Cancer Prevention**

- Tia Berger, PhD
- Tianjun Liu, PhD
- Yisi Liu, PhD

**Clinical Faculty**

- Aditya Bansal, MD
- Zena Chahine, MD
- Irada Ibriam-zada, MD
- Francis Martin, MD
- Leah Winer, MD
- Erin Wolf Horrell, MD

**Translational Sciences**

- James Brien, PhD

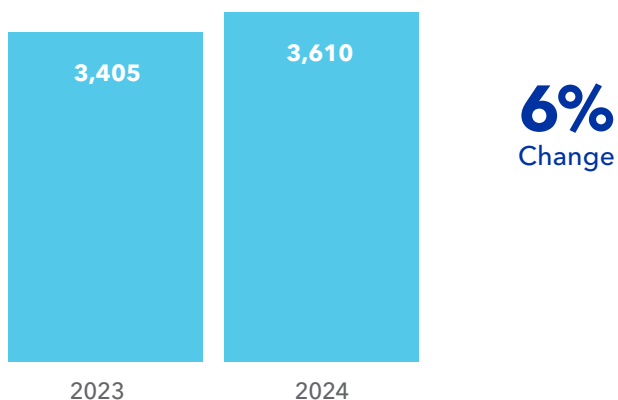
**Basic Sciences**

- Eunus Ali, PhD
- Mary Mohrin, PhD
- Betsy Schock, PhD

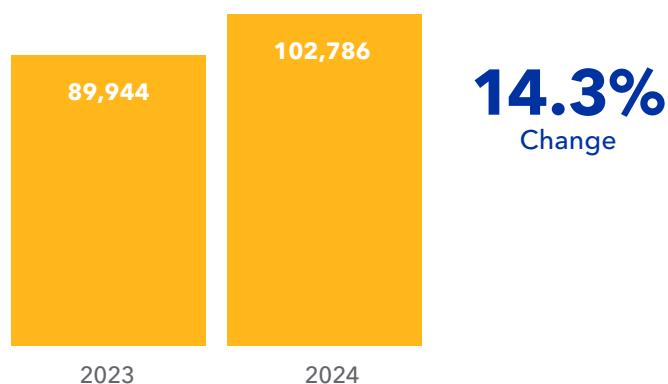
# MARKEY BY THE NUMBERS

## CLINICAL

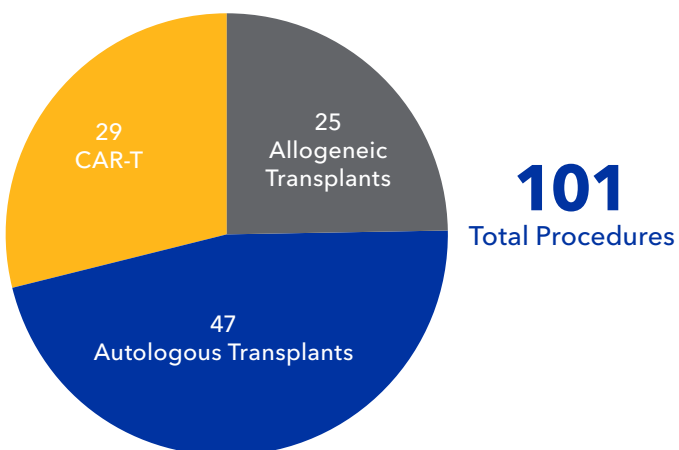
**INPATIENT CANCER ENCOUNTERS**  
BY FISCAL YEAR



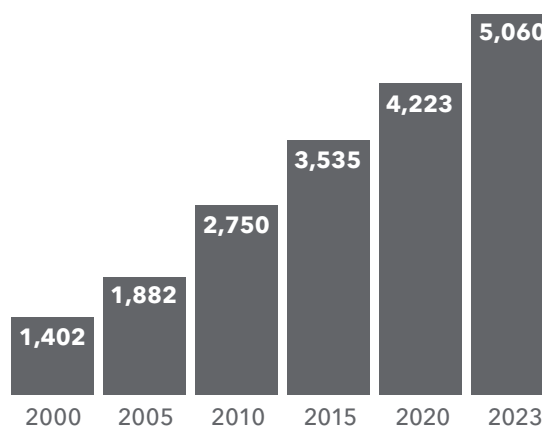
**OUTPATIENT CANCER ENCOUNTERS**  
BY FISCAL YEAR



**BLOOD & MARROW TRANSPLANT & CELLULAR THERAPIES**  
CY 2023



**GROWTH IMPACT OF NEW CANCER CASES**  
BY CALENDAR YEAR





**MARKEY CANCER CENTER CANCER CASES BY TUMOR SITE**

CY 2023

Lung	612
Breast Male/Female	609
Gynecologic	492
Hematologic Malignancies	485
Genitourinary	381
Colorectal, Small Intestine	372
Benign, Brain	371
Pancreas, Liver, Gallbladder	366
Head and Neck	320
Melanoma, Skin	273
Prostate, Male Cancers	269
Thyroid/Endocrine	227
Gastrointestinal	168
Other	115

