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Efficacy of trimethoprim–sulfamethoxazole in combination with an echinocandin for HIV-negative patients with pneumocystis pneumonia: a systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

Support - Fujian Provincial Senior Talent Training Program on Western Medicine Doctors Learning from Traditional Chinese Medicine.

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

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202610089

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 27 January 2026 and was last updated on 27 January 2026.

INTRODUCTION

Review question / Objective We conducted a systematic review and meta-analysis to evaluate whether this combination regimen improves clinical outcomes in this population.

Condition being studied Condition being studied The research team comes from the Department of Critical Care Medicine of a tertiary hospital in China, and all the team members, have perfect clinical experience in critical care and resuscitation. Moreover, our team members have published more than 40 meta-analyses, which can guarantee the successful completion of the current research.

METHODS

Participant or population Adults (over 18 years) with confirmed HIV-negative PJP.

Intervention Echinocandins combined with TMP-SMX.

Comparator TMP-SMX monotherapy or TMP-SMX combined with non-echinocandin drugs, such as clindamycin-primaquine.

Study designs to be included Randomized controlled trials, cohort studies (both prospective and retrospective), and case-control studies.

Eligibility criteria We conducted a comprehensive systematic review and meta-analysis evaluating the efficacy and safety of echinocandins combined with TMP-SMX for treating PJP in HIV-negative patients.

Information sources A comprehensive literature search was conducted up to September 25, 2025, across seven databases: PubMed, Embase, Cochrane Library, Web of Science, China National Knowledge Infrastructure, and Wanfang.

Main outcome(s) Primary outcome: short-term mortality, defined as 28-day intensive care unit (ICU) or hospital mortality. Secondary outcome: response rate that was defined by authors of included studies, ICU admission rate, MV requirement, duration of MV, length of stay in ICU or hospital, and adverse events defined by each author.

Quality assessment / Risk of bias analysis For cohort and case-control studies, Newcastle-Ottawa Scale tool was used.

Strategy of data synthesis We conducted a meta-analysis. in our study.

Subgroup analysis Timing of combination regimens (initial, salvage, or both strategies), mortality rate (<40% versus ≥40%), and disease severity (severe versus non-severe, defined by authors).

Sensitivity analysis Sensitivity analyses were performed by removing individual studies one at a time to determine their impact on the overall effect estimate.

Country(ies) involved China.

Keywords echinocandins, trimethoprim-sulfamethoxazole, pneumocystis jirovecii pneumonia, mortality, meta-analysis.

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