

THE UNIVERSITY OF TEXAS
MDAnderson
~~Cancer Center~~
Proton Therapy

The MD Anderson Proton Therapy Center

A Pioneer in **Proton Therapy**





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Welcome to the MD Anderson Proton Therapy Center

MD Anderson Proton Therapy Center has paved the way around the world for the most effective radiation therapy. We pioneered the innovative, extremely precise form of proton therapy called pencil beam scanning.

This reference tool has been designed so that your company can better understand why more patients are choosing proton therapy and how that benefits you. Our cancer specialists are international cancer experts and leaders in the research and treatment of cancer.

This guide will help you learn more about proton therapy, our center, coverage guidelines and our survivor stories.

Thank you for your interest in our facility.

Steven J. Frank, MD

Medical Director, The UT MD Anderson Cancer Center Proton Therapy Center

If you have any questions,
please feel free to contact us.



www.mdandersonproton.com



1-866-632-4782



The MD Anderson Proton Therapy Center is an international center of excellence for *proton therapy, research and education.*



What is proton therapy?

Proton therapy is an advanced form of radiation treatment that delivers a powerful, highly precise beam of radiation directly into the tumor.

Unlike conventional radiation therapy (IMRT) that uses x-rays, proton therapy stops at a precise point, conforms to the tumor shape and depth, and deposits the bulk of its cancer fighting energy at the site of the tumor. There is virtually no exit dose of radiation with proton therapy, sparing nearby normal tissue and organs.

This targeted treatment is a major advantage when treating vital organs such as the brain, heart, esophagus, and lung. As a result, patients may experience fewer side effects and improved quality of life, during and after treatment.

The MD Anderson Proton Therapy Center delivers the most advanced form of radiation available, targeting cancer with power and precision. As one of the most active centers in the nation, we continue to pioneer new techniques, such as pencil beam scanning and intensity modulated proton therapy (IMPT).

Cancers we treat with proton therapy

The ability to precisely deliver radiation to the tumor makes proton therapy ideal for treating many types of benign and malignant tumors, especially those localized near or within critical structures.

We have had remarkable success treating:

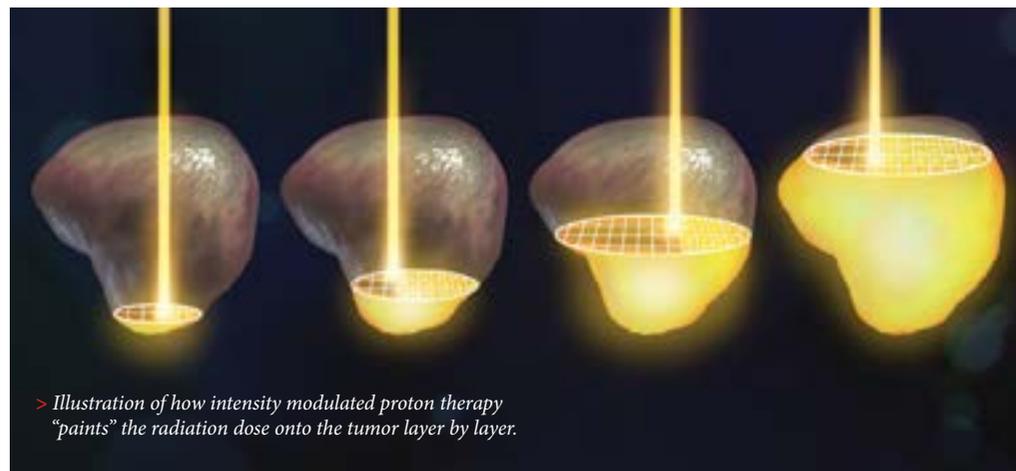
- Tumors of the:
 - Brain and skull base
 - Breast
 - Central nervous system
 - Esophagus
 - Head and neck
 - Liver and gastrointestinal
 - Lung
 - Prostate
 - Rectum
- Lymphomas
- Sarcomas
- Childhood cancers
- Other rare tumors

Pencil beam and intensity modulated proton therapy

The team at MD Anderson Proton Therapy Center continues to expand ways to use proton therapy to benefit patients. The team pioneered pencil beam proton therapy, also called scanning beam, and intensity modulated proton therapy (IMPT). We are one of the few centers worldwide offering these types of proton therapy to our patients.

Pencil beam technology and IMPT build on the benefits of proton therapy. With a proton beam just millimeters wide, these advanced forms of proton therapy combine precision and effectiveness, offering unmatched ability to treat a patient's tumor and minimizing effect on a patient's quality of life – during and after treatment. They rely on complex treatment planning systems and an intricate number of magnets to aim a narrow proton beam and essentially "paint" a radiation dose layer by layer.

Pencil beam is very effective in treating the most complex tumors, like those in the prostate, brain, eye, and cancers in children, while leaving healthy tissue and other critical areas unharmed. IMPT is best used to deliver a potent and precise dose of protons to complex or concave-shaped tumors that may be adjacent to the spinal cord or embedded head and neck or skull base, including nasal and sinus cavities, oral cavity, salivary glands, tongue, tonsils and larynx.



Is proton therapy experimental?

No, proton therapy is neither experimental nor investigational. It has been used in the United States for more than 50 years and in a hospital setting since 1990.

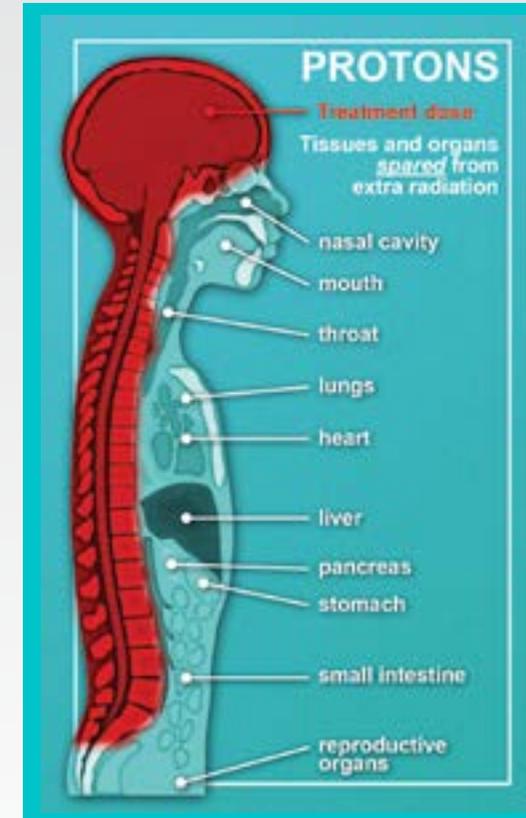
It is an established form of treatment that is widely accepted by physicians, government agencies and many insurers.

