



Mayo Clinic in Florida Cancer Updates

Clinical Care and Research Advancements



Table of Contents

- 4 Leadership Message
- 6 Pioneering the Future of Cancer Care With Heavy Particle Therapy
- 8 Personalized Cancer Vaccines: Leading-Edge Immunotherapy Research
- 10 CAR-T Cell Therapy at Mayo Clinic in Florida
- 12 Next-Generation Approaches to Surgical Intervention
- 14 Advancing Cancer Care With Radiopharmaceuticals
- 16 Cancer Care Beyond Walls: Transforming Treatment Delivery With Home-Based Oncology
- 18 Closing and Referral Information



Leadership Message



As we reflect on this transformative year for cancer at Mayo Clinic in Florida, we are honored to share the remarkable strides that have been made. Our teams have made significant progress in advancing cancer clinical care and research to transform healthcare.

Expanding access to world-class radiation oncology

The opening of the Duan Family Building marks a defining moment in Mayo Clinic's mission to deliver cutting-edge cancer treatment to patients throughout the world. This state-of-the-art facility houses advanced radiation oncology and radiology capabilities. Construction is underway to bring carbon ion therapy to the facility, a technology currently unavailable in the Americas.

Assembling expertise for unmatched care

We've strategically recruited specialized oncology experts across multiple disciplines to ensure every patient receives truly individualized care. These targeted recruitment efforts have strengthened our capabilities, including advanced molecular oncology, immuno-oncology, cellular therapeutics and rare cancer programs, among others. This enables us to design personalized treatment approaches and surgeries that recognize each patient's unique cancer biology, genetic profile and personal circumstances.

Strengthening our research mission

Over the past few years, we have significantly expanded our research infrastructure and clinical trial portfolio. We are deeply committed to advancing optimal health for all and have intensified our efforts to ensure our research reflects the communities we serve. Through community partnerships and dedicated outreach, we're ensuring that groundbreaking cancer research reflects the unique needs of the patients living in the Southeast.

Looking ahead together

As we move forward, we remain committed to our collaborative relationships with referring physicians and research collaborators across the Southeast and around the world. Your trust in Mayo Clinic drives our commitment to excellence, innovation and equitable access to care.

Thank you for your continued collaboration in our shared mission to deliver hope and healing to every person facing cancer.

With gratitude,

Roxana S. Dronca, M.D.

Site Director
Mayo Clinic Comprehensive Cancer Center
Jacksonville, Florida

Sanjay P. Bagaria, M.D.

Chair, Division of Surgical Oncology
Mayo Clinic
Jacksonville, Florida

Laura A. Vallow, M.D.

Chair, Department of Radiation Oncology
Mayo Clinic
Jacksonville, Florida

Vamsi Velcheti, M.D.

Chair, Division of Hematology and Medical Oncology
Mayo Clinic
Jacksonville, Florida

In 2025, Mayo Clinic in Florida:

ENROLLED

 **>1,200**
patients enrolled in clinical trials in more than 900 studies across 14 disease groups.


>900
patients enrolled in interventional cancer clinical trials.

PROVIDED ACCESS TO

 **>290**
interventional cancer clinical trials.


801
in-home treatments completed in 2025 as a part of Cancer Care Beyond Walls.

TREATED

 **1,700**
medical oncology patients treated.

50,600
chemotherapy treatment dispenses.

ON TRACK TO TREAT

 **20%**
more patients seen in Radiation Oncology in 2025 than 2024, improving access for those who need it most.

Pioneering the Future of Cancer Care With Heavy Particle Therapy

At Mayo Clinic Comprehensive Cancer Center in Jacksonville, Florida, work is underway to bring heavy particle therapy offerings to the Americas including next-generation proton beam therapy and the region's first carbon ion therapy. These treatments offer a precision approach that allows for stronger treatments with fewer side effects, bringing hope to those with the most aggressive and historically treatment-resistant cancers.

The Duan Family Building opened for patient care in July 2025. Photon therapy and advanced imaging is currently available. Proton beam therapy will be available in 2027, and carbon ion therapy in 2028.

ADVANCING RADIATION THERAPY WITH NOVEL THERAPEUTICS

Revolutionary proton technology

Through collaboration with Hitachi and others, Mayo Clinic will provide proton beam therapy treatment capabilities that are available nowhere else in the world, focused on faster, more accurate treatments with adaptive planning.

