Welcome to the WVU Cancer Institute

I’m an active person, and I like to run. There’s a point when you crest one of West Virginia’s wild and wonderful hills and start down the other side when momentum takes hold. Your pace increases, your stride extends, and your feet leave the ground faster and faster until it feels like you could leave the earth behind entirely.

The WVU Cancer Institute is at the brink, about to increase its already impressive pace. The Institute has three missions: to provide patient care, to engage in research, and to educate the next generation of cancer researchers and care providers. The Institute has succeeded in all of those missions under the able leadership of William Petros, PharmD, who served as interim director for the past two years.

The past year has seen a record year for the state’s only mobile mammography program, a national Cancer Moonshot grant to develop care for cancer survivors, and a start-up company to push a treatment developed in a WVU Cancer Institute lab into clinical use.

Cancer outcomes in the state are poor. Our population has limited access to cancer services due to geography and other factors, as well as a lot of unhealthy behaviors, so prevention and early detection are vital. Unfortunately, people do get cancer, and we need to offer them the best and most convenient care, and once we help them survive cancer, we need to help them live beyond it.

I’ve seen the field of cancer care and research change dramatically over the past 30 years, and I’ve had the good fortune to be part of that change. Hopefully here at the WVU Cancer Institute, we will continue to change the field.

Richard M. Goldberg, MD
Director of the WVU Cancer Institute
Laurence S. and Jean J. DeLynn Chair of Oncology

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2 A statewide network of cancer care
4 Q&A with Dr. Richard Goldberg
5 Niesha Griffith, vice president of cancer services for WVU Medicine

OUR MISSION
To provide excellent care to our patients and their families while strengthening our research, education, and service programs to address the cancer health disparities unique to the state of West Virginia and Appalachia.

OUR VISION
We will be a leading Cancer Institute for the people of West Virginia and Appalachia.

OUR VALUES
We value quality, innovation, teamwork, service, and accountability as the foundation of our patient care, education, and research programs.
Two years ago, the various cancer efforts occurring under the WVU flag were consolidated under the Institute name. Beyond simple nomenclature, this unification has allowed the WVU Cancer Institute to build and strengthen partnerships around the state, throwing the resources of a major land-grant institution behind regional cancer centers so patients don’t have to travel to receive quality care.

“The geography of our state makes traveling for care difficult, and patients simply shouldn’t have to,” Hannah Hazard, MD, surgeon in chief and director of clinical services, said. “I would rather equip our regional centers to provide the caliber of care that people travel to Morgantown or out of state to receive.”

Dr. Hazard was joined in that effort this year by Niesha Griffith, vice president of cancer services for WVU Medicine, who oversees the operations of the Institute’s clinical enterprise while Hazard oversees the medical care.

“First and foremost, we need to serve people with cancer in West Virginia,” Dr. Goldberg said. “Unfortunately, there are all too many of them. As the major academic medical center in the state, we need to take responsibility for that, and we’re doing that in part by partnering with regional medical centers.”

The WVU Cancer Institute is also taking responsibility for the state’s cancer burden through its mission to expand the field of cancer knowledge through research.

Under Goldberg’s leadership as a world-renowned cancer researcher, the Institute will only intensify its pursuit of both basic and clinical research to address real problems in the state, from identifying cancer disparities and addressing them through education and screening to discovering new treatments in a lab and translating them to the patient bedside.
Richard M. Goldberg, MD, renowned gastrointestinal (GI) cancer expert, joined the WVU Cancer Institute in February as its new director. We sat down with him on his first day to discuss what is ahead for the Institute under his direction.

Dr. Goldberg came to WVU from Ohio State University’s Wexner Medical Center, where he served as the Klotz Family Professor of Cancer Research, the physician-in-chief of the James Cancer Hospital, and the associate director of the Ohio State Comprehensive Cancer Center.

Your career has spanned three decades. What sticks out to you?

The field has changed dramatically since I’ve been in it. I am a GI oncologist, and most of my research has been in colorectal cancer. When I first started as an oncology fellow at Georgetown in the early 1980s, if we had a response to our cancer treatment we would keep the X-ray up for months because they were so few and far between. Now we’re at a point in GI oncology where we expect to be able to help everybody. And it’s amazing that that’s happened in 30 years.

I’m a clinical scientist, so I’ve spent most of my life running clinical trials for cancer patients. I had the good fortune to run a trial with a drug called oxaliplatin which led to its licensing in the United States, and it continues to be one of the standard drugs that we use for colon cancer. More than 30 published articles have come out of that study, and we’re still publishing articles from it even though it started in the 1990s.

What drew you to the WVU Cancer Institute?

I grew up in upstate New York, in the foothills of the Adirondacks, so coming to Morgantown feels like coming home in terms of topography. One of the things I know about myself is I like building things more than I like maintaining things. I tend to be challenged by things that are changing and growing, and our leaders here have a vision for the WVU Cancer Institute to change and grow.

