

# In Adults With Acute Brain Injury Receiving Mechanical Ventilation, What is the Effect of Administration of Prophylactic Parenteral Antibiotics?

## STUDY DESIGN

- Systematic review and meta-analysis screening of 1,728 studies
- Included 7 randomized-controlled trials recruiting 835 patients with acute brain injury receiving invasive mechanical ventilation
- Random effects model to estimate pooled risk ratio (RR) with 95% CI for binary outcomes and mean difference (MD) with 95% CI for continuous outcomes

## RESULTS

### Grading of Recommendations Assessment Development and Evaluation Summary

Outcome	Effect Size	Plain Language Summary
Hospital mortality	RR, 0.91 (0.70-1.17)	Prophylactic antibiotics may result in reduced mortality
Ventilator-associated pneumonia (VAP)	RR, 0.56 (0.35-0.89)	Prophylactic antibiotics may reduce VAP
Duration of ventilation	MD, -2.0 (-6.1-2.1)	The evidence is uncertain regarding the effect of prophylactic antibiotics
Duration of ICU admission	MD, -2.2 (-5.4-1.1)	The evidence is uncertain regarding the effect of prophylactic antibiotics
Duration of hospital admission	MD, -4.7 (-11.9-2.5)	The evidence is uncertain regarding the effect of prophylactic antibiotics
Favorable neurologic outcome	RR, 1.12 (0.65-1.92)	Prophylactic antibiotics may improve the risk of a favorable neurologic outcome

Current data from randomized clinical trials does not provide definitive evidence regarding the effect of prophylactic antibiotics on mortality in adult patients with acute brain injury receiving invasive mechanical ventilation in the ICU.