SNMMI AUC Factsheet for Prostate-Specific Membrane Antigen (PSMA) PET Imaging

AUC INTRODUCTION

Nuclear medicine imaging studies are essential for the diagnosis and management of many diseases. The ready availability of medical imaging studies in conjunction with concerns about missed diagnoses has, at times, resulted in inappropriate use and overuse of all medical imaging technology, including nuclear imaging. The overuse may have resulted in an unnecessary financial burden on the health-care system and in some cases unnecessary exposure to ionizing radiation. Overuse and inconsistent use of imaging procedures has prompted a push for multi-stakeholder consensus documents outlining the most appropriate and cost-effective use of advanced medical imaging studies.

It is hoped that this document, developed by medical experts knowledgeable in the appropriate use of prostate-specific membrane antigen (PSMA), will improve healthcare outcomes for the intended patient population while helping to decrease unnecessary imaging costs.

The purpose of this document is to describe the appropriate use criteria (AUC) of prostate-specific membrane antigen (PSMA) imaging for diagnosing and staging prostate cancer. This document is presented to assist health-care practitioners considering PSMA imaging; however, each patient is unique, as is each clinical presentation, and therefore this document cannot replace clinical judgment.

CLINICAL SCENARIOS FOR PSMA IMAGING IN PROSTATE CANCER

The use of radiopharmaceuticals that target the prostate-specific membrane antigen is based on growing scientific evidence that supports their favorable imaging performance.

Two PSMA-targeted imaging agents (18F-DCFPyL and 68Ga-PSMA-11) are currently approved by the U.S. Food and Drug Administration, and numerous others are being evaluated in clinical trials. Though there may be small differences between each radiopharmaceutical, there is no evidence to date that one specific radiopharmaceutical has improved diagnostic characteristics compared with another. For the purpose of this AUC document, all PSMA PET radiotracers are treated as equivalent and are referred to as a class.

Clinical Scenarios for Prostate Cancer

Scenario #	Description	Appropriateness	Score
1	Patients with suspected prostate cancer (e.g., high/rising PSA levels, abnormal digital rectal examination results) evaluated for targeted biopsy and detection of intraprostatic tumor	Rarely Appropriate	3
2	Patients with very low, low, and favorable intermediate-risk prostate cancer	Rarely Appropriate	2
3	Newly diagnosed unfavorable intermediate, high-risk, or very high-risk prostate cancer	Appropriate	8
4	Newly diagnosed unfavorable intermediate, high-risk, or very high-risk prostate cancer with negative/equivocal or oligometastatic disease on conventional imaging	Appropriate	8
5	Newly diagnosed prostate cancer with widespread metastatic disease on conventional imaging	May be Appropriate	4
6	PSA persistence or PSA rise from undetectable level after radical prostatectomy	Appropriate	9
7	PSA rise above nadir after definitive radiotherapy	Appropriate	9
8	PSA rise after focal therapy of the primary tumor	May be Appropriate	5
9	nmCRPC (M0) on conventional imaging	Appropriate	7
10	Post-treatment PSA rise in the mCRPC setting in a patient not being considered for PSMA-targeted radioligand therapy	May be Appropriate	6
11	Evaluation of eligibility for patients being considered for PSMA-targeted radioligand therapy	Appropriate	9
12	Evaluation of response to therapy	May be Appropriate	5

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Rating and Scoring

The above clinical scenarios are scored as “appropriate,” “may be appropriate,” or “rarely appropriate” on a scale from 1 to 9. Scores 7–9 indicate that the use of the procedure is appropriate for the specific clinical scenario and is generally considered acceptable. Scores 4–6 indicate that the use of the procedure may be appropriate for the specific clinical scenario. This implies that more research is needed to classify the use of PSMA imaging in the particular clinical scenario definitively, or that some patient sub-populations in the described clinical scenario may benefit more than others. Scores 1–3 indicate that the use of the procedure is rarely appropriate for the specific clinical scenario and generally is not considered acceptable.

Methodology

The process for AUC development was modeled after the RAND/ UCLA Appropriateness Method for AUC development. It includes multi-stakeholder identification of a list of relevant clinical scenarios, a systematic review of evidence in the literature, and a systematic synthesis of available evidence, while adhering to the Institute of Medicine’s standards for developing trustworthy clinical guidance.

This AUC was developed by the Society of Nuclear Medicine and Molecular Imaging with participation from experts affiliated with the following organizations: American College of Nuclear Medicine, American College of Physicians, American Society of Clinical Oncology, American Urological Association, Australian and New Zealand Society of Nuclear Medicine, and European Association of Nuclear Medicine.

For the complete manuscript and listing of references, visit:
http://s3.amazonaws.com/rdcms-snmmi/files/production/public/FileDownloads/Procedure_Standards/PSMA%20AUC%202022.03.15_final_BOD%20approved.pdf

For a complete list of Appropriate Use Criteria (AUC) documents go to: www.snmmi.org/auc