What is your vision for the Institute?

We need to provide the tertiary and quaternary care that people with cancer demand and deserve, and we need to have a facility that allows us to provide integrated cancer care. We are getting to a size where we can get people to be highly specialized in narrow areas with a greater depth of expertise. There’s no substitute to having all those great minds, all those great practitioners, specialized cancer nursing, all the ancillary services, available to patients. Putting that all together with state-of-the-art equipment in one place with a common mission — that’s what we need to do for patients.

Who are you outside of work?

My wife, Lynda — who is an accomplished professional herself — and I bought a house on Cheat Lake because the things I like to do are outdoor things. I like to bike and run and fly fish. I’m hoping that will be right outside my back door.

Niesha Griffith, vice president of cancer services for WVU Medicine

In September, Niesha Griffith took on the overall direction of the strategic, operational, clinical, financial, and administrative functions associated with cancer services at WVU Medicine.

She works closely with Hannah Hazard, MD, director of clinical services for the WVU Cancer Institute, and other clinical leaders to ensure that patients receive the highest quality of cancer care at all WVU Cancer Institute locations.

To that end, Griffith’s role includes working with Dr. Hazard and others to build partnerships throughout the state and region to expand the WVU Cancer Institute’s network of cancer facilities.

Griffith, a native of Charleston, was formerly the administrator for oncology pharmacy and infusion services at the James Cancer Hospital and Solove Research Institute, a component of Ohio State University’s Comprehensive Cancer Center. She also served at Ohio State in a faculty role and as its health system’s pharmacy administration residency program director.

After graduating from the West Virginia University School of Pharmacy, Griffith completed an accredited residency in hospital pharmacy at Ohio State University’s Wexner Medical Center and a master’s degree in hospital pharmacy administration from Ohio State.
Addressing lung cancer screening in West Virginia

The WVU Cancer Institute’s Cancer Prevention and Control program recently established a partnership with the Patient Advocate Foundation in Hampton, Virginia, to address lung cancer disparities in West Virginia.

The major aim of the West Virginia Lung Cancer Program is to increase lung cancer screening among low-income and limited-resource individuals across the Mountain State. This will be accomplished by a combination of comprehensive and coordinated provider outreach and engagement, public education and outreach, case management support, and evaluation.

“Partnerships like this one with the Patient Advocate Foundation allow us a unique opportunity to address West Virginia’s number one cancer issue: lung cancer,” Stephanie Kennedy, EdD, director of the WVU Cancer Institute’s Cancer Prevention and Control program, said. “This project enables us to educate the public and providers about lung cancer screening, while conducting a pilot project that navigates people to cancer screening, while conducting a pilot project that navigates people to cancer screening, while conducting a pilot project that navigates people to cancer screening, while conducting a pilot project that navigates people to cancer screening, while conducting a pilot project that navigates people to cancer screening, while conducting a pilot project that navigates people to cancer screening, while conducting a pilot project that navigates people to cancer screening, while conducting a pilot project that navigates people to cancer screening, while conducting a pilot project that navigates people to cancer screening, while conducting a pilot project that navigates people to cancer screening, while conducting a pilot project that navigates people to cancer screening, while conducting a pilot project that navigates people to cancer screening.

This program focuses on access to care, education, prevention and early detection, treatment, and psychosocial support services.

The program navigates Medicaid Managed Care beneficiaries to lung cancer treatment services. Those experiencing additional social and financial barriers will be linked to a Patient Advocate Foundation case management team for sustained support throughout the treatment process.

As a part of the program’s evaluation activities, tobacco users will be assessed to identify their preferred cessation modality when offered a comprehensive list of tobacco cessation options. The data from this assessment will be used to better customize tobacco cessation recommendations for the intended population.

This partnership was made possible by a three-year grant from the Bristol-Myers Squibb Foundation’s Bridging Cancer Care™ initiative. The initiative is a part of a national strategy to promote health equity and improve the health outcomes of populations disproportionately affected by serious diseases and conditions. Specifically, the Foundation’s lung cancer program focuses on access to cancer education, prevention and early detection, treatment, and psychosocial support services.

CANCER PREVENTION AND CONTROL PROGRAMS

- Appalachian Community Cancer Network
- Bonnie Wells Wilson Mobile Mammography Program
- Mountains of Hope Cancer Coalition
- WV Breast and Cervical Cancer Screening Program
- Public Education and Targeted Outreach
- Professional Development
- Partnership Coordination
- WV Lung Cancer Project
- WV Lung Cancer Survivorship Program
- WV Program to Increase Colorectal Cancer Screening

Miles to go

Updated Bonnie’s Bus hits the road in June

After eight years and more than 100,000 miles, the service to the women of West Virginia, the original Bonnie’s Bus is being retired and replaced with a brand new, state-of-the-art bus with updated technology and greater privacy and comfort.

