Atrium Health
Levine Cancer

Atrium Health Wake Forest Baptist
Comprehensive Cancer Center

CELEBRATING

50

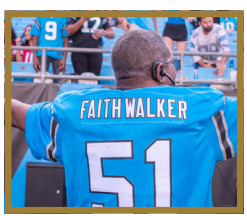
YEARS

OF NCI DESIGNATION

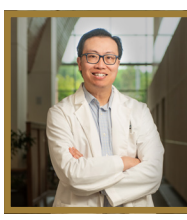
CANCER RESEARCH EXCELLENCE

2024 IMPACT REPORT

Driving Innovation. Igniting Education. Advancing Care.





2024 IMPACT REPORT

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Message from the Executive Director

Celebrating Our Legacy to Inspire Our Future

Our 50th anniversary as an National Cancer Institute (NCI)-designated Cancer Center inspires our team's continuing fight against cancer.

To prepare for Atrium Health Wake Forest Baptist Comprehensive Cancer Center's 50th anniversary celebration as an NCI-designated Cancer Center in 2024, I asked our team to do a bit of research and compile a timeline.

After searching through our archives, they came back with a list of 57 milestones tracing all the way back to 1902. Of those, 45 occurred after our designation as an NCI Cancer Center in 1974, including 35 that occurred after we earned NCI's designation as a Comprehensive Cancer Center in 1990.

Contemplating the timeline is certainly a humbling experience, as you'll see in the pages that follow. The Comprehensive Cancer Center's contributions made to cancer research, education and care over the last half century significantly reduced the burden of cancer in our catchment area and beyond. That was certainly the case in 2024.

Our investigators, clinicians and educators across both campuses in Winston-Salem and Charlotte, North Carolina continued improving the lives of thousands of patients and caregivers by expanding access to prevention, treatment and survivorship programs. There were plenty of celebrations, many firsts and lots of innovations.

message continues...

Ruben A. Mesa, MD, FACP

A year of celebrations

Our 50th NCI-designation anniversary gala was held in August in Winston-Salem and was just one of several milestones we celebrated in 2024.

In April, our Atrium Health Levine Cancer service line resumed its Healing Arts Celebration in Charlotte after a four-year hiatus prompted by the COVID-19 pandemic. The annual event features art, writing and music created by more than 300 patients, caregivers and teammates who, thanks to the generosity of donors, participate in the program for free.

In September, our Winston-Salem campus celebrated the 25th anniversary of providing Gamma Knife radiosurgery, which our Charlotte campus began offering in 2023.

As you will read in the pages that follow, we continued to celebrate and take inspiration, hope and encouragement from every patient victory.

A year of firsts

There were also many firsts in 2024.

In January, the Levine Cancer Proton & Advanced Radiation Center (PARC) began providing proton beam therapy at our Charlotte campus, marking the first time patients could receive such treatments in the Carolinas.

In May we held our inaugural A. William Blackstock Jr., MD, Legacy Symposium to honor an esteemed cancer pioneer and dedicated leader. In addition, Advocate Health, of which we are a part, hosted its first Cancer X Accelerator event in Charlotte.

In June, our Cancer Research Training and Education Coordination Office organized and facilitated the American Society Of Clinical Oncology (ASCO) Summer Internship program on behalf of the Wake Forest University School of Medicine, who was selected as a host site for the first time.

In July, Atrium Health Levine Cancer, Atrium Health Levine Children's and Atrium Health Levine Children's Brenner Children's Hospital launched the Alliance for Research and Innovations in Pediatric Oncology (ARISE). It is the first consortium dedicated to facilitating large-scale clinical trials and advancing research, supportive care and treatment for children, adolescents and young adults with cancer in the Carolinas.

We hosted our first symposiums for cancer survivors in September to provide the tools that patients and caregivers could use to manage their emotional, spiritual and financial challenges.

In October, we began offering cellular therapy, like CAR-T, on an outpatient basis in Charlotte for the first time.

A year of innovation

While we celebrated these and other firsts, colleagues across both campuses laid the groundwork for continued innovation.

Investigators at the Wake Forest Organoids Research Center (WFORCE) in Winston-Salem prepared patient-derived tumor organoids for a study onboard the International Space Station National Laboratory. Their findings could help identify novel targets for improving chemotherapy response in patients on Earth.

Closer to home, Levine Cancer partnered with one of Atrium Health's rural hospitals to set up a supportive infusion therapy unit so cancer patients could receive care in their local community. We believe this model can be used to improve access and patient outcomes throughout our catchment area.

Finally, we restructured our research programs as part of our constant efforts to enhance research translation from the bench to the bedside. After extensive strategic review and planning, we consolidated from four to three research programs, including two new programs - Molecular and Cellular Oncology (MCO) and Translational Oncology (TO) – and our ongoing Cancer Prevention & Control (CPC) program. Additionally, we launched transformational teams of investigators across our three restructured programs in longstanding areas of focus including Brain Tumors and Tobacco Cessation, as well as new teams for Immuno-Oncology and Symptom Science. We are confident these changes will also keep us focused on our catchment area's priority populations and cancers.

A year of impact

This year's achievements marked important milestones in bringing our vision to life: a multi-campus, single catchment area Comprehensive Cancer Center. We will continue to lead innovative research, advanced training and compassionate care in prevention, screening, treatment, and survivorship. And because our vision is guided by *The Loved One Standard,* which calls for treating every patient like you would want your loved one to be treated, we believe our impact will undoubtedly continue to grow.

To communicate this message as clearly as possible, we are now calling this annual publication our "Impact Report." We are proud that — with the spectacular and obvious exception of the NASA image — all the photographs in this report feature our teammates, patients or events. We hope these images and stories inspire you as much as they inspire us.

A legacy of excellence, and a future of possibility, we are guided by innovation, education, and compassionate care, to shape the next 50 years.

Ruben A. Mesa, MD, FACP
President, Atrium Health Levine Cancer
Executive Director, Atrium Health Wake Forest Baptist Comprehensive Cancer Center
Enterprise Senior Vice President, Atrium Health
Vice Dean for Cancer Programs, Wake Forest University School of Medicine
The Charles L. Spurr MD Professor of Internal Medicine, Wake Forest University School of Medicine

Comprehensive Cancer Center 2024 Research Fast Facts

Our Membership

196
scientific members

19% women

7%
underrepresented minorities (URMs)

157
affiliate members

Our Research Funding

(Funding as of February 1, 2024)

$4.3 million
NCI award for the Wake Forest NCI Community Oncology Research Program (NCORP) Research Base

$19.6 million
in NCI awards

NCI Designated Comprehensive Cancer Center

$38.3 million
in peer-reviewed awards

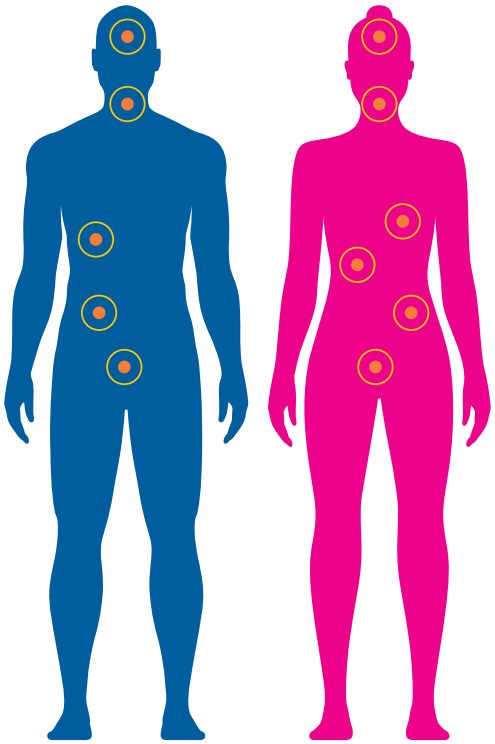
$52 million
in total funding

Each figure includes direct costs only and NCI P30 grant

Our Shared Resources

- Bioinformatics
- Biostatistics
- Cancer Genomics
- Cell Engineering
- Flow Cytometry
- Proteomics and Metabolomics
- Qualitative and Patient-Reported Outcomes
- Structural Biology and Drug Discovery
- Tumor Tissue and Pathology

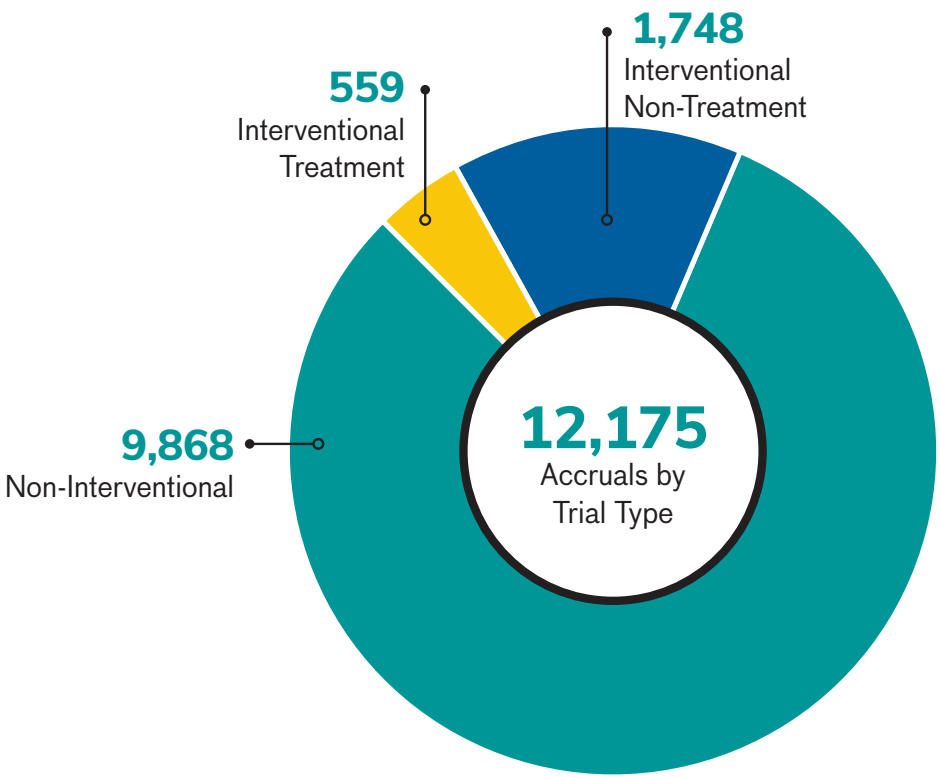
Our 17 Disease Groups



- Brain (CNS)
- Breast (BRST)
- Cancer Control/Survivorship (CCS)
- Gastrointestinal (GI)
- Genintourinary (GU)
- Gynecological Cancers (GYN)
- Head & Neck (HN)
- Heme - Lymphoma (HemLym)
- Heme - Myeloma/Dysro (HemMM)
- Heme - Leukemia (HemLeuk)
- Heme - Classical/Non-Malignant (HemB9)
- Lung (LUN)
- Cutaneous (SKIN)
- Pediatric (PED)
- Phase 1 (Ph1)
- Sarcoma (SAR)
- Transplant and Cellular Therapy

Our Patient Accruals by Trial Type[1]

(Reporting period running from November 1, 2023 to October 31, 2024)



[1] **Trial types are defined as follows:**
Interventional Treatment: Clinical trials used to evaluate the safety and efficacy of new treatments or therapies, such as drugs, surgery or radiation

Interventional Non-Treatment: Clinical trials used to evaluate the impact of non-therapeutic interventions, such as diagnostic procedures, lifestyle modifications or behavioral intervention

Non-Interventional: Clinical trials that use medical records, patient surveys and other observational techniques to study the effectiveness, side effects or patterns of existing treatments.

Evening Of Remembrances

At a gala in August, cancer leaders gathered to celebrate 50 years of operating an NCI-designated Cancer Center

2024 marked Atrium Health Wake Forest Baptist Comprehensive Cancer Center's 50th year of NCI designation. We achieved designation as a Cancer Center in 1974 and then in 1990 became one of the first designated Comprehensive Cancer Centers in the nation.

On August 16, 2024, cancer leaders gathered near our campus in Winston-Salem, North Carolina to celebrate the milestone and recount contributions made by the Comprehensive Cancer Center over the last half century.

"That's 50 years of impact that this center has had on decreasing the burden of cancer, not only in this community but also around the world. We have educated several generations of providers and researchers, helped develop dozens of new therapies and treated tens of thousands of patients in that time."

– Ruben A. Mesa, MD, FACP

Team members celebrate

Ruben A. Mesa, MD, FACP, greets Chad Jacobsen, MD, co-associate leader of Cancer & Blood Disorders at Atrium Health Levine Children's

The evening's featured speakers

from NCI, the Comprehensive Cancer Center, Atrium Health and Advocate Health, of which Atrium Health is a part.

Julie Freischlag, MD, CEO and chief academic officer, Atrium Health Wake Forest Baptist and chief academic officer and executive vice president of Advocate Health

L. Ebony Boulware, MD, MPH, dean of Atrium Health Wake Forest University School of Medicine and chief science officer and vice chief academic officer of Advocate Health

Lisa Marshall, chief Philanthropy officer and vice president of the office of philanthropy and alumni relations, Atrium Health Wake Forest Baptist Health

Warren Kibbe, PhD deputy director for data science and strategy, National Cancer Institute

Nadine Barrett, PhD, MA, MPH associate director, Atrium Health Wake Forest Baptist Comprehensive Cancer Center senior associate dean, research equity and community engagement, Wake Forest School of Medicine

Ruben A. Mesa, MD, FACP, celebrates with Nadine Barret, PhD, associate director of community outreach and engagement, Atrium Health Wake Forest Baptist Comprehensive Cancer Center, and Warren Kibbe, PhD, deputy director for data science and strategy at NCI

Members of the Comprehensive Cancer Center's administration team pose for the camera

Jenny Kim, recently retired director of administration, Atrium Health Wake Forest Baptist Comprehensive Cancer Center, celebrates with Seungjean Chai, MD, chief clinical officer, Atrium Health Levine Cancer Southeast Region and clinical assistant professor, Wake Forest University School of Medicine; Ruben A. Mesa, MD, FACP; and Steven I. Park, MD, vice chair for research, Atrium Health Levine Cancer Institute, Department of Hematologic Oncology and Blood Disorders

Atrium Health Wake Forest Baptist
Comprehensive Cancer Center

CELEBRATING
50
YEARS
OF NCI DESIGNATION

CANCER RESEARCH EXCELLENCE

Bayard Powell, MD, associate director of clinical research, Wake Forest Baptist Comprehensive Cancer Center

Lance Miller, PhD, associate director of Basic Sciences, co-director of Cancer Genomics Shared Resource, Atrium Health Wake Forest Baptist Comprehensive Cancer Center

Jennifer D. Sullivan, MD, MPH, enterprise senior vice president, strategic operations, Advocate Health

Glenn Lesser, MD deputy director, Atrium Health Wake Forest Baptist Comprehensive Cancer Center

David Zaas, MD, MBA president, Atrium Health Wake Forest Baptist

Ruben A. Mesa, MD, FACP executive director, Atrium Health Wake Forest Baptist Comprehensive Cancer Center president, Atrium Health Levine Cancer vice dean for Cancer Programs, Wake Forest University School of Medicine

1902
Wake Forest College Medical School founded as a 2-year program at Wake Forest College in Wake Forest, NC

1923
North Carolina Baptist Hospital opened as an 88-bed hospital in Winston-Salem

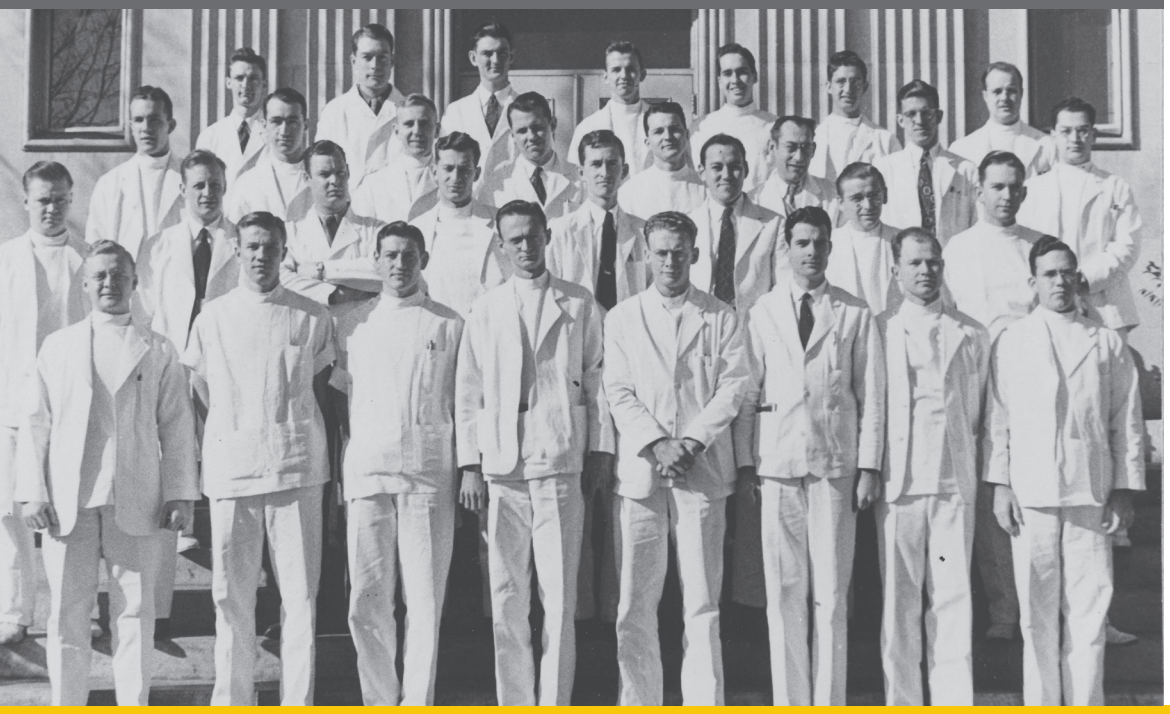
1939
A $750,000 trust fund was established in Bowman Gray Sr.'s will, pledging to relocate Wake Forest College Medical School to Winston-Salem and expand its program from 2 years to 4