Facts

- The FDA approved proton therapy as a safe and reliable treatment for cancer in 1988.
- There are 21 operating protoncenters in the U.S., 2 more set to open soon and 9 more under construction or in the planning stage.
- More than 90,000 people have been treated with proton therapy worldwide. This includes countries in Europe, Asia and the United States.
- Proton radiotherapy has been the topic of 3,000 papers since 1954.
- Medicare has included proton therapy as a covered benefit for more than 20 years.

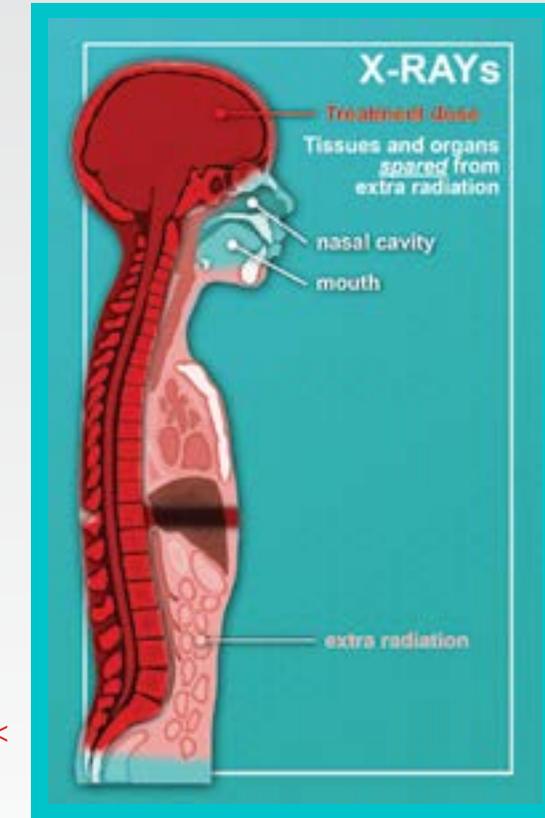
Proton Therapy vs. Traditional Radiation

Proton therapy provides fewer side effects than traditional radiation. Take a closer look below at how the two compare given a treatment dose. Many of the vital organs and healthy tissue are spared with proton therapy.



Vs.

> Red indicates body areas affected by radiation. <



Proton Therapy

Proton beams enter the body and deposit most of their energy at the target – the site of the tumor. Radiation oncology physicians are able to focus the energy of the proton beam within a tumor, minimizing damage to nearby healthy tissues and vital organs.

Traditional Therapy

In traditional radiation therapy, x-ray beams are typically used to treat cancer. The x-ray beams go through the cancerous tissue (tumor) destroying both healthy and cancerous areas along the path of the beam. The extra radiation produces negative side effects.

Why choose proton therapy?

Cancer specialists at the MD Anderson Proton Therapy Center use proton therapy to precisely target and match treatment to the shape of a tumor with incredible accuracy.

This allows a higher dose of radiation to be delivered directly to where it needs to be – to the cancerous cells – while sparing healthy tissues and critical areas of the body that are near the tumor. Patients often report fewer side effects. Any side effects that may occur during treatment often disappear fairly quickly once treatment is completed.

Proton radiation, once inside the patient's body, has a very short life. After patients complete their treatment, they can leave the treatment room without any risks or radiation exposure to others.

This can be particularly important in the treatment of:

- Tumors near or within vital organs, such as the lungs, eyes, brain, esophagus, liver and prostate
- Childhood cancers
- Patients receiving combined treatments of chemotherapy and radiation
- Tumors that have become resistant to chemotherapy

Proton therapy benefits patients whose tumors are solid with defined borders, meaning the cancer has not spread to other parts of the body. It does not require surgery, making it ideal for inoperable tumors.



Patients at MD Anderson Proton Therapy Center often maintain a relatively active lifestyle during and after proton therapy treatment. Many of our patients continue to work and exercise during the time they are undergoing treatment with proton therapy.

Proton therapy for pediatric patients

Proton therapy is also very much indicated for the treatment of pediatric tumors.

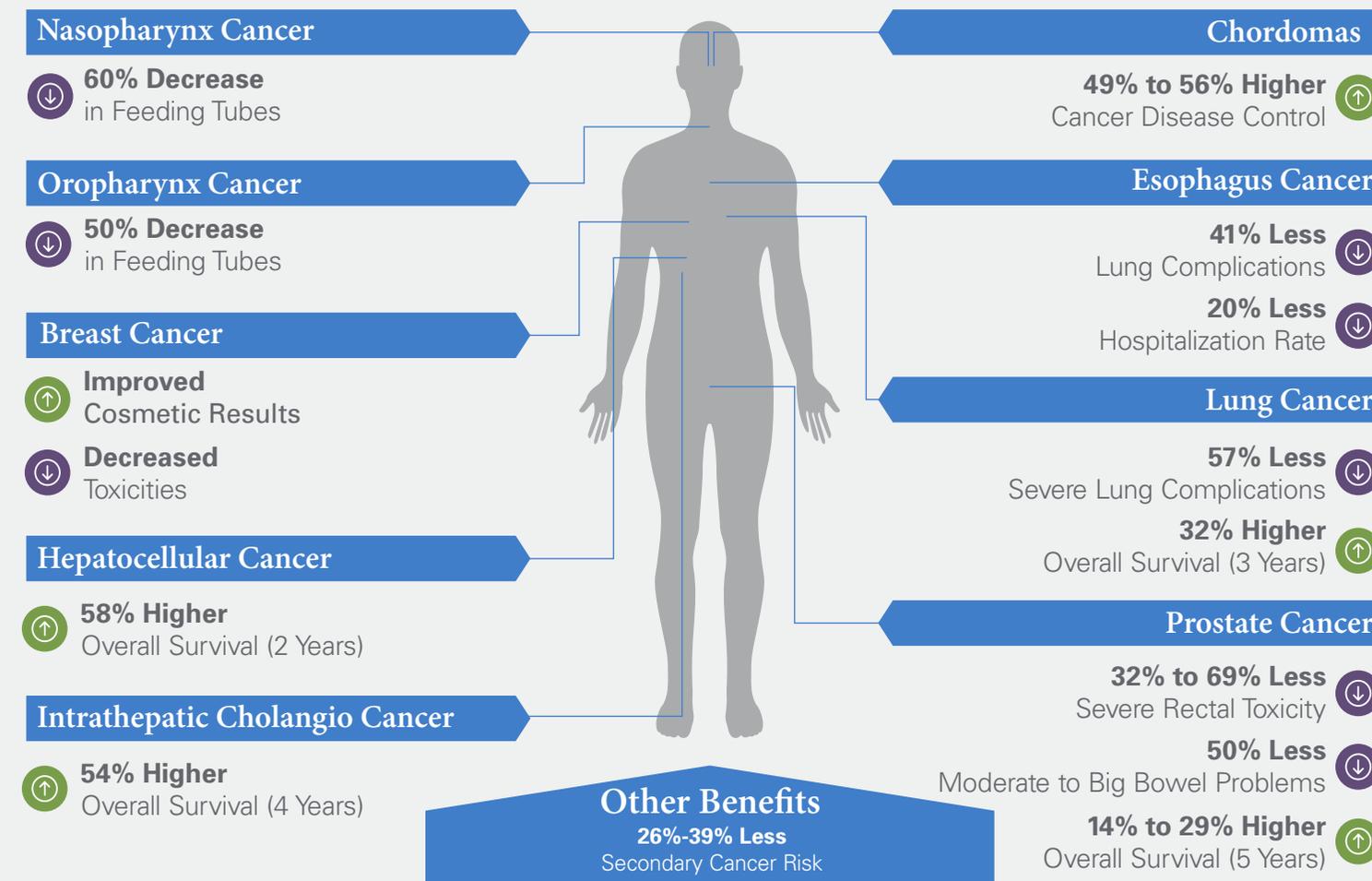
As a child's growth implies a constant high rate of mitosis, his cells will be as vulnerable to ionizing particles as proliferating cancerous ones. It is therefore crucial to aim the beams only at the tumor to avoid damage such as growth abnormalities, cognitive impairments, radiation induced tumors, cardiac damage, and other complications later in life.

