# INPLASY PROTOCOL

To cite: Zhang et al. Prognostic significance of pretreatment systemic immune-inflammation index in patients with prostate cancer: A meta-analysis. Inplasy protocol 2022110155. doi: 10.37766/inplasy2022.11.0155

Received: 30 November 2022

Published: 30 November 2022

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**Support:** **None.**

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

**Conflicts of interest:**
**None declared.**

# Prognostic significance of pretreatment systemic immune-inflammation index in patients with prostate cancer: A meta-analysis

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**Review question / Objective:** **The SII (systemic immune-inflammation index) has been extensively reported to have a prognostic value in prostate cancer (PCa), despite the unconformable results. The purpose of this meta-analysis is to quantify the effect of pretreatment SII on survival outcomes in patients with PCa.**
**Condition being studied:** **The following databases were searched: Web of Science, Cochrane Library, PubMed, Embase, and China National Knowledge Infrastructure (CNKI). For exploration of the SII's correlations with the overall survival (OS) and the progression-free survival/biochemical recurrence-free survival (PFS/bRFS) in PCa, the pooled hazard ratios (HRs) were assessed within 95% confidence intervals (CIs).**

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 30 November 2022 and was last updated on 30 November 2022 (registration number INPLASY2022110155).

## INTRODUCTION

**Review question / Objective:** **The SII (systemic immune-inflammation index) has been extensively reported to have a prognostic value in prostate cancer (PCa), despite the unconformable results. The purpose of this meta-analysis is to quantify the effect of pretreatment SII on survival outcomes in patients with PCa.**

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## METHODS

**Participant or population:** Patients whose PCa was confirmed pathologically.

**Intervention:** The SII level was examined pretreatment for PCa patients and studies identified a cutoff value of SII for stratifying patients as low/highSII.

**Comparator:** PCa patients with low SII level.

**Study designs to be included:** Cohort studies, including prospective and retrospective cohorts published in English or Chinese.

**Eligibility criteria:** The inclusion criteria were identified according to the PICOS (population, intervention, comparator, outcomes, and study) criteria. The inclusion criteria were formulated as shown below: (i) P (population): patients whose PCa was confirmed pathologically; (ii) I (intervention): the SII level was examined pretreatment for PCa patients and studies identified a cutoff value of SII for stratifying patients as low/high SII; (iii) C (comparator): PCa patients with low SII level; (iv) O (outcomes): studies reported association between SII and PCa survival outcomes; presented any of such survival outcomes as bRFS (biochemical recurrence-free survival), RFS (recurrence-free survival), DFS (disease-free survival), PFS (progression-free survival) and OS (overall survival); and provided HRs (hazard ratios) and corresponding 95% CIs (confidence intervals) for survival outcomes, or provided sufficient data to calculate them; and (v) S (study design): cohort studies, including prospective and retrospective cohorts published in English or Chinese.

**Information sources:** The following electronic databases were searched thoroughly: Web of Science, Cochrane Library, PubMed, Embase, and China National Knowledge Infrastructure (CNKI).

**Main outcome(s):** O (outcomes): studies reported association between SII and PCa survival outcomes; presented any of such survival outcomes as bRFS (biochemical recurrence-free survival), RFS (recurrence-free survival), DFS (disease-free survival), PFS (progression-free survival) and OS (overall survival); and provided HRs (hazard ratios) and corresponding 95% CIs (confidence intervals) for survival outcomes, or provided sufficient data to calculate them.

**Quality assessment / Risk of bias analysis:** The methodological quality of enrolled studies was assessed by two reviewers (B.Z. and T.X.) independently on the NOS (Newcastle–Ottawa Scale), which achieves quality evaluation from 3 dimensions: selection, comparability, as well as outcome of interest. The NOS scores varied between 1–9 points, and the quality of studies was considered high when the NOS scores ≥ 6. Possible publication bias was detected by utilizing the Egger's test in conjunction with Begg's funnel plot.

**Strategy of data synthesis:** SII's prognostic significance for OS and PFS was assessed by estimating the pooled HRs with 95% CIs. For the evaluation of inter-study statistical heterogeneity, the $\chi^2$-based Q-test combined with Higgins' I2 test were employed. Inter-study heterogeneity was considered significant when the p-value of Q test (Ph) < 0.10 and I2 > 50%; accordingly, we adopted the random-effects model. In other cases, a fixed-effects model was utilized. The association of SII with the clinicopathological traits of PCa was examined through computation of ORs (odds ratios) and 95% CIs.

**Subgroup analysis:** Further exploration was made via the subgroup analysis.

**Sensitivity analysis:** Sensitivity analysis was used to examine the stability of the results.

**Language restriction:** No language restrictions were applied.

**Country(ies) involved:** China.

**Keywords:** systemic immune-inflammation index; prostate cancer; meta-analysis; prognostic factors; clinical use.

**Contributions of each author:**

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