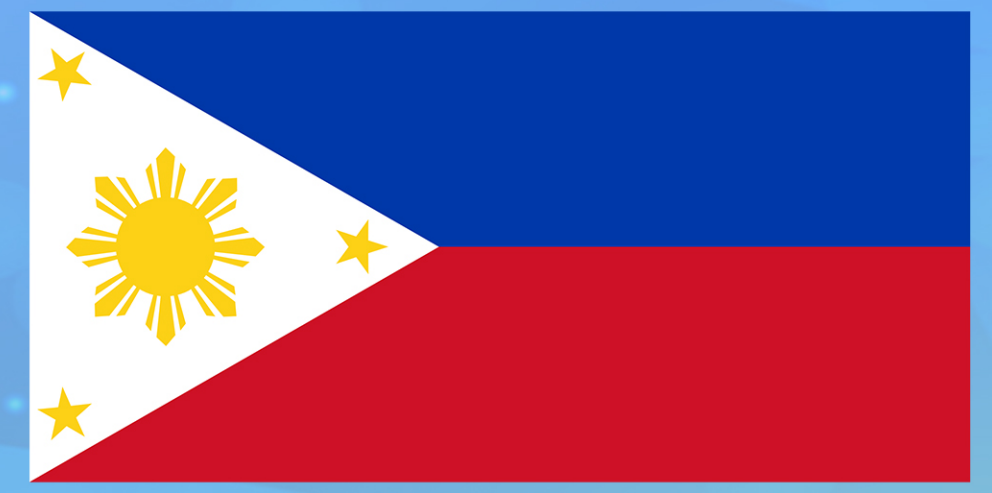


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# EFFICACY OF POLYMYXIN B HEMOPERFUSION IN REDUCING MORTALITY AMONG PATIENTS WITH SEPSIS, SEVERE SEPSIS AND SEPTIC SHOCK: A META-ANALYSIS



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## BACKGROUND

Direct hemoperfusion using Polymyxin B-immobilized fiber (PMX-DHP) was developed in Japan in 1997 to remove endotoxins, as an adjuvant therapy for patients with sepsis.

In the most recently published guidelines on the management of sepsis and septic shock, there was no recommendation favoring or opposing blood purification strategies such as hemoperfusion using Polymyxin B due to low confidence in the current evidence regarding this technology.

Studies done in Japan, Italy and recently published meta-analyses in 2017 have shown encouraging results. However, a new randomized controlled trial (RCT) which was recently published last October 2018 showed otherwise.

## OBJECTIVE

This study aims to determine the efficacy of hemoperfusion using PMX-DHP in decreasing mortality among adult patients with sepsis, severe sepsis or septic shock compared to conventional therapy.

## METHODS

Randomized controlled trials done on adult patients more than 18 years old, with sepsis, severe sepsis or septic shock, from any cause were included in this review. The intervention is conventional therapy together with the use of PMX-DHP compared to conventional therapy alone. Trials conducted from 1990 to 2018 were included in this meta-analysis. Primary outcome considered in this study is 28-day mortality. Secondary outcome examined in this study is the number of adverse events.

