What is MRI-guided radiation therapy?
Using magnetic resonance imaging (MRI) together with radiation therapy, MRI-guided radiotherapy can help radiation oncologists to personalize and adapt a patient's treatment plan in ways they could not before, creating an entirely new treatment paradigm in the field of radiation oncology.

With the implementation of ViewRay, Inc.'s MRIdian (pronounced "meridien") MRI-guided linear accelerator, Massey providers can direct radiation at cancers with even more pinpoint accuracy, sparing nearby healthy tissue and organs.

The MRIdian system gives radiation oncologists immediate visualization of the tumor through high-quality, real-time images, as well as the ability to develop a more targeted radiation therapy plan while the patient is positioned on the treatment table. This combination allows physicians to define tight treatment margins to avoid unnecessary radiation exposure and allows the delivery of radiation doses often in five or fewer treatment sessions, without a need for implanted markers.

Certain types of cancer benefit more from MRI-guided therapy. Your doctor will make the decision on the type of treatment you receive based on your specific situation.

Preparing for your simulation:
You will first have an MRI scan on the MRIdian and a CT scan in the Department of Radiation Oncology. These scans will not look for any new diseases and you will not see any results from this scan in your MyChart. These images will be displayed to you during your treatment. If you are claustrophobic or have pain that may interfere with your ability to lay flat or stay still for one to two hours, talk to your doctor BEFORE your scheduled appointment.

On the day of your appointment:
- Take your medications as prescribed
- Bring a picture ID and insurance information
- Arrive 30 minutes early
- Bring information about any implants you may have (pacemakers, artificial joints or medication pumps)
- Apply numbing cream as directed if you have a Port-a-Cath

What to expect during simulation:
- The test will take one to two hours.
- You will change into a hospital gown and remove any metallic items such as earrings, jewelry or dentures. If you have a medication patch on your skin, a nurse will assist you with removing it.
- Some patients will receive intravenous contrast. This can be given through a Port-a-Cath, PICC line or your arm, please let us know which you prefer.
- Some patients may be asked to drink a barium-based oral contrast liquid before simulation.
- You will lie down inside of the MRIdian machine (a tube with a flat table) for the duration of the scan.
- You will be given headphones to reduce machine noise.
- No one will be in the room with you once the scan has started. The therapist will be able to see you through cameras and talk to you through speakers. You will be given a button to press for emergencies.
- You may be asked to inhale at a comfortable level for 25 seconds.
- It is very important to be still and hold your breath if directed or the pictures will not be clear.
- You will be asked to adjust your breathing to track the treatment area. As shown in the example image, the two colored rings need to be aligned by breathing in more or less.
Following MRI simulation, a radiation therapist will escort you to the CT room where you will undergo a CT scan in the same position as on the MR scanner. Both MRI and CT are necessary for planning your treatment.

**After Care Information:**
You may return to all your normal activities and take your normal medications as prescribed. Contrast is eliminated from the body through your urine. If you receive contrast, drinking extra fluids may help the contrast leave your body faster.

**What to Expect for Your Treatment:**
On the day of your simulation, you will receive the date and time of your first radiation treatment. If you have needs such as local housing or transportation assistance, please tell us on the day of your simulation. In the time between your simulation and your first appointment, a team of expert physicians, radiation therapists, dosimetrists and medical physicists will plan your radiation treatment.

On the first day of treatment, you will receive your complete schedule. You may see the appointments appear in MyChart beforehand. These are not final until confirmed with the therapist.

The number of MRI-guided radiation treatments depends on the clinical situation and can range from a few treatments to several weeks of treatments.

Each treatment will last between one and two hours depending on complexity and will be similar to the simulation. Typically no contrast agent will be used for treatment. You may be asked repeatedly to hold your breath and/or adjust your breathing for the tracking procedure. You may be able to watch the progress of your treatment on a monitor. It is very important that you do not move during the procedure.

Please prepare for treatment in the same way you did for the simulation. Another CT scan will not be necessary.

If you have any questions, please call 804-828-7232 for more information.