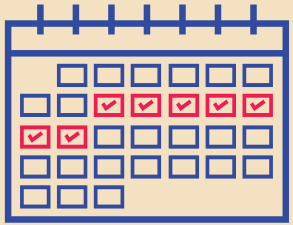
High Early Mortality in Patients With *Staphylococcus aureus* Bloodstream Infection: A Call for Action



In a recent review of studies of mortality due to *S. aureus* bloodstream infection (SABI), **half of all deaths** within 1 month of identification of SABI occurred within 7 days of the first positive culture.

The 23 studies were divided into 3 groups based on the study population:

- all episodes of SABI
- methicillin-sensitive SABI only
- methicillin-resistant SABI only

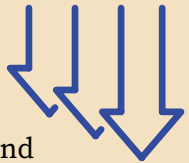
Despite the high early mortality following identification of SABI, there has not been a specific analysis of studies reporting early mortality and risk factors for this outcome.

751 studies of SABI reviewed → **23 reported** 7-day all-cause mortality rates → **4 of the 23** evaluated risk factors for early mortality

Using the metric proportion of all deaths within the first 30 days that occurred within the first 7 days (early death proportion), **there was no significant difference between the 3 groups** (median 53%; IQR 49–57%).

This finding suggests **there may be a distinct group of patients with SABI at risk for early mortality**. However, the 4 studies of SABI that evaluated risk factors for early mortality all had significant methodological limitations, making it difficult to identify those at risk for early mortality at the time of presentation.

It was hypothesized that studies of gram-negative BI or all BI might provide insight into risk factors for early mortality. Of 545 studies of GNBI or all episodes of BI, 6 evaluated factors predictive of 7-day all-cause mortality. **The one factor that stood out as potentially useful in the identification of those with a risk for early mortality was an acute severity of illness model** (BSI mortality risk score).



Given the high early mortality related to SABI, methodologically sound studies are needed to identify all factors (clinical, diagnostic, and pathogen) associated with early mortality that can be used to evaluate methods to reduce early mortality; acute severity of illness models should also be included in these studies.

Mylotte, JM. High Early Mortality in Patients With *Staphylococcus aureus* Bloodstream Infection: A Call for Action. *Patient Safety*. 2024;7(1):125200. doi:10.33940/001c.125200.

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