Carbon ion therapy: A powerful new tool

Carbon ion therapy is a highly effective, unique tool for treating cancer. Carbon ions have a greater mass and energy than protons and are incredibly effective at killing certain cancer cells, particularly for radioresistant tumors. They deliver a higher linear energy transfer, leading to potentially lower dosage and fewer treatments for efficacy. Carbon ion therapy also has the potential to harness the patient's own immune system to fight cancer.

Research that drives clinical innovation

Mayo Clinic is exploring carbon ion therapy from multiple directions: the physics of the treatment modality, how it stimulates the immune system in ways other particle therapies do not, and developing clinical evidence for optimal patient selection. The aim is to drive innovation through deeper understanding of the biology of treatment, including how its immune response may provide a uniquely personalized approach to radiation therapy.

Research is underway to determine which patients would benefit most from proton therapy, carbon ion therapy or a dual carbon-proton approach. This includes evaluation of impact in common cancers compared with rare cancers, and identifying which common diagnoses would benefit from carbon ion as first line treatment.

Mayo Clinic is also collaborating with software development companies to create an advanced treatment planning system that will work with photon, proton and carbon ion therapies. This system will be uniquely able to provide real-time online adaptive treatment

planning — adjusting each patient's plan daily based on tumor response.

“The system will offer online adaptive planning that uses daily patient imaging,” explains Laura A. Vallow, M.D. “This information is correlated based on the contours and prior scans, and then each patient's individual treatment plan is reoptimized to precisely target the tumor as treatment progresses.”

BRINGING THE TREATMENTS OF TOMORROW TO PATIENTS

Heavy particle therapy has the potential to transform treatment paradigms not only for rare, radioresistant cancers, but potentially for more common malignancies where personalized radiation approaches could improve outcomes while reducing long-term effects.

The launch of these remarkable therapies represents Mayo Clinic's continued dedication to innovation in clinical care and research, focused entirely on delivering better patient outcomes and bringing hope to all people facing a cancer diagnosis.

“Heavy particle therapy with protons and carbon ion technology will offer patients the maximum amount of enhanced cancer-fighting benefits the technologies provide, including potential reduction in secondary cancer development, and improved treatment for near-spinal cord tumors, adenoid cystic carcinoma, pelvic sarcoma, pediatric cancers and others.”

Laura A. Vallow, M.D.
Chair of Radiation Oncology at Mayo Clinic in Florida

RADIATION ONCOLOGY TECHNOLOGY IN DUAN FAMILY BUILDING

- **Vault 1:** Leo Chair – Upright positioning system (late 2026 for research purposes).
- **Vault 2:** Varian Truebeam photon linear accelerator (operational as of July 2025).
- **Vault 3:** Varian Truebeam photon linear accelerator (operational as of July 2025).
- **Vault 4:** Hitachi 360-degree proton gantry (Q1 2027).
- **Vault 5:** Hitachi 360-degree proton gantry (Q1 2027).
- **Vault 6:** Hitachi multi-ion fixed beam room (commissioned with carbon in Q1 2028).
- **Accelerator:** Hitachi synchrotron that can switch between three heavy particle energies in less than 20 seconds (planned for clinical use in Q1 2027).

ADVANCED IMAGING TECHNOLOGIES IN DUAN FAMILY BUILDING

All imaging modalities are operational as of July 2025

- Siemens MRI Magnetom Vida 3T with Laser Bridge Treatment Planning System.
- Siemens MRI Magnetom Cima.X 3T (2).
- Siemens MRI Magnetom Vida 3T (2).
- Siemens MRI Magnetom Sola 1.5T (2).
- Siemens PET/CT Quadra.

The 3T Cima.X has the latest in gradient technology, which enhances what can be seen.

The Vida with Laser Bridge technology allows for integrated therapy planning and simulation in conjunction with radiation oncology treatments.

The Quadra is the latest in nuclear medicine PET/CT technology which provides faster image acquisition and reduced radiation exposure.



Personalized Cancer Vaccines: Leading-Edge Immunotherapy Research

Mayo Clinic in Florida is advancing cancer vaccine development under the leadership of Keith L. Knutson, Ph.D., an immunologist pioneering both therapeutic and preventive vaccine strategies across multiple malignancies.

