

## Prophylactic Mesh versus Primary Closure for the Prevention of Incisional Hernia in Midline Laparotomy: An Umbrella Meta-Analysis

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### Introduction

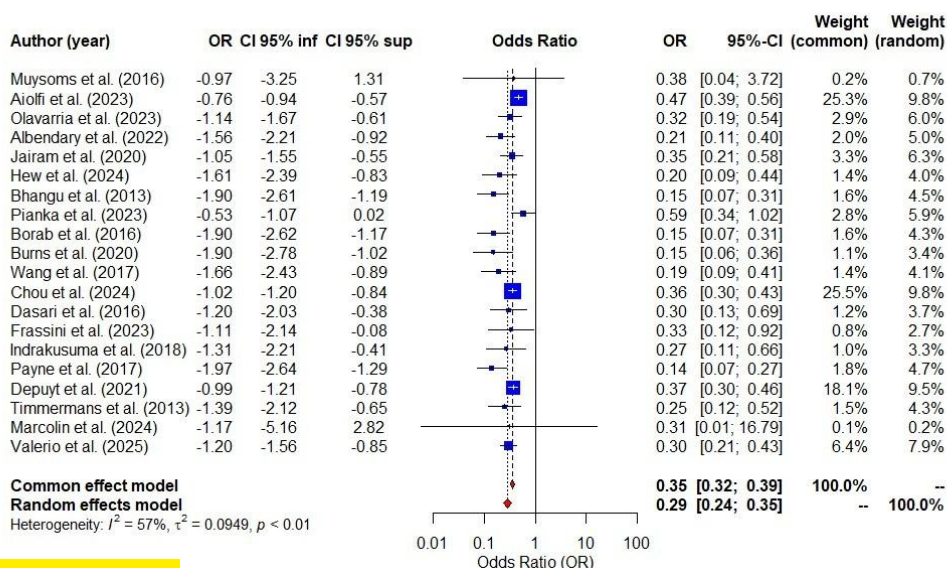
The objective of this study was to evaluate the effectiveness and safety of mesh use in preventing incisional hernia (IH) in patients undergoing laparotomy.

### Methods

A systematic search was conducted across 8 databases, encompassing diverse surgical populations and types of mesh. An overlap analysis of studies was performed using the Corrected Covered Area (CCA) to avoid double counting primary data. Random-effects models were used to estimate OR with 95% CI, assessing the incidence of IH, seroma, surgical site infection, acute dehiscence, and chronic postoperative pain.

### Results

A total of 25 meta-analyses were included. The prophylactic use of mesh significantly reduces the incidence of IH, with OR 0.35, 95% CI 0.32–0.39,  $p$  0.001,  $I^2 = 57\%$ . Furthermore, no significant increase in complications such as seroma or infections was observed, supporting the safety of the technique.



### Conclusions

In patients undergoing laparotomy, prophylactic mesh is associated with a significant reduction in the incidence of IH. The integration of multiple meta-analyses into a single analysis allows for a more robust evaluation of the available evidence, minimizing duplication bias and improving the applicability of findings in clinical practice.