



Department of Radiation Oncology

Message From the Chair

We are in a period of unprecedented growth and opportunity at the Department of Radiation Oncology at the Icahn School of Medicine at Mount Sinai.

For the first time, we welcomed four new resident physicians into our residency program, bringing our total to 11 and making us one of the largest training programs in the United States. Our faculty is the largest in our Department’s history. We are treating more patients than ever and, more important, we are treating patients with state-of-the-art, innovative therapy, often in conjunction with cutting-edge, systemic treatments such as immunotherapy.

In addition, it is exciting and stimulating to have an exceptional cadre of our own radiation therapy students on our campuses. We expect even more growth during the remainder of the year as new faculty come to the Department, more institutions join the Mount Sinai Health System, and new equipment comes online. For example, in early 2019, the New York Proton Center, of which Mount Sinai is one of the three founding members, is scheduled to treat its first patient.

For these and many other reasons, we expect this academic year to be another groundbreaking and memorable time for Mount Sinai.



Kenneth Rosenzweig, MD
Professor and Chair
Department of Radiation Oncology

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Richard Stock, MD, in the Journal of the American Medical Association

In March, Richard Stock, MD, and colleagues were published in the *Journal of the American Medical Association* (JAMA) for their original investigation on the optimal treatment of patients with Gleason score 9-10 prostate cancer. With optimal treatment unknown, the objective of Dr. Stock’s work was to compare clinical outcomes of patients with Gleason score 9-10 prostate cancer after definitive treatment. Research included a retrospective cohort study in 12 tertiary centers with 1,809 patients treated between 2000 and 2013.

Patients with Gleason score 9-10 prostate cancer have particularly aggressive disease. The study compared an outcome analysis of external beam radio-

therapy (EBRT), EBRT plus brachytherapy boost (EBRT+ BT), and radical prostatectomy.

The research found that “among patients with Gleason score 9-10 prostate cancer, treatment with EBRT+BT with androgen deprivation therapy was associated with significantly better prostate cancer-specific mortality and longer time to distant metastasis compared to EBRT with androgen deprivation therapy or with radical prostatectomy.”

We congratulate Dr. Stock on this accomplishment and recent publication.

To access the full article, go to: <https://jamanetwork.com/journals/jama/fullarticle/2673969>



New Team Members

We are pleased to welcome the following new team members to Mount Sinai Radiation Oncology in 2018:

- **Katrina Banks** - Patient Care Assistant
- **Ashley Bernstein** - Registered Nurse
- **Mellisa Brito** - Registered Nurse
- **Zarina Chmelev** - Billing Supervisor
- **John Del Rowe, MD** - Attending Physician
- **Maria Dimopoulos** - Program Director
- **Luke Fu** - Physicist
- **Jibin Joseph** - Radiation Therapist
- **Andrew Lukban** - Physicist
- **Deborah Marshall, MD** - Radiation Oncology Resident
- **Jake Matranga** - Radiation Therapist
- **Danielle McDonagh** - Senior Radiation Therapist
- **Anthony Nehlsen, MD** - Radiation Oncology Resident
- **Diana Nieves** - Administrative Assistant
- **Angela Oliveira** - Assistant Clinical Supervisor
- **Brianna Pelillo** - Radiation Therapist
- **Jillian Plant** - Radiation Therapist
- **Christina Rolon** - Medical Secretary
- **Audrey Saitta, MD** - Radiation Oncologist
- **Glenda Santos** - Nurse Practitioner
- **Yun Jeong Seo** - Nurse Practitioner
- **Kate Shechtman** - Senior Radiation Therapist
- **Kunal Sindhu, MD** - Radiation Oncology Resident
- **Andrew Smith, MD** - Radiation Oncology Resident
- **Jaime Sorrentino** - Registered Nurse

Welcoming Mount Sinai Radiation Therapy Students



Mount Sinai Radiation Therapy Students Class of 2019

Mount Sinai’s Department of Radiation Oncology and Stony Brook University’s School of Health Technology and Management have entered into an agreement to provide collaborative radiation therapy education across both campuses. The Mount Sinai Center for Radiation Therapy Education offers students a bachelor’s degree in health science through Stony Brook, followed by a year of clinical specialization in radiation therapy through our radiation oncology departments across the Mount Sinai Health System.