THERAPEUTIC VACCINES: PRECISION IMMUNOTHERAPY

Therapeutic cancer vaccines are tailored to each patient's unique tumor genetics, by sequencing tumor DNA and RNA obtained via biopsy to identify mutation-derived neoantigens. These tumor-specific targets enable vaccine development to treat active disease and prevent recurrence.

"We can use that vaccine to hopefully prevent the disease from coming back, or we can use it to help shrink a tumor when given with other types of therapies," Dr. Knutson explains.

For patients with existing tumors, vaccines are being investigated in combination with standard therapies to enhance tumor response by generating robust T-cell responses. In the adjuvant setting, the same personalized approach addresses minimal residual disease. "Even when the tumor is gone, patients have a high risk of their cancer coming back. After conventional therapies, we can train the immune system to prevent that type of cancer from returning," says Dr. Knutson.

The rapid proliferation characteristic of cancer cells results in accumulated mutations that serve as distinct immunogenic targets. In training the immune system to recognize these mutations, vaccines may prevent relapse by eliminating minimal residual disease before clinical recurrence.

PREVENTIVE VACCINES: TARGETING HIGH-RISK POPULATIONS

Dr. Knutson's team is developing preventive vaccines targeting common oncogenes including HER2 and MUC1. HER2 is overexpressed in approximately 13% to 20% of non-small cell lung cancers (NSCLCs), while MUC1 is present in up to 80% of NSCLCs. This platform has cross-disease applicability, as HER2 is also overexpressed in breast and ovarian cancers.

Preventive strategies may benefit patients with known cancer precursors such as ductal carcinoma in situ, strong family history, or genetic predispositions for malignancies such as BRCA mutations, potentially reducing primary cancer development in high-risk cohorts.

DISEASE APPLICATIONS

Active research spans lung cancer, aggressive breast cancer subtypes (triple-negative and HER2-positive), ovarian cancer, stage II and III triple negative breast cancer and NSCLC after curative surgery.

CLINICAL IMPLICATIONS

Vaccine-based immunotherapies represent a shift toward precision oncology that complements existing protocols, particularly for patients with high recurrence risk or limited treatment options. While in clinical development, early data demonstrate promising immunologic responses.



“Fifty years ago, we didn’t have the capabilities we have now. Our capabilities are rapidly changing and accumulating. Over the next 20 years, we’re going to see some great improvements in how we use vaccines to activate the immune system to suppress cancer development, treat cancer and prevent it from coming back.”

Keith L. Knutson, Ph.D.

CAR-T Cell Therapy at Mayo Clinic in Florida

Mayo Clinic Comprehensive Cancer Center in Florida has developed a comprehensive cellular therapy program that serves as a regional resource for patients with hematologic malignancies requiring CAR-T cell therapy and other advanced cell-based treatments. Our multidisciplinary team provides the full continuum of care, from initial evaluation through apheresis, infusion, acute monitoring and long-term surveillance, within an integrated system designed for both safety and efficiency.

Since establishing our CAR-T Cell Therapy program in 2017, Mayo Clinic in Florida has treated a growing volume of patients with cellular therapies year over year, supported by on-site apheresis capabilities, a state-of-the-art Human Cell Therapy Laboratory, and dedicated inpatient and outpatient units. This infrastructure enables our team to manage patients with medically complex needs safely and efficiently with quality outcomes.

COMPREHENSIVE FDA-APPROVED CELLULAR THERAPY OPTIONS

Mayo Clinic provides access to the complete portfolio of Food and Drug Administration (FDA)-approved CAR-T cell therapies for B-cell lymphomas, multiple myeloma and acute lymphoblastic leukemia. Our physicians have extensive clinical experience across all commercially available products, ensuring optimal product selection for each patient’s specific disease profile.

Timely access remains a priority — most patients can begin treatment within 1 to 2 weeks of referral, with expedited pathways available for urgent clinical scenarios. Our team collaborates closely with referring physicians throughout the treatment course, managing insurance authorization, coordinating bridging therapy when indicated and establishing clear communication regarding posttreatment monitoring protocols.

