

ATRIUM HEALTH LEVINE CANCER PROTON & ADVANCED RADIATION CENTER

# Gamma Knife Radiosurgery

PATIENT INFORMATION



**Atrium Health**  
Levine Cancer

Now part of  **ADVOCATE HEALTH**

## WELCOME

Dear valued patient,

On behalf of our entire team, I would like to welcome you to the Gamma Knife radiosurgery program at Atrium Health Levine Cancer Proton & Advanced Radiation Center. We hope this patient guide will help you prepare for your Gamma Knife procedure.

We're proud to be the first and only center in the Charlotte region offering Gamma Knife radiosurgery. It's one of the most technologically advanced incision-free brain surgery techniques available today.

As our patient, you'll benefit from the combined experience and expertise of Atrium Health Levine Cancer and Atrium Health Neurosciences Institute, established leaders in radiation therapy and neurosurgery. Our multidisciplinary team of experts knows how to customize your treatment plan to achieve the best result. And we offer a range of supportive therapies to help ease stress and improve your quality of life.

That's why Levine Cancer is Planetree-designated for person-centered care. This designation means our health care providers partner with patients and families, and that patient comfort, dignity, empowerment and well-being are prioritized along with providing top-quality clinical care.

We're honored to be your partner on this journey and look forward to caring for you. Thank you for trusting us with your health.

Sincerely,

Stuart H. Burri, MD  
Chairman of Radiation Oncology  
Atrium Health Levine Cancer



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## ABOUT GAMMA KNIFE RADIOSURGERY

### What is Gamma Knife radiosurgery?

Gamma Knife is an advanced type of radiation therapy called stereotactic radiosurgery. The procedure doesn't involve any surgical incision (cuts). Instead, it uses highly focused beams of radiation (energy) to treat tumors and other conditions in the brain and skull region.

Gamma Knife has been considered the gold standard in radiosurgery for more than 30 years. At Levine Cancer, we use the most advanced technology of its kind on the market. Compared to earlier equipment, it can treat even more tumors in hard-to-reach areas and provides a significantly more comfortable treatment for most patients.

### What are the benefits of Gamma Knife radiosurgery?

Some of the advantages of Gamma Knife radiosurgery include:

- **Precision:** Special equipment allows doctors to treat diseased brain tissue with carefully targeted radiation that minimizes harm to surrounding healthy tissue.
- **Safety:** Since it's a non-invasive procedure, the risk of infection and other complications is low. Treatment also automatically stops if you move even the tiniest amount, which helps prevent exposure to radiation outside of your targeted treatment plan.
- **Recovery time:** Radiosurgery is done as an outpatient procedure, meaning you can go home the same day. Most patients experience very little discomfort and can quickly get back to regular activities.
- **Cost:** Gamma Knife radiosurgery doesn't require a lengthy hospital stay or rehabilitation, which helps keep costs down compared to traditional surgery alone.



## MEET YOUR CARE TEAM

Gamma Knife treatment is planned and delivered by a team of highly trained specialists. Led by a radiation oncologist and neurosurgeon, with personal support from our Gamma Knife coordinator, this team will work together to give you the best possible care.

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### Radiation oncologist

A radiation oncologist is a doctor who specializes in using radiation therapy to treat cancer and certain non-cancerous conditions. Your radiation oncologist will oversee your Gamma Knife treatment, from the creation of your personalized treatment plan to follow-up care after your procedure is done.

### Meet the radiation oncologists in our Gamma Knife program.



**Stuart Burri, MD**

Radiation oncologist

**Medical School**

Emory University

**Residency**

Emory University

**Board Certified**

Radiation Oncology



**Roshan Prabhu, MD**

Radiation oncologist

**Medical School**

University of Florida

**Residency**

Emory University

**Board Certified**

Radiation Oncology

Dr. Burri is chairman of radiation oncology at Atrium Health Levine Cancer. His research, which is primarily focused on brain metastases, has been published in numerous scientific journals. Dr. Burri was part of a team that pioneered the use of radiosurgery prior to the resection of brain metastases as a novel technique. He has been named a Top Doctor by Castle Connolly, Charlotte Magazine and Business North Carolina.