The new Bus, currently under construction, will include a high-definition 3D breast tomosynthesis mammography system, which provides a clearer, more accurate view compared to digital mammography alone.

With advanced cellular communications capability, the staff on the new Bus will be able to transmit mammogram images electronically to the Betty Puskar Breast Care Center to be read instead of having to physically return to Morgantown regularly to upload the images. This will allow the Bus to spend more time on the road helping patients.

The coach-style construction of the new Bus will allow for a more spacious and comfortable interior. The new Bus, currently under construction and scheduled to hit the road in June, will feature a comfortable interior, including a dressing room, exam room, bathroom, waiting room, intake area, and mammography suite.

The Bonnie Wells Wilson Mobile Mammography Program, known familiarly as Bonnie’s Bus, is the state’s only mobile mammography unit. The Bus travels across West Virginia offering high-quality breast cancer screening mammograms in a comfortable environment.

Even with some time off the road for maintenance, 2016 was the busiest year yet for Bonnie’s Bus with 128 screening days delivering mammograms to more than 2,000 patients.

The 2017 season looks just as busy. The current Bus hit the road in mid-March with a full schedule, and the new Bus is estimated to take its place by June.

Lung cancer is the leading cause of cancer death in West Virginia, more deadly than breast, prostate, and colorectal cancers combined.

West Virginia has a higher rate of lung cancer than the nation as a whole.

Nearly one in three of all cancer deaths in West Virginia is from lung cancer.

Lung cancer is the most frequently diagnosed cancer in men and women combined, with an average of 2,010 new cases diagnosed each year.

Source: West Virginia Cancer Registry and Health Statistics Center

For additional information and to see upcoming stops, visit WVUCancer.org/bonnie.
The WVU Cancer Institute diagnosed 2,537 new patients with close to 20 different cancer types in 2015. Breast, lung, colon, and prostate cancers are consistently the leading cancers in the state, and accordingly those cancer categories represent nearly 60 percent of the Institute’s patient population.

The WVU Cancer Institute saw patients from at least 10 different states in 2016, including patients from every county in the state. As the flagship location, the Mary Babb Randolph Cancer Center alone provided 43,888 patient visits in 2016.
**MULTIDISCIPLINARY TUMOR BOARDS**

**Oncology Solid Tumor Boards**
To participate: Sandy Malone
malonesa@wvumedicine.org / 304-598-5429

- Breast
  - Dr. Kysiah Hazard
  - Dr. M. Adham Salkeni
- Community
  - Dr. Michael Craig
- Thoracic
  - Dr. Patricia Mc
  - Dr. Ghulam Abbas
- Sarcoma
  - Dr. Brock Lindsey (Orthopaedic)
- Head and Neck
  - Dr. Tanvi Pathy
  - Dr. Mohammed Almubarik
- Urology
  - Dr. Tom Hogan
- Gastrointestinal
  - Dr. Alan Thony
- Brain
  - Dr. Aaron Provensano
- Cutaneous Malignancies
  - Dr. Nadim Arar
- Gynecological Oncology
  - Dr. Mohammed Ashraf
  - Dr. Mohammed Almubarik

**Hematologic Malignancy Tumor Boards**
To participate: David Staten
staten@wvumedicine.org / 304-598-5428

- Bone Marrow Transplant
  - Dr. Michael Craig
- MLS (blood cancers)
  - Dr. Abraham Kanate

All tumor boards are held in the Mary Babb Randolph Cancer Center’s ground floor conference room (G801).

**Mohs procedure offers highest skin cancer cure rate**

Joyce Epley came to the WVU Cancer Institute with a nerve tumor very close to her eye. She was able to have it removed using an outpatient procedure called Mohs micrographic surgery.

Mohs surgery is a highly specialized, precise, microscopically guided surgery, used primarily to treat skin cancer, in which the surgeon removes cancerous skin in thin layers. The tissue is then examined microscopically for traces of cancer while the patient reads or watches TV in the waiting room. If any cancer remains, the surgeon removes additional skin, only where necessary, until no further cancer is detected.

**HDR brachytherapy takes the fight to prostate cancer**

The WVU Cancer Institute is now one of only a few cancer care providers in the state offering high dose rate (HDR) brachytherapy to fight prostate cancer.

In brachytherapy, a radioactive implant is placed directly into a tumor to kill the cancer cells. Although the most common way of treating prostate cancer with brachytherapy is to insert small radioactive seeds permanently inside the prostate, advances in technology now allow for HDR brachytherapy, which uses a temporary implant instead.

This safe and highly effective procedure begins in the operating room where a series of small, flexible plastic needles are placed through the perineum to specific locations in the prostate under the guidance of ultrasound. The patient is then moved to the radiation oncology department, where a computer-controlled radioactive seed is placed in each of the catheters, stopping at precise positions in the catheter for a specified period of time to release its dose of radiation into the tumor. After two 10-15 minute treatments, the catheters are removed, and the patient returns home the same day.