**5,060**  
Total Cases

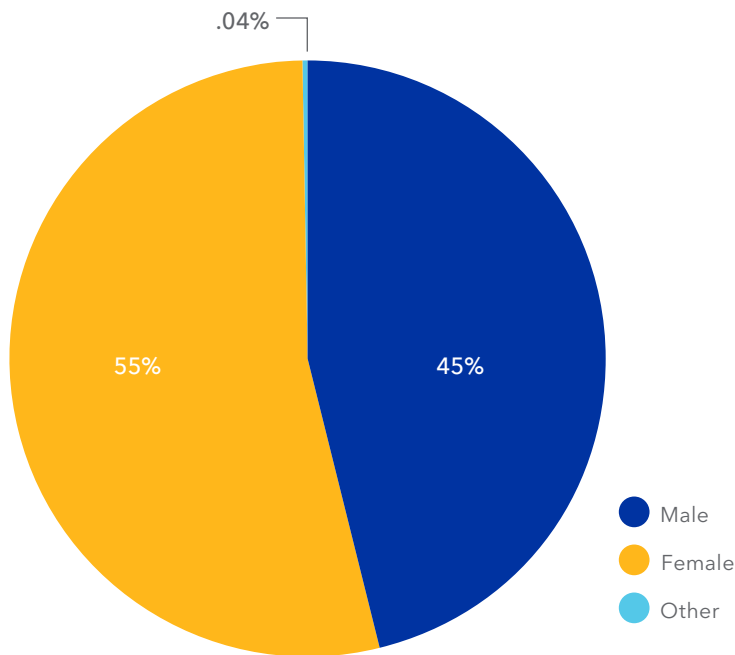


**8.02%**  
Cases seen at  
Markey Cancer Center at  
Lexington Clinic



**UNIQUE PATIENTS BY GENDER**

CY 2023



**UNIQUE PATIENTS BY RACE**

CY 2023

White	4,578
Black or African-American	294
Spanish, NOS	75
Unknown	33
Other Asian or Asian NOS	20
Mexican	16
Asian Indian	6
American Indian/Alaskan Native	5
Japanese	5
Cambodian	4
Filipino	4
Native Hawaiian	4
Chinese	3
Puerto Rican	3
Other Spanish	3
Asian Indian NOS/Pakistani NOS	2
South/Central American (Not Brazil)	2
Korean	1
Micronesian	1
Vietnamese	1
<b>Total</b>	<b>5,060</b>