Dr. Prabhu is medical director of radiation oncology at Atrium Health Levine Cancer Institute. He is also director of radiation oncology research and adjunct associate professor of radiation oncology at Atrium Health. He has been named a Charlotte Magazine Top Doctor several times. Dr. Prabhu is actively involved in research focusing on using novel radiation techniques and/or medications to reduce the toxicity of treatment of tumors of the central nervous system. He has authored or co-authored over 70 peer-reviewed research articles.

## Neurosurgeon

A neurosurgeon is a doctor who diagnoses and treats conditions of the brain, spine and nervous system through surgical and nonsurgical treatments. Along with your radiation oncologist, your neurosurgeon is responsible for creating your Gamma Knife treatment plan.

### Meet our Gamma Knife neurosurgeons.



**Anthony L. Asher, MD, FFAANS, FACS**

Neurosurgeon

**Medical School**

Wayne State University

Howard Hughes Medical Institute – NIH  
Research Scholar

**Residency**

University of Michigan

**Fellowship**

National Cancer Institute

**Board Certified**

Neurological Surgery



**Scott Wait, MD**

Neurosurgeon

**Medical School**

East Carolina University

**Residency**

Barrow Neurological Institute

**Fellowship**

LeBonheur Children's Hospital

**Board Certified**

Neurological Surgery

Dr. Asher is president of Atrium Health Neurosciences Institute and surgical director of the neuro-oncology program at Atrium Health Levine Cancer. He has served in numerous leadership positions in the field of neurosurgery, including president of the American Association of Neurological Surgeons for 2023-2024. Dr. Asher has developed and directed several national cooperative clinical databases to improve surgical quality outcomes and has extensive experience in clinical cancer research. He has been named a Top Doctor by Castle Connolly and Charlotte Magazine.

Dr. Wait is medical director of pediatric neurosurgery at Atrium Health Levine Children's Hospital, leading a division which treats the full spectrum of pediatric neurosurgical disorders. He specializes in brain and spinal cord tumors, cerebrovascular disease, epilepsy surgery, neurotrauma, peripheral nerve surgery and endoscopy – for which he trained with Dr. Charles Teo, a pioneer in endoscopic techniques. An internationally trained neurosurgeon, Dr. Wait has more than 40 peer-reviewed research publications.

## Medical physicist

A medical physicist plans and performs the Gamma Knife treatment plan, ensuring the procedure is correct and safe. They will perform quality checks and make sure the radiation dose meets the prescribed treatment plan.



**David Piantino, MS**

Medical physicist

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## Gamma Knife coordinator

Our Gamma Knife coordinator is a nurse who will be your dedicated point of contact to help guide you through the treatment process. They can:

- Connect you with a Gamma Knife doctor
- Explain the process and what to expect before, during and after your treatment
- Coordinate medical appointments related to your Gamma Knife treatment
- Coordinate the sharing of medical information such as records and imaging
- Connect you to providers and services needed throughout the process
- Link you to Global Healthcare Services to assist with travel
- Help with creating your custom treatment mask



**Stacey Scott, MSN, RN, NE-BC**

Gamma Knife coordinator

Email: [GammaKnife@AtriumHealth.org](mailto:GammaKnife@AtriumHealth.org)