Benefits for pediatric patients

- Limits the possible damage to children whose bodies are still developing
- Helps reduce the risk of developmental delays
- Parents are able to return to work sooner
- Child-friendly waiting areas and play room
- On-site child life specialist

The clinical benefits of proton therapy *compared to* conventional radiation treatments

One of the key components in the fight against cancer is finding the best treatment option that can achieve the highest clinical results. For each type of cancer listed below, proton therapy **reduces overall toxicity, improves quality of life** during and after treatment and **increases the long-term survival rates** for certain tumors. Additionally, proton therapy can be used to treat recurrent tumors and patients who have already received radiation.



Benefits of proton therapy for employers

When an employee gets diagnosed with cancer, family members, friends, co-workers and employers are also affected by the diagnosis. During this time, employees are facing many feelings and concerns. Some of those concerns include surviving, finding the best treatment option, maintaining a good quality of life and more.

The MD Anderson Proton Therapy Center wants to provide employers the resources and information to share with employees interested in receiving proton therapy. Employees want to receive the best care from a trusted institution who can produce optimal results for their diagnosis.



Faster return to work

With proton therapy, side effects and treatment time are less than traditional radiation allowing employees to return work during the course of treatment. As a result, fewer interruptions to employees' work schedules means higher productivity for employers.



Fewer side effects

Reduced damage to adjacent organs and tissues minimizes both early and late side effects and preserves organ function.



More productive employees

With a better quality of life, employees are able to be more productive at work.



Lower total cost of care

With fewer side effects, employees can avoid additional treatments and hospitalization. In doing so, the overall costs for care will be less than traditional radiation treatment. In the end, the company saves money.

Cost Savings

Besides being one of the most advanced radiation treatments, proton therapy can be a cost-effective option. When comparing the cost of proton beam therapy to conventional radiation therapy, it is important to consider the overall cost of treatment.

The total price for treatment can quickly rise when you include costs for:

- Feeding tubes
- Replanning due to weight loss
- Increased risk of toxicities, esophagitis and pneumonitis
- Hospitalization due to side effects

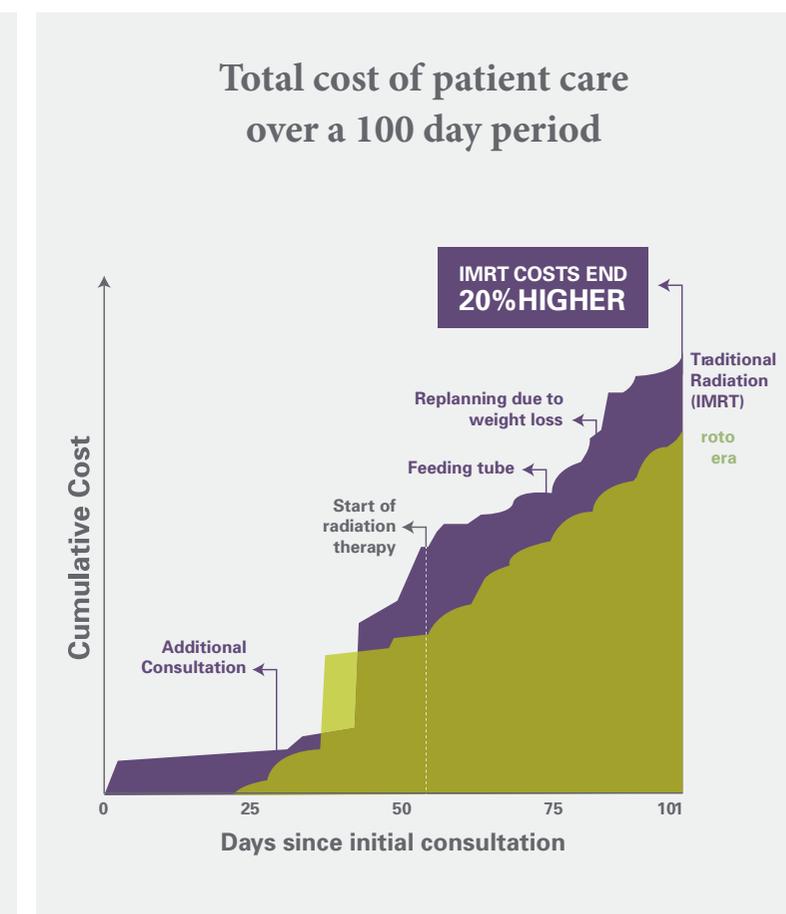
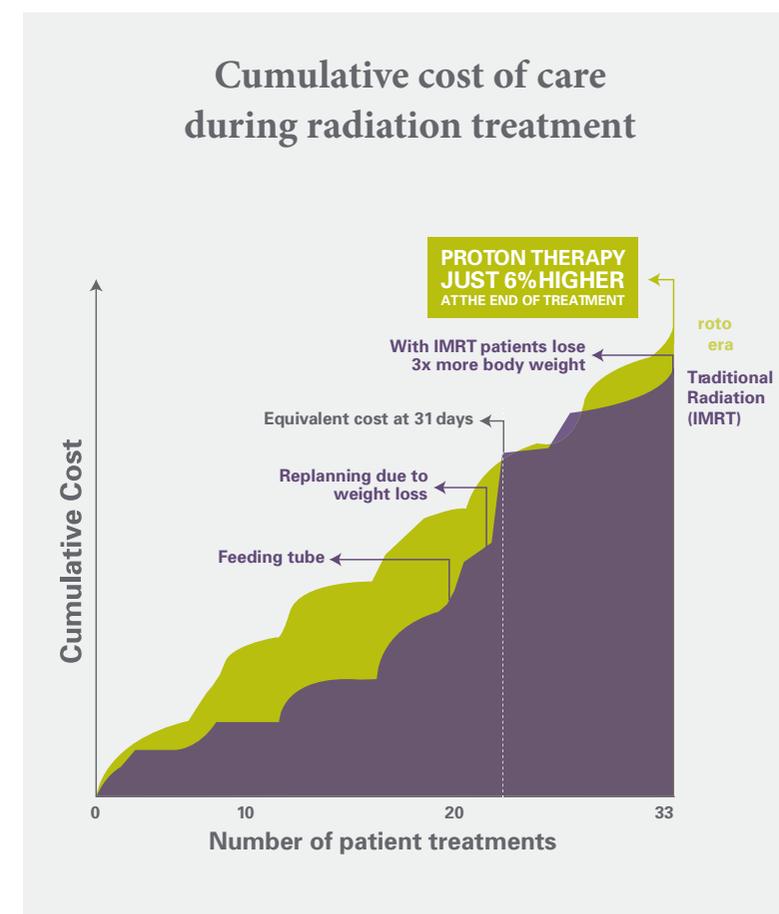
Who can financially benefit from proton therapy?

