

中文題目：菌血症病人血液培養時間較短可預測死亡率與敗血性休克：系統性回顧與統合分析
英文題目：Short Time to Positivity of Blood Culture Predicts Mortality and Septic Shock in

Bacteremic Patients: a Systematic Review and Meta-Analysis

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Background: The value of time to positivity (TTP) on diagnosis for catheter-related bloodstream infection and distinguishment on bacteria group and infection source has been investigated.

However, the relationship between TTP and patient outcome requires verification, and we performed a systematic review and meta-analysis.

Methods: We searched PubMed, EMBASE, CINAHL, Cochrane Library, Web of Science for publications associated with the topic. We included studies that researched the TTP on predicting patient mortality and septic shock. Quality assessment is performed with Critical Appraisal Skills Programme (CASP). The analysis is performed using Review Manager Version 5.0.24. on articles available for data extraction on the exact population of each outcome group. The existence of publication bias was assessed by funnel plots. Statistical heterogeneity was evaluated using the Cochran Q and I^2 statistics. The outcome is reported as an odds ratio. PROSPERO registration: CRD42021272286.

Results: Twenty-five eligible studies were included in the mortality group and twelve in the septic shock group. Mortality is significantly associated with the short time to positivity group with an odds ratio of 3.14 (95%CI 2.37-4.16, $P < 0.001$). The odds ratio for developing septic shock in the short TTP group is 3.23 (95%CI 2.23-4.70, $P < 0.001$). Subgroup analysis revealed short TTP as a significant predictor of mortality and septic shock in Gram's positive and Gram's negative related bloodstream infections. TTP is not associated with mortality among patients with candidaemia.

Conclusion: Short time to positivity is a reliable marker for patient outcome in certain bacterial species. Studies concerning confounding factors such as the delay in bottle loading and other confounding factors are needed to enhance external validity.