Beyond CAR-T cell therapy, Mayo Clinic’s cellular therapy program offers FDA-approved T-cell receptor therapy (TCR-T therapy) and tumor-infiltrating lymphocyte (TIL therapy) for select patients with solid tumors, including melanoma (TIL therapy) addressing previously difficult-to-target tumor antigens.

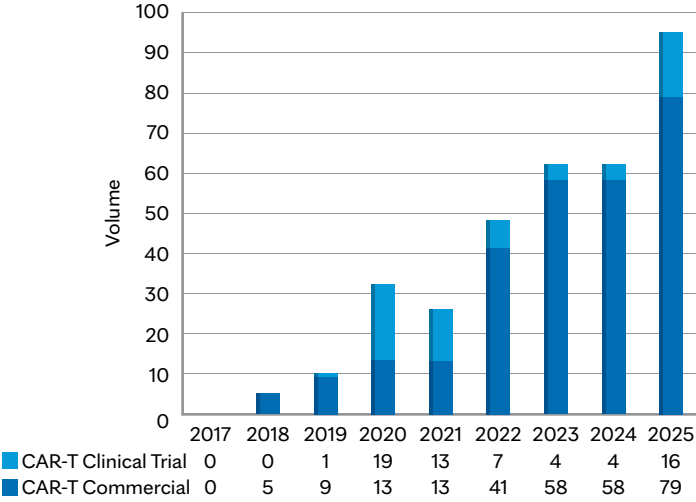
ADVANCING CELLULAR THERAPY THROUGH CLINICAL RESEARCH

Mayo Clinic in Florida maintains an active portfolio of cellular therapy clinical trials, including investigator-initiated studies and industry-sponsored protocols. This research platform extends beyond hematologic malignancies to support patients with solid tumors and autoimmune conditions, including trials for systemic lupus erythematosus, inflammatory myopathies and systemic sclerosis.

Our investigational pipeline includes new target exploration, bicistronic CAR-Ts, therapies for solid tumors and products manufactured on-site at Mayo Clinic. One example is the BAFF-R phase 1a/1b clinical trial using MC10029, a fully Mayo-manufactured therapeutic product. Early results have been promising, with enrollment continuing through 2026.

Ongoing research priorities include improving response durability, understanding resistance mechanisms, and enhancing safety and quality of life. The collaborative research environment across Mayo Clinic’s enterprise accelerates translation of laboratory discoveries into clinical practice.

CAR-T Cell Therapy Program Growth





“The job is not done yet. And I think that we need to continue to improve on that. We need to continue to bring new therapies, need to understand not only why it is not working on a certain patient, but why is it that it works in others. That will bring new knowledge about how to improve.”

- Mohamed Kharfan-Dabaja, M.D., M.B.A.,
Director of Blood Marrow and Transplantation
and Cellular Therapies at Mayo Clinic in Florida

Next-Generation Approaches to Surgical Intervention

ADVANCED HIPEC OPTIMIZES OUTCOMES THROUGH MULTIDISCIPLINARY PRECISION

Mayo Clinic Comprehensive Cancer Center in Florida has established itself as a national leader in hyperthermic intraperitoneal chemotherapy (HIPEC), treating one of the highest volumes among U.S. centers performing this complex procedure with shorter hospital stays and lower complication rates.

The HIPEC procedure itself — cytoreductive surgery followed by heated intraperitoneal chemotherapy circulation — requires seamless coordination. Mayo Clinic’s integrated model ensures surgical oncology and medical oncology expertise at every decision point, from initial evaluation through long-term surveillance.

Personalized evaluation finds the right patients

While HIPEC’s role in treating peritoneal surface malignancies is established, optimal patient selection remains critical. At Mayo Clinic, a multidisciplinary team comprising surgical oncology, medical oncology and specialized support services evaluates each case individually to determine candidacy.

“It’s really variable,” explains Sanjay Bagaria, M.D., surgical oncologist. “There are many things that go into our decision and an evaluation with our team is the best place to start.”

Current indications include appendiceal, colorectal, ovarian and gastric cancers, as well as peritoneal mesothelioma and pseudomyxoma peritonei. While metastatic disease may preclude candidacy, the team welcomes evaluation of all patients with advanced peritoneal cancers.

“It’s invaluable to work alongside surgeons who are extremely thoughtful in our approach to HIPEC,” notes Jeremy C. Jones, M.D., medical oncologist. “Part of the expertise is in the evaluation. Not every treatment is right for every person.”