Many who can financially benefit are:

- Employer
- Family
- Patient
- Third party payer

Cost Comparison Proton Therapy vs. Traditional Radiation (IMRT) for a patient with Head and Neck cancer

The graphs below show how initially proton therapy cost is higher than IMRT for a patient with Head and Neck cancer. However, in the end, the total cost of patient care with IMRT costs 20% higher than proton beam therapy.



Coverage guidelines language for proton therapy



The guidelines listed on these pages can serve as a guide in establishing a model coverage policy for your company on the reimbursement of proton-beam therapy procedures.

It is recommended to include proton therapy experts in the development of a medical policy and exclude third party companies without proton therapy experts. A coverage policy should prevent proton therapy to be held to a higher standard of clinical evidence for benefit coverage decisions than it requires of other therapies.

Third party payors lack the clinical evidence to support the comparative safety and effectiveness of proton therapy treatment. The coverage policy should allow third party payors access to current published and unpublished literature. Additionally, payors do not have the ability to include registries and randomized studies in their coverage policies.

The coverage policy suggested should define medical necessity based on medical evidence, excluding cost.

Indications and Limitations of Coverage and/or Medical Necessity

Proton Beam radiotherapy is a form of conformal external beam radiation treatment. Protons are positively charged subatomic

As an employer, you have the opportunity to collaborate with the MD Anderson Proton Therapy Center in providing access to your employees who can clinically benefit from proton beam therapy.

particles, which have similar biological effects to conventional x-ray beams. However, unlike x-rays, protons deposit their radiation energy at a depth in tissue, which is dependent on the energy of the proton. The improvement in therapeutic ratio results from a lower entrance dose to normal organs beyond the tumor, the elimination of exit dose to organs and the ability to give a higher dose to the tumor target. Like other conformal radiation modalities, proton beams can be precisely delivered to the tumor volume without harming surrounding healthy tissue or critical organs. Proton beam therapy may be delivered through multiple techniques, including passive and active scanning, scattering, and “pencil beam.”

Indications

Proton beam therapy will be considered medically reasonable and necessary for the following conditions:

Breast Cancer

- Accelerated Partial Breast Irradiation (APBI)
- Left or right-sided early or locoregionally advanced breast cancer requiring breast or chest wall plus regional nodal irradiation

Pediatric Malignancies

- Pediatric malignancies for patients < 21 years old

Central Nervous System Cancers

- Adult Craniospinal Radiotherapy – primary CNS tumors
- Adult Low Grade Glioma and Anaplastic Oligodendroglioma where we expect a long term survival
- Selected Meningiomas and Sellar tumors: large tumors, young patients, other co-morbidities
- Recurrent, previously irradiated patients to the brain, thorax or abdomen and proton therapy will decrease the risk of overlap in normal organ during current treatment planning

Esophagus Cancer

- Stage I-III Esophageal Cancer

Gastrointestinal (GI) Cancer

- Hepatocellular Carcinoma
- Intrahepatic Cholangiocarcinoma
- Isolated Colorectal Liver Mets
- Recurrent, previously irradiated patients in the abdominal region

Head and Neck (H&N) Cancer

- Nasal Cavity
- Paranasal Sinus Tumors
- Ethmoid Sinus Tumors
- Nasopharyngeal Tumors
- Oropharyngeal Tumors
- Periorbital Tumors including Medial canthal tumors
- Skull-base tumors including paragangliomas/schwanommas, salivary gland tumors, chordomas and condrosarcomas, sarcomas, squamous cell carcinoma, adenoid cystic carcinoma
- Re-irradiation for recurrent head and neck tumors or new primary malignancies in a radiated field

Hematologic (Lymphoma) Cancer

- Mediastinal Lymphoma
- Craniospinal Irradiation for lymphoma
- Lymphoma near the paraspinal region along the whole vertebral body

Prostate Cancer

- Definitive/curative treatment for men with intact localized or locally-advanced prostate cancer
- Consolidative pelvic loco-regional therapy in men with isolated pelvic nodal metastases
- Adjuvant or salvage therapy following radical prostatectomy

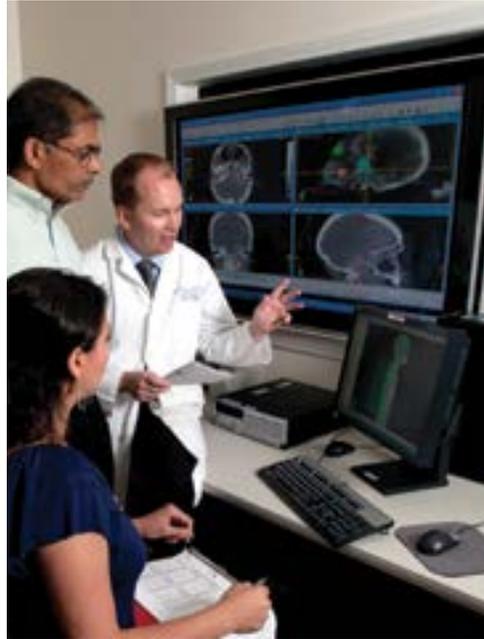
Thoracic Cancer

- Stage II, IIIA, IIIB Non-Small Cell Lung Cancer (NSCLC)
- Post-operative lung cancer patients with bilateral N2 disease (hilum)
- Thymoma in the anterior chest or in the pre-operative and post-operative setting
- Mesothelioma
- Recurrent, previously irradiated patients to the chest and proton therapy will decrease the risk of overlap in normal organ during current treatment planning

In addition, proton beam therapy is indicated when:

- There is documented clinical rationale that doses generally thought to be above the level otherwise attainable with other radiation methods might improve control rates. Other radiation therapy treatment plans such as photon-based treatment plans would have a greater probability of causing clinically meaningful acute and late normal tissue toxicity
- Enrollment of the patient in a Phase II or Phase III Clinical Trial or an appropriate Prospective Clinical Registry for planned assessment and publication

Any denials for indications not listed in this policy, can have medical documentation and adequate literature submitted in the appeals process for potential coverage.



