Know more about Nuclear Medicine

Nuclear medicine specialists use safe, painless, and cost-effective techniques to image the body and treat disease. Nuclear medicine imaging is unique, because it provides doctors with information about both structure and function. It is a way to gather medical information that would otherwise be unavailable, require surgery, or necessitate more expensive diagnostic tests. Nuclear medicine imaging procedures often identify abnormalities very early in the progress of a disease—long before many medical problems are apparent with other diagnostic tests.

Nuclear medicine uses very small amounts of radioactive materials (radiopharmaceuticals) to diagnose and treat disease. In imaging, the radiopharmaceuticals are detected by special types of cameras that work with computers to provide very precise pictures about the area of the body being imaged. In treatment, the radiopharmaceuticals go directly to the organ being treated. The amount of radiation in a typical nuclear imaging procedure is comparable with that received during a diagnostic x-ray, and the amount received in a typical treatment procedure is kept within safe limits.

Today, nuclear medicine offers procedures that are essential in many medical specialties, from pediatrics to cardiology to psychiatry. New and innovative nuclear medicine treatments that target and pinpoint molecular levels within the body are revolutionizing our understanding of and approach to a range of diseases and conditions.

Nuclear imaging procedures are often performed on an outpatient basis.

If an imaging agent is needed, it is injected, swallowed or inhaled. Imaging is performed, depending on the procedure, immediately or

hours or even days afterward, depending on the type of procedure. Images created by the device and a computer are reviewed and interpreted by a qualified imaging professional such as a nuclear medicine physician or radiologist who shares the results with the patient's physician.

Nuclear imaging offers unique insights into the human body that enable physicians to personalize patient care. In terms of diagnosis, nuclear medicine imaging is able to: provide information that is unattainable with other imaging technologies or that would require more invasive procedures such as biopsy or surgery identify disease in its earliest stages and determine the exact location of a tumor, often before symptoms occur or abnormalities can be detected with other diagnostic tests

As a tool for evaluating and managing the care of patients, nuclear medicine 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 biologic 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

Nuclear Medicine imaging procedures, which are noninvasive, safe and painless, are used to diagnose and manage the treatment of:

1. Cancer
2. Heart disease
3. Brain disorders, such as Alzheimer's disease

4. Gastrointestinal disorders
5. Lung disorders
6. Bone disorders
7. Kidney and thyroid disorders

In addition to increasing our understanding of the underlying causes of disease, nuclear medicine imaging is improving the way disease is detected and treated. Nuclear Medicine imaging technologies are also playing an important role in the development of: screening tools, by providing a non-invasive and highly accurate way to assess at-risk populations new and more effective drugs, by helping researchers quickly understand and assess new drug therapies personalized medicine, in which medical treatment is based on a patient's unique genetic profile.