Protocol optimization for enhanced recovery

Mayo Clinic has refined HIPEC protocols to significantly improve perioperative outcomes. Patients average less than one week of hospitalization postprocedure, with among the lowest revisit rates nationally.

Key innovations include strategic fluid restriction during surgery, including reduction of intravenous fluids (approximately 25% of historically standard volumes) and precision anesthesia dosing. This minimizes third-spacing, reduces pulmonary complications and accelerates return of bowel function. The program integrates Enhanced Recovery After Surgery (ERAS) protocols, emphasizing preoperative optimization through nutritional support, targeted exercise and comorbidity management. Postoperatively, early enteral feeding and mobilization further expedite recovery.



PIPAC: A BREAKTHROUGH FOR PREVIOUSLY UNTREATABLE PERITONEAL MALIGNANCIES

When conventional therapies fail for patients with peritoneal metastases, Mayo Clinic Comprehensive Cancer Center in Florida offers a proven alternative through the only U.S. clinical trial of pressurized intraperitoneal aerosol chemotherapy (PIPAC).

Leading innovation in peritoneal disease management

Under the leadership of Amit Merchea, M.D., Mayo Clinic performed the first PIPAC procedure in the United States in 2019. This minimally invasive approach delivers aerosolized chemotherapy directly to the peritoneum under pressure, enabling deeper tumor penetration than traditional protocols.

The procedure uses laparoscopic techniques with specialized nebulization equipment, allowing targeted drug delivery with significantly reduced systemic exposure. Treatment is completed in approximately one hour on an outpatient basis.

Clinical applications and patient selection

Current trial enrollment includes patients with peritoneal spread from colorectal and appendiceal primary malignancies

when curative options are exhausted. The treatment may be repeated multiple times, and each session includes biopsy for direct tumor response assessment.

Evidence-based outcomes

European experience spanning thousands of patients demonstrates tumor response rates between 40% and 60%. Mayo Clinic's early data reveals compelling results: patients who underwent PIPAC experienced 181 good days at six months versus 131 days with standard therapy, with this advantage extending to one year. Overall survival improved to 11.3 months compared with 5.1 months, with fewer hospitalizations and maintained quality of life.

Notably, 10% to 15% of patients treated with PIPAC achieve sufficient tumor reduction to become surgical candidates — converting previously inoperable disease to potentially curative resection.

For patients facing limited options with peritoneal carcinomatosis, PIPAC represents an evidence-based approach that may extend survival while preserving function.



Advancing Cancer Care With Radiopharmaceuticals

Experts in the theranostics program at Mayo Clinic Comprehensive Cancer Center in Florida are well versed in the use of radiopharmaceuticals for advanced prostate and neuroendocrine cancers. All three Mayo Clinic sites are qualified as comprehensive Radiopharmaceutical Therapy Centers of Excellence.

“Theranostics is the concept of giving a drug that is labeled with a radioactive isotope that is going selectively to the cancer. This allows you to both image and treat the cancer,” says Ephraim Parent, M.D., Ph.D., radiologist and Division Chair of Nuclear Medicine at Mayo Clinic in Florida.

Recently, headway has been made to expand clinical research to other indications.

As part of a multisite, international clinical trial, Mayo Clinic is the first organization in the U.S. to treat a patient with a new radiopharmaceutical drug