About MD Anderson Proton Therapy Center

The MD Anderson Proton Therapy Center offers the most advanced radiation available to treat cancers of the prostate, lung, head and neck, liver, esophagus and brain, as well as for the treatment of lymphoma, pediatric cancers and other rare tumors.

We pioneered the innovative, extremely precise form of proton therapy known as pencil beam scanning, and our center is part of MD Anderson Cancer Center.

Why MD Anderson Proton Therapy Center?

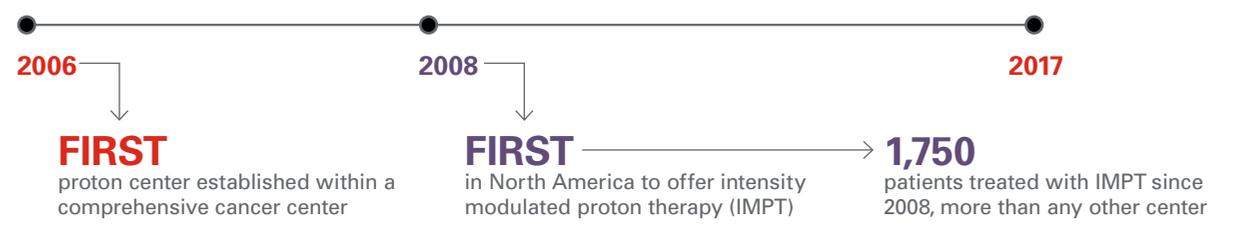
Choosing the right partner for cancer care really does make a difference. The fact is, people who choose MD Anderson over other hospitals and clinics often have better results.

The MD Anderson Proton Therapy Center provides the most advanced form of radiation treatment available and offers patients:

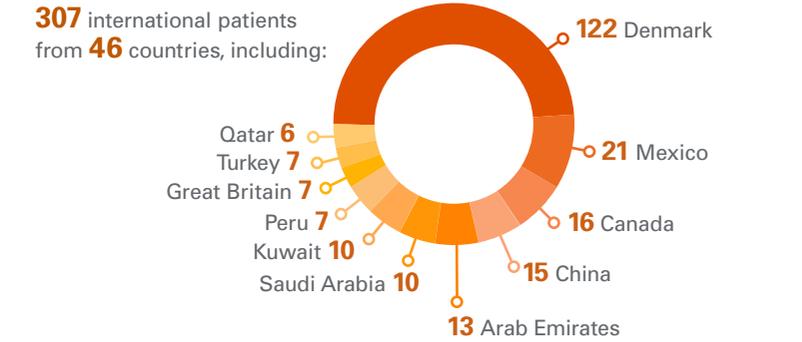
- Advanced radiation therapy with treatment for the most comprehensive range of cancers
- Reduced side effects and minimal damage to healthy tissue
- Access to MD Anderson Cancer Center's world-renowned research, cancer specialists and multidisciplinary care
- Access to a multidisciplinary team that includes a dedicated, on-site pediatric anesthesia team, registered dietitians, child life specialists and social workers
- The most sophisticated, high-tech equipment available – all used to deliver powerful, precise proton therapy treatment to our patients
- Clinical space and examination rooms for consultations and patient visits, anesthesiology work areas, holding and recovery areas, medical dosimetry areas for treatment planning and other areas specifically related to the care, treatment, education and research of proton technology
- Convenient location just south of the main Texas Medical Center
- Free parking in the surface lot in front of the building