This agreement furthers the academic goals of the Department of Radiation Oncology while expanding upon the recent affiliation between the Icahn School of Medicine and

Stony Brook School of Medicine.

The first five radiation therapy students of the program graduated from Stony Brook University in May and have begun their clinical year, learning from our therapists and experts across the Health System.

Leveraging the strengths of both institutions, the program will provide the highest level of education to our students, transform clinical care, and generate a highly skilled group of radiation therapists to meet the need of our industry and of our growing Department.

Our first class will graduate with certificates in radiation therapy in May 2019.

We are excited to welcome

our first class of Mount Sinai radiation therapy students to the department.

Class of 2019

- Naiara Huscher
- Mehak Ijaz
- Yikmun Ong
- Patricia Sek
- Samantha Wong

For more information about the Mount Sinai Center for Radiation Therapy Education, contact:

Maria Dimopoulos,
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Or go to our website:

<http://icahn.mssm.edu/about/departments/rad-onc/radiation-therapy-program>

Symposium Success

The Icahn School of Medicine's inaugural Palliative Radiation Oncology Symposium, held April 20, 2018, highlighted the latest evidence-based advancements for the care of advanced cancer patients undergoing radiation therapy.

Fifteen faculty speakers from Ottawa, Ontario; Seattle; Madison, Wisconsin; Boston; and Philadelphia joined others from the tri-state area.

Presentations included:

- Passing the Torch: Vision of the Past, Present and Future of Palliative Radiotherapy
- SCORAD III to SBRT: Adventures in Tailoring Radiotherapy for Spinal Metastases
- Symptom Management During and After Radiation: Integrative Therapies and Opioids
- Beyond Survival
- Cost-Consciousness and Value in Cancer Care

A highlight was an expert panel of highly skilled physicians in the field that conducted a Q&A session using case study discussions.

The speakers are considered international lead-



Kavita Dharmarajan, MD, at the Icahn School of Medicine's inaugural Palliative Radiation Oncology Symposium

ers and trailblazers in their areas of expertise. Diane Meier, MD, wrapped up the event, leaving attendees eager and hopeful.

The symposium drew an audience of more than 100 students, residents, nurses, therapists, physicians, physicists, and administrators from across the United States.

This event was made possible by the course directors: Kavita Dharmarajan, MD, Sonam Sharma, MD, and George Dawson, MD. We thank you for your work and innovation on this milestone event.

Vision RT at Mount Sinai Union Square

In April, Vision RT was implemented into clinical practice at Mount Sinai Union Square. Vision RT is a surface-guided radiation therapy (SGRT) technique that uses an infrared light with multiple cameras to capture the patient's surface anatomy. This system increases alignment accuracy without radiation exposure.

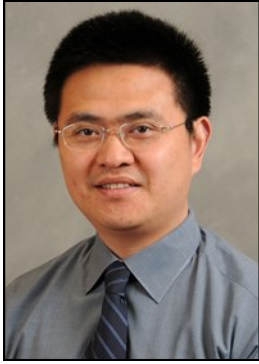
Here is how it works: The dosimetry team exports a surface rendering from the patient's simulation to the Vision RT system. The treating radiation therapist imports and defines a region of interest, setting up the patient using this information from the simulation. The therapist "captures" an image of the patient in treatment position, which overlays onto the surface rendering. The team adjusts the patient according to the suggested shifts and verifies with a port film, ensuring optimal precise treatment delivery. Then Vision RT is used to monitor the patient during the treatment.

The rollout and implementation of this technology has been a multi-disciplinary collaboration between Manjeet Chadha, MD, Tara Hayes, Chang Seon Kim, PhD, Eli Furhang, PhD, and their teams.



Research Spotlight

Machine Learning with Yading Yuan, PhD



Yading Yuan, PhD, DABR

Recent research by Yading Yuan, PhD, supported by a Mount Sinai 4D-pilot research grant, aims to improve the efficiency, consistency, and quality of treatment planning. Dr. Yuan and his team are building on the discriminative power of artificial intelligence (deep learning) and a knowledge database with a large amount of clinically proven treatment plans to design high-quality, clinically deliverable plans for new patients. This application of advanced artificial intelligence techniques (deep learning) to knowledge-based treatment planning is the first of its kind.