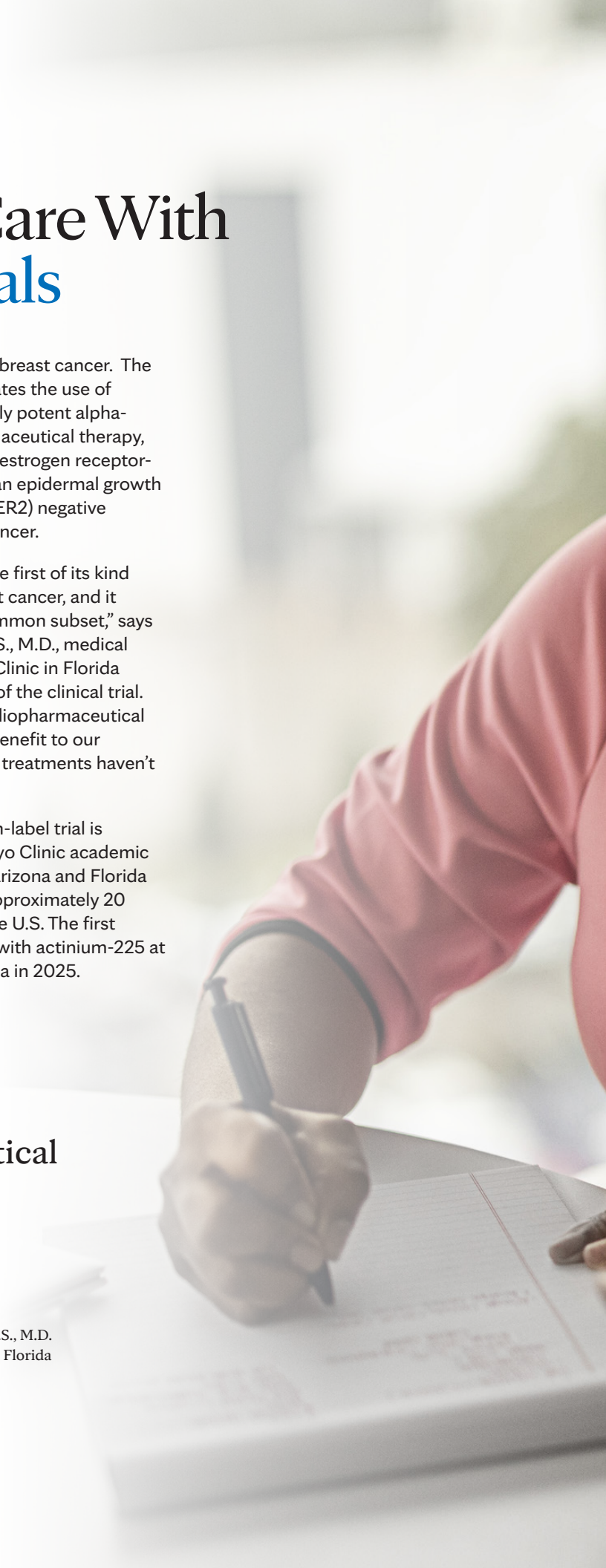
to target metastatic breast cancer. The clinical trial investigates the use of actinium-225, a highly potent alpha-emitting radiopharmaceutical therapy, for the treatment of estrogen receptor-positive (ER+), human epidermal growth factor receptor 2 (HER2) negative metastatic breast cancer.

“This treatment is the first of its kind for metastatic breast cancer, and it targets the most common subset,” says Rohit R. Rao, M.B.B.S., M.D., medical oncologist at Mayo Clinic in Florida and co-investigator of the clinical trial. “Our hope is that radiopharmaceutical therapy will offer a benefit to our patients when other treatments haven’t been helpful.”

The phase 1b/2 open-label trial is underway at the Mayo Clinic academic sites in Minnesota, Arizona and Florida and will roll out at approximately 20 other sites across the U.S. The first patient was treated with actinium-225 at Mayo Clinic in Florida in 2025.

“Our hope is that radiopharmaceutical therapy will offer a benefit to our patients when other treatments haven’t been helpful.”

Rohit R. Rao, M.B.B.S., M.D.
Medical Oncologist at Mayo Clinic in Florida





Cancer Care Beyond Walls: Transforming Treatment Delivery With Home-Based Oncology

People with cancer spend an estimated 10% of their time in medical facilities for recurring appointments, therapies and scans. Mayo Clinic Comprehensive Cancer Center in Florida is reshaping this paradigm through Cancer CARE (Connected Access and Remote Expertise) Beyond Walls (CCBW), delivering chemotherapy, immunotherapy and clinical trials directly to patients' homes.

EVIDENCE-BASED INNOVATION

Launched in April 2023, CCBW has safely delivered more than 1,200 in-home chemotherapy infusions. Results from a randomized pragmatic trial presented at the 2025 ASCO Annual Meeting demonstrate feasibility, safety and high patient acceptance.

The interim analysis reported on the first 52 enrolled adult patients receiving chemotherapy or hormonal therapy, including breast cancer (38%), colorectal cancer (21%), prostate cancer (19%) and multiple myeloma (14%). Nearly three-quarters preferred home-based treatment when given the option. Patients valued convenience and the ability to interact with the command center virtually whenever they needed to, choosing to avoid traffic, parking and lost work time.