1967
Proposal for Oncology Center, including original summary and case for support, was "hand delivered" to the National Cancer Institute (NCI) by Dr. Charles Spurr and Dr. Isadore Meschan

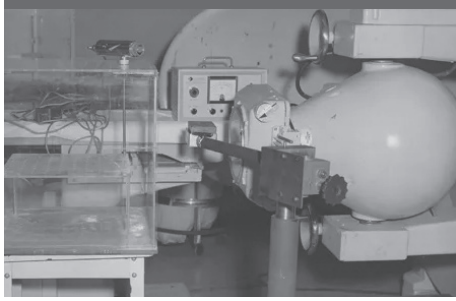
1968
Oncology Research Center (ORC) established by Dr. Spurr, ORC 1968-1982 (passed away 1994)

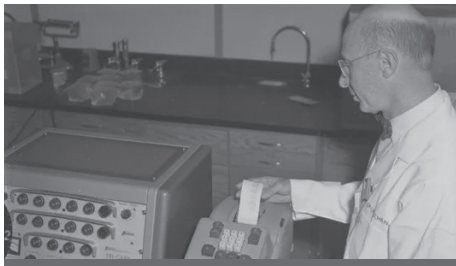
1969
1st in the nation to use ultrasound to detect prostate cancer

Wake Forest College Medical School graduating class of 1943



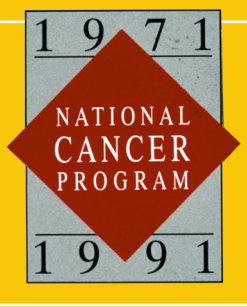
1957 -Installed supervoltage cobalt-60 radiation machine.





Dr. Meschan checks Tri-Carb liquid scintillation counter used to detect radiation levels.

1974 Received NCI-designated Cancer Center status



1975
Dr. Robert Cooper, professor of hematology/oncology at Bowman Gray School of Medicine, named acting director of the Cancer Center of Wake Forest University

1980
1st Brian Piccolo cancer research fundraising event established in memory of the 26-year-old WFU grad and Chicago Bears football player; 3 signature events (Wake and Shake, Hit the Bricks and Pump It Up) have rasied over $4.5 million to date

1980
Cancer Patient Support Program started (part-time program), funded by:
- Junior League of Winston-Salem
- Hillsdale Fund
- ORC
- Rufus T. Stedman Fund of Winston-Salem Foundation
- Greater Charlotte Foundation

1941
Formal opening of Bowman Gray School of Medicine in Winston-Salem with 75 students

1956
Wake Forest University opened in Winston-Salem

1957
1st in NC to use cobalt to treat cancer patients

1971
National Cancer Act signed by President Richard Nixon, major focus on world-class cancer research

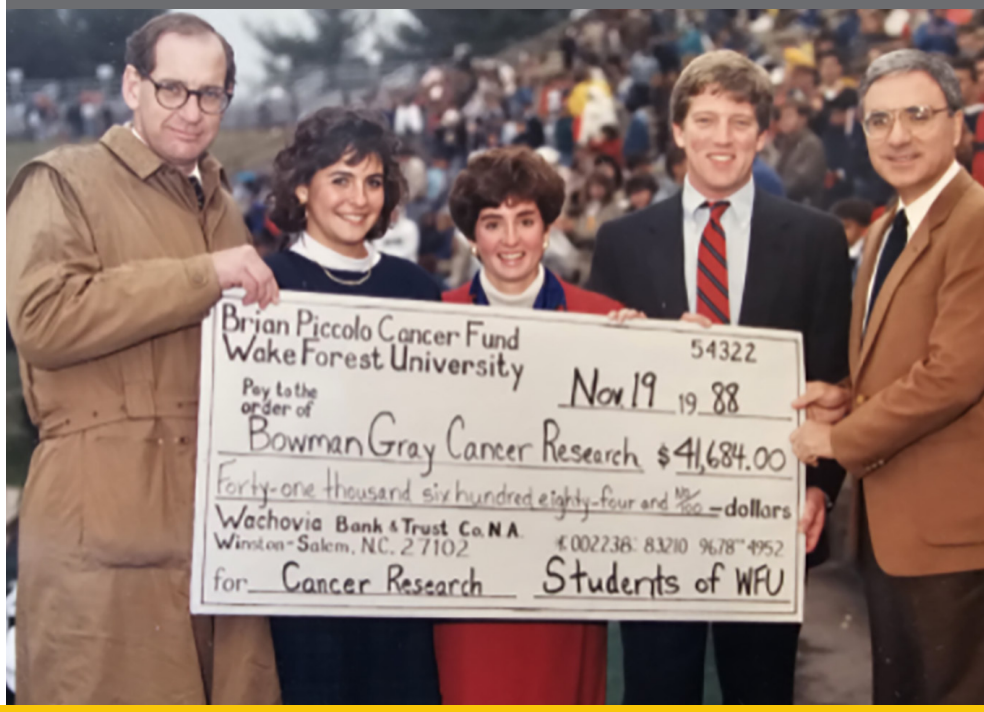
1971
Radiation oncology training initiated

1972
Dr. Spurr named director of the Cancer Center

1971 - Dr. George Barrett adjusts a new scanning device used for image intensification.

Dr. Damon Blake, professor in radiology, teaches five students in this undated photograph.

One of the earliest Brian Piccolo Fundraising check presentation photos, 1988



1976
Piedmont Oncology Association (POA) created by Dr. Spurr, 125 MDs across 5 states

1978
Commission on Cancer accreditation by the American College of Surgeons

1978
Former Chair of Neurosurgery Dr. Eben Alexander, was a co-investigator on the 1st Phase III clinical trial for the treatment of patients with glioblastoma

1981 – 1985
NCI funded POA due to growth and number of publications (1 of 60 community programs)

1982
Dr. Robert Capizzi named director of the Cancer Research Center

1987
POA renamed as the Southeast Cancer Control Consortium

In 1986, the Miller family from Plymouth, NC, donated $10,000 to support the Oncology Research Center at Bowman Gray School of Medicine. The donation was made in gratitude for the care they received during their daughter's battle with cancer, which ultimately claimed her life. The Millers had also lost two other family members to cancer. Pictured (L-R) are Mr. Dallas Mackey, director of the Office of Development at the Medical Center; Mr. and Mrs. Warner Miller; and Dr. Robert Capizzi, director of the ORC.

1989
Received interim "Comprehensive" status from NCI

1990
Received NCI-designated Comprehensive Cancer Center status; 1 of only 24 in the nation at the time

NCI
Designated Comprehensive Cancer Center

1993
Department of Cancer Biology created at Wake Forest University Baptist Medical Center

1998
Breast cancer sentinel node mapping program launched

1999
Prostate Cancer Center of Excellence established at Wake Forest Baptist Comprehensive Cancer Center

1999 - Electa Gamma Knife Unit

2009 - Surgical Oncology Fellowship launched

2001
1st in the nation to perform new brain tumor treatment – placement of an intratumoral balloon delivering local radiation – the GliaSite RTS

2003
Brain Tumor Center of Excellence established

2004
Freestanding Outpatient Cancer Center building opened with new Surgical Oncology Radiation Oncology and Medical Oncology Clinics

2011
1st patient to receive laser interstitial thermal therapy (LiTT) at Wake Forest Baptist Comprehensive Cancer Center

2013
Comprehensive Cancer Center expanded inpatient cancer services with a 6-floor addition

2014
Awarded $18 million grant for NCI Community Research Program (NCORP) Research Base, 1 of only 2 cancer center-based NCORP Research Bases in the nation

1990
Blood and Marrow Transplant (BMT) program established, second in NC

1991
1st hyperthermic intraperitoneal chemotherapy procedure performed at Wake Forest Baptist

1993
Dr. Frank M. Torti named Comprehensive Cancer Center director

1999
NCI awarded $2 million grant to establish the Wake Forest Community Clinical Oncology Program (CCOP) Research Base

1999
Elekta Gamma Knife Unit opened, becoming the 1st in NC and 5th in the nation

2000
Multimodality Breast Care Clinic opened

2013 - Comprehensive Cancer Center expanded inpatient cancer services

2014 - Office of Cancer Health Equity founded

2007
Dr. Bayard Powell presented at ASCO the incorporation of arsenic trioxide into frontline treatment of acute promyelocytic leukemia, changing treatment worldwide

2009
Surgical Oncology Fellowship launched

2009
Accredited by National Accreditation Program for Breast Cancer (NAPBC)

2014
Office of Cancer Health Equity founded

2014
Surgical oncology accreditation granted by ACGME and American Board of Surgery

Accreditation Council for Graduate Medical Education

THE AMERICAN BOARD OF SURGERY

2014
Dr. Boris Pasche named Comprehensive Cancer Center director

2016
1st in the nation to offer scalp cooling system to reduce hair loss in women with breast cancer (following the study that led to FDA approval)

2017
NCI funded $9.2 million P01 “Maximizing Local Access to Therapeutic Deliveries in Glioblastoma”

2020
Wake Forest Baptist Health (including Wake Forest School of Medicine) and Atrium Health officially joined as a single enterprise

2021
P50 awarded to fund iDAPT center, a developing implementation science center for cancer control, only 1 of 7 funded by NCI

2022
Adolescents and young adults (AYA) oncology program launched, following award from Teen Cancer America

2016 - Scalp cooling system to reduce hair loss in women with breast cancer

2020 - CAR-T cell therapy being administered

2023
Ruben A. Mesa, MD, FACP, named executive director of the Comprehensive Cancer Center

2023
Atrium Health Levine Cancer service line launched

2023
NCI funded $9.4 million P01 Project MARVEL (Multidisciplinary Assessment of Risks from Vaping during Early Life)

2019
1 of 4 institutions chosen by the American Association for Cancer Research (AACR) to be part of a "dream team" of top scientists focused on finding therapies for T-cell lymphoma, a rare cancer of the blood and immune system

2020
CAR-T cell therapy administered to the 1st patient at Wake Forest Baptist Comprehensive Cancer Center

2022
Atrium Health and Advocate Aurora Health combined, creating Advocate Health

2022
Atrium Health Levine Cancer Institute and Wake Forest Baptist Comprehensive Cancer Center integrate, establishing one of the largest cancer programs in the country

2022 - Atrium Health Wake Forest Baptist receives grant to support teen and young adult cancer patients

2024 - Atrium Health Levine Cancer Proton & Advanced Radiation Center opened in Charlotte

2024
Atrium Health Levine Cancer Proton & Advanced Radiation Center opened in Charlotte, becoming 1 of just 44 proton beam therapy sites in the country

Over the next 50 years, we will focus on a future of unlimited possibilities, driven by innovation, education, and compassionate care.

Cancer Prevention and Control

Reducing exposure to tobacco and other carcinogens, prevention and screening and reducing symptom burden for survivors

The Atrium Health Wake Forest Baptist Comprehensive Cancer Center's Cancer Prevention and Control (CPC) program fosters scientific discovery across the cancer continuum that translates into clinical, community, and policy strategies to improve cancer outcomes.

CPC program co-leaders Eric Donny, PhD, and John Salsman, PhD are responsible for guiding the program's scientific direction and fostering collaboration with the Comprehensive Cancer Center's Translational Oncology and Molecular and Cellular Oncology programs.

CPC program members prioritize research relevant to the Comprehensive Cancer Center's catchment area and the strategic priorities of decreasing the cancer burden, empowering cancer breakthroughs and elevating the "Loved One Standard."

CANCER PREVENTION & CONTROL

$12.4M	51	143	56	1,722	8,251
Total peer-reviewed funding	Members	Publications	Interventional treatment accruals*	Interventional non-treatment accruals*	Non-interventional accruals*

*Accruals for program year ended October 31, 2024

Below are highlights of a few of our members' most prominent achievements in 2024 for each of the program's three aims.

Reducing exposure to carcinogens

Aim 1: To understand and target the multilevel determinants of exposure to tobacco, alcohol and other carcinogens.

Publication: "Compliance With US Federal Regulations on Waterpipe Tobacco Warnings on Packaging" by Jennifer Cornacchione Ross et. al in collaboration with **Erin Sutfin, PhD,** *JAMA Network Open. 2024;7(2):e2354467. Published 2024 Feb 5.*

Grant: "Hybrid Trial of a Tailored Smoking Cessation Digital Therapeutic for Persons Living with HIV"

Principal Investigator: Roger Vilardaga Viera, PhD.

This R01 project (R01CA285331) funded by NCI is testing the impact of a digital smoking cessation intervention on persons living with HIV. The trial focuses on two high-priority research areas in the NIH Strategic Plan for HIV-Related Research and the Cancer Moonshot Research Initiative: 1) the incorporation of state-of-the-art technology to improve access to hard-to-reach populations and settings, and 2) the use of implementation science to address cancer health disparities. This study will generate the necessary clinical effectiveness data and implementation strategies for the general application of digital therapeutics in a future type 3 hybrid trial.

Roger Vilardaga Viera, PhD

Prevention and Screening

Aim 2: To develop and promote strategies to reduce the risk of cancer and to improve early detection of cancer.

Publications: "Patient Lung Cancer Screening Decisions and Environmental and Psychosocial Factors" by **Jennifer Richmond, PhD.** *JAMA Network Open. 2024; 7(5):e2412880.*

"Lifestyle Interventions for Obesity in the Era of GLP-1 Receptor Agonists" by **Justin Moore, PhD.** *JAMA 2024 Jul 2;332(1):16-18.*

Grant: "Equity Implications of Lung Cancer Screening Strategies for Population Health: a Distributional Cost-Effectiveness Analysis"

Principal Investigator: Meng-Yun Lin, PhD

This R21 project (R21MD020158) funded by the National Institute on Minority Health and Health Disparities (NIMHD) is particularly relevant to our catchment area given the higher incidence of lung cancer in our region compared to other areas of the country. It will adopt a new method to assess the impact and cost-effectiveness of three lung cancer screening strategies to enhance the availability and utilization of lung cancer screening, especially for communities experiencing health disparities and bearing the greatest risk of lung cancer.

Treatment and Survivorship

Aim 3: To enhance quality of life and reduce symptom burden for survivors through supportive care interventions.

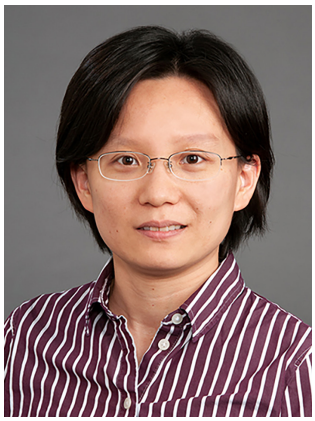
Grant: "Addressing Financial Hardship in Adolescent and Young Adult Cancer Survivors: Efficacy and Implementation of a Multilevel Intervention in Community-Based Oncology Practices"

Principal Investigators: Sarah Birken, PhD and John Salsman, PhD.

This multi-site R01 grant (R01CA282653) funded by NCI is testing the efficacy of a multi-level financial hardship intervention among adolescent and young adult cancer survivors (AYAs), who are at risk for significant financial hardship. We are proposing to combine two evidence-based financial hardship interventions and test the influence of the resulting multilevel intervention, FinFit, on financial hardship among AYAs treated at NCI Community Oncology Research Program sites. Results will prepare us to scale up FinFit to diverse settings where vulnerable AYA cancer survivors are often served.


Jennifer Richmond, PhD


Justin Moore, PhD


Meng-Yun Lin, PhD


Sarah Birken, PhD


John Salsman, PHD

Atrium Health Wake Forest Baptist Comprehensive Cancer Center: 2024 Fast Facts Overview

Our Mission Statement

To be a multi-campus, single catchment area Comprehensive Cancer Center leading in innovative research, advanced training and compassionate care through prevention, screening, treatment and survivorship - always guided by *The Loved One Standard*.