HDR brachytherapy can be used as the sole treatment for low-risk and some intermediate-risk prostate cancers or as a boost after external beam radiation for high-risk prostate cancers.

“Mohs surgery has revolutionized the way we treat certain skin cancers,” Dr. Deng said. “This procedure combines surgery with complete surgical margin analysis and is all done on an outpatient basis. Patients get the highest cure rate with minimal removal of noncancerous tissue, which often means a smaller scar.”

Unlike other treatment methods, Mohs surgery allows for complete surgical margin evaluation, which offers the highest potential for cure – even for more aggressive cancers. At the same time, microscopic evaluation allows the surgeon to preserve as much healthy skin as possible. This allows the patient to have the cancer removed while leaving a minimal scar.

“I think I waited about an hour while she looked at it on the slide,” Epley remembered. “She decided to go back and take a little bit more, so they re-named and took a little bit more, and that was it. We were done.”

Mohs surgery is helpful for common skin cancers, like basal cell carcinoma, squamous cell carcinoma, and some forms of melanoma, as well as rare skin cancers. It’s especially effective in treating skin cancers on the head and neck, hands, and feet; large and aggressive skin cancers; and cancers that have recurred despite previous treatment.

**MULTIDISCIPLINARY CLINIC**

A great strength of the WVU Cancer Institute is its broad portfolio of multidisciplinary clinical teams, also called tumor boards.

Each patient’s case is brought before a team of experts specific to that cancer type. The room is filled with as many as 30 people representing all aspects of cancer care, from surgery and clinical trials to social services and pastoral care, to discuss all angles of each patient’s unique case and determine the best course of action.

The aggregated experience and expertise of these disease-specific tumor boards is a great asset to cancer patients, but for physicians at the WVU Cancer Institute’s regional centers, it can be cumbersome to remotely attend several specialty tumor boards each week.

“Our regional clinical partners told us it is not possible to attend so many tumor boards, so we listened. At the suggestion of Dr. Michael Craig, MD, section chief of Hematology/Oncology at WVU Cancer Institute, we created a single point of contact for our community cancer centers to consult with physicians at the Mary Babb Randolph Cancer Center in Morgantown,” Hannah Hazard, MD, director of clinical services, said.

The community tumor board, which meets the second Tuesday of each month at noon, includes key physicians from each specialty. Off-site physicians can attend remotely to present patient cases for discussion, second opinion, or, if needed, referral for advanced care in Morgantown.

“Our goal is to offer the best care to all patients,” Dr. Craig, who leads the community tumor board, said. “By making our specialized resources accessible to our regional physicians, we can make sure that every WVU Cancer Institute patient receives the same top-quality care.”

**HDR**

- Prostatectomy
- External beam radiation
- HDR brachytherapy

**A FULL ARSENAL**

WVU Cancer Institute offers comprehensive prostate cancer treatment options:

- Prostatectomy
- External beam radiation
- HDR brachytherapy

“WVU Medicine.org/cancer Volume II / 2017 11

**Accessible care**

Community tumor board connects physicians across the state

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Community tumor board connects physicians across the state
Starting up to shut down cancer

It’s a long path from a Petri dish to the clinic, but Lori A. Hazlehurst, PhD, and her lab are taking an innovative approach to shorten it.

Dr. Hazlehurst, professor of pharmaceutical sciences and co-leader of the WVU Cancer Institute Alexander B. Osborn Hematopoietic Malignancy and Transplantation Program, is the president and co-founder of a startup company called Modulation Therapeutics that is devoted to moving effective treatments from the lab to clinical trials.

"It’s a process of making sure it’s safe, how you’re going to manufacture it, how you’re going to deliver it. All of that is very expensive," Hazlehurst said. "It’s no longer discovery, so it’s difficult to get a pure academic grant for it, but small business grants allow for the necessary studies required to ensure safety."

Hazlehurst joined the WVU Cancer Institute in 2015. Her lab focuses on multiple myeloma, a blood cancer that can be treated but not cured. The expected survival time, sadly, is only about five years.

"It’s thought that standard of care doesn’t eliminate every cancer cell, so it starts to grow again, and what you end up with after a few treatments is a tumor that is very drug resistant," Hazlehurst said.

By comparing early drug-sensitive specimens to later drug-resistant specimens donated by generous patients, the team determined that their lead cancer-killing molecule, MTI-101, is more active in specimens obtained from patients who have relapsed while on therapy. Based on these results, MTI-101 may provide an effective therapy for myelomas that are resistant to standard-of-care treatment.

That discovery has been moved over to the startup company, located in the WVU Health Sciences Innovation Center, for development into a candidate for clinical trials, a process that Hazlehurst hopes to see come to fruition within the next two years.

