

*Düsseldorf, Germany*

**CTE 1 (EANM Technologists / SNMMI)  
Sunday, October 14, 08:15-9:45**

**Session Title**

**Prostate Cancer Imaging and Therapy: Tech Guide Launch**

**Chairpersons**

Luca Camoni (Brescia)  
David Gilmore (SNMMI, Boston)

**Programme**

- 08:15 - 08:45 David Gilmore (SNMMI, Boston): PET-CT Procedures Based on F-18 tracers in Prostate Cancer
- 08:45 - 09:15 Marie Claire Attard (Zwolle): The Management of a Prostate Cancer Patient
- 09:15 - 09:45 Laura Evangelista (Padova): Future Perspectives and Pre-Clinical Studies in Prostate Cancer

**Educational Objectives**

1. Identify the F18-based radiopharmaceuticals
2. Understand the patient preparation and PET-CT protocols
3. Recognize the imaging artefacts
4. Determine the stages in relation to Gleason score and PSA
5. Describe the of imaging involved – which and at which time point
6. Acknowledge the flow chart of the clinical pathway after diagnosis
7. Acquire general knowledge of techniques on small animals
8. Identify the relevance of Animal care in the context of pre-clinical imaging
9. Get acquainted with the extended technologist competences as a member of a pre-clinical team
10. Recognize the impact of nuclear medicine techniques in pre-clinical trials
11. Understand the pitfalls and problems of animal research as a tool for the implementation in Human medicine

**Summary**

Prostate cancer is the second most common cancer in men worldwide and it's one of the most significant health problems experienced by the male population. It has a wide spectrum of biologic behavior ranging from indolent low-risk disease to highly aggressive castration-resistant prostate cancer. Due to increasing life expectancy and the introduction of more sensitive diagnostic screening techniques, prostate cancer is diagnosed more frequently and with rapidly increasing incidence and prevalence rates. This disease could be considered a normal age-related phenomenon.

Positron emission tomography/computed tomography (PET/CT) plays a key role in this disease. Several radiopharmaceuticals have demonstrated efficacy for cancer detection. PET/CT provides images of the functional processes in the body, measuring biochemical function and morphology, thus identifying the biology and pharmacology of cancer. Recent advances in the fundamental understanding of the complex biology of prostate cancer have provided an increasing number of potential targets for imaging and treatment. His role is constantly evolving to increasingly respond to key clinical questions at various stages of the disease and in a cost-effective manner, the imaging evaluation needs to be tailored to the various phases of this remarkably heterogeneous disease.

The nuclear medicine technologist has its role in the multi professional management of a prostate cancer patient, among its competencies there're some tasks such as patient preparation and imaging processing, in addition to a direct involvement in therapy in different roles. A human approach is mandatory when a man is diagnosed with cancer, the emotional responses to the diagnosis may not be predictable and are as wide and varied as the men involved. Known the in detail the processes of imaging involved, the flow chart illustrating a pathway a patient follows after diagnosis, follow-up examinations involved and with which imaging modality, these are useful resources for a best knowledge of own tasks.

The patient care should go hand-in-hand with the research. Despite advances in cancer treatment, response of many cancer types is sub-optimal and in many cases not curative. Therefore, new treatments or better targeting of current treatments for cancer therapy is of the utmost importance. As knowledge of molecular systems and pathways expands and improves, development of novel agents that are directed to specific molecular targets has become forefront. Molecular and non-invasive imaging are rapidly becoming fundamental in pre-clinical cancer drug discovery. Furthermore, molecular imaging in pre-clinical studies is increasingly more important in light of the clinical progression towards personalized medicine. PET/CT imaging has been shown to be a reliable pre-clinical tool for the early detection of response to molecular-targeted therapeutics. The advent of molecular bioimaging approaches and advances in this area is further improving the impact of pre-clinical cancer pharmacology studies.

### **Key Words**

Prostate cancer

PET-CT

Patient management

Pre-clinical studies

### **Take Home Message**

The technology, the professionals, the research have the potential to improve together the management of all states of advanced prostate cancer.