Facts about MD Anderson Proton Therapy Center

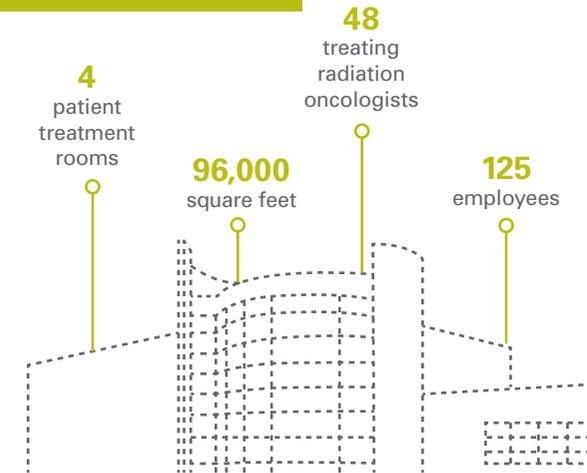
Year Established
2006



Facts about our patients

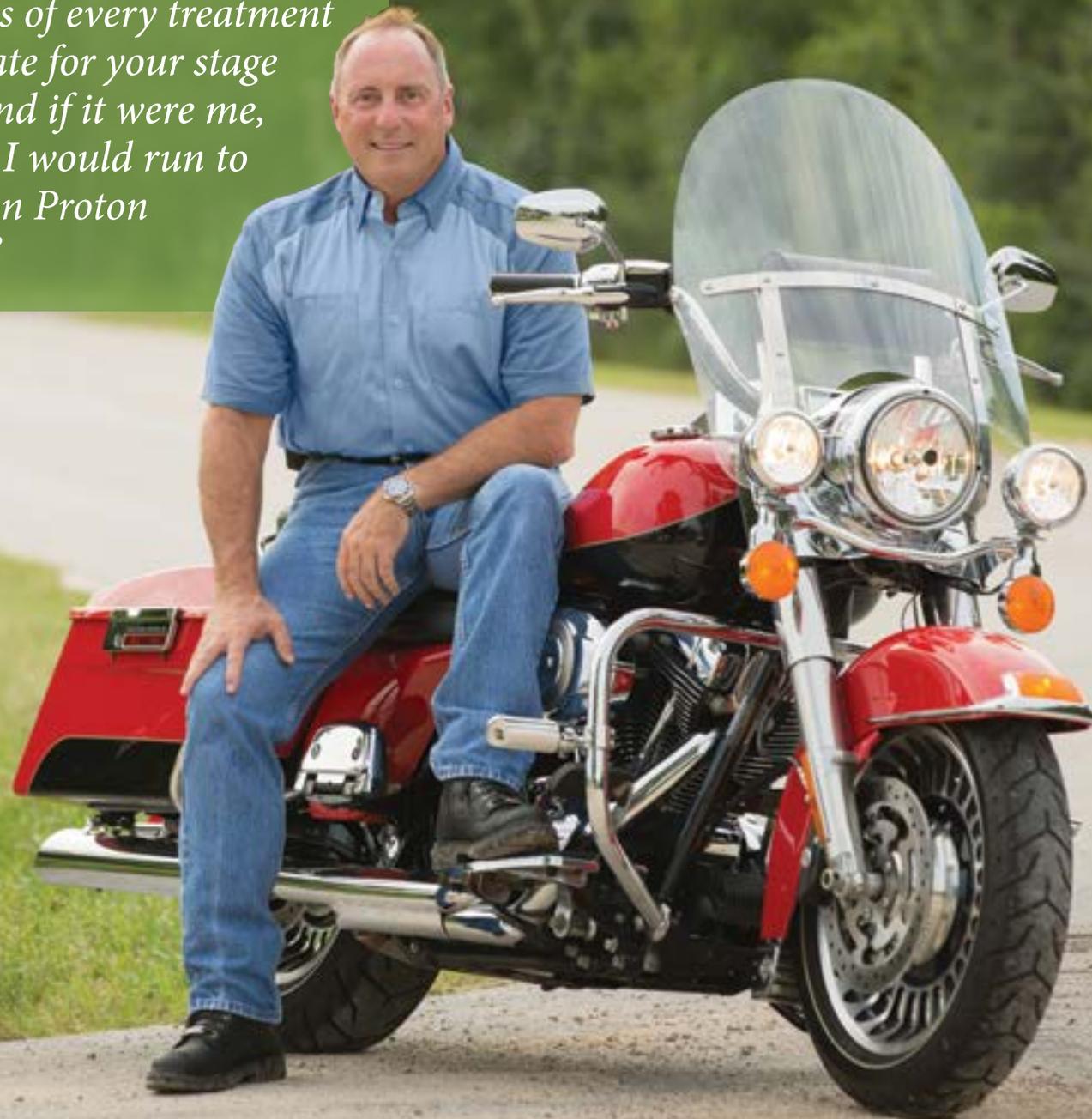


Facts about the building



- > Our building is similar to an iceberg in that **70% is underground.**
- > The center has **30,000 cubic yards of concrete** which is equal to a 20 story building.
- > It has **3 rotational gantries and 1 fixed gantry.**
- > Gantry 3 is the **first intensity modulated proton therapy gantry** in the United States.
- > The center treats between **90 to 100 patients per day.**
- > The treatment hours are from 4 a.m. to 12 a.m., but the center is operational **24 hours a day.**

“You must investigate and understand the pros and cons of every treatment option appropriate for your stage of the disease. And if it were me, I wouldn’t walk; I would run to the MD Anderson Proton Therapy Center.”



Meet Gerard First

Prostate Cancer Survivor

When Gerard, a 57-year-old Houston resident, visited his primary care physician for an annual check-up in 2007, he discovered his PSA level was slightly elevated for his age and was referred to a urologist. After three biopsies doctors confirmed that Gerard First had prostate cancer.

Knowing the potential side effects associated with treatment, Gerard took his time to find the treatment option that was right for him. In researching available options, he became aware of proton therapy and the MD Anderson Proton Therapy Center.

Gerard began his proton therapy treatment in late October 2008 and completed it in December—38 treatments later. Of his experience at the Proton Therapy Center, Gerard says, “It was phenomenal. The best doctor-patient experience I could ever have.”

Gerard’s physician, Seungtaek Choi, MD and assistant professor of Radiation Oncology at the MD Anderson Proton Therapy Center said “Gerard’s active lifestyle was perfect for proton therapy treatment. It’s always a pleasure to see patients living their life as they did before cancer treatment and knowing we were able to help him continue doing what he loves is very satisfying.”

Maintaining his quality of life was very important to Gerard, and that’s what ultimately led him to choose proton therapy. The only side effect he experienced was fatigue, but he says that went away soon after treatment.

Now, more than eight years after completing proton therapy for prostate cancer, he says, “my life is exactly how it was before my diagnosis and before treatment.”

About prostate cancer

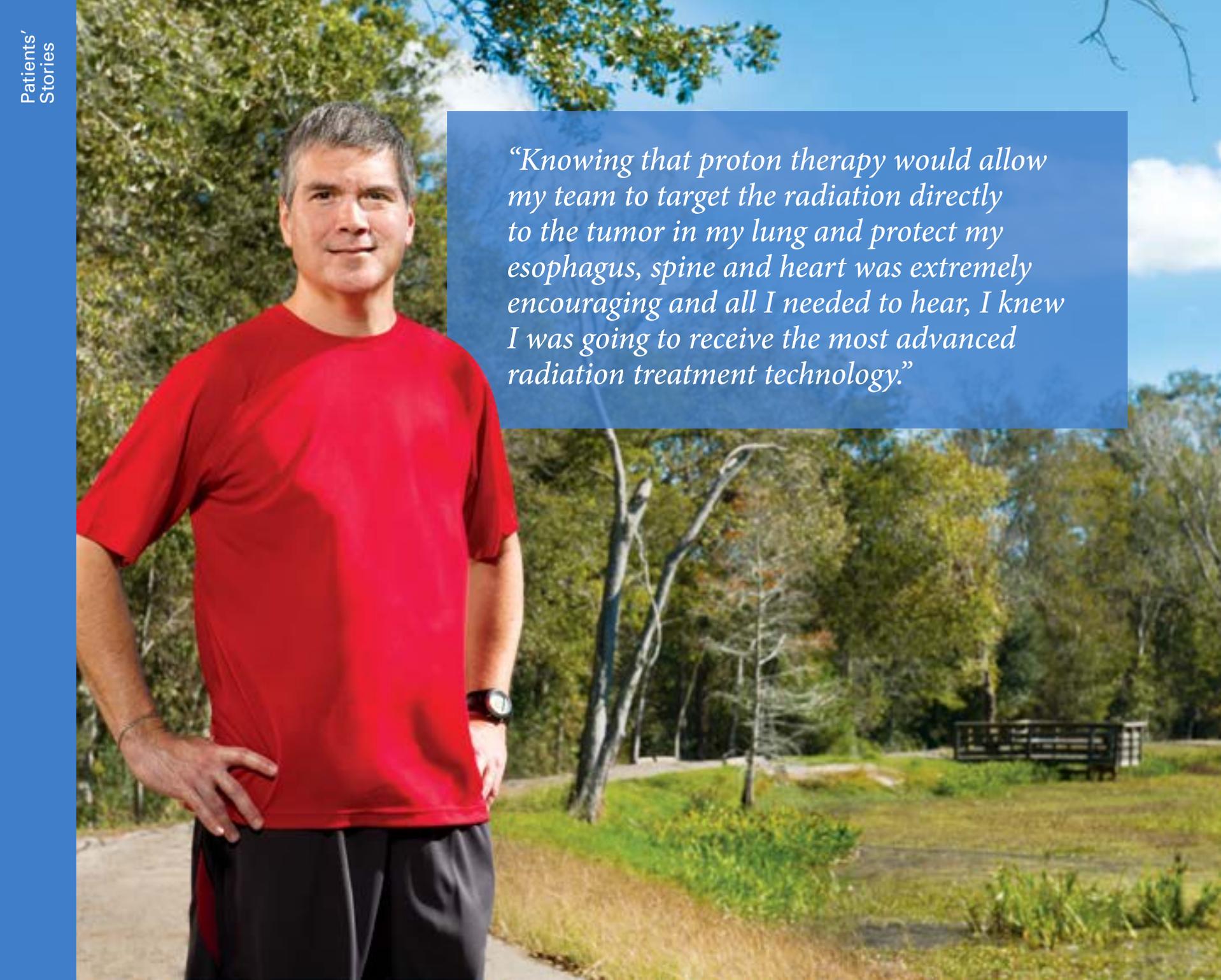
Prostate cancer is the second leading cause of cancer death in men in the U.S., but there is good news. If detected early, prostate cancer has a five-year survival rate of nearly 99%.

