# *Campylobacter* bacteraemia outcomes: a systematic review with meta-analysis

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## Background

*Campylobacter* spp. is a common cause of acute enteric infections in humans. In immunocompromised or elderly patients, *Campylobacter* spp. can cause extraintestinal infections, including bacteremia. No specific international guidelines are present for campylobacteriosis management and treatment. The clinical significance of *Campylobacter* bacteremia is not yet fully understood [1].

## Methods

We conducted a systematic review on bloodstream infections (BSI) caused by *Campylobacter* spp. The searches covered studies in humans published from inception until December 31, 2023. The search was re-run to update the data collection until June 2024.
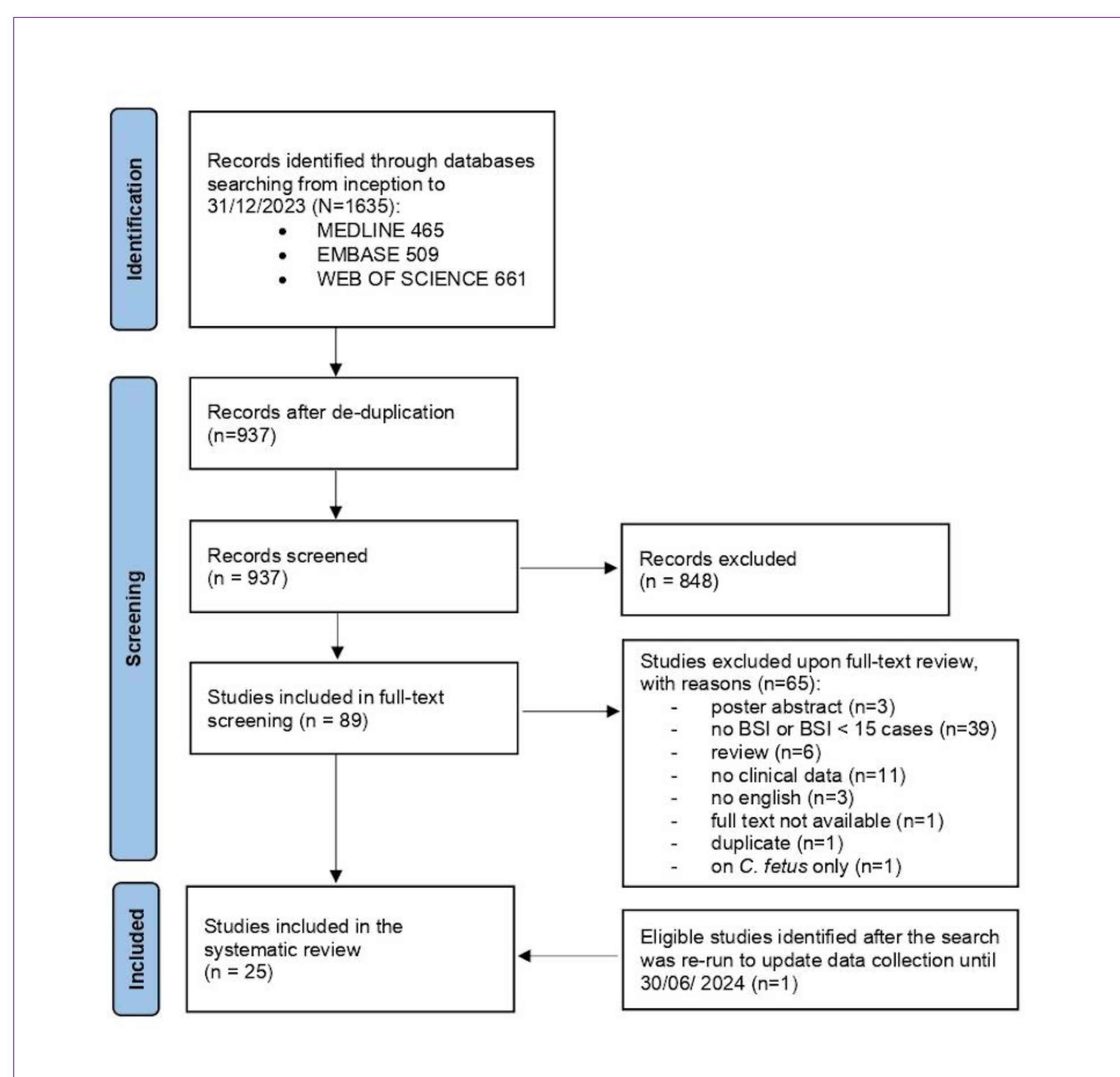


*Fig 1: Literature selection procedure*

## Results

A total of 25 retrospective observational studies (with at least 15 cases), published between 1978 and 2024, were included (Figure 1). The geographic distribution of the studies was as follows: 12 from Europe, 3 from Israel, 4 from Asia, 3 from Australia, 1 from the United States, and 2 from Africa.