Our Strategic Priorities

- Decrease the cancer burden in the communities we serve and beyond
- Empower cancer breakthroughs
- Promote patient-centered clinical trials
- Foster team-based care close to home
- Elevate *The Loved One Standard*
- Train future generations of diverse and compassionate cancer care providers and researchers

Our Care Delivery

Our service line, Atrium Health Levine Cancer, is the largest cancer program in the Carolinas and the only cancer network in the nation awarded Gold Certification for Excellence in Person-Centered Care by Planetree International.

30 locations

36,215 new patient visits

370,907 outpatient provider visits

2,300+ patients enrolled in interventional trials

Our Top Cancers by Incidence

#1 Lung

#2 Breast

#3 Oral

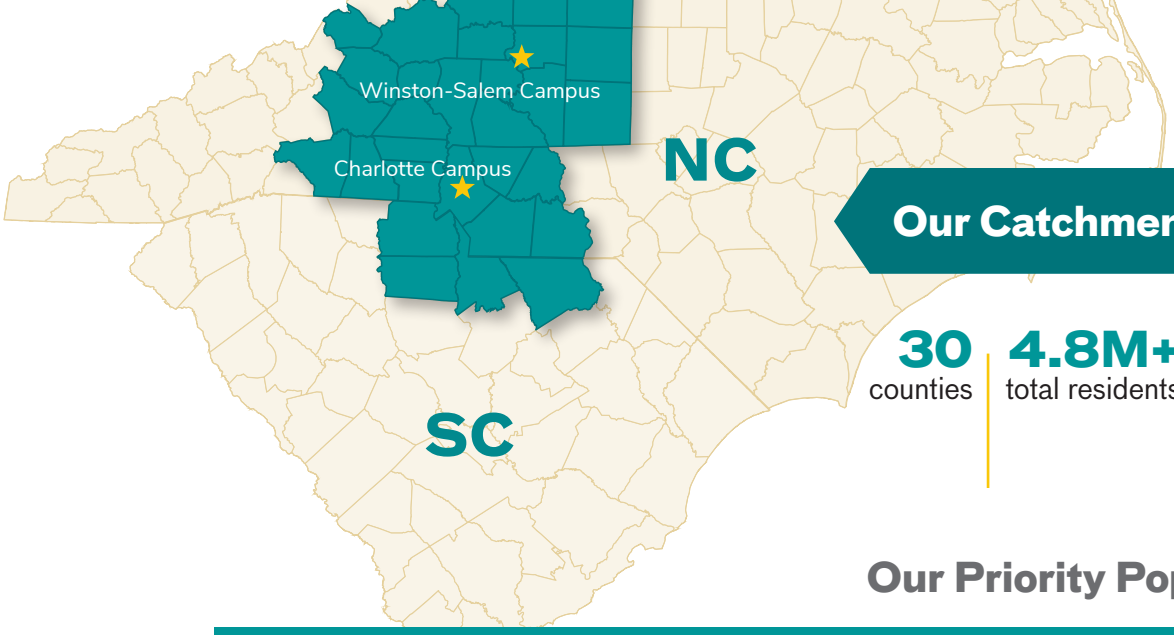
#4 Liver

#5 Pancreatic

#6 Bladder

Our Research Capabilities

1	1	2	3	9
Institutional Review Board	NCORP Research Base	Campuses	Research Programs	Shared Resources



Our Catchment Area

30 counties | **4.8M+** total residents | **17,100** annual cancer cases

Our Priority Populations

PRIORITY POPULATION	% OF CATCHMENT AREA POPULATION	% OF U.S. POPULATION
Rural (17 of 30 counties)	**26%**	14%
Black	**21%**	14%
Hispanic/Latine	**10%**	19%

Our Community Outreach and Engagement

46,471 lives impacted through programs and screenings

3,940 patients screened

42 cancers diagnosed

907 education, advocacy and awareness events

1,057 mobile screenings via Lung Bus

Our 2024 Fundraising

$12,505,577 in donations received

9,212 gifts

7,788 donors

17 Disease Groups

196 Scientific Members

542 Publications: Including 203 Of High Impact

9,433 Clinical Trial Accruals

$52M Active Funding

Remembering Frank M. Torti, MD, MPH, FACP (1947-2024)

Renowned clinical investigator helped secure NCI Comprehensive Cancer Center designation

The cancer research community lost another warrior in 2024 with the passing of Frank Torti, MD, MPH, FACP, who served as director of the Atrium Health Wake Forest Baptist Comprehensive Cancer Center from 1993 to 2012.

He died peacefully due to complications from leukemia on October 14, 2024.

Many at the Comprehensive Cancer Center attribute our culture and success to Dr. Torti's meticulous attention to detail, tremendous influence, and steadfast support of faculty and graduate student training.

Leading clinical researcher

Dr. Torti was a principal investigator on over 50 phase I and II trials, particularly well known as a clinical investigator in urologic oncology. Many of the clinical trials he designed and executed led to improved standards of care in genitourinary oncology worldwide. He also contributed to the understanding of the molecular mechanisms that underlie inflammatory diseases and cancer.

Recognized nationally for fundamental observations on iron homeostasis and cancer, Dr. Torti also helped to unravel the complex relationships among oxidants, cytokines and iron. He published over 290 peer-reviewed scientific articles and was continuously funded by the NIH with R01 grants for his basic science research for over 30 years. He held a MERIT award from the National Institutes of Health (NIH), an honor bestowed to only 3% of all NIH grantees.

Dr. Torti served on the NIH Council for the National Center for Complementary and Alternative Medicine and was appointed to the NCI's Clinical Trial Advisory Committee (CTAC) and Board of Scientific Advisors (BSA). He served as a member of the Advisory Committee to the Congressional Taskforce on Research and Innovation, which first conceptualized the "Cancer Moonshot." He was also the principal deputy commissioner and chief scientist at the U.S. Food and Drug Administration (FDA) and later became acting commissioner of the FDA. He went on to become dean of the University of Connecticut School of Medicine and Health Center.

In May of 2024, Dr. Torti published "Surviving Your Doctor," a book written to help patients navigate serious illnesses. He is survived by his wife Suzy, children Frank and Dorothea, brother Thomas, and five grandchildren.

CAREER MILESTONES

Dr. Torti's contributions to the Comprehensive Cancer Center include:

1993: Founded the Department of Cancer Biology at the Wake Forest University School of Medicine

1994: Secured the "Comprehensive Cancer Center" designation from NCI

1999: Established the Breast Cancer Center of Excellence (BCCOE)

2005: Co-founded the Cancer Biology Training Consortium (CABTRAC) programs

2009: Became acting commissioner of the FDA

NCI Designated Comprehensive Cancer Center

cabtrac

Jai N. Patel Honored by American Society of Pharmacovigilance

Pharmacogenomics researcher shows DPYD genotype testing is feasible and improves outcomes at a large, multi-site cancer center

Jai N. Patel, PharmD, BCOP, CPP, director of Cancer Pharmacology and Pharmacogenomics at Atrium Health Levine Cancer and associate director for Shared Resources Management at Atrium Health Wake Forest Baptist Comprehensive Cancer Center, received the American Society of Pharmacovigilance's STRIPE Double Helix Award for advancing pharmacogenomics through collaboration.

Jai N. Patel, PharmD, BCOP, CPP

The award was presented during a special ceremony at on October 23, 2024, at the U.S. Pharmacopeia Campus in Rockville, MD.

Patel leads cancer pharmacology research with an emphasis on pharmacogenomics research and implementation and oversees pharmacogenomics integration across Atrium Health. His projects range from gene discovery and translational studies to prospective interventional trials using pharmacogenomics to optimize anticancer and supportive care therapies.

He has published over 150 articles, editorials, book chapters and abstracts, including articles about an observational study he led that showed an in-house genotype test developed by Levine Cancer to guide fluoropyrimidine (FP)-based chemotherapy dosing had lowered rates of treatment toxicity and hospitalization in patients carrying a genetic variation in the DPYD gene.

The study, which Patel originally presented at the 2023 annual meeting of the American Society of Clinical Oncology (2023 ASCO), reflected results for nearly 500 patients treated at 14 Levine Cancer locations. Ninety percent of the patients in the study had gastrointestinal cancers, half of which were colorectal.

Patel's work on DPYD genotype testing earned him the 2023 Best Practice Award from American Society of Health-System Pharmacists (ASHP), the nation's largest association of pharmacy professionals, as well as the 2024 Innovation in Pharmacy Practice Award from the ASHP Foundation.

"Many U.S. cancer centers do not test for DPYD variants for multiple reasons, including long commercial test turnaround times, lack of recommendations from oncology professional societies, and general lack of awareness," said Patel. "However, through stakeholder engagement and development of a test with a median turnaround time of 3 days, we were able to show that DPYD testing is feasible to guide FP-based chemotherapy decisions at a large multi-site cancer center."

Patel also serves as an associate professor at the Wake Forest University School of Medicine.

NCI Showcases Automated Heart-Health Assessment Study

The multi-year study led by Kathryn Weaver, PhD, was just one of three presented to NCI Board of Scientific Advisors in 2024

Kathryn Weaver, PhD had the rare honor of presenting findings from a multi-year automated heart-health assessment (AH-HA) study to the NCI Board of Scientific Advisors in 2024.

Then NCI Director Kimryn Rathmell, MD, PhD, invited Weaver to present her findings as a highlight of NCI's research portfolio to the board. Members of the board provide scientific advice on a wide variety of matters concerning scientific program policy, future direction of the NCI's extramural research programs and concept review of extramural program initiatives.

"It was a great honor to present to Director Rathmell and esteemed scientific leaders," said Weaver, a researcher with the Atrium Health Wake Forest Baptist Comprehensive Cancer Center Cancer Prevention and Control program (CPC) and one of just three researchers invited to present their findings to the board in 2024.

Weaver's presentation drew on "Effectiveness of a Cardiovascular Health Electronic Health Record Application for Cancer Survivors in Community Oncology Practice: Results from WF-1804CD," an abstract and full report published in the Journal of Oncology in 2023 and 2024. The paper concluded that the AH-HA tool was effective at promoting discussions about cardiovascular health during routine follow-up care for cancer survivors and referrals to primary care providers.

Weaver co-authored the paper with cancer center colleagues Emily Dressler, PhD; Heidi Klepin, MD, MS; W. Gregory Hundley, MD; Chandylen Nightingale, PhD; and Glenn Lesser, MD.

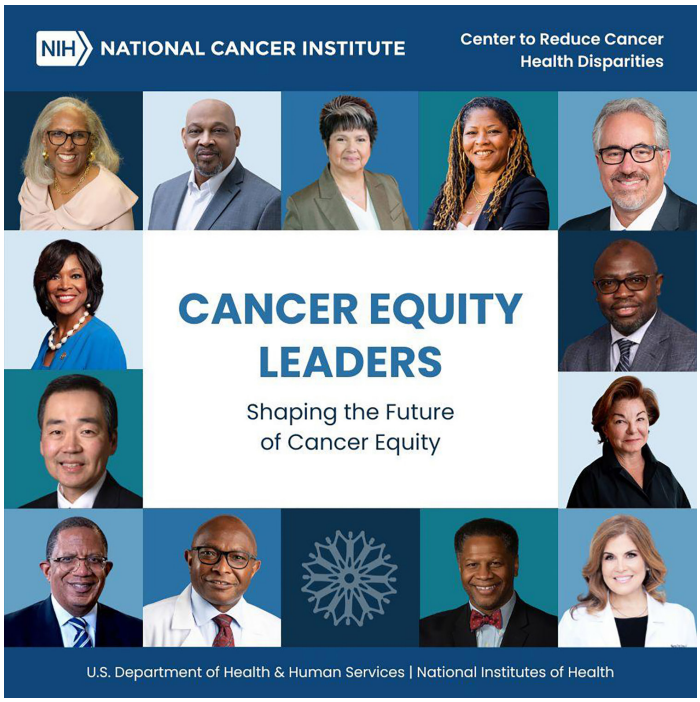
The study started in 2018 when Weaver secured a R01 grant (1R01CA226078) from NCI. She has served as principal investigator on five NIH grants.

"I was able to highlight our tremendous partnership with the Wake Forest NCI Community Oncology Research Program (NCORP) Research Base and with community oncology practices across the country."

– Kathryn Weaver, PhD

NCI Names Dr. Ruben A. Mesa One Of 13 Cancer Equity Leaders

The NCI Center to Reduce Cancer Health Disparities (CRCHD) selected Atrium Health Wake Forest Baptist Comprehensive Cancer Center Executive Director Ruben Mesa, MD, to help reimagine and transform the future of cancer health equity.



Mesa is among 13 Cancer Equity Leaders (CEL) tasked by the center to help develop diversity training, biomedical workforce development and community outreach and engagement initiatives to enhance the National Cancer Plan. The CEL team is expected to host an event in 2025 to gather perspectives from across the cancer community.

The cancer center and medical school leaders were selected for their exceptional knowledge and understanding of how health equity can be affected by the way we educate providers, choose what to research and care for patients from prevention to diagnosis, treatment and survivorship.

Dr. Mesa, for instance, has chaired the Education, Training, Professional Advancement and Diversity, Equity and Inclusion subgroup at the American Association for Cancer Research Cancer Centers Alliance since 2023. He co-led national initiatives to increase clinical trial diversity by serving on task forces at Genentech, Bristol Myers Squibb and Janssen Health, and testified on the importance of clinical trial diversity before the House Committee on Energy and Commerce in March 2022.

Ruben A. Mesa, MD, FACP

Dr. Mesa became the first Latino to head an NCI-designated cancer center in 2017 when he was named executive director of the Mays Cancer Center UT Health San Antonio. During his five-year tenure, the Cancer Center implemented a mandate requiring each new clinical trial to include a minority accrual plan. He is currently co-chair of the American Society of Hematology Health Equity Task Force.

Atrium Health Levine Children's Launches ARISE Cancer Consortium™

Making clinical trials more accessible to children across the Carolinas

Atrium Health Levine Children's Hospital launched the Alliance for Research and Innovations in Pediatric Oncology, also known as ARISE Cancer Consortium™, a pioneering group of regional oncology leaders collaborating to advance research, supportive care and treatment for children, adolescents and young adults battling cancer.

By fostering an environment of innovation and collaboration, the consortium aims to accelerate the discovery of new therapies and improve existing treatments. The goal is to provide patients across the Carolinas early access to first-of-their-kind clinical trials, research and therapies.

Every children's hospital in North and South Carolina has been invited to join ARISE Cancer Consortium™. This collaborative approach will enable the consortium to pool resources, knowledge and expertise, all while giving patients more access to treatments without having to change where they go to receive care.

"One of the core objectives of ARISE Cancer Consortium™ is to push the boundaries of pediatric oncology research and we realize that to do this, to beat pediatric cancer, we have to all be working together," said Javier Oesterheld, MD, vice chair for clinical affairs for Atrium Health Levine Children's in the Greater Charlotte region, and founder of ARISE Cancer Consortium™. "By uniting experts and resources, ARISE Cancer Consortium™ seeks to enhance clinical trials by sharing vital data and developing cutting-edge treatments that can improve survival rates and quality of life for young cancer patients."

Patients holdng signs reading "My cancer team is "A" RISE-ing to the occasion"

All clinical trials opened by ARISE Cancer Consortium™ will be run by Atrium Health Levine Cancer, the service line for the Atrium Health Wake Forest Baptist Comprehensive Cancer Center and largest cancer program in the Carolinas. The alliance will first open a clinical trial aimed at reducing hospital stays for osteosarcoma patients receiving high-dose methotrexate, a medication commonly used to treat various autoimmune conditions and certain types of cancer.

"To be anchored here at Levine Children's Hospital is pretty incredible for us and we have the power of our Comprehensive Cancer Center and all the support that comes from that. So, we are excited."

– Javier Oesterheld, MD

WATCH THE ARISE CANCER CONSORTIUM™ VIDEO

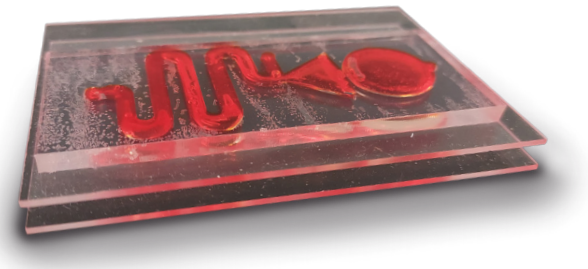
Cancer Research In Space For Life On Earth

NASA to fly cancer organoids grown in Wake Forest labs to International Space Station

Atrium Health's Wake Forest Institute for Regenerative Medicine (WFIRM) has been selected to participate in groundbreaking cancer research on the International Space Station (ISS) involving patient-derived tumor organoids.

The project, one of only five chosen through a competitive solicitation by the ISS National Lab (ISSNL) in partnership with NASA, calls for flying tumor organoids developed in WFIRM's Wake Forest Organoids Research Center (WFORCE) to the ISS's orbital laboratory so investigators can study how microgravity affects their development and response to chemotherapy treatments. NASA has set aside space on the ISSNL for the project on two or more ISS supply flights, the earliest of which could launch in fall 2025.

The project is being co-led by WFIRM chief scientific program officer Shay Soker, PhD and WFIRM director Anthony Atala, MD.



