What is molecular imaging and how does it help people with cancer?

Molecular imaging is a type of medical imaging that provides detailed pictures of what is happening inside the body at the cellular and molecular level. Where other diagnostic imaging procedures—such as x-rays, computed tomography (CT) and ultrasound—predominantly offer anatomical pictures, molecular imaging allows physicians to see how the body is functioning and to measure its chemical and biological processes.

Molecular imaging offers unique insights into the human body that enable physicians to personalize patient care. As a tool for evaluating and managing the care of patients, molecular imaging studies help physicians:

- Determine the extent or severity of the disease, including whether it has spread elsewhere in the body
- Select the most effective therapy based on the unique biological characteristics of the patient and the molecular properties of a tumor or other disease
- Determine a patient’s response to specific drugs
- Accurately assess the effectiveness of a treatment regimen
- Adapt treatment plans quickly in response to changes in cellular activity
- Assess disease progression
- Identify recurrence of disease and help manage ongoing care.

Advantages of molecular imaging for cancer patients:

- By detecting whether lesions are benign or malignant, PET scans may eliminate the need for surgical biopsy or identify the optimal biopsy location.
- PET scans help physicians choose the most appropriate treatment plan and assess whether chemotherapy or other treatments are working as intended.
- Information provided by PET imaging often eliminates the need for exploratory surgery or other invasive medical procedures.
- Information provided by molecular imaging technologies has the potential to help the drug development and approval process become faster, more effective and less expensive.
- PET scans are currently the most effective means of detecting a recurrence of cancer.

Molecular Imaging & Cancer

Advocacy

- Advocated on Capitol Hill for reliable domestic production source of Methyl- deroxine-99m (MDP-99m) and the SNM’s view on recent efforts to curtail the use of highly enriched uranium in radiocolloid production.
- Continued efforts with the Alliance for Quality Medical Imaging and Radiation Therapy to support the Consistency, Accuracy, Responsibility and Excellence in Medical Imaging and Radiation Therapy (CARE) legislation.
- Worked with the SNM’s Physician’s Coalition to develop and educate members on the roles of nuclear medicine imaging physicians quality measures in the 2009 Physician Quality Reporting Initiative (PQRI).
- Worked with a broad coalition of imaging stakeholders to develop comments for the Center for Medicare and Medicaid Services on the oncologic PET/Nuclear Coverage Determination (NCD).
- Conducted successful annual Capitol Hill Days for SNM members to discuss with federal legislators the importance of molecular imaging research, quality, access, and reimbursement.
- Overseas activities of the Ambulatory Payment Classification (APC) Task force, the molecular imaging and therapy community’s leading coalition on coding and reimbursement issues.
- Created and hosted a 90-minute Webinar on FDG-PET where over 1,000 nuclear medicine professionals learned critical aspects of the new Medicare coverage and billing policies for oncologic indications.

Education and Research

- Promoted maintenance of certification and practice quality improvement for all professionals.
- Offered CT training for physician and technologist members.
- Recommended more cutting-edge molecular imaging components (e.g., new tracers and optical imaging techniques) for the nuclear medicine residency requirements while allowing for a more comprehensive optional advanced residency curriculum.
- Developing a molecular imaging curriculum for scientists to serve as a core curriculum that can be used as a guideline for graduate-level programs.
- Promoted and disseminated valuable new research on molecular imaging and other issues through SNM’s high-quality journals and other publications.
- Launched the SNM Clinical Trials Network to accelerate clinical trials for investigational therapeutics and to increase the number of imaging biomarkers available for clinical use.
- Collaborated with American Society for Therapeutic Radiology and Oncology (ASTRO), the American Society for Clinical Oncology (ASCO) and the National Institutes of Health (NIH) on various symposia.

Resources

- PET PROS (professional references and outreach resources) created for referring physicians.
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SNM Highlights

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SNM’s Mission: To improve health care by advancing molecular imaging and therapy.