## OTHER MEMBERS OF YOUR CARE TEAM

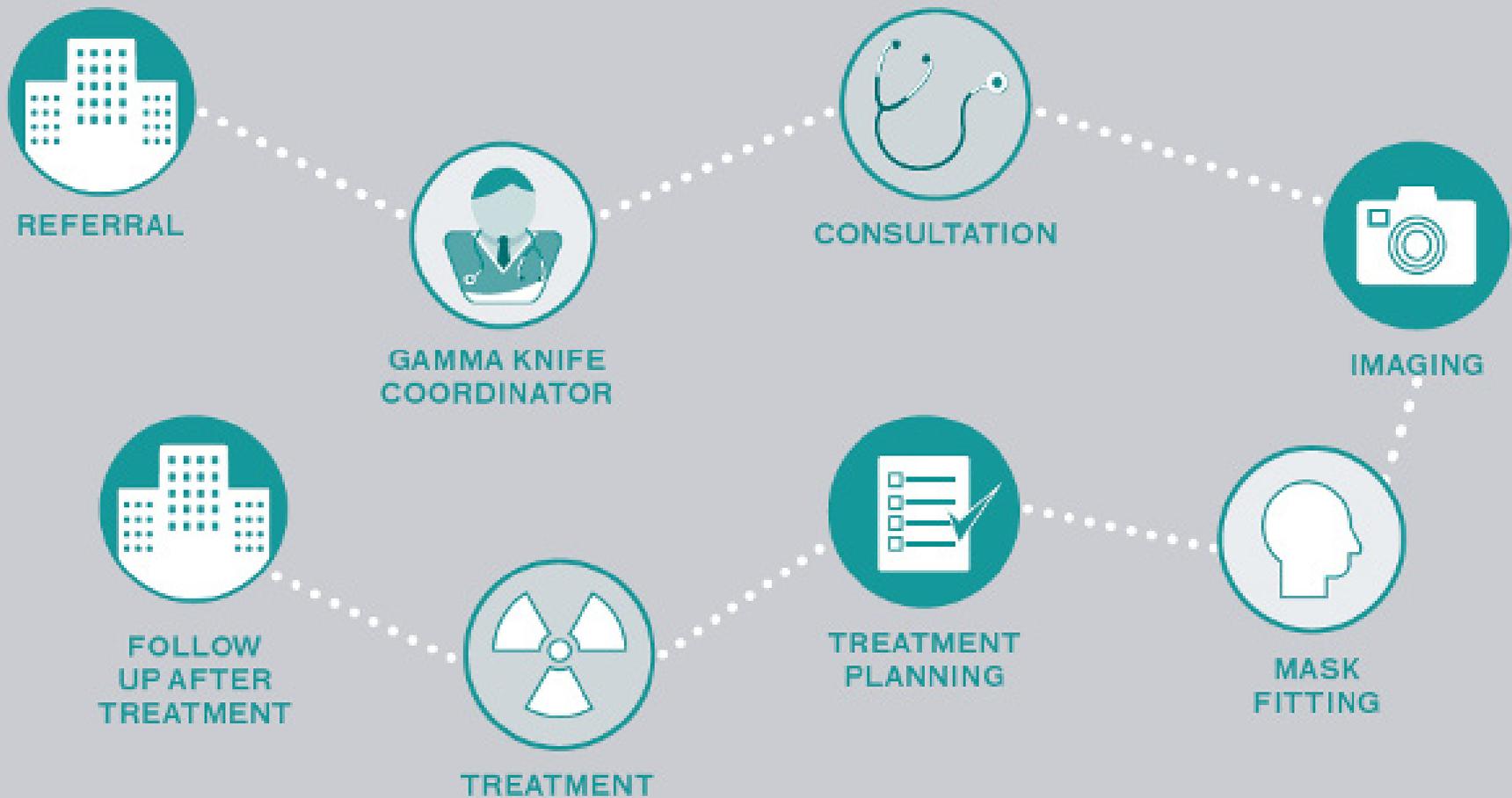
Your radiation oncologist, neurosurgeon and Gamma Knife coordinator will work closely with other physicians and staff to provide complete care. You'll see some of these team members at your visits, and some will work behind the scenes.

### Other members of your care team may include:

- **Advanced practice providers (APPs):** APPs collaborate with physicians to ensure patients receive high-quality and timely care. They are often involved in your consult and follow-up care as well as assisting with answering any treatment-related questions you may have.
- **Clerical team:** Members of our clerical team will schedule your appointments and gather medical records needed for your treatment.
- **Clinic nurses:** Nurses will help prepare your chart for the doctor to review. They will ask questions and collect information about your medications, allergies, medical history (including surgeries and family history) and your overall health.
- **Radiation therapists:** A radiation therapist may help deliver your Gamma Knife treatment. They will monitor the radiation to ensure that your treatment plan is followed.
- **Integrative oncology team:** Our specially trained integrative oncology team can provide supportive care that can help you tolerate treatment better. You can choose from a menu of options like music therapy, art therapy and spiritual care. Learn more about our support services.



## WHAT TO EXPECT – PATIENT EXPERIENCE DIAGRAM



## WHAT TO EXPECT – BEFORE TREATMENT

Preparing for treatment with a Gamma Knife involves several steps to ensure the procedure is safe and effective. Here's what to expect before your Gamma Knife procedure.

### Referral and Gamma Knife Coordinator

Gamma Knife treatment is offered by physician referral only. If you have questions about how referrals work or need help with a referral, contact our Gamma Knife coordinator.

Once you're referred for Gamma Knife treatment, you will meet with our Gamma Knife coordinator to get an overview of the process and start coordinating your treatment.