This device holds cells isolated from colorectal cancer tumor biopsies that will be mixed with specialized hydrogels to form organoids like the ones WFIRM will send to the ISS

"The challenge was convincing NASA we could optimize the fabrication process to create organoids that could survive 30 days in space, allow for drug diffusion and respond appropriately," explained Dr. Atala, who led the first team to successfully implant an organ grown from human cells in a patient.

"The research has the potential to unlock new understandings of cancer behavior and lead to more effective treatments, including patient-focused personalized medicine," said Soker, who serves as scientific director of the WFORCE.

The Atrium Health Wake Forest Baptist Comprehensive Cancer Center and WFIRM formed WFORCE in 2019 to advance personalized treatment of cancer and development of new therapies using 3D patient-specific tumor organoids.

Anthony Atala, MD

Shay Soker, Ph.D.

"The challenge was convincing NASA we could optimize the fabrication process to create organoids that could survive 30 days in space, allow for drug diffusion and respond appropriately."

– Anthony Atala, MD

Mentoring the Next Generation of Cancer Care Startups

After a successful debut, the CancerX Startup Accelerator event returns to Charlotte in 2025

Members of the CancerX 2024 cohort celebrate during the CancerX Startup Accelerator event held in Charlotte, North Carolina in May 2024

In addition to training the next generation of cancer researchers, providers and educators, Atrium Health Wake Forest Baptist Comprehensive Cancer Center is mentoring the next generation of cancer care entrepreneurs through the CancerX Startup Accelerator, now in its second year.

The program matches CancerX Champions such as Advocate Health, of which Atrium Health is a part, with startups in an effort to accelerate solutions that will reduce the burden of cancer. Startups are offered a range of support, from mentorship and product feedback to conducting pilots and potentially signing commercial agreements. The 4-month program also provides startups with a weekly educational curriculum.

The 16 companies selected to participate in the program in 2024 were selected from more than 100 applicants focused on using digital innovation to advance clinical research; screening and diagnosis; treatment and management; clinical operations; and patient, caregiver, and survivor experience.

The Comprehensive Cancer Center has supported the CancerX Startup Accelerator program on several fronts, including helping organize and host a first-of-its-kind gathering in Charlotte, in May 2024 that connected startup companies' CEOs and founders with mentors. More than 130 Atrium Health stakeholders and teammates, including clinical, operational and research leaders and members of the Atrium Health Levine Cancer Patient and Family Advisory Council, attended the May 27-28 event. Representatives from other CancerX Champions, our academic partners, venture capitalists and federal and local governments also attended.

The event was so successful that CancerX has asked Advocate Health to host it in Charlotte again in May 2025. The 2025 Startup Accelerator cohort features 14 companies, including mPATH Health, a preventive care screening company spun out of Atrium Health Wake Forest Baptist.

"We are really excited to be part of this process," Comprehensive Cancer Center executive director and Levine Cancer president Ruben A. Mesa, MD, FACP, told those attending the 2024 event. "We are inspired by the innovation, by the creativity, by the ideas and how we can contribute to this crucial effort. Together I know we can defeat cancer."

> *"Atrium Health's compassionate patient-first approach, commitment to delivering exceptional care, drive for safe innovation, and remarkable clinical expertise have truly set them apart."*
>
> – Oggie Nikolic, co-founder and CEO of Lind AI

Taking it nationwide

Three days after the Charlotte CancerX event, Dr. Mesa, who serves as a strategic advisor to the CancerX program, hosted a reception at the American Society of Clinical Oncology's annual meeting in Chicago to promote collaboration between accelerator startups and Advocate Health cancer experts from the Midwest.

On July 25, Phil Butera, regional assistant vice president of Clinical Trials for the Comprehensive Cancer Center's Clinical Trials Office, guided accelerator participants through our research processes via a virtual presentation.

"The Atrium Health team has been an outstanding development partner and champion for us at Lind during the CancerX accelerator," said Oggie Nikolic, co-founder and CEO of Lind AI, a CancerX accelerator participant that uses AI to match patients and clinical trials at scale. "Their unparalleled commitment of time, expertise, and access to over 50 clinicians has truly demonstrated Atrium Health's dedication to innovation. Atrium Health's compassionate patient-first approach, commitment to delivering exceptional care, drive for safe innovation, and remarkable clinical expertise have truly set them apart."

Knowledge, Driving Discovery

Comprehensive Cancer Center's leadership visable at four major conferences

Four major conferences recognized the contributions of Atrium Health Wake Forest Baptist Comprehensive Cancer Center researchers in 2024 by showcasing 179 research presentations, recognizing four with student-in-training awards and appointing one to lead the world's largest professional society serving clinicians and scientists dedicated to conquering blood diseases.

The year culminated with our colleague Belinda Avalos, MD, taking over as president of American Society of Hematology (ASH), which represents 18,000 professionals from nearly 100 countries and draws approximately 30,000 to its annual meeting.

Dr. Avalos has made significant research contributions in the areas of leukemogenesis, congenital neutropenia, transplantation, and cellular therapy. She has also championed recruitment and retention of students and trainees from communities traditionally underrepresented in hematology.

Belinda Avalos, MD (right) accepts the gavel from outgoing ASH president Robert A. Brodsky, MD (left)

"Mentorship has played a crucial role in my own development, and I am committed to fostering an environment where emerging leaders can thrive."

– Belinda Avalos, MD

Since joining Atrium Health in 2012, Dr. Avalos has played a pivotal role in transforming hematology services, including serving as vice chair of Hematology and director of the transplant lab and research. In 2022, she became senior advisor to Atrium Health Levine Cancer president Ruben Mesa, MD, FACP, who also serves as executive director of the Comprehensive Cancer Center.

"This is an incredible honor," Dr. Avalos, who also serves as a professor of medicine, said of the appointment. "Mentorship has played a crucial role in my own development, and I am committed to fostering an environment where emerging leaders can thrive."

Our team delivered over 130 scientific presentations at the 2024 ASH Annual Meeting in San Diego from Dec. 7-10. The conference showcased our groundbreaking studies on everything from new treatment approaches and drugs to efficiency in care delivery.

Additionally, team members participated in discussions at the ASH Health Equity Studio. Atrium Health Wake Forest Baptist Comprehensive Cancer Center executive director Ruben Mesa, MD, FACP, participated in panels focused on how to diversify enrollment in clinical trials and negotiate your first leadership role, and Joanna Robles, MD, presented "Advocating for Language Justice in Hematology."

Below are the standout highlights from three other major conferences attended by our teammates.

Several teammates presented abstracts, and four were recognized with the following awards at the American Association for Cancer Research (AACR) Annual Meeting in San Diego in April:

- Kenysha Clear, MS, graduate Student, Wake Forest University School of Medicine and winner of the Minority Scholar-in-Cancer Research Award (Abstract 1423. Harnessing the gut microbiome to modulate immune checkpoint blockade response in triple-negative breast cancer.)
- Mohamed Gaber, BPharm, Wake Forest University School of Medicine, winner of the AACR Ludwig Institute for Cancer Research Scholar-in-Training Award (Abstract 2179. Microbiome-derived metabolites mediate carcinogenic alterations of breast tissue in the context of obesity.)
- Charles Okechukwu, MS, BS, graduate student, Wake Forest University School of Medicine and winner of the AACR Minority Scholar Award (Abstract 2000. Role of O-GlcNAc Conjugation and TS Translational Repression in 5-FU/LV Resistance in CRC and CF10 response.)
- Shih-Ying Wu, PhD, winner of the American Brain Tumor Association Scholar-in-Training Award (Abstract 5521. Nicotine promotes perineural brain metastasis of lung cancer by activating GABAergic neurons.)
- Abhishek Tyagi, PhD, Wake Forest University School of Medicine, and winner of Scholar-in-training Awards Supported by an Independent Educational Grant from AbbVie (Abstract 5515. Low body mass index (BMI) induces neuronal NPY and promotes brain metastasis of lung cancer.)

In May, our researchers presented 43 abstracts, presentations, publications, and symposia at the American Society of Clinical Oncology (ASCO) Annual Meeting. The presentations spanned 13 tracks, including Care Delivery & Care, Gastrointestinal Cancer, Hematological Malignancies and CNS Tumors. In addition, three of our leaders were awarded the FASCO designation.

Immediately after the ASCO annual meeting, a small delegation of our researchers attended to the San Antonio Breast Cancer Symposium, which ran from December 10-13. There, teammates presented six poster spotlight sessions involving Phase 1 and Phase 2 studies, case studies and other research.

Patient Story: Ryan Dodson

Teenager first to complete potentially curative gene therapy for sickle cell disease at Atrium Health Levine Children's

By the time Ryan Dodson got to middle school, sickle cell disease had caused him to miss more than 100 days of school and spend hundreds of hours in emergency departments seeking relief from his symptoms.

"A lot of people didn't believe how much he was hurting," said his mother Kim, who had Ryan tested for SCD at a young age because she herself had been diagnosed with beta thalassemia.

When Kim felt like Ryan's physicians at other facilities didn't take his symptoms seriously, she took him to Atrium Health Levine Children's Brenner Children's Hospital in Winston-Salem, North Carolina, where Alex George, MD, a pediatric hematologist/oncologist, and Deborah Boger, a pediatric hematology/oncology nurse practitioner, oversaw his care.

But as Dodson got older, his pain increased, and he showed signs of bone damage.

A shot at a clinical trial

Then, his medical team told him about a Phase 3 clinical trial of a potentially curative therapy at Atrium Health Levine Children's Hospital in Charlotte, North Carolina. Sponsored by Vertex Pharmaceuticals, the trial seeks to evaluate the efficacy and safety of a single dose of exagamglogene autotemcel, or "Exa-cel," a gene-edited cell therapy it developed for patients with either transfusion-dependent thalassemia (TDT) or severe sickle cell disease (SCD).

The therapy involves extracting a patient's hematopoietic stem and progenitor cells and sending them to a Vertex manufacturing facility for CD34+ cell enrichment and CRISPR-Cas9 gene editing, cryopreservation and release testing. The edited stems cells are then returned to the patient via a one-time, single-dose infusion with to turn on the production of fetal hemoglobin in SCD patients' red blood cells.

Levine Children's is just one of three sites in the United States and six globally Vertex selected to participate in the Exa-cel trial. Ultimately, the company hopes to enroll 26 patients in the study worldwide.

After being cleared to participate in the study, Dodson began undergoing treatment. In September 2023 he underwent apheresis to collect his stem cells so they could be sent to Vertex for gene editing. Nine months later, at age 18, he was readmitted to Levine Children's to be treated with the chemotherapy drug Busulfan to enhance grafting of the healthy stem cells he would receive. On July 1, 2024, he received his edited stem cells via an IV infusion.

When discharged from the hospital 58 days later, Dodson became the first patient at Levine Children's to complete the Exa-cel trial. As of early March 2025, he was feeling significantly less pain and experiencing no unexpected complications.

The next two Levine Children's patients enrolled in the clinical trial are scheduled to receive their Exa-cel infusions in the summer of 2025.

Tobacco and Health Equity Report Draws Extensively on CPC Research

The Surgeon General's first report on the topic in 25 years cites research by a dozen members of the Cancer Prevention and Control Program

Eric C. Donny, PhD

The Surgeon General's latest report on Tobacco and Health Equity, released in late 2024, drew extensively from the work of researchers at the Atrium Health Wake Forest Baptist Comprehensive Cancer Center Cancer Prevention and Control (CPC) Program.

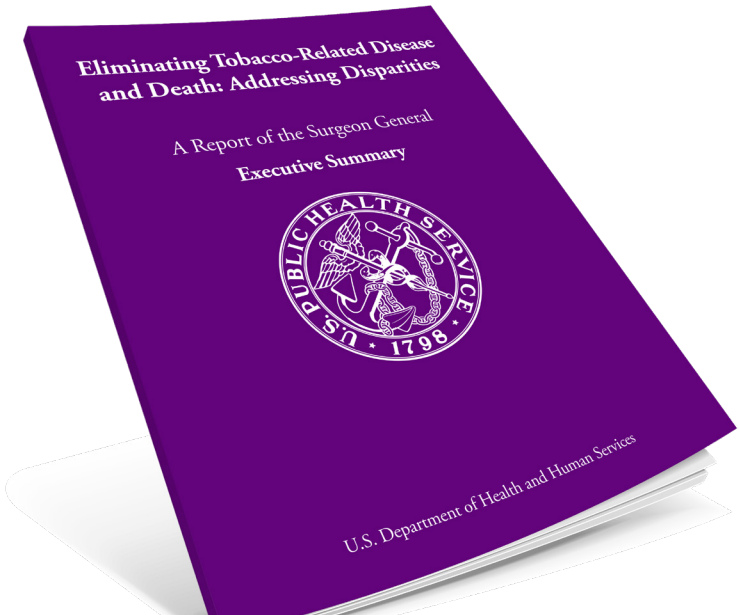
The 809-page report, titled "Eliminating Tobacco-Related Disease and Death: Addressing Disparities," represents the most comprehensive report on the topic published by the Surgeon General in 25 years. The document will influence how the federal government regulates tobacco and nicotine products for years to come.

The report cites research by a dozen CPC scholars, including Rachel Denlinger-Apte, PhD; Eric Donny, PhD; Kristie Foley, PhD; Thomas Houston, MD; Amanda Y. Kong, PhD; Joseph Lee, PhD, Christina Meade, PhD; Erik Nesson, PhD; Erin Sutfin, PhD; John Spangler, MD; Kimberly Wagoner, DrPH; and Cassidy White, PhD. Lee, who joined the Wake Forest University School of Medicine faculty in 2024, is co-author of the report.

CPC members' work is particularly prominent in "Chapter 5: Tobacco Industry Influences on Tobacco-Related Health Disparities" and "Chapter 7: Promising Interventions to Reduce Tobacco-Related Health Disparities."

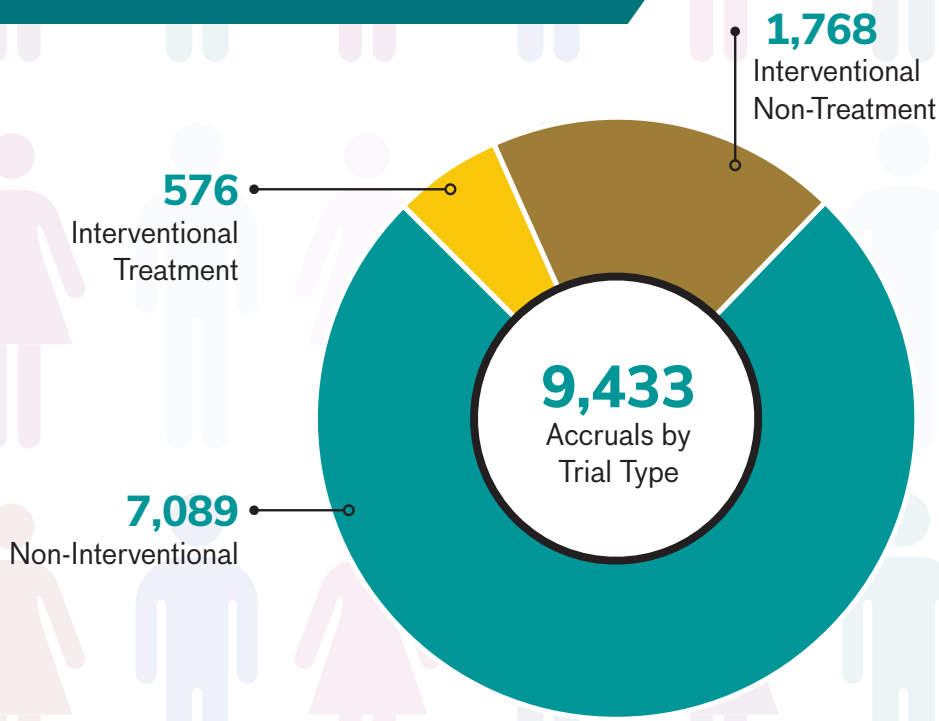
Program Co-Leader Eric Donny said the report demonstrates how well the CPC Program has focused on the first of its three aims; understand and target the multilevel determinants of exposure to tobacco, alcohol and other carcinogens.

"Given the disproportionate burdens of tobacco-related disease, disability, and death among certain racial and ethnic groups, having our work featured so prominently in this seminal report is really fulfilling at both a personal and professional level," Donny said. "This validates the importance of our work and inspires us to keep at it."