Another novel aspect of Dr. Yuan's research is that the 3D information provided can be fully utilized for dose prediction and planning. The algorithm Dr. Yuan developed has been shown to be 30 times faster than the state-of-the-art method while yielding much higher dose prediction accuracy.

Current work by Dr. Yuan and his team focuses on exploring the use of quantitative image analysis and machine learning to address various clinical questions in cancer detection, diagnosis, and prognosis as well as treatment response evaluation. His work in deep learning has won several international competitions in medical image analysis, such as IEEE ISBI 2017 skin tumor segmentation (593 registrations) and MICCAI 2017 liver segmentation (386 participants).

Jalal Ahmed, MD, PhD, Awarded Holman Pathway



Jalal Ahmed, MD, PhD

Congratulations to Jalal Ahmed, MD, PhD, on being awarded the first Holman Pathway for a radiation oncology resident at Mount Sinai. The Holman Pathway is awarded through the American Board of Radiology to physician-scientists showing great promise in research. The Holman Pathway allows for significant laboratory time during residency while fulfilling the requirements for full board certification in radiation oncology. Dr. Ahmed will be working with Miriam Merad, MD, PhD, a renowned Mount Sinai immunologist who is one of the leaders in immuno-oncology.

His project, "Targeting the Tumor Microenvironment to Advance CAR T Cell Therapy for Solid Tumors," will use radiation to mitigate the immunosuppressive activity of tumor-associated myeloid and lymphoid cells and to potentially improve CAR T cell killing of solid tumors. This is a very important area in oncology now.

We congratulate Dr. Ahmed and look forward to seeing more great work from him.

Construction at The Blavatnik Family – Chelsea Medical Center at Mount Sinai

The Blavatnik Family – Chelsea Medical Center at Mount Sinai, located at 325 West 15th Street between Eighth and Ninth Avenues, is planning a large renovation project to begin this year in the Department of Radiation Oncology. The project includes the replacement of a linear accelerator with a new TrueBeam and a new CT simulator, plus an overall refresh, including updating the dressing room and other improvements for an exceptional patient experience. Our Department will share the space with Department of Radiology for the installation of a new MRI.



**Mount
Sinai**

*The Blavatnik Family
Chelsea Medical Center*

TrueBeam 3 at The Mount Sinai Hospital

On March 5, 2018, The Mount Sinai Hospital treated its first patient using TrueBeam 3, the newest device of its kind in the Mount Sinai Health System. The major difference between TrueBeam 3 and other TrueBeams across the Health System is the combination of advanced technologies: 2.5 millimeter multi-leaf collimation, optical surface monitoring system (OSMS), and Exactrac.

The OSMS system uses infrared light to track and match surface anatomy to detect real-time patient movements in all six couch axes. This allows for position monitoring while therapists are delivering the radiation.

Exactrac also supports image-guided radiotherapy, ensuring sub-millimeter precision during radiotherapy and radiosurgery treatments. This system uses X-ray monitoring through a unique

position verification tool based on the patient's internal anatomy. Deviations or unintended shifts from the prescribed treatment position are automatically detected during treatment delivery and immediately displayed to the radiation therapists for correction.

Both CBCT and Exactrac are excellent imaging devices for localization. For mobile lesions such as lung, liver, and prostate, CBCT is optimal as Exactrac cannot show soft tissue. For other lesions in which bony mark is adequate, Exactrac gives more accurate positioning and takes less time.

Because of this unique combination of advanced technologies, TrueBeam 3 is best suited for cranial/spinal SRS setups, as well as lung/liver SBRT treatments. Following priority includes two-field breast using OSMS.



Questions about TrueBeam 3?

Contact Yeh-Chi Lo, PhD, at
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Department of Radiation Oncology

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Interested in joining our social media committee? Take a picture we should post? Please contact Samantha Skubish (samantha.skubish@mountsinai.org) or Maria Dimopoulos (maria.dimopoulos@mountsinai.org).

Thank you!