### Consultation Appointment

The first step in preparing for Gamma Knife treatment is to have a consultation with a radiation oncologist. A radiation oncologist is a doctor who specializes in using radiation therapy to treat cancer and certain non-cancerous conditions.

During your consultation appointment, your doctor will find out if Gamma Knife radiosurgery is the right treatment for you. They will review your medical history and may order more imaging tests that are needed for treatment. The doctor will discuss treatment options with you and help you decide on the next steps.

### Imaging

We use images of your brain to make a treatment plan for your specific needs. In many cases, magnetic resonance imaging (MRI) is needed within 7 days of your scheduled Gamma Knife treatment.

## SIMULATION AND MASK-FITTING APPOINTMENT

Once you and your doctor have decided Gamma Knife treatment is right for you, we'll schedule your appointment for a custom mask fitting.

To ensure the radiation is delivered precisely, it's important that your head doesn't move during treatment. We create a custom mask that attaches to the treatment machine and helps you stay still.

As part of this appointment, we also complete a simulation of treatment. This involves taking images while you're in the mask to find the best position for your head during treatment. When you return for treatment, we will help you get in the same position.

### To prepare for your mask-fitting appointment, you should:

- Take all your medicines as you normally do
- Avoid wearing any jewelry or makeup
- Eat a light meal the morning of your appointment
- Wear comfortable clothing that does not have a hood or collar
- Remove any facial hair such as beards, mustaches or goatees
- Avoid wearing clips, pins, bands, braids, wigs or other hair accessories
- Avoid using any hair products such as hairspray or gel
- Let your doctor or Gamma Knife coordinator know if you're uncomfortable with tight spaces



**When you come in for your mask fitting and simulation, here's what to expect:**

- Your care team will help you lay on the treatment table. We use specialized equipment and cushions to support you and make you comfortable.
- The mask is made of a lightweight material that's flexible when heated. While the mask is warm, it will be placed over your face with an opening around your nose. As it cools, the plastic will mold to fit your face.
- This process is painless, and you will be able to breathe freely. The mask has an opening for your nose.
- After the mask has cooled, it will hold your head securely in place. Then you will have a scan on the machine in the mask. These images will be used to create your personal treatment plan.

**Treatment Planning**

Over the next few days, the radiation team will use a special computer program to develop your custom treatment plan. They will use the pictures from the MRI to plan where to aim the radiation beams. The computer program uses advanced technology to maximize the safety and accuracy of your radiation treatment.

The team will also figure out how many Gamma Knife treatment sessions you need. Typically, patients receive 1 to 5 treatments.

Your treatment plan will be completed before your procedure begins. Your doctor will review it with you, so you know what to expect.



## WHAT TO EXPECT - DAY OF TREATMENT

Your care team will make sure you're prepared for treatment and can answer any questions you may have. Here is an overview of what will happen on the day of your Gamma Knife procedure.

### Before You Arrive

Preparing for treatment is similar to preparing for your mask-fitting appointment. To get ready for your procedure, you should:

- Take all your medicines as you normally do
- Avoid wearing any jewelry or makeup
- Eat a light meal the morning of your appointment
- Wear comfortable clothing that does not have a hood or collar
- Remove any facial hair such as beards, mustaches or goatees
- Avoid wearing clips, pins, bands, braids, wigs or other hair accessories
- Avoid using any hair products such as hairspray or gel
- Let your doctor or Gamma Knife coordinator know if you're uncomfortable with tight spaces

A family member or friend will need to go with you on the day of your Gamma Knife procedure and drive you home after the treatment.



