

RSNA Statement on Imaging of the Prostate **Updated: 5/9/2024**

The Radiological Society of North America (RSNA) is committed to excellence in patient care through education and research.

- Prostate cancer is an important public health issue. It is a leading cause of cancer death in American men.
- Many prostate cancers are slow growing, and many older men diagnosed with early-stage prostate cancer will die with their prostate cancer rather than from it. The United States Preventive Services Task Force recommends against PSA screening in men 70 years or older.
- Prostate cancer is rare in men under the age of 50. However, prostate cancer in men below the age of 55 may be more aggressive with a worse prognosis compared to older men.
- Two major clinical problems in the management of prostate cancer are inefficient diagnosis and overtreatment. Experts agree that about 30 to 50 percent of the surgeries and radiation therapy procedures performed are unnecessary and do not improve patient survival or prognosis. Additionally, about one in five men who undergo radical prostatectomy develop long-term urinary incontinence, and two in three men will experience long-term erectile dysfunction.
- MRI is the best modality for imaging of the prostate and has been shown to accurately diagnose cancer, especially when it is aggressive and larger in volume.
- Prostate MRI can be useful in the management of prostate cancer in detection, localization, staging, follow up, triage of patients for active surveillance and detection of recurrence. Multiparametric prostate MRI (mpMRI) with T2 weighted, diffusion weighted, and dynamic contrast enhanced sequences represents state-of-the-art prostate imaging.
- National Comprehensive Cancer Network (NCCN) guidelines Version 2.2020 incorporates mpMRI in the staging and characterization of prostate cancer and to better risk-stratify men who are considering active surveillance.
- MRI is used for targeted prostate biopsies (in bore MR-guided biopsy or mpMRI-ultrasound fusion biopsy), and this technology is widely embraced and utilized in patients with elevated prostate-specific antigen (PSA) for the initial biopsy or after a negative random biopsy.
- Prostate MRI allows localization of cancer for image-guided focal therapy. Several image-guided focal therapy methods have been developed, allowing eradication of prostate cancer while minimizing the complications that affect quality of life.
- In addition to MRI, nuclear medicine techniques, PET/CT and PET/MRI are being used for evaluation of prostate cancer. Currently, a variety of novel PET radiotracers are being used to image prostate cancer. These include several FDA approved PET agents that accumulate on the basis of alterations in cellular metabolism. ¹¹C-choline and ¹⁸F-FACBC are approved for assessment of suspected recurrent prostate cancer and inconclusive CT/MR or bone scintigraphy. The next generation radiotracers are those that bind to prostate specific membrane antigen (PSMA). ⁶⁸Ga-PSMA-11, ¹⁸F-DCFPyL, ¹⁸F-flotufolastat and ⁶⁸Ga-gozetotide are approved by the FDA and can be used for initial staging in patients at higher risk for metastasis (unfavorable intermediate and high-

risk disease) and detection of recurrent disease. These PET agents address the limitations of traditional imaging and improve management of patients with recurrent/metastatic disease. Thus, PSMA-PET/CT or PSMA-PET/MRI can serve as very effective front-line imaging tools for these patients. In addition, PSMA-PET is required for selection of patients with PSMA-avid metastasis who are candidates for therapy with FDA-approved lutetium Lu 177 vipivotide tetraxetan (Lu-177-PSMA-617).

- Prostate imaging with MRI and image-guided prostate interventions have been shown to improve the diagnosis, treatment, and management of prostate cancer, resulting in better patient outcomes.
- Rapid acceptance of prostate MRI globally has led to a need for training radiologists in accurate interpretation of prostate MRI results. Prostate imaging reporting and data system (PI-RADS) version 2.1 (expert consensus joint effort of the American College of Radiology and European Society of Urogenital Radiology) is an important step toward standardization of prostate image acquisition, interpretation, and structured reporting of mpMRI. RSNA and other professional radiology organizations have developed several educational programs to help radiologists maintain their proficiency in image interpretation.

RSNA is a strong advocate for quality, safety, equity, and strict adherence to appropriateness criteria in medical imaging and radiation oncology. Through its peer-reviewed journals, education programs and annual scientific assembly, RSNA continually informs radiologists, medical physicists, radiation oncologists and other radiology professionals of the latest technologies and research developments designed to optimize dose and improve patient safety.