

# INPLASY

## PSMA PET in Prostate Cancer: Detection of Metastases and Changes of Stage, Treatment, and Outcome

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Hoffmann, MA, Soydal C, Virgolini, I, Tuncel, M, Kalevi, K, Kapp, D, von Eyben, F.

### Corresponding author:

Finn von Eyben

finn113edler@mail.tele.dk

### Author Affiliation:

Center of Tobacco Control Research.

### ADMINISTRATIVE INFORMATION

**Support** - No Funding.

**Review Stage at time of this submission** - Completed but not published.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY2024110041

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 7 November 2024 and was last updated on 7 November 2024.

### INTRODUCTION

**Review question / Objective** We aimed to summarize staging PSMA PET in prostate cancer for delineation of metastases and impact on staging, choice of treatment and prediction of outcome.

**Rationale** It is known that PSMA PET is more sensitive to detect metastases than conventional imaging. Our systematic review summarizes studies in Forest plots for the rate of lymph node and bone metastases. consequences for down and upstaging, change of treatment, and for prediction of PET based risk groups for overall survival. Studies compared outcome for patients staged with conventional imaging or PSMA PET.

**Condition being studied** Intermediate risk and high risk prostate cancer patients at diagnosis.

### METHODS

**Search strategy** Search for hits in Pubmed, Google Scholar, and reference lists in original publications and reviews from 2016 till September 2024.

**Participant or population** Patients with intermediate and high risk prostate cancer at diagnosis.

**Intervention** Prostate specific membrane antigen (PSMA) PET/CT or PET/MRI.

**Comparator** Bone scans and multiparametric MRI.

**Study designs to be included** Original retrospective and prospective studies and in case randomized controlled trials.

**Eligibility criteria** At least 20 patients with histologically proven prostate cancer at diagnosis

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with intermediate and high risk published after 2015 in English.

Staging PET could be based on <sup>68</sup>Gallium or <sup>18</sup>Fluoride. Studies were included irrespective of activity and uptake time, country of origin. All publications were reported in peer reviewed journal.

We excluded case reports, editorials, reviews and studies of low risk patients and animal studies.

**Information sources** PUBMED and Google Scholar. We did not include grey literature. Contact with authors did not lead to reply. I made most of the searches with help from a coauthor Daniel S Kapp.

### **Main outcome(s)**

Rate of lymph node metastases indicated only by PSMA PET; Rate of bone metastases indicated only by PSMA PET; Down and upstaging; Change of planned treatment.

**Additional outcome(s)** Overall survival; Adverse effects from staging.

**Data management** Data were analyzed in STATA version 16 with updates. We used non-parametric statistics. A p value <0.05 was considered statistically significant.

**Quality assessment / Risk of bias analysis** Check as of Quadas.

**Strategy of data synthesis** Preplanned synthesis by goals of the systematic review.

**Subgroup analysis** Split for two risk groups (IR and HR); Split for tracer type; Summarized for LNM and bone mets.

**Sensitivity analysis** Sensitivity check against guidelines and previous reviews. Most recent reviews were only published ahead of print. The SR aimed to add new analyses not made before.

**Country(ies) involved** Germany, Turkey, Austria, Finland, USA, and Denmark.

**Keywords** prostate neoplasm, PSMA PET, staging, overall survival.

### **Contributions of each author**

Author 1 - Manuela Hoffmann.

Email: manhofm@uni-mainz.de

Author 2 - Cigdem Soydal.

Email: csoydal@yahoo.com

Author 3 - Irene Virgolini.

Email: irene.virgolini@tirol-kliniken.at

Author 4 - Murat Tuncel.

Email: murat.tuncel@hacettepe.edu.tr

Author 5 - Kalevi Kairemo.

Email: kalevi.kairemo@gmail.com

Author 6 - Daniel Kapp.

Email: dskkapp@stanford.edu

Author 7 - Finn von Eyben.

Email: finn113edler@mail.tele.dk