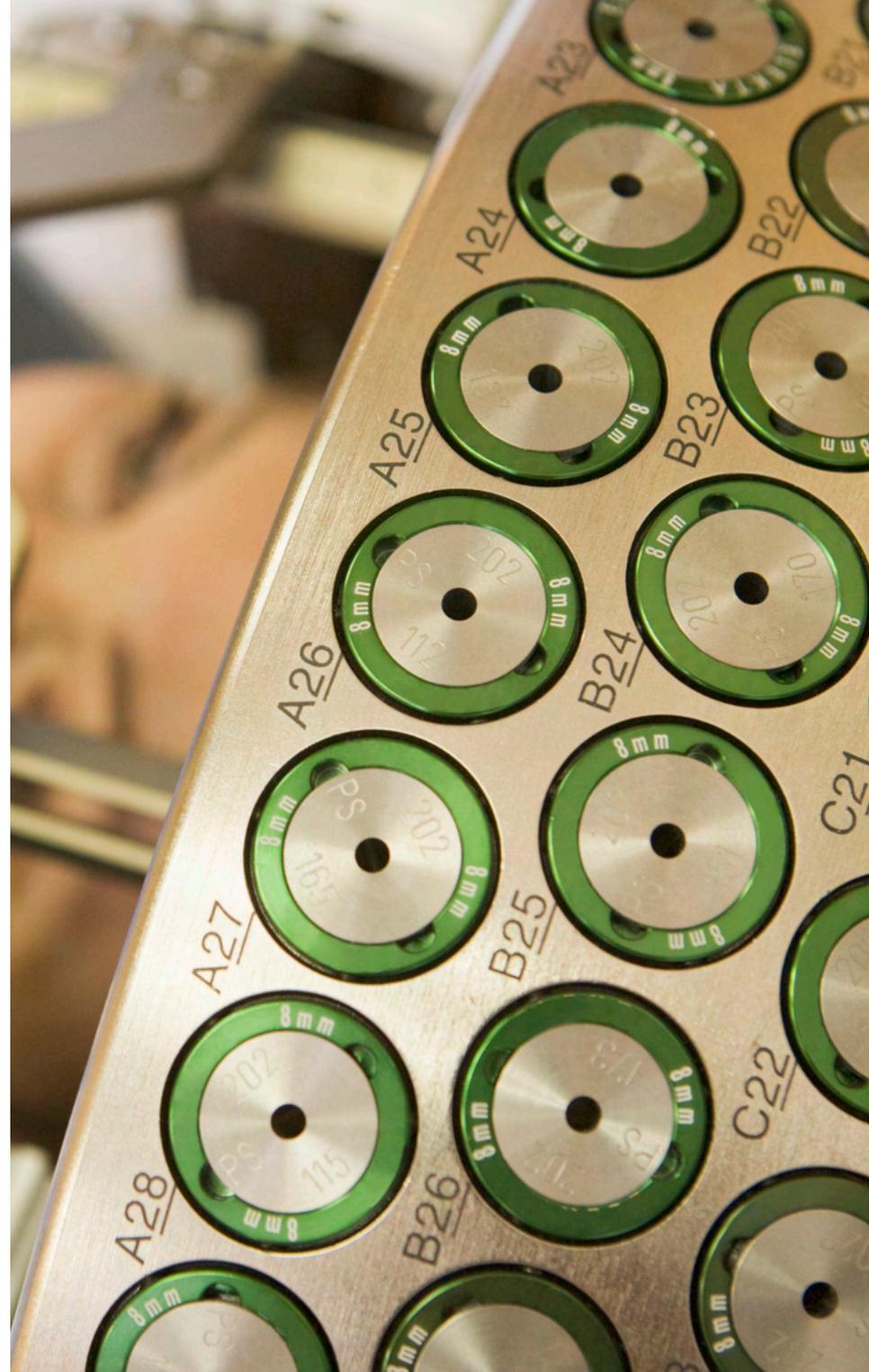
## Radiosurgery Treatment Process

When you arrive, your care team will bring you back to the Gamma Knife treatment room to begin the treatment process. Visitors are not allowed in the treatment room.

### Here's what to expect:

- The care team will help you lay down on the Gamma Knife machine in the same position you were in when you had your mask fitting.
- Your custom mask will be secured in place to help make sure your head does not move during treatment. A small reflective disc will be placed on your nose to detect movement. If you move during treatment, the radiation will stop automatically. It will start again once you're back in position.
- If desired, you can choose your favorite music to listen to during your treatment.
- The treatment team will go into another room. You will be able to hear your treatment team as they update you on your progress. They will watch you on a camera and can stop the treatment if needed.
- You will have a scan on the Gamma Knife machine to check your position in the mask.
- Once the scan is complete, the table you are lying on will move into the Gamma Knife machine. Then, your treatment will begin.
- You will not be able to feel the radiation. the placement of the treatment mask should not cause any pain. There are holes in the mask that allow you to breathe freely, and your nose won't be covered at all.

Once your session is complete, your mask will be removed. You can go home as soon as your care team says that it's OK, typically right after treatment.