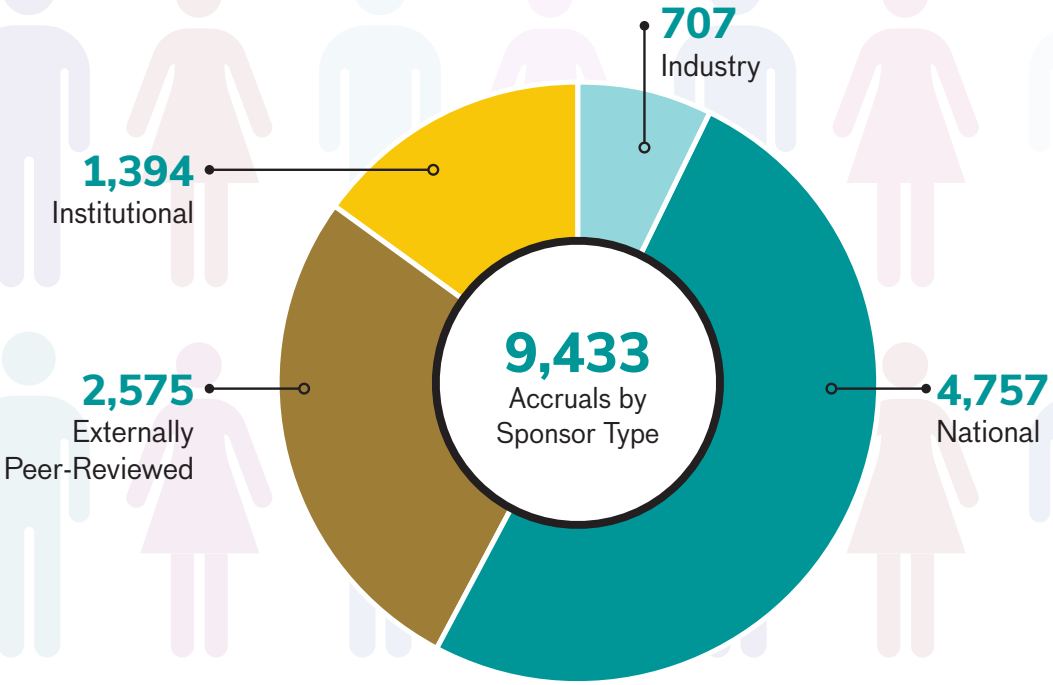


Fast Facts: Clinical Research

Patient Accruals by Trial Type[1]



2024 Accruals Sponsor Type[2]



1 – Trial types are defined as follows:

Interventional Treatment: Trials used to evaluate the safety and efficacy of new treatments or therapies, such as drugs, surgery or radiation

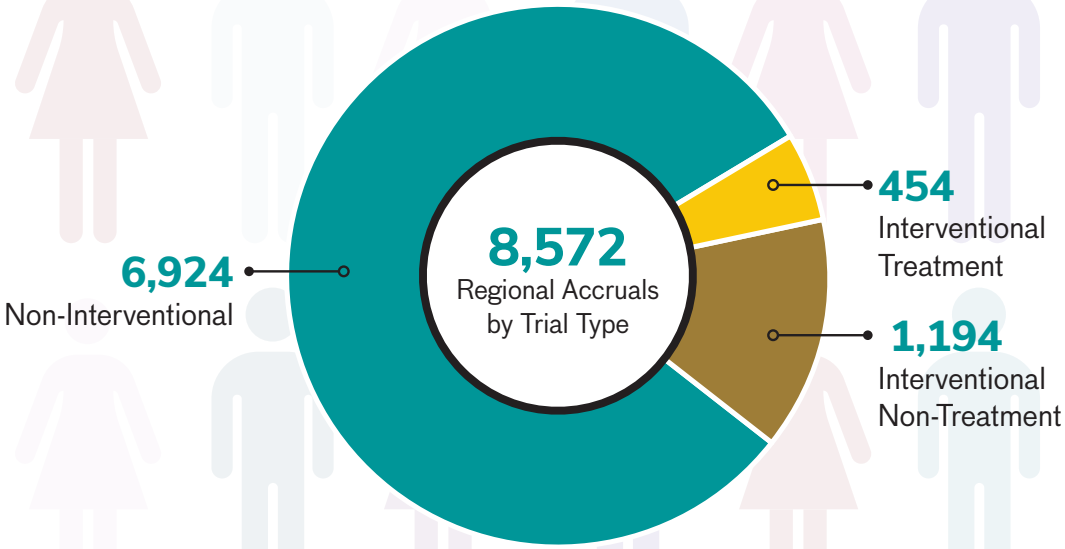
Interventional Non-Treatment: Trials used to evaluate the impact of non-therapeutic interventions, such as diagnostic procedures, lifestyle modifications or behavioral intervention

Non-Interventional: Trials that use medical records, patient surveys and other observational techniques to study the effectiveness, side effect or patterns of existing treatments.

2024 Accruals by Trial Type and Sponsor

TRIAL TYPE	INDUSTRY	NATIONAL	EXTERNALLY PEER-REVIEWED	INSTITUTIONAL	TOTAL
Interventional Treatment	223	164	56	133	576
Interventional Non-Treatment	—	307	1,309	152	1,768
Non-Interventional	484	4,286	1,210	1,109	7,089

Regional Site Accruals by Trial Type



2 – Sponsor types are defined as follows:

Industry: Commercial entities, including biopharmaceutical companies, which often control the design and implementation of the clinical research studies

National: National organizations, such as NCI and other NIH-supported national trial networks.

Externally Peer-Reviewed: Organizations that use a peer review system to evaluate and select research proposals. Examples include RO1s, SPORES, UO1s, U1Os, PO1s, and CTEP1.

Institutional: Wake Forest Baptist Comprehensive Cancer Center

Cultivating Collaboration

Atrium Health Wake Forest Baptist Comprehensive Cancer Center restructures research programs to accelerate innovation

Atrium Health Wake Forest Baptist Comprehensive Cancer Center created two new research programs in 2024 to facilitate the flow of innovation from bench to bedside.

The new programs are the result of an extensive strategic review and planning process that resulted in comprehensive restructuring of our research programs aimed at enhancing collaboration between programs and keeping us focused on priority populations and cancers.

The restructuring consolidated four research programs into three, including two new programs - Molecular and Cellular Oncology (MCO) and Translational Oncology (TO). Our Cancer Prevention & Control (CPC) program continues to be a pillar of the cancer center's research, with refreshed aims that align with the restructured research programs and new strategic priorities.

Additionally, we launched two new cross-cutting transformational teams, Immuno-Oncology and Symptom Science, to join our focus on areas of longstanding expertise: Brain Tumors and Tobacco Cessation. We are confident these changes will keep us focused on our catchment area's priorities, while also driving innovation and impact across the cancer center.

Molecular and Cellular Oncology (MCO)

The MCO research program investigates molecular mechanisms in cancer cell formation and evolution, focusing on interactions between tumor cells and their environments to understand cancer initiation, progression, and therapy responses. It now serves as the basic science discovery program within the Comprehensive Cancer Center.

MOLECULAR AND CELLULAR ONCOLOGY

$16.2M	75	107
Total peer-reviewed funding	Scientific members	Publications

The program was established to achieve full spectrum forward and reverse translation of cancer research discoveries from the laboratory bench to the patient bedside. It is co-led by Cristina M. Furdui, PhD, and Karen M. Haas, PhD, who formerly led the legacy Cancer Genetics and Metabolism and Signaling and Biotechnology research programs, respectively.

Furdui and Haas have complementary expertise in therapeutic resistance, systems biology, and immunology. Together, they lead the discovery of molecular drivers of cancer and new mechanisms governing host-tumor interactions.

Cristina M. Furdui, PhD

Karen Haas, PhD

Kelsey Fisher-Wellman, PhD

As MCO's co-leaders, Furdui and Haas are also responsible for collaborating with their peers at the CPC and TO programs to promote novel discoveries, advise and mentor junior faculty and recruit new faculty.

One of their more notable recruits is Kelsey Fisher-Wellman, PhD, associate professor, Department of Cancer Biology. Fisher-Wellman was recently awarded an R37 grant (R37CA278826) for Mitochondrial Bioenergetics and Colorectal Cancer. The NCI R37 awards — also known as "Method to Extend Research in Time," or MERIT awards — provide long-term funding for investigators who show exceptional research productivity and potential.

MCO wrapped up its first year with a retreat in December that featured guest keynote speaker Navdeep S. Chandel, PhD, a leader in the field of mitochondria biology and recent recipient of the prestigious Lurie Prize in Biomedical Sciences.

The MCO program members and Comprehensive Cancer Center senior leadership gather at the program's inaugural annual research retreat

New grants awarded to MCO program members

The list below highlights achievements made by MCO program members in 2024.

"Breast Tissue Microbiota Regulate Immune Checkpoint Blockade Therapy Responsiveness in Triple-Negative Breast Cancer (TNBC)"

Principal Investigator: Katherine Cook, PhD, associate professor, Cancer Biology

Cook will use this three-year, $1.54 million Breast Cancer Research Program grant from the U.S. Department of Defense along with an award from the Victory Foundation to investigate whether the breast and gut microbiomes affect how TNBC patients respond to immunotherapy and whether supplementation with mucin degrading bacteria and/or their released metabolites may improve outcomes in patients.

"Biomedical Applications of Reactive Sulfur and Selenium Species: Diagnosis and Therapeutics"

Principal Investigator: John Lukesh, PhD, associate professor, Chemistry

Lukesh received a five-year $1.8 million R35 Maximizing Investigators' Research Award (MIRA) from National Institute of General Medical Sciences to support his research into the biomedical applications of reactive sulfur- and selenium-containing compounds for cancer therapeutics and diagnostics.

"ATP-Responsive Nanoparticles for Reversal of Immune Evasion in Breast Cancer"

Principal Investigator: Xin Ming, PhD, associate professor, Cancer Biology

Ming received an Exploratory/Developmental Research Grant, or 1R2, from NCI to nanoparticles that could improve the safety and efficacy of antibody-drug conjugate therapy used to treat metastatic breast cancer. The nanoparticles are designed to deliver CD39/CD73 inhibitors that can turn off the immuno-suppressive effects of antibody-drug conjugates within tumors without suppressing the immune response in healthy tissues.

"Overcoming Therapy Resistance in Melanoma"

Principal Investigator: Zhi Sheng, PhD, assistant professor, Fralin Biomedical Research Institute

Sheng received an R21 from NCI to study how a new inhibitor called Selectide-9 targets and deactivates the PI3Kβ enzyme, which plays a role in resistance to drugs used to treat melanoma. His team anticipates treatment with Selectide-9 to improve the response to drugs used to treat melanoma.

"Contribution of Cutaneous Neuro-Immune Interactions to Chemotherapy-Induced Peripheral Neuropathy"

Principal Investigator: Yusuke Shiozawa, PhD, associate professor, Cancer Biology

Shiozawa received an R21 from NCI to study the neuro-immune interactions in mice with oxaliplatin-induced peripheral neuropathy. While particularly effective at treating advanced colorectal and colon cancer, oxaliplatin is also known to induce the highest incidence of neurotoxicity compared to other chemotherapies. The study will be among the first to study the neuro-immune interactions in the skin.

High-impact publications by MCO program members

The citations below list authors and co-authors affiliated with the Comprehensive Cancer Center at the time of publication. The initials in parenthesis that follow some names designate membership in a specific research program. The remainder are trainees and are not affiliated with specific programs.

"Targeting NTRK1 Enhances Immune Checkpoint Inhibitor Efficacy in NTRK1 Wild-type Non-Small Cell Lung Cancer" by Margaret R. Smith, PhD; , Caroline B. Dixon, Yuezhu Wang; Yin Liu, PhD; Ralph D. D'Agostino, PhD (TO); Jimmy Ruiz, MD (TO); Lance D. Miller, PhD (MCO); Michael Chan, PhD (TO); Michael Farris, MD (TO); Jing Su, PhD; Kathryn F. Mileham, MD (TO); Dawen Zhao, MD, PhD (MCO); Wencheng Li, MD (TO); Tammy Sexton, Thomas W. Lycan Jr., DO (TO); Karen M. Haas, PhD (MCO); Jason M. Grayson, PhD (MCO); Fei Xing, PhD (MCO). Cancer Research, September 2024

"Tumor-intrinsic CDC42BPB confers resistance to anti-PD-1 immune checkpoint blockade in breast cancer" by Ravindra Pramod Deshpande, PhD; Kerui Wu, PhD; Shih-Ying Wu, PhD; Abhishek Tyagi, PhD; Eleanor C. Smith, MD; John Hunting, MD; Jimmy Ruiz, MD (TO); Wencheng Li (TO); Kounosuke Watabe (MCO). Molecular therapy: the journal of the American Society of Gene Therapy 2024 Oct; 32(10): 3669-3682.

"Visceral adiposity in postmenopausal women is associated with a pro-inflammatory gut microbiome and immunogenic metabolic endotoxemia" by Mohamed Gaber, PhD; Adam S. Wilson; Katherine L. Cook, PhD, (MCO). Microbiome, 2024 Oct; 12(1): 192.

Translational Oncology (TO)

Serving as the translational research program within the Comprehensive Cancer Center, the TO program is dedicated to bridging the gap between scientific discovery and clinical application to improve cancer detection and treatment. By leveraging the foundational discoveries in basic and population sciences from the Comprehensive Cancer Center of Atrium Health Wake Forest Baptist, the TO program seeks to develop novel agents, devices, and model systems to enhance patient care. Its specific aims are:

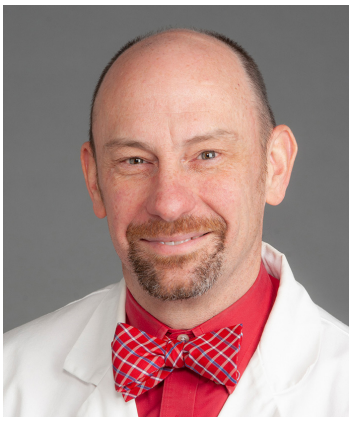
Aim 1: Translate novel therapeutic discovery by accelerating the development of novel small molecule, biologic, cellular, and immunotherapeutic agents for clinical translation.

Aim 2: Develop novel bioengineering and biotechnology by leveraging innovative imaging, surgical, radiotherapeutic, device and drug-delivery technology to transform cancer care outcomes.

Aim 3: Advance novel tumor makers and tumor models by facilitating the translation of advanced computational, preclinical, and clinical cancer modeling to clinical applications.

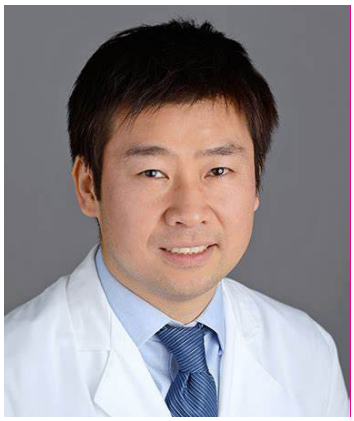
The program is co-led by Timothy Pardee, MD, PhD; Steven Park, MD; and Roy Strowd, III, MD, MEd, MS, who formerly co-led the legacy Cancer Genetics and Metabolism, Signaling and Biotechnology, and Neuro-Oncology research programs, respectively.

Dr. Pardee is an accomplished physician scientist with an NCI funded laboratory-based research program focused on novel therapeutics and leukemia models and experience taking a small molecule mitochondrial inhibitor through the first phase I through phase III human clinical trials. Dr. Park is also a physician scientist with Leukemia & Lymphoma Society-funded, laboratory-based research focused on novel therapeutics, nanoparticle development and targeting in lymphoma. Finally, Dr. Strowd is an accomplished clinical researcher and medical educator with expertise in investigator-initiated trial design and execution.



Timothy Pardee, MD, PhD

Roy Strowd, III, MD, MEd, MS



Steven Park, MD

Belinda Avalos, MD

TRANSLATIONAL ONCOLOGY

$6.8M Total peer-reviewed funding	**71** Scientific members	**265** Publications
503 Interventional treatment accruals*	**26** Interventional non-treatment accruals*	**1,617** Non-interventional accruals*

*Accruals for program year ended October 31, 2024

Together, these leaders shape the vision and direction of the TO program, fostering collaboration between basic and clinical investigators, mentoring junior faculty, and strategically driving translational research.

"After thoughtful deliberation and input from our External Advisory Committee, we determined that Translational Oncology does a better job of communicating our dedication to advancing cancer research and treatment to both our internal team and external stakeholders," said Dr. Strowd who also serves as vice dean for Undergraduate Medical Education at the Wake Forest University School of Medicine. "The name reaffirms our dedication to transform innovative scientific discoveries from the lab into tangible treatments in the clinical setting, improving patient outcomes."

The TO program had much to celebrate in 2024, including the appointment of Belinda Avalos, MD as president of the American Society of Hematology (ASH). In addition to being a member of the TO program and professor, Hematology and Oncology, Dr. Avalos is a senior advisor to Dr. Mesa. She will serve as ASH president through December 2025.

> *"The name reaffirms our dedication to transform innovative scientific discoveries from the lab into tangible treatments in the clinical setting, improving patient outcomes."*
>
> – Roy Strowd, III, MD, MEd, MS

New grants awarded to TO program members

The list below highlights other significant achievements by TO members in 2024.

"Developing Acute Myeloid Leukemia Models with Diverse Ancestral Origins"

Principal Investigator: Tim Pardee, MD, PhD, co-leader of the TO program and clinical professor, Hematology and Oncology

Dr. Pardee received this R21 grant (1R21CA283135-01A1) from NCI to create models of acute myeloid leukemia from Black patients to study how their cancer responds to treatment. The goal is to develop more effective therapies tailored to all racial backgrounds to ensure fair and improved outcomes for everyone.