Until then, the team is busy identifying additional cancer targets and discovering drugs to target them.

Wei-Chih Chen, PhD, a post-doctoral fellow in the lab, moved to Morgantown from Taiwan two years ago with her husband. She studied drug discovery and cancer research in Taiwan, so Hazlehurst’s lab was a natural fit.

Dr. Chen focuses on the unfolded protein response (UPR), an endoplasmic reticulum stress pathway, in multiple myeloma. Multiple myeloma produces abnormal proteins, and the accumulation of misfolded protein triggers UPR. Because UPR contributes to tumor formation and therapeutic resistance, it may be a target for future therapeutic strategy.

"Understanding the mechanism of the unfolded protein response in multiple myeloma may improve the effect of multiple myeloma treatment," Chen said.

This tangible impact to cancer care drew Sarah Freeman to the field of cancer drug research. Currently a tech in Hazlehurst’s lab, she was recently accepted into the Pharmaceutical and Pharmacological Sciences PhD program, where she will pursue her own research under Hazlehurst’s mentorship.

“\text{"I was looking for a lab where something was being solved instead of just discovered, so dealing with trying to find ways to cure cancer is really interesting," Freeman said.}"

According to Hazlehurst, that’s exactly what she and her team are doing.

“Our lab is really focused on trying to identify new targets from primary patient specimens and think about a drug discovery program to target them, and then move them into the start-up phase to transition them toward the clinic.”
New director brings acclaimed GI cancer research to WVU

Richard Goldberg, MD, director of the WVU Cancer Institute, brings with him a career as a clinical researcher that has spanned three decades.

Having served as the Gastrointestinal Cancer Committee chair for two of the National Cancer Institute (NCI) cooperative groups, Dr. Goldberg remains involved in helping to set the national agenda for investigation of new therapies through the governmentally funded cooperative oncology groups.

Collaboration has remained a hallmark of Goldberg's research, which focuses on the biology and treatment of colorectal cancer.

He has been an author on more than 300 peer-reviewed publications with coauthors that range from students to internationally known researchers from around the globe.

Goldberg has worked with collaborators across the US and Canada to understand inherited susceptibilities to colorectal cancer, especially Lynch Syndrome, which is responsible for early-onset colon and other cancers and accounts for about 5 percent of people with the disease. He worked with colleagues at Johns Hopkins and other universities to discover that the PD-1 inhibitor pembrolizumab, one of a class of drugs that allows the body's own immune cells to recognize cancer cells and destroy them, is exceptionally effective in patients with Lynch Syndrome.

In collaborations with laboratory-based researchers, Goldberg has used tissues and other specimens obtained from patients enrolled in clinical trials to understand the biology of colon cancers in order to fine-tune treatment choices for individual patients. He is currently involved in a study comparing the genetic makeup of patients and their tumors to isolate markers that predict which patients will and will not have recurrent disease after surgery and chemotherapy for localized colon cancer.

Goldberg has been a founding investigator on several large collaborative networks that pool data across studies, giving more power to statistical analyses. One such network produced a study that allows effective drugs to reach patients sooner. The study showed that drug treatment efficacy in localized colon cancer can be reliably indicated in three years instead of the usual five.

Now making his home at the WVU Cancer Institute, Goldberg intends to remain active in pursuing collaborative research endeavors.

"In my own experience as a cancer researcher, some of the greatest insights we’ve had is when people, whose disciplines barely overlap, talk to each other," Goldberg said. "With all of the Health Sciences schools here, the opportunity to be sure that the minds get to cross-fertilize is a great thing.”

Evenings of Science foster collaboration

The best research solves real problems through cross-disciplinary teams working together. Fostering those teams is the mission of the Evenings of Science hosted by the WVU Health Sciences Center Office of Research and Graduate Education.

These evenings invite three research teams from different centers, departments, or campuses to give brief presentations on their work, punctuated by long breaks for informal discussion.

"Our sense was that the breaks were really the most important part," Laura Gibson, PhD, senior associate vice president for Research and Graduate Education and deputy director of the WVU Cancer Institute, said. "Every time there have been people lingering to talk after the last break. To me, that's the mark of a successful meeting where you're trying to encourage connection.

The events, which started with presenters from the WVU Cancer Institute and have expanded across the Health Sciences Center and other campuses, are regularly attended by University colleagues from engineering, chemistry, and other areas, as well as industry partners, such as Myken Pharmaceuticals.

“We’re trying to think more about solving meaningful problems together that require people from different disciplines with unique perspectives,” Dr. Gibson said. And it’s working. New connections are being formed at every Evening of Science. Partnerships have developed between primary investigators at the Health Sciences Center and the WVU Davis College of Agriculture, Natural Resources, and Design; the WVU Department of Chemistry; NIOSH; and even the NIH.