## RESULTS

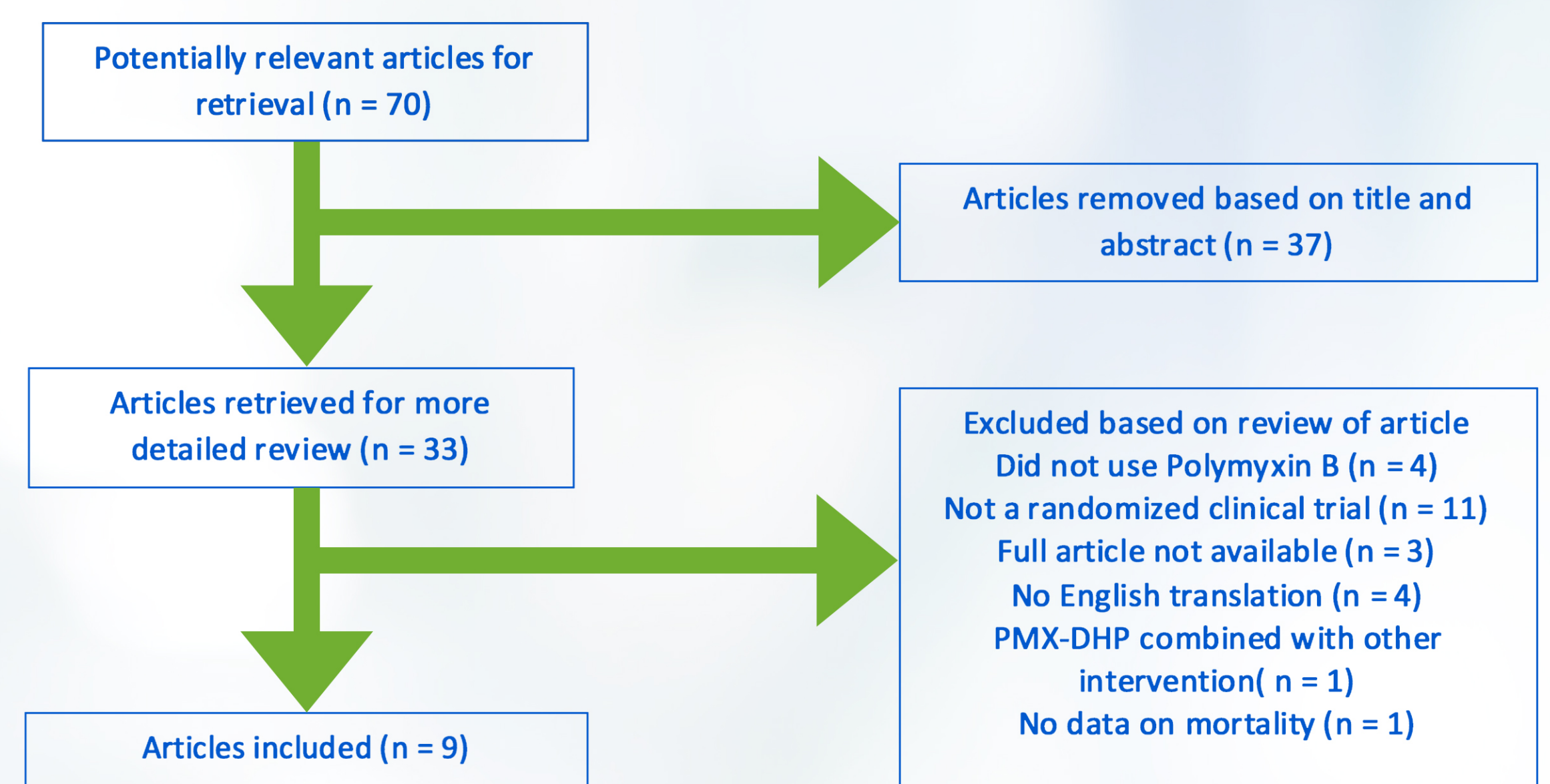
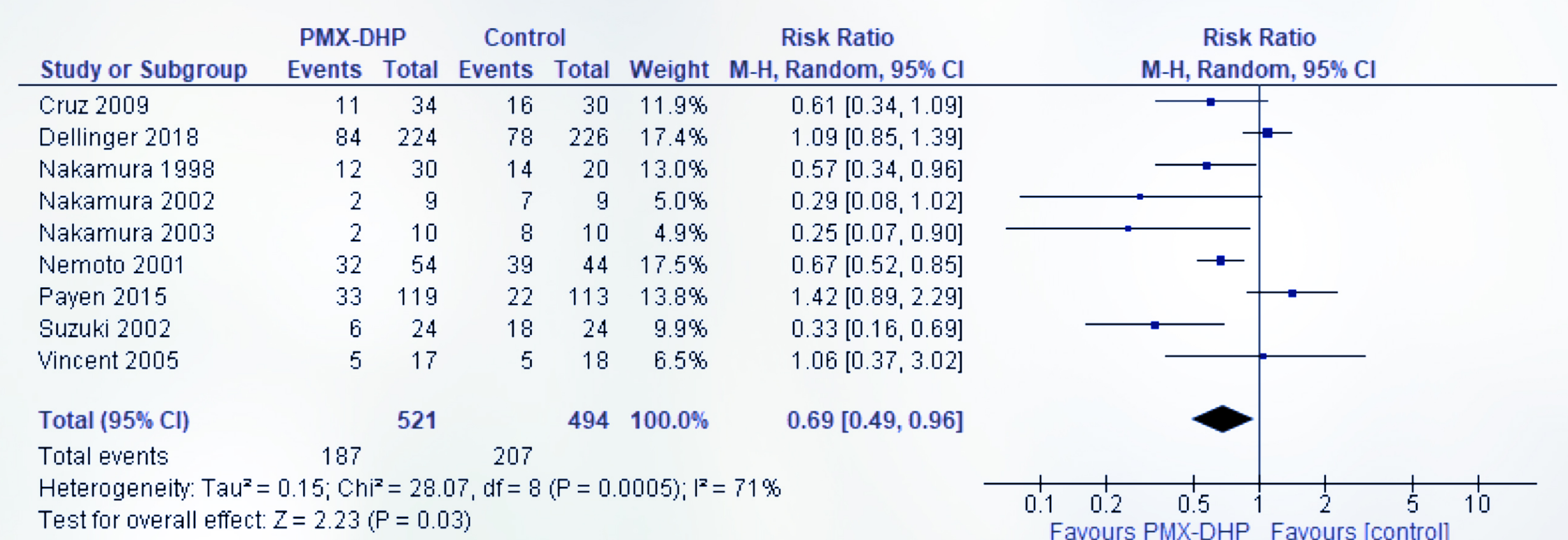


Figure 1 Articles reviewed, included and excluded in the meta-analysis

A total of 70 articles were identified for possible inclusion in this study. On initial screening, 37 were removed based on study title and abstract because they did not meet the inclusion criteria. More detailed analysis of the remaining studies was done. Finally, 9 studies were included in the meta-analysis.



There was a significant reduction in mortality among patients treated with PMX-DHP compared to patients given conventional therapy alone (Relative Risk (RR) 0.69, 95% Confidence interval (0.49 - 0.96)). There was substantial heterogeneity across the trials, with an I<sup>2</sup> = 71%.

## CONCLUSION

There is statistically significant reduction in mortality in using PMX-DHP compared to conventional treatment alone among patients with sepsis, severe sepsis, and septic shock.