CLINICAL INFRASTRUCTURE AND SAFETY

Rigorous patient selection ensures safety. Eligible patients must first tolerate treatment in clinic for 1 to 2 cycles before transitioning home. Medications are selected based on transport stability and low infusion reaction risk.

“We make sure patients have successfully tolerated treatment in a clinic setting before shifting to home-based care,” explains Roxana S. Dronca, M.D., medical oncologist and site director of Mayo Clinic Comprehensive Cancer Center in Florida. “While care in the home should not replace hospital- and clinic-based care, it should be an option when treatment permits.”

Trained home health nurses deliver treatment with real-time oversight from Mayo Clinic’s virtual command center via two-way video technology, ensuring the same standard of care delivered in clinical settings.

ADDRESSING TIME AND FINANCIAL TOXICITY

For a standard 90-minute infusion, patients typically spend four hours in clinic when accounting for travel, parking and waiting time. “Most drug-related cancer care occurs in ambulatory infusion centers where patients spend many hours isolated from family, friends and familiar surroundings,” Dr. Dronca notes. “This separation compounds the physical, emotional, social and financial burdens.”

The program currently serves patients within 75 miles of Mayo Clinic in Florida with expansion to additional Mayo sites and Mayo Clinic Care Network partners underway. In addition to the local catchment area, the program recently expanded care into the rural Florida Panhandle with a pilot program as part of the Florida Innovation Fund through the Florida Department of Health.

CLINICAL TRIALS INTEGRATION

CCBW uniquely integrates clinical trial participation into home-based delivery. Five active trials study in-home versus in-clinic treatment administration, including a trial testing subcutaneous nivolumab at home. This decentralized approach removes geographic and logistic barriers to cutting-edge therapies.



IMPLICATIONS FOR PRACTICE

Moving beyond just treating patients on trials, Mayo Clinic is now treating select patients as part of our standard-of-care practice. “We shift the model with treatment in the home,” says Jeremy C. Jones, M.D., a medical oncologist and medical director of CCBW. “Rather than patients finding a spot in our schedule, we fit into theirs. Patients are empowered when we bring cancer care to their homes.”

The program creates capacity within traditional infusion centers for patients requiring facility-based care. As digital capabilities advance, geographic boundaries dissolve. “Once cancer care becomes digital, it doesn’t matter whether a patient is one or 1,000 miles away,” Dr. Jones explains.

For referring physicians, CCBW offers innovative care delivery that may improve treatment adherence, reduce patient burden and enhance quality of life while maintaining Mayo Clinic’s standard of excellence.



PROGRAM EXPANSION:

In late 2025, launched the new program **Stat Care at Home** for at-home symptom management and acute care with the goal of diverting patients from emergency room visits.



For patient eligibility or program details, contact Mayo Clinic Provider Relations at 904-902-0803.

CCBW AT A GLANCE



Launch date
April 2023



Safety signals
No grade > 3 adverse events related to treatment location reported to date



Patient-reported mean satisfaction at 8 weeks (0-10 scale)

- **Home 9.69**
- **Clinic 9.54**



Geographic reach
Initial service radius: 75 miles of Mayo Clinic in Florida



Location preference at 24 weeks

73% preferred home-based care



Number of in-home infusions to date

1,200



Highest accruing patient diagnoses:

- **Breast**
- **Prostate**
- **GI**
- **Melanoma**
- **Multiple myeloma**
- **Colon**

Number of in-home labs to date

1,400

Closing and Referral Information

Mayo Clinic in Florida is leading the way in innovation in cancer care. We see patients from across the United States and around the globe, treating the most serious, rare or complex cancer diagnoses and working to grant all patients access to tomorrow's treatments, today.



To refer a patient to Mayo Clinic in Florida, call 800-634-1417





Imagery is copyright Mayo Clinic, Getty Images, Shutterstock, or approved for use.

[mayoclinic.org](https://www.mayoclinic.org)

©2026 Mayo Foundation for Medical Education and Research. All rights reserved. MAYO, MAYO CLINIC and the triple-shield Mayo Clinic logo are trademarks and service marks of MFMER.

[Learn more online at mayoclinic.org](https://www.mayoclinic.org)

MC0336-243