The shared purpose of solving real problems comes from the top leadership. The vice president and executive dean of the WVU Health Sciences Center, Clay Marsh, MD, presented at the August event alongside two other research teams.

Within the next six months, Gibson hopes to see presentations featuring progress on projects that started in that very same room.

Dr. Goldberg’s research interests include:

- New drug development through design and management of clinical trials
- Understanding inherited cancer susceptibility
- Discovery of markers in tumors that predict outcomes and drug sensitivity or resistance
- Pooling data from patients enrolled across multiple clinical trials to extract as much value as possible from the outcome of each person who enrolled.
Groundbreaking cancer research moves to WVU

When Mary J.C. Hendrix, PhD, was named president of Shepherd University, she had a critical decision to make: to shut down her research laboratory at Northwestern University or relocate her groundbreaking cancer research closer to Shepherd.

Although Shepherd has strong undergraduate science programs, it does not currently have the laboratory facilities necessary to support a nationally competitive cancer research team. Those facilities do exist at West Virginia University, a major R1 research university 150 miles west of Shepherd.

Dr. Hendrix was able to move her ongoing research – and several of her team collaborators – to the WVU Cancer Institute to continue their work. An open video portal is available every day to facilitate real-time interactions between the researchers at WVU and Hendrix.

“Our work benefits from contributions of all members of our group, including President Hendrix,” Richard Seftor, PhD, said. “We can plan and discuss experiments as a group and discuss results as soon as they are generated.”

A laboratory team led by Hendrix shook up the cancer research world with a new and controversial theory: that aggressive tumors create their own vascular systems to circulate blood and nutrients from the body to help them rapidly grow. The once-radical idea is now the basis for a promising area of cancer research and the development of new therapies.

In October, Hendrix and her team at the WVU Cancer Institute, working with collaborators in Chicago, Boston, and Australia, published a breakthrough in preventing metastasis of melanoma. Their research shows that the current front-line cancer therapies employed by physicians do not reduce the level of Nodal, a protein long known to be active in embryonic development, in aggressive tumor cells. This study suggests that a combination of treatments targeting both Nodal-positive melanoma cells and other surrounding cancer cells will be the most effective therapy to successfully halt the progression of melanoma from a single cancer site to distant sites.


Members of Dr. Hendrix’s research team who joined the WVU Cancer Institute

Elsabeth A. Seftor / Richard E.B. Seftor, PhD / Naira V. Margaryan, DVM, PhD

West Virginia University Mountaineers Men’s Basketball Coach Bob Huggins achieved his 800th win as head coach on December 17, 2016.

Coach Huggins is one of only 10 NCAA Division 1 basketball coaches and one of only four active coaches to cross the 800-victory threshold.

Friends and supporters of Huggins created the 800 Club to recognize this extraordinary milestone and support a cause that is dear to Huggins, the Norma Mae Huggins Cancer Research Endowment Fund at the WVU Cancer Institute. The Fund was established in memory of Huggins’ mother, who succumbed to colon cancer in 2003.

Eight hundred charter memberships of the 800 Club will be given to those who contribute $800 or more to the Norma Mae Huggins Cancer Research Endowment Fund.

The Fund supports clinical cancer research, targeting many types of the disease that are common among residents of the Mountain State, which has the third highest cancer mortality rate in the nation.

Club members receive an autographed photo of Huggins and a limited-edition 800 Club jacket, as well as an annual newsletter of exclusive updates, VIP admission for two to the annual event hosted by Coach Huggins, and other special opportunities and privileges with Huggins.

The efforts of Coach Huggins and others have raised more than $1.35 million for cancer clinical research in West Virginia.

“We have an excellent opportunity to make a positive difference in cancer research, a horrible disease that affects so many,” Huggins said, “and we can do it right here at home through the WVU Cancer Institute.”
The West Virginia University Clinical Trials Research Unit (CTRU) conducts clinical trials at the WVU Cancer Institute, as well as at the WVU Robert C. Byrd Health Sciences Center. Based in Morgantown, the unit is dedicated to providing the services and expertise that investigators need to conduct clinical trials focused on improving the treatment of cancer. The CTRU offers cancer clinical trials in virtually all cancers common to West Virginians and has received several Commission on Cancer commendations for regularly exceeding the national standard for percentage of patients enrolled in clinical trials.

### CTRU AT A GLANCE

#### 2015-2016

The West Virginia University Clinical Trials Research Unit (CTRU) conducts clinical trials at the WVU Cancer Institute, as well as at the WVU Robert C. Byrd Health Sciences Center. Based in Morgantown, the unit is dedicated to providing the services and expertise that investigators need to conduct clinical trials focused on improving the treatment of cancer. The CTRU offers cancer clinical trials in virtually all cancers common to West Virginians and has received several Commission on Cancer commendations for regularly exceeding the national standard for percentage of patients enrolled in clinical trials.