# ADVANCING CANCER CARE TOGETHER

## MARKEY LOCATIONS & AFFILIATES ACROSS KENTUCKY

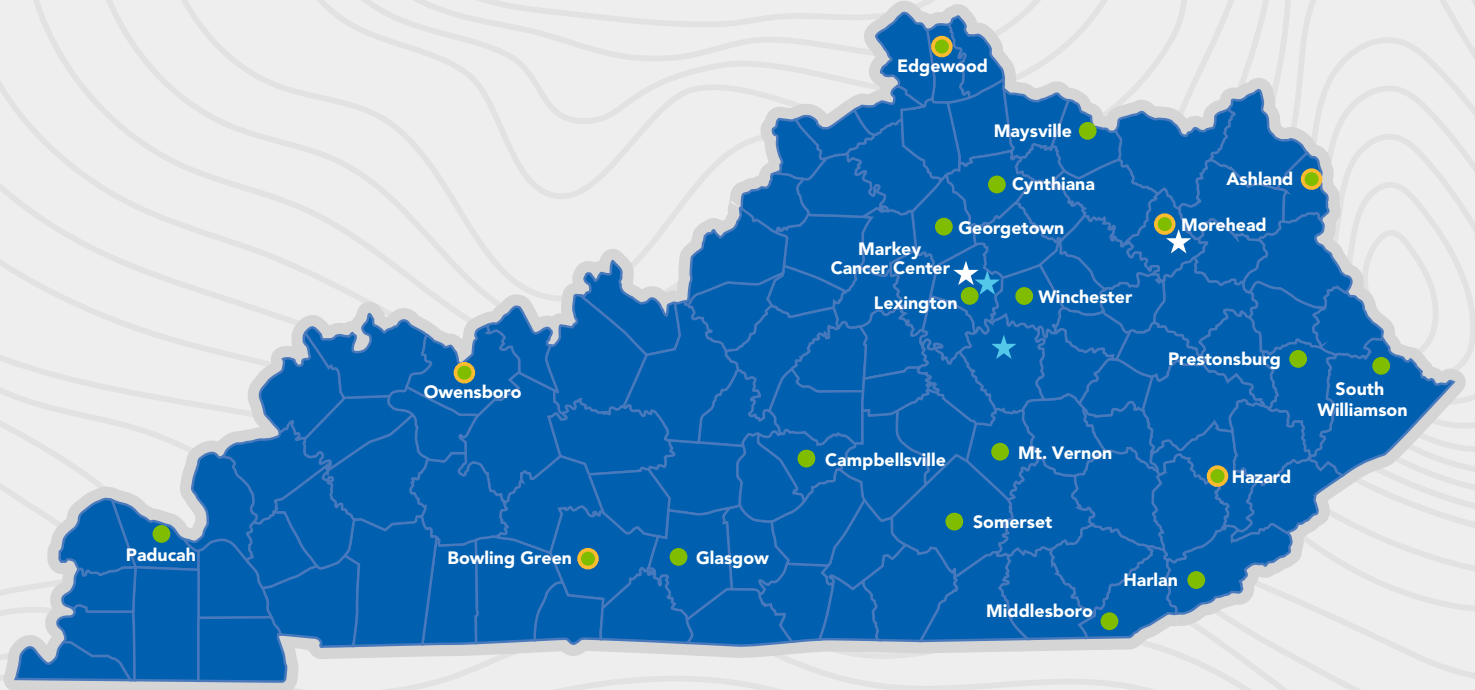
- **MARKEY CANCER CENTER AFFILIATE NETWORK**
  - Clark Regional Medical Center, Winchester
  - Georgetown Community Hospital, Georgetown
  - Harlan ARH Hospital, Harlan
  - Harrison Memorial Hospital, Cynthiana
  - Hazard ARH Regional Medical Center, Hazard
  - Highlands ARH Regional Medical Center, Prestonsburg
  - Lake Cumberland Regional Hospital, Somerset
  - Lexington VA Health Care System, Lexington
  - Meadowview Regional Medical Center, Maysville
  - The Medical Center at Bowling Green, Bowling Green
  - Mercy Health – Lourdes Hospital, Paducah
  - Middlesboro ARH Hospital, Middlesboro
  - Owensboro Health Regional Hospital, Owensboro
  - Rockcastle Regional Hospital, Mt. Vernon
  - St. Elizabeth Healthcare, Edgewood
  - Taylor Regional Hospital, Campbellsville
  - TJ Samson Community Hospital, Glasgow
  - Tug Valley ARH Regional Medical Center, South Williamson
  - UK King’s Daughters, Ashland
  - UK St. Claire, Morehead

- **MARKEY CANCER CENTER RESEARCH NETWORK**
  - Hazard ARH Regional Medical Center, Hazard
  - The Medical Center at Bowling Green, Bowling Green
  - Owensboro Health, Owensboro
  - St. Elizabeth Healthcare, Edgewood
  - UK King’s Daughters, Ashland
  - UK St. Claire, Morehead

- ★ **MARKEY CANCER CENTER LOCATIONS**
  - UK Markey Cancer Center, Lexington
  - UK Morehead Cancer Treatment Center, Morehead

- ★ **MARKEY CANCER CENTER AT LEXINGTON CLINIC LOCATIONS**
  - Markey Cancer Center at Lexington Clinic, Lexington
  - Markey Cancer Center at Lexington Clinic, Richmond







## RANKED AMONG THE NATION'S BEST

- No. 1 cancer program in Kentucky, No. 36 nationally
- Highest possible 30-day patient survival
- High patient volume
- Above average nurse staffing
- Endorsed by national organizations, such as NCI, FACT, CoC and Magnet

Learn more about our ranking at [ukhealthcare.com/cancer](http://ukhealthcare.com/cancer).

To make a referral: **800-888-5533**.  
Appointments available: **866-340-4488**.



A Cancer Center Designated by the National Cancer Institute



### UK MARKEY CANCER CENTER

#### Our Vision

Working together for a cancer-free tomorrow.

#### Our Mission

Reduce cancer burden with a focus on Kentucky and its most vulnerable populations through research, prevention, treatment, education, and community engagement.

 [facebook.com/UKMarkey](https://facebook.com/UKMarkey)

 [@UKMarkey](https://twitter.com/UKMarkey)

 [www.linkedin.com/company/ukmarkey](https://www.linkedin.com/company/ukmarkey)

#### UK HealthCare does not discriminate

UK HealthCare complies with applicable Federal civil rights laws and does not discriminate on the basis of race, color, national origin, age, disability, or sex.

The lobby of the new cancer and advanced ambulatory building will allow patients, caregivers and staff a warm and light-filled space to relax.