## Results

The included studies reported a total of 2,480 patients, with a mean age ranging from 1 to 70 years. Male patients accounted for 62.45% of the cases. The pooled prevalence of *Campylobacter* species was as follows: *C. jejuni* 60% [95% CI 0.45-0.73], *C. coli* 8% [95% CI 0.04-0.13], *C. fetus* 7% [95% CI 0.03-0.15], and other species 9% [95% CI 0.04-0.16]. Mortality was reported as the primary outcome in 22 studies. The overall pooled case-fatality risk associated with *Campylobacter* spp. bacteremia was 5% [95% CI 0.03-0.15] (Figure 2).
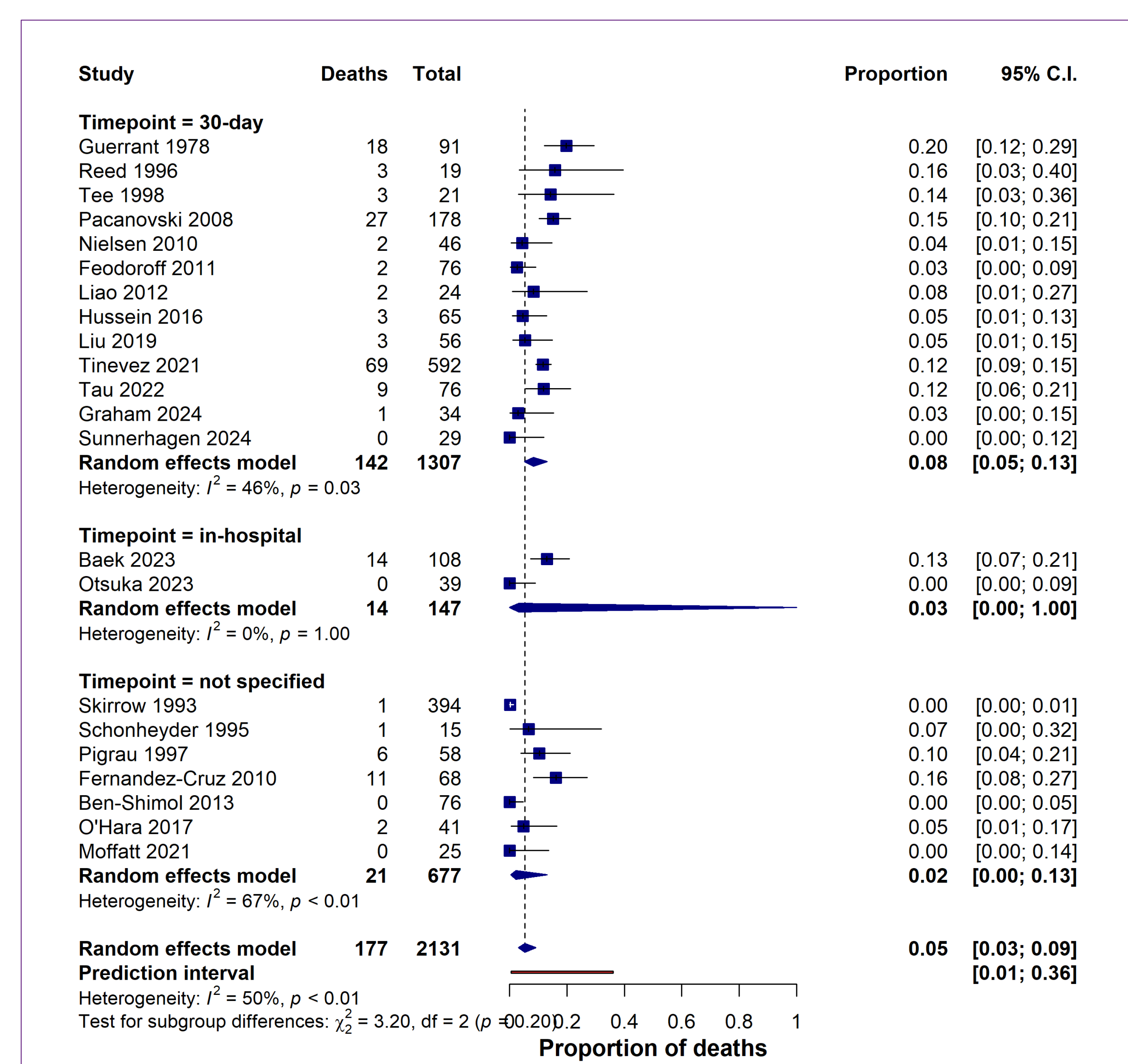


*Figure 2. Forest plot illustrating the pooled analysis of mortality outcome*

Meta-regression analysis on mortality revealed that *C. fetus* species (b=3.22, [95% CI 0.63-5.80], p=0.018) and immunocompromised status (b=3.22, [95% CI 0.63-5.80], p=0.018) were associated with an increased risk of death in patients with *Campylobacter* bacteremia.

Regarding complications associated with *Campylobacter* spp. bacteremia, the pooled prevalence of secondary localizations was 9% [95% CI 0.04-0.18], while the pooled prevalence of endocarditis was 5% [95% CI 0.01-0.03].

## Conclusions

In conclusion, the results confirm the clinical relevance of *Campylobacter* spp. bacteremia, highlighting a significant risk of mortality and complications.

## References

1. Fitzgerald C. Campylobacter. Clin Lab Med. 2015 Jun;35(2):289-98. doi: 10.1016/j.cll.2015.03.001. PMID: 26004643.