### New patients in therapeutic trials by cancer type

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Number of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>20</td>
</tr>
<tr>
<td>Head &amp; Neck</td>
<td>16</td>
</tr>
<tr>
<td>Larynx</td>
<td>3</td>
</tr>
<tr>
<td>Mouth</td>
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</tr>
<tr>
<td>Oral Pharynx</td>
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<tr>
<td>Tongue</td>
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<tr>
<td>Leukemia</td>
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<tr>
<td>Lung</td>
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<tr>
<td>Lymphoma</td>
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<tr>
<td>Melanoma</td>
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<tr>
<td>Multiple Myeloma</td>
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<tr>
<td>Prostate</td>
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<tr>
<td>Sarcoma</td>
<td>1</td>
</tr>
<tr>
<td>Brain</td>
<td>4</td>
</tr>
</tbody>
</table>

### New patients enrolled in therapeutic trials by cancer type

- **Breast**: 20 patients
- **Head & Neck**: 16 patients
- **Larynx**: 3 patients
- **Mouth**: 1 patient
- **Oral Pharynx**: 1 patient
- **Tongue**: 1 patient
- **Leukemia**: 19 patients
- **Lung**: 18 patients
- **Lymphoma**: 13 patients
- **Melanoma**: 3 patients
- **Multiple Myeloma**: 11 patients
- **Prostate**: 2 patients
- **Sarcoma**: 1 patient
- **Brain**: 4 patients

### Total new patients

- **Total new patients**: 1,519

#### National Avg.

- **3%**

#### WVUCI

- **6% (97)**

### 15% of participants in new trials are out-of-state

- **Maryland**
- **New York**
- **Ohio**
- **Pennsylvania**

### Patients in Clinical Trials by County

- **Oswego County, New York, not shown**

#### CTRU AT A GLANCE

- **AT A GLANCE**

- **New patients in therapeutic trials by cancer type**

- **National Avg.**
  - **3%**

- **WVUCI**
  - **6% (97)**

- **Total new patients**
  - **1,519**

- **15% of participants in new trials are out-of-state**
  - **Maryland**
  - **New York**
  - **Ohio**
  - **Pennsylvania**
Caring across the cancer continuum
Moonshot grant will improve care for lung cancer survivors

The WVU Cancer Institute has been awarded a total of $730,000 to begin a two-year program focused on lung cancer survivorship. At a White House event, the Bristol-Myers Squibb Foundation announced new partnerships with the WVU Cancer Institute and three additional partners to develop, implement, and evaluate an innovative model of comprehensive, coordinated care to better meet the needs of lung cancer survivors and their caregivers.

“This is an exciting opportunity for the WVU Cancer Institute and WVU Medicine to thoroughly address the issues that encompass all aspects of lung cancer survivors’ lives – physical, psychological, economic, and social,” Stephanie Kennedy, EdD, director of the WVU Cancer Institute’s Cancer Prevention and Control program and principal investigator for the program, said. “When you combine this program with the recent funding received to promote lung cancer screening, we now have initiatives on both ends of the cancer continuum – prevention and survivorship – to complement an already robust line of treatment services.”

Dr. Kennedy is partnering with co-investigators Patrick Ma, MD, associate professor and Emeritus Scholar in Lung Cancer Research, co-leader of the Sara Crile Allen and James Frederick Allen Lung Cancer Program; Sara Jane Galler, MBA, director of the Bonnie Wells Wilson Mobile Mammography Program; Jim Kanesky, MBA, director of Mountains of Hope Cancer Coalition; Stephanie Kennedy, EdD, associate director for the Cancer Prevention and Control program; and Anne Swisher, PhD, professor in the WVU Division of Physical Therapy.

Bridge to Good Living: Thriving beyond Lung Cancer

Interdisciplinary, patient-centered survivor care services for all lung cancer patients who complete active treatment

- Monitoring and managing physical and psychosocial symptoms
- Health promotion counseling – smoking cessation – stress reduction – diet and exercise
- Surveillance for cancer recurrence
- Development of treatment summary and care plans
- Navigation to community-based resources
- Educating providers to improve the care delivered to lung cancer patients across the continuum of care

CANCER CELL BIOLOGY GRADUATE PROGRAM

The WVU Cell Biology Graduate Program trains PhD and MD/PhD candidates to be cancer researchers. It provides a strong foundation in cell biology, oncogenes and signaling networks, tumor microenvironment, bioinformatics, and chemotherapeutics learned through course work and laboratory training.

HEMATOLOGY/ONCOLOGY FELLOWSHIP

WVU Hematology/Oncology fellows develop clinical expertise in cancer care, acquire knowledge of basic biology of neoplastic diseases, and carry out research on problems in Hematology/Oncology. Fellows see a variety of complex patients and work in inpatient, clinic, and research settings.