## WHAT TO EXPECT – AFTER TREATMENT

You can go home the same day as the Gamma Knife procedure and return to normal activities shortly after. However, the effects of the radiation may not be noticeable right away and could take several weeks to fully develop. Your care team will continue to guide you through the next steps.

### Follow-Up Appointment

After your treatment, your doctor will schedule a follow-up appointment to check your progress and ensure that the treatment was successful.

You may need to complete imaging tests before your follow-up appointment. We use imaging to check the effectiveness of your treatment.

At your follow-up appointment, the advanced care provider and your doctor will discuss the results of any tests as well as any symptoms you're experiencing.

### Side Effects of Gamma Knife Radiosurgery

Side effects can occur after Gamma Knife treatment and vary from person to person. Not all patients will have these side effects. Your care team will talk to you about the possible side effects of your treatment and can help you manage your symptoms as needed.

#### Some possible side effects include:

- **Fatigue:** You may feel more tired than usual for a few weeks after Gamma Knife treatment. This is a common side effect of radiation treatment and usually gets better over time. Exercising daily can give you more energy.
- **Headaches:** You may get a headache after Gamma Knife treatment. Use over-the-counter pain medication or medication prescribed by your doctor, if necessary.
- **Nausea and vomiting:** You may experience nausea and vomiting after Gamma Knife treatment, which can be treated with medication.

- **Hair loss:** Hair loss near the treatment areas can be a temporary side effect after treatment. This hair typically grows back quickly.
- **Swelling:** Swelling in the area treated with Gamma Knife is possible. This can cause temporary changes in brain function that usually improve over time.
- **Other potential side effects:** In some cases, Gamma Knife treatment may cause skin irritation, changes in appetite or changes in the ability to taste or smell.

### When to Call Your Care Team

If you experience side effects after Gamma Knife treatment, let your care team know. They may be able to help. You can always send a message to your doctor or Gamma Knife coordinator through MyAtriumHealth.

#### Call your care team or seek medical care right away if you have:

- A new kind of headache or headache that is not helped by pain medicine
- Any new or worsening weakness, numbness or vision problems
- Any difficulty completing normal tasks
- Nausea or vomiting not relieved with medication
- Forgetfulness or “brain fog”

## SUPPORT SERVICES

At Levine Cancer, we take a person-centered approach for the best possible patient experience. Our treatment center was designed with your comfort in mind, and our Gamma Knife coordinator offers personal support every step of the way.

### Integrative Oncology Services

Integrative oncology is an evidence-based, holistic way to promote wellness and maximize your quality of life throughout treatment and recovery. We offer a special menu of integrative oncology services designed to help patients receiving Gamma Knife treatment.

#### These services include:

- **Music therapy:** Music therapy can help you feel less nervous during your treatment. Music therapists meet with you as you are getting ready for radiation. Together, you can work on using music to lower your stress and help you feel calmer. This may include making a playlist of music that could help during treatment and learning other ways to relax.
- **Guided imagery meditation:** If you're nervous about your treatment, guided imagery meditation can help you feel more relaxed. Your Gamma Knife coordinator can provide more information and help connect you with this resource.
- **Therapeutic art:** Our artists-in-residence work with patients and care partners to use art to tell your story, express your feelings and have fun. If your treatment uses a mask, you can work with the artist to make something fun and meaningful out of your mask when you are done with treatment.
- **Spiritual care:** Our chaplain is available to meet with patients and care partners. The chaplain can help with processing health concerns and finding meaning through spiritual support.

Our Gamma Knife coordinator can help you understand the integrative services available to you, including costs, and make a plan that works for you.

### Other Support Services

Levine Cancer is home to the region's most comprehensive cancer support programs. Through the Department of Supportive Oncology, our patients have access to nutrition counseling, rehabilitation, mental health care, survivorship support and more.

For help finding support for your needs, ask your care team to connect you to Supportive Oncology or contact the Cancer Resource Center (CRC). The CRC is a hub for information on support services, groups and classes and community resources. You can reach the CRC by calling 980-442-1006 or emailing [LCISupportiveOncology@AtriumHealth.org](mailto:LCISupportiveOncology@AtriumHealth.org).

## LOCATION AND TRAVEL INFORMATION

Levine Cancer offers Gamma Knife radiosurgery in Charlotte and Winston-Salem, NC. This guide includes information for patients and care partners visiting our Charlotte facility, Atrium Health Levine Cancer Proton & Advanced Radiation Center.