Prostate cancer occurs when cells in the prostate grow and multiply uncontrollably, damaging surrounding tissue and interfering with the normal function of the prostate.

Using innovative technology, proton therapy will help by providing precise and accurate delivery of high radiation to kill cancerous cell in the prostate. Unlike treatment with conventional x-ray therapy which may require 8 beam angles, treatment with proton therapy can be achieved using just two beams.

Benefits of proton therapy for prostate cancer

- Precise, accurate delivery of even high radiation doses to kill cancerous cells in the prostate
- Minimal impact to surrounding, healthy tissues and vital organs, such as the bladder and rectum
- Less invasive (treatment might be a bit painful, however, it requires no downtime)



“Knowing that proton therapy would allow my team to target the radiation directly to the tumor in my lung and protect my esophagus, spine and heart was extremely encouraging and all I needed to hear, I knew I was going to receive the most advanced radiation treatment technology.”

Meet Chuck Martinez

Lung Cancer Survivor

In 2007, a year after surviving bladder cancer, 37-year-old Chuck Martinez received devastating news at a follow-up appointment. A routine chest X-ray revealed a mass in his right lung, which turned out to be stage IIIA non-small-cell lung cancer.

During a second opinion appointment with a team of cancer experts at MD Anderson, Chuck learned about proton therapy and the MD Anderson Proton Therapy Center. Proton therapy can be an excellent option for patients who have tumors located in sensitive areas of the body like the lung or in the chest.

Every weekday for about seven weeks, Chuck received chemotherapy at the MD Anderson main campus and proton therapy treatments at the nearby MD Anderson Proton Therapy Center. He tolerated both therapies well and was able to maintain his weight during treatment. Plus, he enjoyed spending time at the Proton Therapy Center, bonding with other patients.

“The Proton Therapy Center is a huge state-of-the-art facility. I liked the fact that I was going to a place where they were experts in cancer and proton therapy,” said Chuck. “Everyone at the Proton Therapy Center was there for that type of treatment, so we all could immediately connect. Listening to each other’s stories and sharing what we were going through was an everyday occurrence. The camaraderie among patients and their family members is unlike any other – that’s something that I won’t forget. And the staff and therapists were fantastic to all of us.”

Chuck has been cancer-free for over eight years. Through Chuck’s cancer journey, he has gone on to live a healthier, more active lifestyle.

About lung cancer

Approximately 15 to 20 percent of lung cancer patients have tumors that can be treated with surgery combined with other therapies such as radiation. Another 30 to 50 percent of lung cancer patients have locally advanced tumors that require a combined treatment regimen that includes radiation therapy. But because the lungs are located close to several critical normal structures in the body, it is challenging to deliver an adequate dose of radiation to a cancerous tumor while sparing these nearby normal tissues. That’s where proton therapy has the advantage.

Benefits of proton therapy for lung cancer

Using proton technology’s advanced image guidance and ability to precisely target tumors in the lungs, our specialists can deliver powerful radiation dosages with optimal accuracy, sparing critical nearby structures, such as the esophagus, heart and spinal cord. This means the physician can treat the tumor with a higher dose of radiation, which allows normal tissue to function better and may result in better local control of the disease, higher survival rates and improved quality of life.

Since completing treatment, Molly has returned to her normal routine, enjoying time with her husband and children, taking her kids to little league and soccer games, and walking the family's two dogs.

"Part of being well means I'm back to my busy life."



Meet Molly Allen

Lymphoma Survivor

When a nagging cough led to the discovery of large b-cell non-Hodgkin's lymphoma, Richmond, Texas resident Molly Allen sought the guidance of the MD Anderson Proton Therapy Center to treat the cancer with little interruption to her daily life.

"Like Molly's, many lymphomas occur in the chest near vital organs, such as the heart, lungs or esophagus, so it can be difficult to get the high doses of radiation needed to the tumor without causing damage to those sensitive areas," explained James D. Cox, M.D., professor of Radiation Oncology at MD Anderson and Molly's physician. "With proton therapy, we create individualized treatment plans to precisely target even the most difficult to reach tumors while minimizing the damage to healthy tissues and vital organs."

In November 2008, Molly started her treatment at the MD Anderson Proton Therapy Center every day, Monday through Friday, for four weeks. Molly's particular type of tumor made proton radiation therapy an ideal treatment option for her. Doctors were able to deliver the highest dose of radiation directly to the tumor while limiting the dose to her heart, which is very sensitive to radiation.

Molly responded well to treatment and experienced few side effects, which allowed her to keep her daily life as normal as possible, even while undergoing treatment for cancer.

Molly is now cancer free and has little to no residual scarring on her heart and lungs from proton therapy. In fact, during her follow-up appointment in 2013, Molly learned she was pregnant and, in January 2014, gave birth to her fifth child, a son named Max.