"Triple Inhibitors for Drug-Resistant Mantle Cell Lymphoma and Dual PROTACs for Transformed Follicular Lymphoma"

Principal Investigator: Steven Park, MD, co-leader of the TO program and professor, Hematology and Oncology

The Leukemia & Lymphoma Society, the Follicular Lymphoma Foundation, and the Institute for Follicular Lymphoma Innovation awarded Dr. Park a $749,000 grant to develop multi-target inhibitors and pre-targeted nanoparticles that will improve drug delivery and treatment accuracy for lymphoma patients. Dr. Park is vice chair for research in the Department of Hematologic Oncology and Blood Disorders at Atrium Health Levine Cancer Institute.

"Image-guided Histotripsy System for Complete, Uniform, and Non-Invasive Ablation of Heterogeneous Osteosarcoma Tumors"

Principal Investigator: Eli Vlaisavljevich, PhD, assistant professor, Virgina Tech - Wake Forest University School of Biomedical Engineering and Mechanics

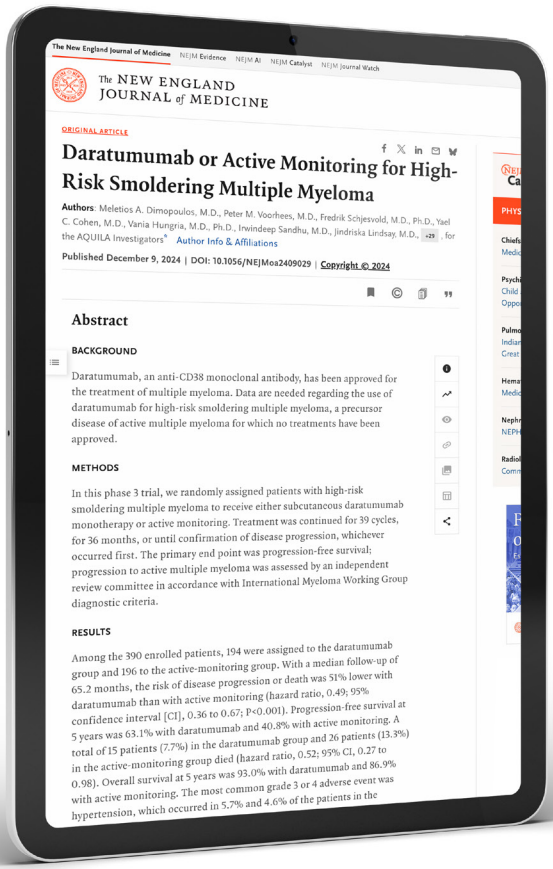
Vlaisavljevich received a $628,220 R01 grant (R01CA289288) from NCI to support development of a non-invasive treatment that will use imaging techniques to focus ultrasound waves so they can be used to break up bone tumors into small fragments without harming surrounding healthy nerves, blood vessels and other tissues.

High-impact publications by TO program members

The citations below list only authors and co-authors affiliated with the TO program at the time of publication.

"Mosunetuzumab with polatuzumab vedotin in relapsed or refractory aggressive large B cell lymphoma: a phase 1b/2 trial," co-authored by Nilanjan Ghosh, MD, PhD, professor, Hematology and Oncology, Nature Medicine, January 2024

"Daratumumab or Active Monitoring for High-Risk Smoldering Multiple Myeloma," co-authored by Peter Voorhees, MD, clinical professor, Hematology and Oncology. The New England Journal of Medicine, December 9, 2024.



Charlotte Campus Launches Proton Beam Therapy Program

New capability will save patients money and time, enable novel research

Top Left - The Levine Cancer Proton & Advanced Radiation Center (PARC) team celebrate the opening

Bottom Left - Carnell Hampton, PhD, assistant vice president, Medical Physics, Atrium Health Levine Cancer; Ruben A. Mesa, MD, FACP president, Atrium Health Levine Cancer, 6 year old patient Dakota Shuford, local firefighter and patient Hunter Pearson, Tomain Murphy, MBA, vice president of radiation oncology, Atrium Health Levine Cancer and Amy Hicks, DNP, RN, director of nursing, Atrium Health Levine Cancer, cut the ribbon at the grand opening. Stuart Burri, MD, chair of radiation oncology for Levine Cancer in the Greater Chalotte Market is seen observing from behind. Shuford and Pearson were the first patients to receive proton beam therapy at PARC

Right - Ruben A. Mesa, MD, FACP and 6-year-old patient Dakota Shuford

A new era in radiation therapy and research possibilities kicked off at Atrium Health Wake Forest Baptist Comprehensive Cancer Center in October 2024 with the opening of the Carolinas' first proton beam therapy facility at the Atrium Health Levine Cancer Proton & Advanced Radiation Center (PARC).

The $71 million center, located on Atrium Health Levine Cancer's main campus in Charlotte, North Carolina, is the first and only facility in the Carolinas to offer proton beam therapy for adult and pediatric patients with complex tumors. The PARC will serve as a hub for collaborative, world-class radiation care and clinical trials involving experts from Levine Cancer and Atrium Health Levine Children's and save residents the expense and hassle of traveling to other cities to receive proton beam and Gamma Knife therapy.

The PARC began offering Gamma Knife radiosurgery in January 2024.

"We are proud to have a skilled and expert team of radiation oncologists who provide personalized and comprehensive care for our patients, using the most advanced and appropriate tools available," said Dr. Stuart Burri, chairman of the radiation oncology department at Atrium Health Levine Cancer. "With proton beam therapy, we are adding another cutting-edge option to our arsenal of treatments, and we are excited to join a select group of cancer centers in the country that can offer this innovative technology."

A grand opening ceremony for the proton beam therapy area held in September drew providers, patients, donors, media and other community visitors.

PARC leaders (left to right): Amy Hicks, DNP, RN, ACCNS-AG, OCN, NEA-BC, Stuart Burri, MD and Tomain Murphy, MBA

PARC's proton therapy vault and Mevion s250 proton delivery system

Tomain Murphy, MBA, vice president of radiation oncology, Atrium Health Levine Cancer

A Boy and a Fireman

PARC's first two proton beam therapy patients reward years of planning

The two biggest VIPs at the ribbon cutting ceremony for the proton beam therapy department at Atrium Health Levine Cancer Proton & Advanced Radiation Center (PARC) had nothing and everything to do with the plans to build it.

When planning for the $71 million PARC began five years ago, Hunter Pearson was a firefighter and Dakota Shuford was a baby. Within the next few years, both would be diagnosed with rare and difficult-to-treat cancers.

Hunter's journey began in 2022 when pain began radiating down his lower back and right leg. An MRI in 2024 revealed neuroectodermal tumors on his spine and he was diagnosed with Ewing sarcoma.

Dakota was diagnosed that same year with alveolar rhabdomyosarcoma, a rare form of cancer that forms in soft tissue. At the time he was just three years old. Since then, he's undergone surgeries, radiation and chemotherapy and other treatments to treat his cancer.

"Getting to know patients and their families and helping them navigate the ups and downs of the cancer journey is one of the most rewarding aspects of working in oncology. Hunter and Dakota will be an inspiration for our care teams for many years to come."

– Roshan Prabhu, MD

Hunter gives Dakota a T-shirt from his firehouse to commemorate their first meeting at PARC

Dakota and his family

The PARC team with Dakota and his sister

Patients inspire providers

Hunter and Dakota were front and center for the ribbon cutting not just because they were the first two patients to receive proton beam therapy at PARC, but because they embody the importance of everything we do at the Comprehensive Cancer Center.

"They may not have been there when we began planning PARC, but they have everything to do with why we brought it to Charlotte," said Javier Oesterheld, MD, Dakota's pediatric oncologist at Atrium Health Levine Children's. "They epitomize what we want to do for patients in the region, who once had to travel out of state or risk more invasive types of treatment for complex types of cancer."

The ribbon cutting provided Hunter and Dakota their first opportunity to meet. They quickly bonded over their mutual battle with cancer and affinity for firefighting. When Hunter became the first patient to complete their proton beam therapy at PARC, Dakota was there to celebrate the milestone with a fist bump. When Dakota completed his therapy in November, Hunter was on location with a company of local firefighters to mark the moment.

"Getting to know patients and their families and helping them navigate the ups and downs of the cancer journey is one of the most rewarding aspects of working in oncology," said Roshan Prabhu, MD, the radiation oncologist who oversaw both patients' proton beam therapy. "Hunter and Dakota will be an inspiration for our care teams for many years to come."

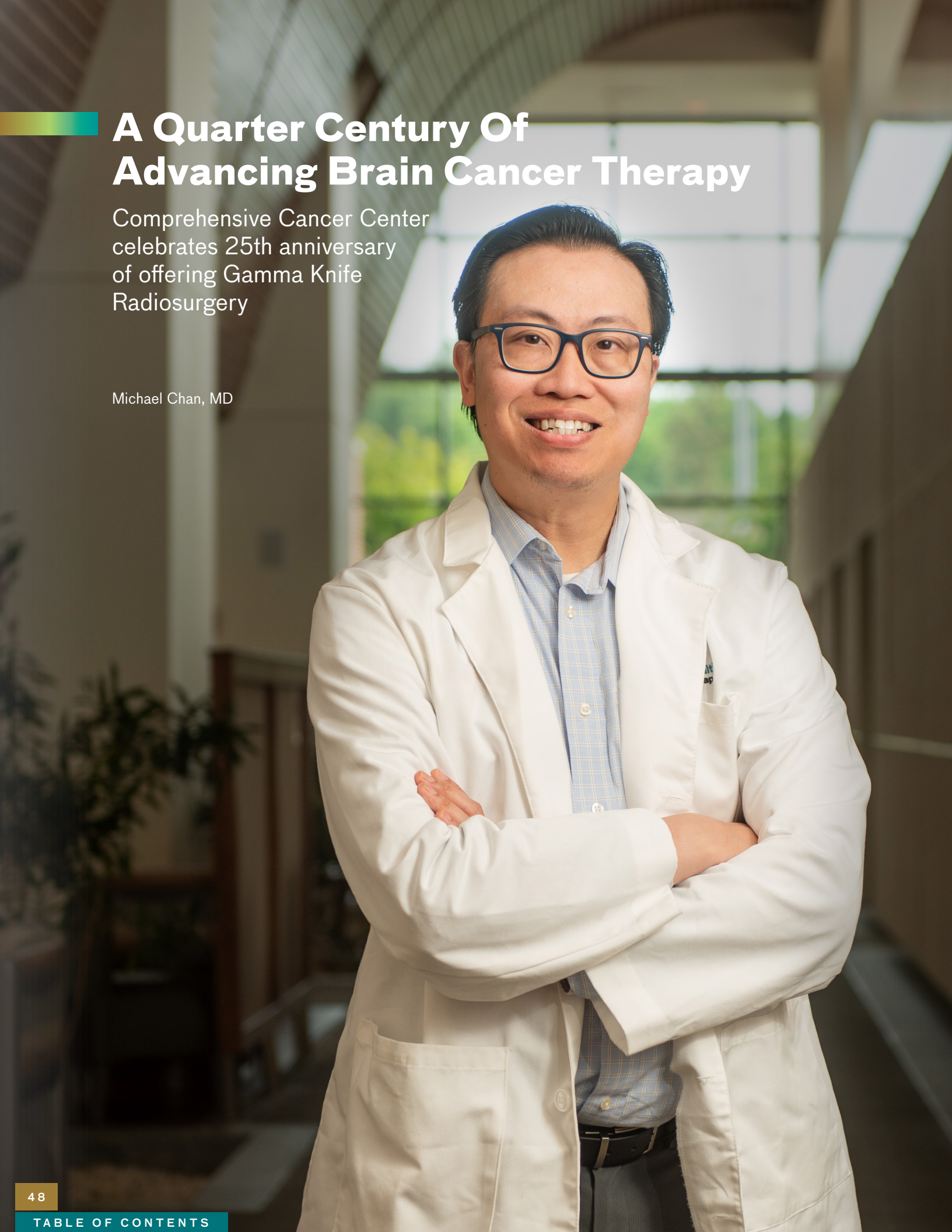
Dr. Oesterheld pals around with Dakota

Dakota's visit to the local fire company

A Quarter Century Of Advancing Brain Cancer Therapy

Comprehensive Cancer Center celebrates 25th anniversary of offering Gamma Knife Radiosurgery

Michael Chan, MD



Atrium Health Wake Forest Baptist Comprehensive Cancer Center commemorated 25 years of Gamma Knife radiosurgery in 2024, a milestone that underscores its evolution as one of the nation's leading programs for this specialized brain radiation treatment.

The journey began three decades ago when Ed Shaw, MD, a radiation oncologist and then chair of the radiation oncology department at Atrium Health Wake Forest Baptist, and Dan Bourland, PhD, a medical physicist and then head of radiation oncology physics at the medical center, advocated for the acquisition of a Gamma Knife unit.

At that time, this 20-ton device was a rarity in the United States due to its novelty and cost. Through persistent efforts, they secured approval from both hospital administration and the state of North Carolina, leading to the establishment of the Gamma Knife program.

"It took a large amount of effort and vision to recognize that Gamma Knife was the way to go," said Michael Chan, MD, interim chair of radiation oncology at Atrium Health Wake Forest Baptist and a member of Atrium Health Wake Forest Baptist Comprehensive Cancer Center. "And now, 25 years later, it's played out very well. But it took someone to say, 'We need to do this.'"

Atrium Health Wake Forest Baptist treats over 550 patients annually with Gamma Knife radiosurgery, addressing conditions such as brain tumors—both benign and metastatic—and trigeminal neuralgia, a neurological disorder causing facial pain. The institution ranks among the top ten in the United States for patient volume and leads in Gamma Knife research publications.

"While it's wonderful to honor this milestone and everything it represents, it's even more meaningful to celebrate the everyday milestones in our patients' lives."

– Michael Chan, MD

Improving survivors' quality of life

Today, the Comprehensive Cancer Center is actively involved in clinical trials exploring the integration of Gamma Knife radiosurgery with immunotherapy, aiming to enhance patient outcomes and reduce side effects. As cancer patients experience increased longevity, Gamma Knife treatment has the potential to offer long-term survivors better health outcomes with fewer adverse effects.

Our 25-year journey with Gamma Knife radiosurgery reflects a commitment to innovation, patient-centered care, and collaborative expertise, solidifying its status as a leader in the field and a beacon of hope for patients requiring precise brain radiation treatments.

"While it's wonderful to honor this milestone and everything it represents, it's even more meaningful to celebrate the everyday milestones in our patients' lives," said Dr. Chan, who specializes in treating brain tumors. "For example, I had a patient who would always tell me, 'You have to help me out because I have a five-year-old who needs me.' And now, that five-year-old has graduated from high school. Celebrating milestones like that is why our 25-year legacy means so much - it's the motivation behind what we do each and every day."

Support for Cancer Moonshot

Comprehensive Cancer Center continues support for nationwide expansion of patient navigation services

Atrium Health Wake Forest Baptist Comprehensive Cancer Center's efforts to make cancer patient navigation services more accessible were marked by visits from and to the White House in 2024.

In February, then-First Lady of the United States Jill Biden, EdD, and then-NCI director Kimryn Rathmell, MD, PhD, visited Comprehensive Cancer Center Executive Director Ruben A. Mesa, MD, FACP, at our Charlotte, North Carolina campus to highlight how we effectively utilize patient navigation services and a Financial Toxicity Tumor Board to expand access, lower costs and improve medical and psychosocial outcomes for cancer patients.

"The patient navigators at Atrium Health Levine Cancer exemplify the kind of support and advocacy we believe is essential for every cancer patient across the country," the former First Lady said during her visit. "By addressing everything from transportation to financial barriers, these navigators ensure that patients can focus on what's most important: their health."

Through research and clinical studies dating back to 2016, our investigators at the Comprehensive Cancer Center have demonstrated that patient navigation improves outcomes for certain underserved, ethnically diverse cancer patients, and can shorten hospital stays and lower odds of readmission for other cancer patients.

Keeping the momentum going

Thanks in large part to the former First Lady's leadership, the White House Cancer Moonshot found a way for the Centers for Medicare & Medicaid Service (CMS) and commercial health insurers to begin paying for navigation services effective January 1, 2024. Over the next 11 months, insurers went on to process tens of thousands of cancer patient navigation claims. Some cancer centers reported that expanded navigation services contributed to significant decreases waits for surgical oncology consultations and even larger declines in emergency room visits by qualified, high-risk patients.

To keep the momentum going, Ruben A. Mesa, MD, FACP, and Kris Blackley, RN, MSN, BBA, OCN, director of patient navigation for the Charlotte market of Atrium Health Levine Cancer, traveled last November to a Cancer Moonshot event at the White House. They joined other health leaders and government officials to discuss how to continue expanding navigation services for cancer patients.

"After 12 years of working in patient navigation, it's fulfilling to see it being adopted nationwide. We reached a major milestone in 2024, and we are determined to make sure it's just the beginning."