### Our Location

Our Gamma Knife treatment center is in the heart of Charlotte, a short 20-minute drive from Charlotte-Douglas International Airport. The facility is part of the Atrium Health Carolinas Medical Center campus.

### Atrium Health Levine Cancer Proton & Advanced Radiation Center

1310 E. Morehead St.  
Charlotte, NC 28204



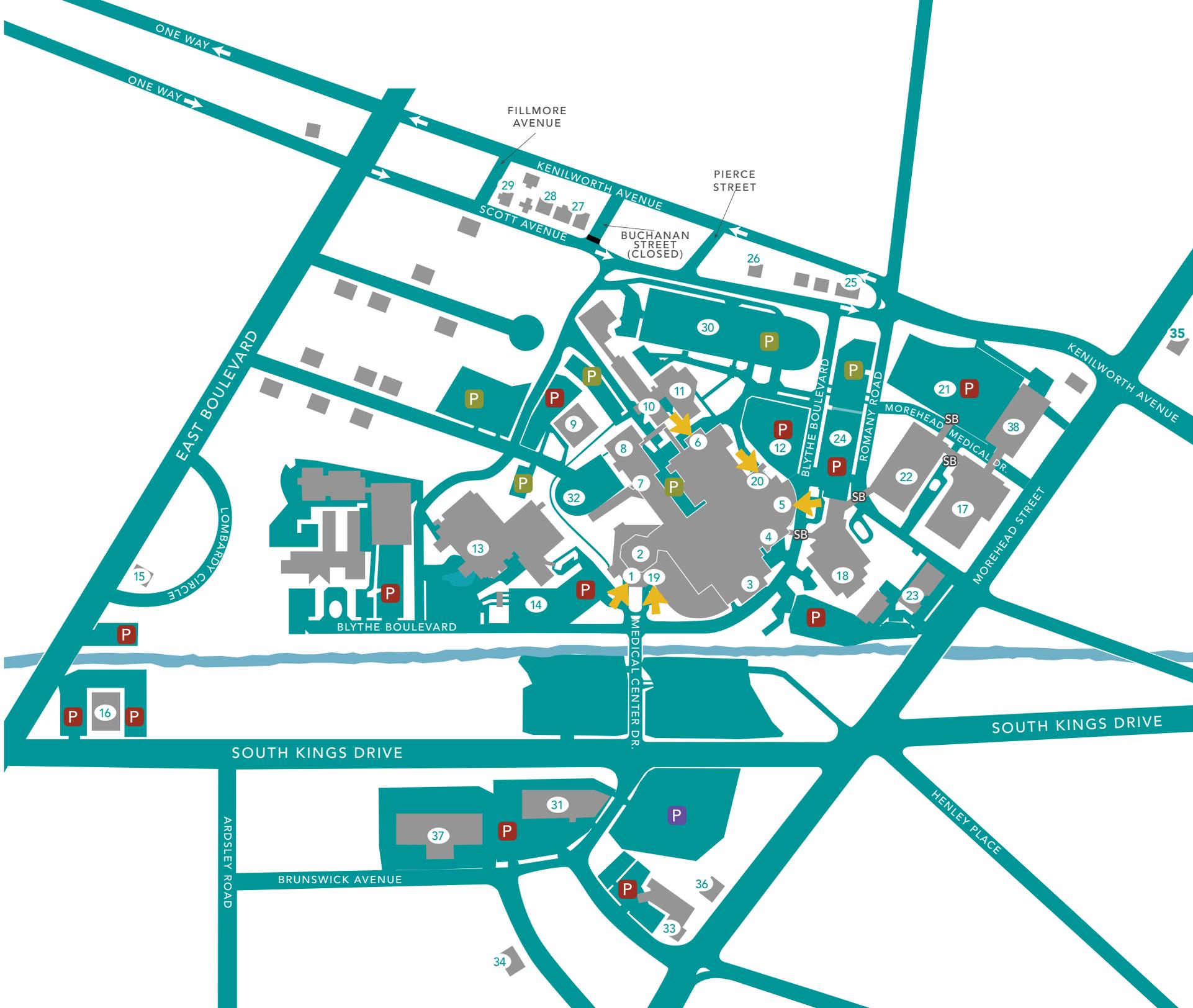
# CAMPUS MAP

## Carolinas Medical Center & Levine Cancer Institute III

- 1 Atrium Health Carolinas Medical Center (CMC) Main Entrance
- 2 Rush S. Dickson Tower
- 3 Surgery/ICU Tower
- 4 Sanger Heart & Vascular Institute
- 5 Outpatient Entrance
- 6 Emergency Department Entrance
- 7 Cannon Research Center
- 8 Auditorium
- 9 Research Office Building
- 10 Annex Office Building
- 11 Medical Education Building/UNC School of Medicine
- 12 Children's and CMC Emergency Department Parking
- 13 Atrium Health Carolinas Rehabilitation
- 14 Visitor Parking Deck (Blythe Deck)
- 15 Pediatric Resource Center
- 16 Atrium Health Mercy, a facility of Carolinas Medical Center
- 17 Levine Cancer Institute
- 18 Medical Center Plaza
- 19 Levine Children's Hospital Main Entrance
- 20 Children's Emergency Department Entrance
- 21 Morehead Medical Plaza Parking Deck
- 22 Morehead Medical Plaza
- 23 Atrium Health and Construction Management (Hanover Square)
- 24 Medical Center Plaza Parking Deck
- 25 Carolinas Education Institute
- 26 Hospitality House of Charlotte
- 27 Pre-hospital Medicine
- 28 Oral Medicine
- 29 Infection Control
- 30 Scott Employee Parking Deck
- 31 Carolina Center for Specialty Surgery
- 32 CMC Loading Dock
- 33 Atrium Health Neurosciences Institute
- 34 McKay Urology
- 35 Atrium Health Foundation  
Children's Miracle Network
- 36 Pediatric Research
- 37 Mecklenburg Medical Group Cardiology
- 38 Levine Cancer Institute II

 Patient/Visitor Parking  Employee Parking

 Vendor Parking  Sky Bridge  Entrance



ONE WAY ←

ONE WAY →

FILLMORE AVENUE

KENILWORTH AVENUE

PIERCE STREET

SCOTT AVENUE

BUCHANAN STREET (CLOSED)

EAST BOULEVARD

LOMBARDY CIRCLE

BLYTHE BOULEVARD

MEDICAL CENTER DR.

SOUTH KINGS DRIVE