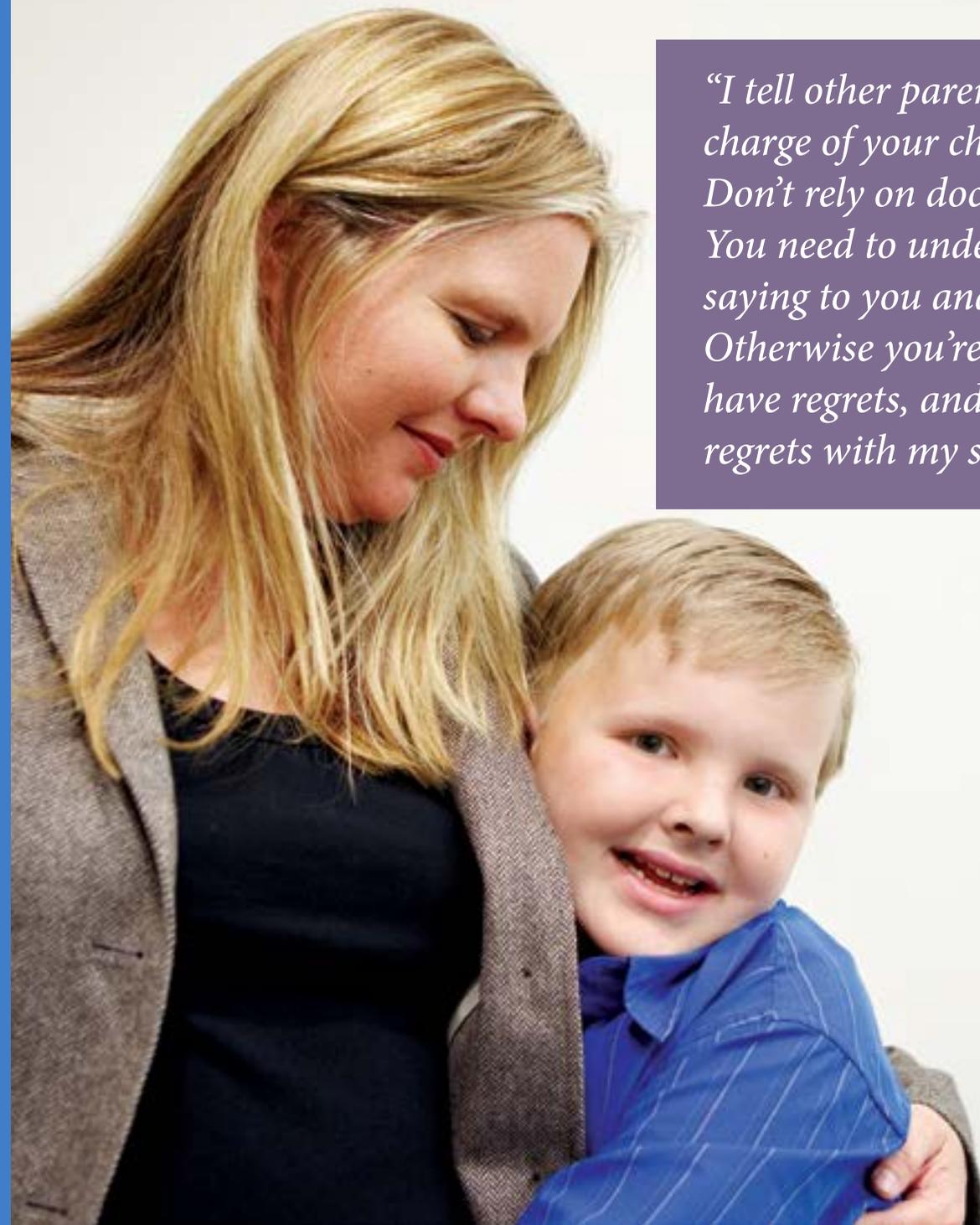
About lymphoma

The experts at MD Anderson Proton Therapy Center are leaders in the research and treatment of lymphoma with proton therapy. It is one of the only centers in the world offering proton therapy as an option for patients with lymphoma who require radiation therapy or for those patients with a type of lymphoma that is resistant to chemotherapy.

Lymphoma is a type of cancer that develops in the lymphatic system (lymph nodes) and can be classified as either Hodgkin's disease or non-Hodgkin's lymphoma. Because the lymphatic system runs throughout a person's body, lymphoma can occur in several areas within the body.

Benefits of proton therapy for lymphoma

Proton therapy is especially valuable in treating patients with lymphoma whose tumors are in the chest or involve the anterior mediastinum, as well as those whose tumors that have proven to be resistant to chemotherapy. For patients with chemotherapy-resistant tumors that require targeted high doses of radiation, proton therapy may be the only hope for curative treatment.



“I tell other parents, ‘You need to be in charge of your child’s medical situation,’ Don’t rely on doctors to tell you what to do. You need to understand what doctors are saying to you and what you’re getting into. Otherwise you’re going to look back and have regrets, and I didn’t want to have any regrets with my son.”

Meet Matthew Rager

Brain Cancer Survivor

In 2007, the Ragers were awakened at 3:00 a.m. when their 5-year-old son Matthew had a seizure. “We actually didn’t think there was anything wrong,” Matthew’s mom Denise said. “Because of our older son, we understood seizures. So when Matthew had one, we just thought it was something that ran in our family.”

It wasn’t until four days later when an MRI at a facility in California revealed the mass on Matthew’s brain that his parents realized they were dealing with a different challenge.

Following a surgery to remove the tumor, Matthew traveled with his family to Houston to receive his proton therapy treatments at the MD Anderson Proton Therapy Center.

“We wanted proton therapy for Matthew because we wanted to spare as much damage to his brain as we could,” Denise said. “I knew radiation could cause cognitive deficits, and I didn’t want him to have to face that in the future if we could avoid it.”

Matthew has been cancer-free since 2007. Now, about once a year or so, the Ragers travel to MD Anderson for his follow-up care.

Matthew continues to do well. So well, in fact, he graduated from 8th grade in June 2015, with the hope of being an engineer when he grows up. He seems to have a knack for figuring things out – a trait he shares with his mom.

About pediatric cancer

The dedicated pediatric cancer specialists at the MD Anderson Proton Therapy Center are world leaders in the research and treatment of childhood cancer with proton therapy, an advanced form of radiation precisely targets tumors while sparing surrounding healthy tissue. Our pediatric team includes physicians, nurses, radiation therapists and other cancer experts that specializes in treating children with cancer. Since the Proton Therapy Center opened in 2006, we have treated more than 1000 children with proton therapy.

Benefits of proton therapy for pediatric patients

The ability to precisely target tumors makes proton therapy ideal for treating childhood cancer. It provides accurate treatment of tumors near or within sensitive organs while limiting radiation exposure to healthy tissues, which is vital in children whose bodies are still growing and developing. This may reduce side effects during treatment. Additionally, studies show that proton therapy can also result in fewer late effects from treatment, a major concern among physicians and families when a child – especially a very young child – is undergoing radiation treatment.

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