ONCOLOGY PHARMACY RESIDENCY

The WVU Oncology Pharmacy Residency provides experience in hematologic malignancy, solid tumor oncology, bone marrow transplant, ambulatory oncology, investigational drug therapy, research, and palliative care.

RADIATION THERAPY PROGRAM

The Radiation Therapy Program at the WVU Cancer Institute is a 12-month certificate program for radiographers. Student therapists obtain clinical experience in radiation treatment techniques, CT simulation, treatment planning, and brachytherapy implants.

UNDERGRADUATE SUMMER RESEARCH FELLOWSHIP PROGRAM

The Mary Babb Randolph Cancer Center offers undergraduate research fellowships in clinical and basic research. The highly competitive 10-week fellowship program provides funding and opportunities for students who want to pursue careers in cancer research.

Continuing Education Opportunities

- Women’s Health Information Program (Charleston) – May 16
- Women’s Health Information Program (Bridgeport) – May 18
- Annual Breast Cancer Conference – August 11
- Colorectal Cancer Summit (Beckley) – August 30
- Fall Cancer Conference – October 6
- Lung Cancer Conference – November TBA
LITERATURE REVIEW: MONITORING PSMA EXPRESSION AS A THERAPEUTIC TARGET IN PROSTATE CANCER.

DETECTION OF PSMA EXPRESSION IN PROSTATE CANCER TUMORS USING FLOW CYTOMETRY.

APPLICATION OF PSMA EXPRESSION AS A THERAPEUTIC TARGET IN PROSTATE CANCER.

CONCLUSION.

REFERENCES.

WVU Cancer Institute

EDUCATION

WVU Medical University

PROSTATE CANCER

DETECTION OF PSMA EXPRESSION AS A THERAPEUTIC TARGET IN PROSTATE CANCER.

APPLICATION OF PSMA EXPRESSION AS A THERAPEUTIC TARGET IN PROSTATE CANCER.

CONCLUSION.

REFERENCES.

WVU Cancer Institute

EDUCATION

WVU Medical University

SKIN CANCER

ACNE EPIDEMIOLOGY IN COMBINATION DABRAFENIB/ TIRAFLUORIDE THERAPY.

JOURNAL OF ONCOLOGY.

TARGETING MELANOMA WITH F EPITYPE.

A PROPOSING SYSTEMATIC AND SEMI-STRUCTURED INTERVIEW WITH PARTICIPANTS TO IDENTIFY INFLAMMATION-RELATED THERAPEUTIC STRATEGIES.

CONCLUSION.

REFERENCES.

WVU Cancer Institute

EDUCATION

WVU Medical University

MULTIMODAL CANCER NANODRUGS诱导PULMONARY IMMUNOTHERAPY AND THERAPEUTIC RESPONSES AND RISK FACTORS FOR PROSTATE CANCER.

1-YEAR POSTOPERATIVE STUDY.

JOURNAL OF THERAPEUTIC IMMUNOBIOLOGY.

EFFECTS OF INTRADERMAL DEXAMETHASONE ON URINARY GLUCOSE AND HYDROCORTISONE.

A DEMONSTRATION OF COMBINED PROSTATE CANCER THERAPEUTIC STRATEGIES.

REFERENCES.

WVU Cancer Institute

EDUCATION

WVU Medical University
**CANCER PREVENTION AND CONTROL**


Niesha L. Griffith

*Vice President of Clinical Services*

Hannah Hazard, MD

*Director of Clinical Services*

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304-595-3900 or 877-427-2894

MORGANTOWN, WV
304-293-8012

UNIVERSITY HEALTHCARE REGIONAL CANCER CENTER
MARTINSBURG, WV
304-267-1944

CAMDEN CLARK REGIONAL CANCER CENTER
PARKERSBURG, WV
304-624-2366

WV CANCER INSTITUTE AT GARRETTE REGIONAL MEDICAL CENTER
OAKLAND, MD
301-533-4222

FAIRMONT REGIONAL CANCER CENTER
FAIRMONT, WV
304-386-9699

WV CANCER INSTITUTE AT REYNOLDS MEMORIAL HOSPITAL
GLEN DALLAS, WV
OPENING MAY 2017

DAVIS MEDICAL CENTER CANCER CARE CENTER
ELKINS, WV
304-637-3040

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**PATIENT INFORMATION**

For information on patient services at the WVU Cancer Institute, call our care team at 877-427-2894 or visit WVUMedicine.org/cancer.

**CLINICAL TRIALS**

For information on current clinical trials at the WVU Cancer Institute, contact the clinical trials team by e-mail at cancertrialsinfo@hsc.wvu.edu.

**DONOR INFORMATION**

For information on supporting programs at the WVU Cancer Institute, please contact:
Office of Philanthropy
304-293-3711
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WVU Cancer Institute/give

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