– Kris Blackley, RN, MSN, BBA, OCN

Kris Blackley, RN, MSN, BBA, OCN, director of patient navigation Atrium Health Levine Cancer and Ruben A. Mesa, MD, FACP, at the White House Cancer Moonshot event in November

Ruben A. Mesa, MD, FACP, executive director of Atrium Health Wake Forest Baptist Comprehensive Cancer center, chats with First Lady Jill Biden during her February 2024 visit to Atrium Health Levine Cancer in Charlotte as NCI director Kimryn Rathmell, MD, Advocate Health CEO Eugene Woods and Kris Blackley, RN, MSN, BBA, OCN, director of patient navigation for Atrium Health Levine Cancer

Journey Through Survivorship Symposium Offers Support for Life

Clinicians, researchers and art therapists step up to provide region's first symposium for cancer patients, survivors, and caregivers

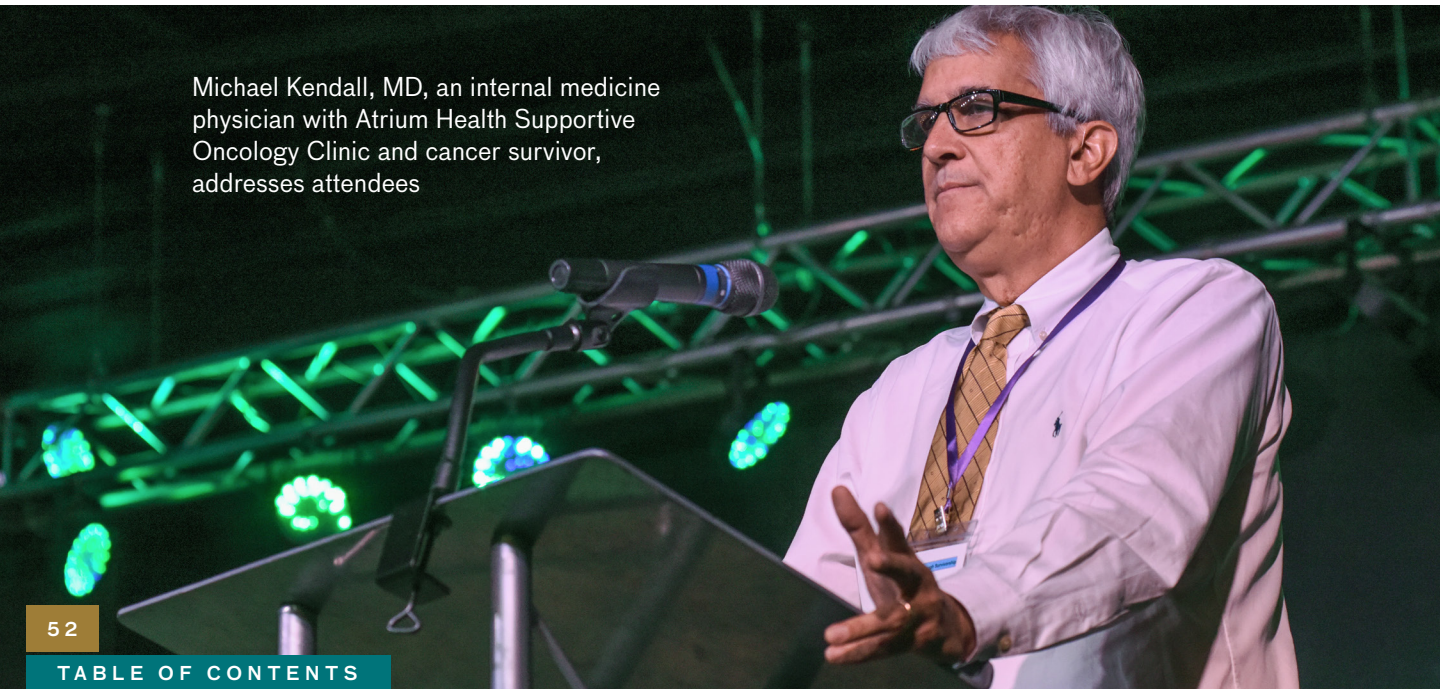
Sometimes, the uncertainties patients and caregivers face after they or a loved one completes treatment can be just as worrisome as the ones they faced after their initial diagnosis.

"Managing the risks of recurrence and long-term side effects from treatment and the financial burden of paying for treatment can be every bit as daunting," said Jacqueline Edwards, MSN, RN, OCN-RN program coordinator, Survivorship and Sexual Health Atrium Health Levine Cancer in Charlotte, North Carolina.

To fill that void, Atrium Health Wake Forest Baptist Comprehensive Cancer Center's research and patient care teams partnered to launch a new annual symposium providing patients and caregivers with tools to help manage the emotional and spiritual challenges throughout every stage of their cancer journey.

To maximize reach, the Comprehensive Cancer Center hosted the event at both of its North Carolina campuses on two consecutive Saturdays in September. The symposium, titled "Journey Through Survivorship," included insightful talks by clinicians and researchers, alongside a luncheon and interactive workshops. Certified art, music, and yoga therapists, who work with patients at both the Winston-Salem and Charlotte campuses, led the workshops, providing a holistic approach to survivorship care.

"Survivorship care continues to increase in importance as our cancer treatments improve and the number of patients who remain cancer free rises," Michael Kendall, MD, a cancer survivorship physician with Levine Cancer. "The Journey Through Survivorship presentations bring awareness of the wide array of approaches to impact the incidence of cancer recurrence and secondary cancers. Additionally, there is education on the potential benefits to overall health and wellness, in both disease prevention and symptom management, particularly as it relates to symptoms secondary to cancer treatment protocols."



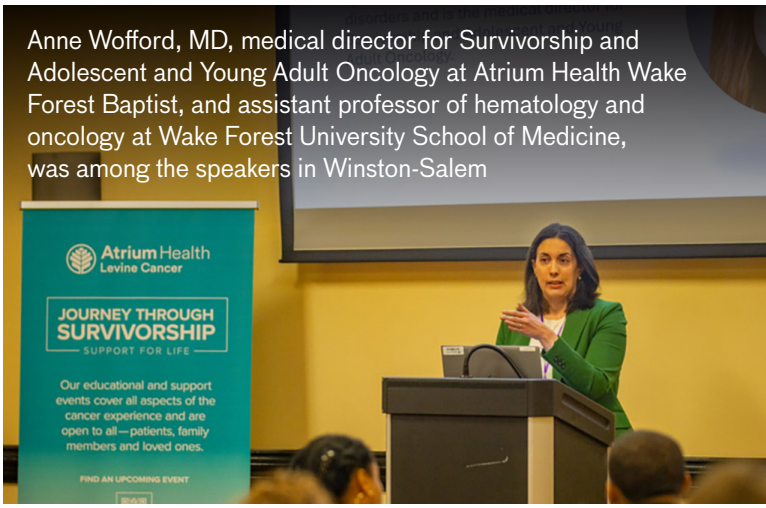
Michael Kendall, MD, an internal medicine physician with Atrium Health Supportive Oncology Clinic and cancer survivor, addresses attendees

Dr. Kendall, a cancer survivor himself, delivered a presentation entitled "What is Survivorship and Where Are You on the Journey?," while other presenters spoke about tools for navigating the fears and financial challenges associated with cancer and the benefits of mindfulness and how to practice it.

Feedback suggests attendees significantly increased their knowledge of the potential benefits of supportive oncology and cancer survivorship services. The 2025 edition of the symposium will focus on wellness and empowerment.

"Often when people are told they have cancer, they are surrounded by friends and family with immense support. Over time, that support dwindles but the need for support doesn't change."

– Jacqueline Edwards, MSN, RN, OCN



Anne Wofford, MD, medical director for Survivorship and Adolescent and Young Adult Oncology at Atrium Health Wake Forest Baptist, and assistant professor of hematology and oncology at Wake Forest University School of Medicine, was among the speakers in Winston-Salem

Participants stretch during a chair yoga session

Hexagons of Hope installed in a honeycomb frame at the Charlotte event

Attendees draw "Hexagons of Hope" that will be used as part of an art exhibit on the 7th floor of the Comprehensive Cancer Center in Winston-Salem

Patient Story: Marvin Stewart

U.S. Army Veteran and lung cancer survivor takes the field at Carolina Panthers game to promote early detection

An arduous bout with non-small cell lung cancer failed to keep U.S. Army Veteran Marvin Stewart off the field when the Carolina Panthers faced off against the Atlanta Falcons on their home field in October 2024.

On October 13, Stewart appeared alongside five other cancer patients and survivors honored by Atrium Health Levine Cancer at the game as part of "Crucial Catch," an early cancer detection and risk reduction initiative created by the National Football League and American Cancer Society.

During a special ceremony before kickoff at Bank of America Stadium in Charlotte, the honorees were introduced as Crucial Catch coin toss captains for the game. To mark their battle with cancer, each wore a Panthers jersey with a custom nameplate. One read "Relentless," another "Fearless" and another "Together."

Stewart's read "Faith Walker" as a nod to the faith in God that helped sustain him through months of treatment.

Shortly after being diagnosed, Stewart underwent successful surgery to remove one-third of his right lung. During chemotherapy, he faced intense health complications, including brain inflammation and kidney damage. Despite it all, the former U.S. Army field EMT showed up for the game smiling, praising God and grateful for the life-saving care he received at Levine Cancer.

His latest CT scans showed no evidence of cancer and Stewart is officially in remission.

Now, Stewart is focused on what matters most: spending time with family, enjoying sports, barbecuing, and nurturing his faith and positive attitude.

"God's got me," he said.

Stewart embraces the crowd at the Carolina Panthers October 13, 2024 game against division rival, the Atlanta Falcons

NFL CRUCIAL CATCH INTERCEPT CANCER

Stuart Burri, MD, chairman of the radiation oncology department at Atrium Health Levine Cancer, pounds the Carolina Panthers drum

Marvin Stewart and Carolina Panthers head coach, Dave Canales

Healing Arts Revival

After a four-year hiatus, patients, caregivers, providers and administrator gather to share their creations and the experiences that inspired them

The Atrium Health Levine Cancer Healing Arts Celebration returned in 2024 as more than two dozen artists displayed more than 70 pieces of art inspired by their experiences with cancer.

The event drew more than 300 people to Levine Cancer's main campus near uptown Charlotte for an exhibition and silent auction that celebrated and raised money for its Healing Arts program. The art on display consisted entirely of therapeutic art created by patients, care partners and teammates through the program, including paintings, sculpture, textiles, writing and music.

Launched in 2015, the Healing Arts Celebration had not been held since 2019, when it was paused due to the COVID-19 pandemic.

"It had been a while since we could feel that palpable heartbeat tying us all together — patient, caregiver, teammate, physician, donor, administrator," said Beth York, MA, LCMHC, administrative director of the Department of Supportive Oncology for Levine Cancer's Charlotte market. "It is a great reminder of why we do what we do."

Building a community of understanding and support

The Healing Arts program in Charlotte launched in 2012 as a way to celebrate the extraordinary power of the arts to heal, connect and inspire. Today more than 5,000 people participate in the program for free thanks to philanthropic support from the 24 Foundation and other generous donors.

In 2024, the program launched Healing Arts Café, a quarterly series of gatherings that will enable patients and care partners additional opportunities to share art, music, and writings they created through our supportive oncology programs.

"It is not just about showcasing their creations, but about celebrating the stories behind them — the inspirations, the struggles, and the triumphs," said Susan Yaguda, MSN, RN Manager, Integrative Oncology, Survivorship & Senior Oncology for Levine Cancer in the Charlotte region. "Through these events, we hope to foster a community of understanding, support, and mutual healing."

Hope Takes Flight
A HEALING ARTS CELEBRATION

"It had been a while since we could feel that palpable heartbeat tying us all together. It is a great reminder of why we do what we do."

– Beth York, MA, LCMHC

Patient Story: Ian Richardson

After multiple setbacks, CAR-T and bispecific therapies provide a year of remission and a surprising development

In 2020, Ian Richardson felt like he had a cold he couldn't shake. He assumed it was COVID. Then, while visiting family in Charlotte, North Carolina over Father's Day, Ian got shocking news. At just 28-years-old, he had marginal zone lymphoma. The condition rarely occurs in patients in their 20s.

When the cancer began to show progression after six months of treatment by Ryan Jacobs, MD at Atrium Health Levine Cancer, tests showed his cancer had transformed into a more aggressive lymphoma called diffuse large B-cell lymphoma.

As Richardson and his wife Katie went on to experience multiple cycles of remission and progression in the coming months, their faith in Jacobs deepened.

"We knew what I was going through was way more complicated than we originally thought, and our future was with Dr. Jacobs and the team at LCI" said Richardson, referring to the Levine Cancer Institute in Charlotte.

Every single time the Richardsons experienced a setback, they could count on Dr. Jacobs to have a plan, give them hope and never give up on them.

Drawing on years of clinical experience and research, Dr. Jacobs treated Richardson with a sequence of therapies as he continued to relapse. These treatments included a donor stem cell transplant, CAR-T cell therapy and, eventually, an experimental combination of targeted treatment and immunotherapy with a bispecific antibody that enhanced Richardson's immune response to the difficult-to-treat lymphoma.

The Richardsons had so much faith in Dr. Jacobs that they rented an apartment across the street from LCI so he could undergo the treatment.

In December 2024, Dr. Jacobs received a Christmas card from the couple with amazing news; Katie Richardson was pregnant.

"He has saved my life countless times," Richardson would say later. "He has saved my unborn child's life now." That has earned Dr. Jacobs hero status with his wife Kaite. "There are just no words to describe how much he means to us," she said.

"Ian remains on this treatment, and has been in remission for more than a year at this point, which is his longest remission since his diagnosis in 2020. They've been sending me pictures from their travels ever since."

– Ryan Jacobs, MD

WATCH A VIDEO INTERVIEW WITH THE RICHARDSONS AND DR. JACOBS

"He has saved my life countless times.
He has saved my unborn child's life now."

– Ian Richardson

Bringing Supportive Infusion Therapies to Rural North Carolina

Partnership with Atrium Health hospital brings cancer care home for one of the state's most underserved counties

Cancer patients in rural Anson County, North Carolina are now receiving supportive infusion therapies at their local hospital thanks to a pilot project drawing on the expertise and resources across Atrium Health.

The pilot program is saving cancer patients in the county the expense and inconvenience of traveling to its Atrium Health Levine Cancer location nearly 25 miles away.

Anson County is among North Carolina's poorest counties and has a higher incidence of cancer and fewer primary care providers per capita than the state as a whole, according to 2019 data.

Teammate flexibility key to success

To improve access to cancer care in the county, Levine Cancer partnered with Atrium Health Anson Hospital in Wadesboro to begin providing supportive infusion therapies at the hospital. The project required support from both organizations. The hospital, for instance, installed four infusion chairs in two under-utilized rooms and reserved them for cancer patients. Levine Cancer, meanwhile, dispatched team members to oversee the installation and train an infusion nursing team at the hospital.

Jennifer Gray, a nurse practitioner and oncology infusionist based at Levine Cancer's main campus in Charlotte, traveled to Wadesboro to provide emergency management training. Katie Comer, the nursing supervisor at Levine Cancer Union, guided the Anson nurses through the process of obtaining their chemo/bio certification. She coordinated training visits to various Levine Cancer locations where the Anson nursing team learned not only how to administer IV fluids, iron treatments and blood transfusions, but how to provide Levine Cancer's *The Loved One Standard* of specialty cancer care.

The Anson team began administering infusions to cancer patients on their own in July 2024 with continuing support from Atrium Health Levine Cancer.

"Patients are delighted to be able to get care closer to home. We have one patient who continues to work full time and sometimes struggles to make infusion appointments fit around her work schedule. The availability of infusion chairs at the Anson hospital has made this part of her life less stressful.

– Jennifer Gray, DNP, ACNO-BC, AOCNPRN, NE-BC

With the first phase of the pilot project completed, the hospital and Levine Cancer are focused on evaluating ways to grow the program and services.

Looming opportunities

The pilot project is an outgrowth of an immediate infusion care pod Levine Cancer installed at its main Charlotte location in 2023 that freed up 600 hours of infusion chair time, reduced wait times by weeks and helped relieve Emergency Department (ED) admissions and reduced wait times.

"I think this model has a lot of potential to improve cancer care and patient outcomes in rural areas," said Brenda Crump, a chief nursing officer for Levine Cancer who is spearheading infusion innovation efforts. "Patients sometimes won't come in for these services because of the travel involved and they end up getting sicker. This should reduce those instances."

Additionally, it will enable Levine Cancer to treat more patients at its Union County location, which is growing rapidly. Finally, it could also reduce hospital and ED admissions just as it did at Levine Cancer's main Charlotte location.

> *"I think this model has a lot of potential to improve cancer care and patient outcomes in rural areas."*
>
> – Brenda Crump, MBA, MSN, RN, NE-BC

"We are talking with other Atrium Health locations about incorporating this model," said Crump. "Implementation will vary at each one, but based on what we've seen so far, it can pay for itself in a matter of months."