BRUNSWICK AVENUE

ARDSLEY ROAD

HENLEY PLACE

MOREHEAD STREET

ROMANY ROAD

BLYTHE BOULEVARD

KENILWORTH AVENUE

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## SUPPORT FOR TRAVELING PATIENTS

If needed, our Gamma Knife coordinator can connect you with Atrium Health's Global Healthcare Services team. You qualify as a global patient if your permanent residence is outside of NC or SC.

Global Healthcare Services can help with things like making travel arrangements, finding and booking local accommodations, and coordinating services, attractions and activities in the Charlotte area.

### Local Accommodations

Our treatment center is just minutes away from a broad range of hotels. To best accommodate your budget, we have negotiated lower rates with local hotels. For help with lodging, contact our Gamma Knife coordinator.

### About Charlotte

As the largest city in North Carolina and the second largest city in the southeastern United States, Charlotte has many unique and exciting attractions and activities. As you rest and recover, your guests can choose from an array of convenient entertainment options.

For a guide to the city and information about things to do and see, visit [CharlottesGotAlot.com](https://www.charlottesgotalot.com).



## **CONTACTS AND RESOURCES**

Learn more at [AtriumHealth.org/GammaKnife](https://AtriumHealth.org/GammaKnife).

Stacey Scott, Gamma Knife coordinator  
Email: [GammaKnife@AtriumHealth.org](mailto:GammaKnife@AtriumHealth.org)

### **Cancer Resource Center**

Phone: 980-442-1006  
Email: [LCISupportiveOncology@AtriumHealth.org](mailto:LCISupportiveOncology@AtriumHealth.org)

### **Atrium Health Levine Cancer Proton Advanced Radiation Center**

1310 E. Morehead St.  
Charlotte, NC 28204  
Phone: 980-442-3400

### **MyAtriumHealth**

The MyAtriumHealth website and app is a simple way to manage your care. You can view your health record and appointment details, send secure messages to your doctor, renew prescriptions and more.

Log in or sign up at [My.AtriumHealth.org](https://My.AtriumHealth.org) or download the MyAtriumHealth app.