Data Point	Anson County	North Carolina	Data Year
% of individuals living in poverty (100% Federal Poverty Level)	**21.4%**	**13.60%**	**2019**
Elderly Population % of population age 65+ years	**19.3%**	**16.7%**	**2019**
African American % of population non-Hispanic African American	**48.5%**	**22.2%**	**2019**
College Graduation % of population, age 25 years+, with a Bachelor's degree or higher	**9.2%**	**21.3%**	**2013-2017**
Healthcare Workforce Primary care physicians per 10,000 population	**1.2**	**8**	**2019**
Chronic Disease Cancer incidence rates per 100,000 population	**476.7**	**469.2**	**215-20190**

Source: North Carolina Institute of Medicine

Pioneering Outpatient Care for Transplant and Cellular Therapy Patients

New unit aims to facilitate early discharges, reduce ED visits and hospital admission days

By the time Myra Almon was referred to Barry Paul, MD in 2024 she had relapsed multiple myeloma, which had previously been treated with three lines of therapy, including a stem cell transplant.

"She had six years of benefit from her stem cell transplant and maintenance therapy, so when her disease relapsed, we needed to consider a new therapy," recalled Dr. Paul, a hematologist with Atrium Health Levine Cancer in Charlotte, North Carolina.

Myra previously had significant toxicity from one of the mainstays of myeloma treatment, which limited her treatment options moving forward. Thankfully, CAR-T cell therapy had recently been approved for patients like Myra and Levine Cancer had just begun offering cellular therapy, like CAR-T, on an outpatient basis at its newly opened Outpatient and Transplant and Cellular Therapy (OPTCT) unit at the Levine Cancer Institute in Charlotte.

A retired nurse with extensive healthcare knowledge living in Florida with caregiving support from her husband Tom, Myra was a good candidate for outpatient treatment, said Paul. In November she became the OPTCT unit's first patient.

"Allowing patients to stay at home or in an apartment close to our center helps to prevent certain complications and is associated with better emotional health and patient satisfaction," said Dr. Paul. "At the same time, we can still monitor them closely and support them as needed. Patients can sleep uninterrupted by the noises of the hospital, have more food choices than what is available on the hospital menu, which often promotes better intake, and can spend time outdoors. All these benefits contribute to improved emotional health and aid physical recovery. It truly is a win-win for patients."

Tom and Myra Almon with hematologist Barry Paul, MD and Amy Rockas, BSN, RN

Myra's outpatient experience

Given the success rate of CAR-T cell therapy and her confidence in her husband's ability to pick up on subtle changes that could indicate any issues, Myra jumped at the opportunity to proceed with outpatient therapy.

Following her treatment, she and Tom stayed in Charlotte so the OPTCT team could monitor her for the expected side effects of CAR-T. Eventually, Myra was admitted to the hospital as planned to manage those side effects, but having the opportunity to remain outpatient before they manifested cut down her hospital stay significantly.

The OPTCP team celebrates their grand opening on November 4, 2024

"Many patients like Myra may still require a hospitalization at some point during their treatment," said Dr. Paul. "It should be comforting to patients and families that this option still is available should there be any concerns that they are not thriving at home or if they are having more significant complications."

Expected benefits

While it's too early to tell how the clinic will affect patient outcomes, Levine Cancer expects the outpatient program to facilitate early discharges from the inpatient setting, reduce Emergency Department (ED) visits among its patient population, and reduce hospital admission days, as it did in Almon's case. The team has already triaged transplant and cellular therapy patients to avoid ED visits.

"By allowing patients to receive high quality care by specialty trained nurses in an ambulatory setting, we are also hoping to reduce infection by having patients spend more time healing at home," said Nicole Pappaterra, a nurse manager with the OPTCT.

"Allowing patients to stay at home or in an apartment close to our center helps to prevent certain complications and is associated with better emotional health and patient satisfaction."

– Barry Paul, MD

Keeping APPs Happy

Providing greater representation helps keep Atrium Health Levine Cancer turnover rate well below national average

Atrium Health Levine Cancer limited the turnover rate of advanced practice providers (APPs) to 2.42% in 2024, or well below half the national average by some estimates.

Premier Inc., which provides data analytics and other solutions to more than a third of U.S. healthcare providers, estimates the overall turnover rate for providers, including physicians and APPs, reached 7% in 2023.

Levine Cancer is the largest cancer program in the Carolinas. In 2024, we employed 134 APPs with an average tenure of 7.43 years and a vacancy rate of 8.84%.

Responses to our annual APP engagement survey indicate that, compared with the healthcare industry, Levine Cancer's APPs are more likely to rate their job satisfaction favorably. Fifty-five of our APPs, or 41%, responded to the survey, which asked them to respond to six statements about their experience working at Levine Cancer.

Those statements included:

- I would recommend this organization as a great place to work.
- I would recommend my direct leader to others.
- I feel free to speak my mind without fear of negative consequences.
- I trust my direct leader.
- My direct leader cares about me as a person.
- My direct leader cares about my job satisfaction.

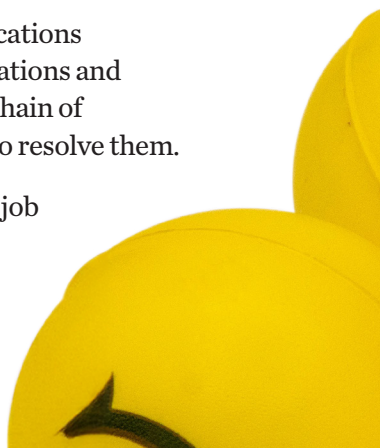
A significantly higher percentage of our APPs (70-to-93.5%) rated those statements favorably compared with a healthcare benchmark (64.6-to-77%) based on a database of 3.5 million responses from over 500 healthcare organizations.

Providing APPs representation

The results reflect deliberate retention efforts by Levine Cancer, including the decision in late 2020 to appoint Camille Petraitis DNP, FNP-BC director of Advanced Practice for the greater Charlotte market.

Petraitis established a chain of command that has greatly enhanced communications between APPs and leadership. She has used it to pass down clinical communications and other information to APPs, who have used it in turn to pass issues back up the chain of command to Petraitis, so she can work with administrative and medical leaders to resolve them.

This has led to the creation of more leadership roles for APPs and a general increase in job satisfaction. Since Petraitis has been elevated, APPs have begun practicing to scope and have the support they need to succeed from doctors, nurses and administration.



"The institution definitely values us," said Megan Manuel, NP with Atrium Health Wake Forest Baptist Comprehensive Cancer Center. "They give us those opportunities to share our voice and tell them what we need so they can help us make our jobs more successful."

The work continues

High levels of engagement already appear to be helping Levine Cancer's APP recruitment efforts. Of 26 fellows who completed our APP Hematology/Oncology Fellowship in Charlotte, North Carolina in 2024, 16 went to work for Levine Cancer or groups with which it contracts. Plans are underway to add training locations at our Winston-Salem campus for our 2026-27 cohort of APP fellows.

"The results from our latest engagement survey are encouraging, but the work continues," said Petraitis. "Given growing competition for APPs and the important role they play caring for our patients, we will continue to do everything we can to help them thrive and know how much they are appreciated."

"I would highly recommend joining our team at Atrium Health Wake Forest Baptist because our primary focus is the patient. Between the ability to participate in clinical trials to improve disease outcomes, focusing on supportive care measures to improve each patient's quality of life, and our ability to provide holistic care with a multidisciplinary approach, we put patients first."

– Megan B. Manuel, MSN, ANP, AOCNP
Atrium Health Wake Forest Baptist Comprehensive Cancer Center

"As a new PA, oncology was daunting with its steep learning curve, but the team at Atrium Health Wake Forest Baptist was so encouraging. The physicians and fellow APPS truly helped facilitate on the job learning. Our team-based approach continues to help me improve my skills and knowledge base every day. I am incredibly grateful for each and every member of our team."

– Hailey Thomas PA-C, Atrium Health Wake Forest Baptist Comprehensive Cancer Center, Hematology and Oncology Department

"Having the opportunity to take care of patients in the same community I grew up in is very rewarding. It is so meaningful to be able to assist patients during such a stressful time and offer hope and unwavering support throughout the process."

– Tina Martin, FNP-C, AOCNP, Atrium Health Levine Cancer - Albemarle

Provider Story: Whitney Carpenter, RN, BSN, OCN

Oncology nurse spreads the love by making port shirts for her infusion patients

In October 2024, after praying to God for guidance on how she could help her patients at Atrium Health Levine Cancer even more, oncology nurse Whitney Carpenter got her answer.

While working at an Atrium Health Levine Cancer infusion clinic in Rock Hill, South Carolina, she spotted a patient wearing a T-shirt with a flashy zipper sewn in just over the location of her chemotherapy port. When asked where she got it, the patient said a friend had made it for her in Illinois.

Eureka!, thought Carpenter. I can make those.

In eight years of working at the infusion clinic, Carpenter had never seen a patient wearing a port shirt made by a friend. But she had noticed many patients went without them and suspected a few did so because they could not spare the money. When she got home that night she hit the internet.

"I looked up how to make them on YouTube on a Saturday and then Sunday went and bought all the supplies, including a sewing machine,' she said. "I made three that night. I learned to sew just so I could make the shirts! I just kept practicing until I got it right. Now I have a whole tried and true system of doing them."

Carpenter customizes most of the shirts by using the patient's favorite color and placing the zipper to align with their port. She also keeps a few in stock at the clinic.

Each takes her 20 to 30 minutes to make, including the time it takes to attach her label, which reads "Handmade with Love by Whitney".

"It may not seem like much, but the shirts enable the patient and their caregiver to find and access their port without disheveling their clothing," Whitney said. "I think it helps some people maintain a sense of dignity."

Carpenter had made and given away 110 shirts by the time a CBS News reporter called her in early December. They wanted to interview her for the "Heart of America" feature on the "CBS Evening News with Norah O'Donnell." The report, which included video of Whitney working at the clinic, aired December 10.

"The beauty of oncology is that I get to know these patients very well," she said. "Sometimes I work with them for years, so when I make a shirt I think about them. I want them to feel cared for and special when they come here, and I hope the shirt makes things just a tiny bit easier for them during one of the most challenging times of their lives."

"The beauty of oncology is that I get to know these patients very well. I hope the shirt makes things just a tiny bit easier for them during one of the most challenging times of their lives."

– Whitney Carpenter, RN, BSN, OCN

WATCH HER CBS EVENING NEWS INTERVIEW

A. William Blackstock Jr., MD Legacy Symposium Debuts

Event honors former interim director with focus on improving health equity in cancer care

Atrium Health Wake Forest Baptist Comprehensive Cancer Center held the inaugural A. William Blackstock, Jr., MD Legacy Symposium in 2024 to honor the late colleague and champion of justice, equity, diversity and inclusion.

Dr. Blackstock passed away in February 2024 at age 60 after a lengthy battle with prostate cancer. He played a key role in unifying the cancer programs offered by the Comprehensive Cancer Center and Atrium Health Levine Cancer in 2021 and 2022 while serving as the Comprehensive Cancer Center's interim director.

An engaged audience listens to panelists at the inaugural A. William Blackstock Jr., MD Legacy Symposium

Nadine Barrett, PhD, , MS, MPH, associate director for community outreach and engagement at the Comprehensive Cancer Center, moderated the three-hour event, which featured multiple speakers and panelists, including Dr. Blackstock's two daughters, Ansley and Jessica, guest speaker Karen Winkfield, MD, PhD, from Vanderbilt University Medical School and Dr. Blackstock's former colleagues.

The May 6, 2024 event began with tributes to Dr. Blackstock, followed by a review of health equity in cancer care by Dr. Winkfield and panel discussions featuring leaders from the Comprehensive Cancer Center, Atrium Health Wake Forest Baptist, Wake Forest University School of Medicine, and Advocate Health, of which Atrium Health is a part.

Dr. Blackstock's daughters Ansley and Jessica Blackstock share their memories

Michael Chan, MD, interim chair of radiation oncology, discusses efforts to create an endowed professorship in Dr. Blackstock's name

David Zaas, MD, president, Atrium Health Wake Forest Baptist; Ebony Boulware, MD, , MPH, dean, Wake Forest University School of Medicine; and Kinneil Coltman, DHA, executive vice president and chief community and social impact officer, Advocate Health, address cancer health equity from their perspectives

Comprehensive Cancer Center Lands ASCO Summer Internship

Inaugural class of three second-year medical students completes program

Wake Forest University School of Medicine began hosting the American Society of Clinical Oncology - Oncology Summer Internship (ASCO-OSI) in 2024, making it one of only four U.S. medical schools chosen to join 11 medical schools already hosting the program.

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The 4-week summer internship is designed to strengthen and diversify the oncology workforce by introducing rising second-year medical students to training and career opportunities in oncology. The application to participate as a host site was led by the Atrium Health Wake Forest Baptist Comprehensive Cancer Center's Office of Cancer Research Training and Education Coordination (CRTEC).

After undergoing orientation at the ASCO annual meeting in Chicago, three Wake Forest University School of Medicine students participated in daily shadowing with clinicians at the Comprehensive Cancer Center campuses in Winston-Salem and Charlotte. These experiences provided a firsthand look at interactions between patients and oncology health care providers as well as technologies utilized to diagnose and treat patients with cancer. Forty-seven cancer center faculty representing eight different disciplines provided diverse clinical shadowing opportunities.

From left to right, Heidi Klepin, MD, ASCO OSI participants Caitlyn Delgado, Hannah Erb and Bianca Nolde-Lopez, Steven Kridel, PhD, and Jimmy Ruiz, MD, pose during the summer internship

The students also took part in networking opportunities and social events with their peers, community members and mentors, and sat in on multi-disciplinary tumor boards.

The Wake Forest University School of Medicine internship is led by Heidi Klepin, MD, MS, associate director of CRTEC, and Jimmy Ruiz, MD assistant director of clinical research, both of whom are professors in the Department of Cancer Medicine at the Winston Salem campus; and Daniel R. Carrizosa, MD, MS, assistant director of community outreach and engagement and clinical associate professor of hematology and oncology at the Charlotte campus.

The program serves an important role for the institution. "By introducing more medical students to oncology early in their medical training, we can help expand the number of physicians who are so desperately needed to care for patients battling cancer, and who will help us find new treatments for cancer," said Dr. Ebony Boulware, dean of Wake Forest University School of Medicine and chief science officer and vice chief academic officer of Advocate Health, of which Atrium Health is a part.

Feedback from participants was overwhelmingly positive with all reporting that they felt more connected to their institution, discovered new training and/or career interests and felt closer to their peers because of the ASCO-OSI program. Building on this early success, recruitment is on-going to host students for the 2025 OSI program.

"By introducing more medical students to oncology early in their medical training, we can help expand the number of physicians who are so desperately needed to care for patients battling cancer, and who will help us find new treatments for cancer."

– L. Ebony Boulware, MD, MPH

$2 Million Gift Supports Thoracic Oncology

Barbara C. Killian Thoracic Oncology Fund will help advance lung cancer research, enhance patient access to clinical trials and provide caregiver support

Kathryn Mileham, MD, , FACP chief of thoracic medical oncology for Atrium Health Levine Cancer Institute, and John Killian cut the ribbon at the opening ceremony for the Barbara C. Killian Center for Thoracic Oncology in Charlotte

A $2 million donation to Atrium Health Foundation's Giving Hope campaign will honor the life of Barbara Killian, a former patient at Atrium Health Levine Cancer. The gift from her husband, John Killian, acknowledges his late wife's thoracic oncology care team and will provide support for patients facing a similar cancer journey.

Barbara was diagnosed with non-small cell lung cancer in 2010. A devoted friend, master gardener and rosarian – and John's spouse of 43 years, she lost her battle with cancer in November 2020.

Thanks to John Killian's gift, her legacy will endure through the Barbara C. Killian Center for Thoracic Oncology and The Barbara C. Killian Thoracic Oncology Fund at Atrium Health Levine Cancer Institute. He has also designated the newly named center in his estate plan to provide Atrium Health Levine Cancer with significant and sustained support for its thoracic cancer program.

"It's a form of healing and comfort to do something that honors Barbara forever," said Killian, who credits Barbara's "first-class doctors and nurses" at Atrium Health Levine Cancer Institute for providing a tremendously supportive environment.

A boost for screening, biomarker testing and patient education initiatives

The Barbara C. Killian Thoracic Oncology Fund will advance Atrium Health Levine Cancer's nationally recognized lung cancer research, enhance patient access to clinical trials, ensure quality of patient care and provide caregiver support. The fund will also support programmatic initiatives, such as lung cancer screenings, biomarker testing, patient education, supportive oncology and end-of-life care.

Renowned for collaborating across sub-specialties, the thoracic oncology center at Levine Cancer Institute is also distinct in its personalized, comprehensive approach to care; advanced diagnostics and therapeutics; and interventional pulmonary and thoracic surgery techniques.

"The Barbara Killian Thoracic Oncology Fund will facilitate real action, expanding research, improving outcomes and safety, and developing national standards of care," said Kathryn Mileham, MD, FACP, who is chief of thoracic medical oncology at Atrium Health Levine Cancer Institute and cared for Barbara Killian. "Thanks to generous supporters like Mr. Killian, who continue to invest in Atrium Health Levine Cancer, we are making a difference in peoples' lives every day."

"Thanks to generous supporters like Mr. Killian, who continue to invest in Atrium Health Levine Cancer, we are making a difference in peoples' lives every day."

– Kathryn Mileham, MD, FACP

Atrium Health Wake Forest Baptist
Comprehensive Cancer Center

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