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BACKGROUND

- Colonization with multidrug resistant bacteria (MDR) in solid organ transplant (SOT) recipients increases the risk of post-transplant bacterial infection.
- The impact of MDR colonization on graft survival and mortality is not well established.
- This systematic review will identify and summarise the evidence behind the impact of MDR colonization on SOT recipients' mortality or graft failure or re-transplantation in addition to the risk of infection.

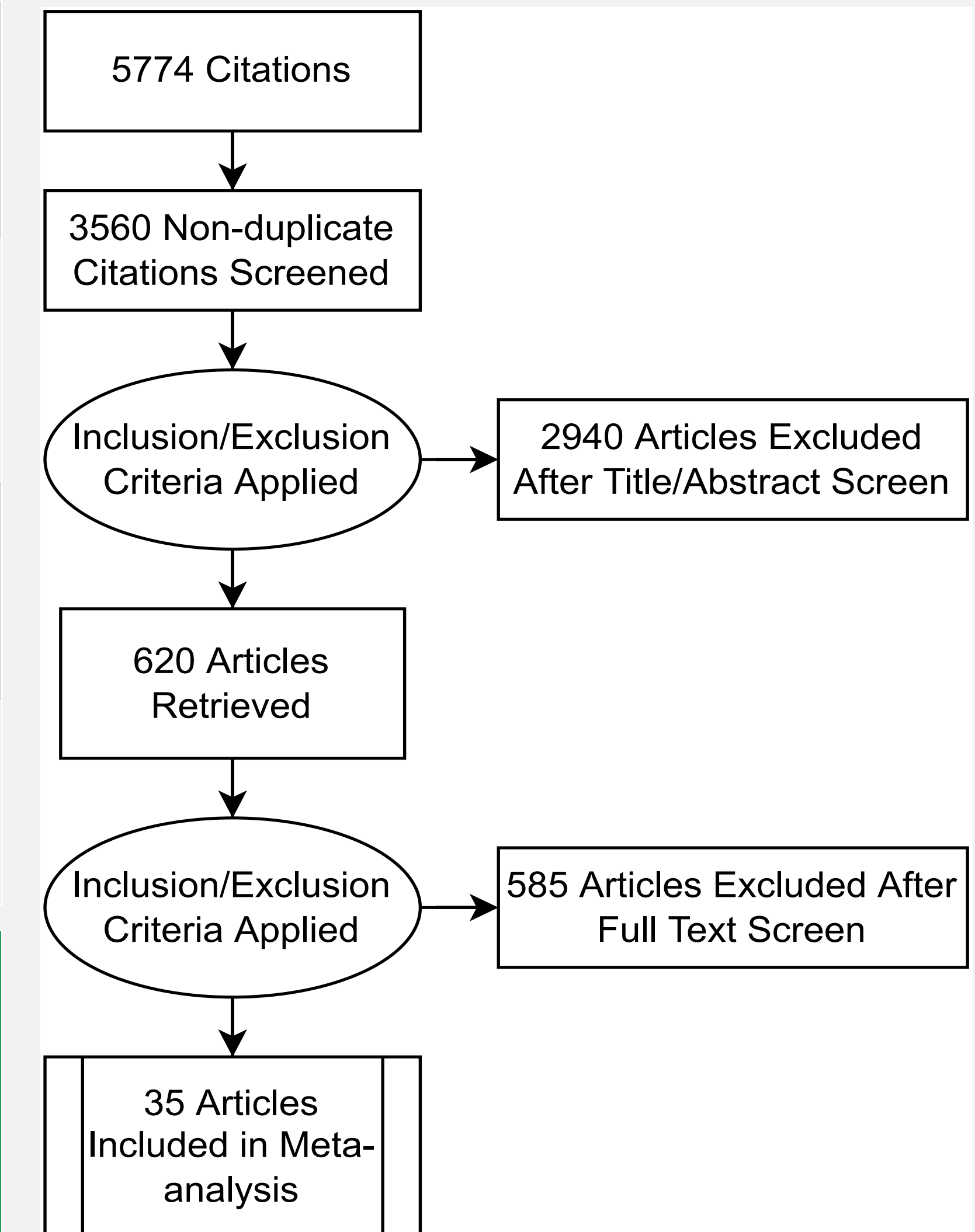
METHODS

- A search was executed by an expert librarian on PROSPERO, OVID Medline, Ovid EMBASE, Wiley Cochrane Library, ProQuest Dissertations and Theses Global and SCOPUS, from inception until October 26, 2021. Protocol was registered in PROSPERO 2022-CRD42022290011.
- Pairs of reviewers screened abstracts and full text studies for inclusion and extracted data independently.
- Data from studies on adult SOT recipients colonized MRSA, VRE, ESBL or AmpC producing bacteria, CRE, or MDR Pseudomonas were included and compared to non-colonized SOT recipients.
- We used RevMan to conduct a meta-analysis using the random effects models to calculate the pooled risk ratio (RR) with 95% confidence interval (CI) for the incidence of infection, mortality, or graft loss (GL).
- Statistical heterogeneity was determined using the I² statistic.

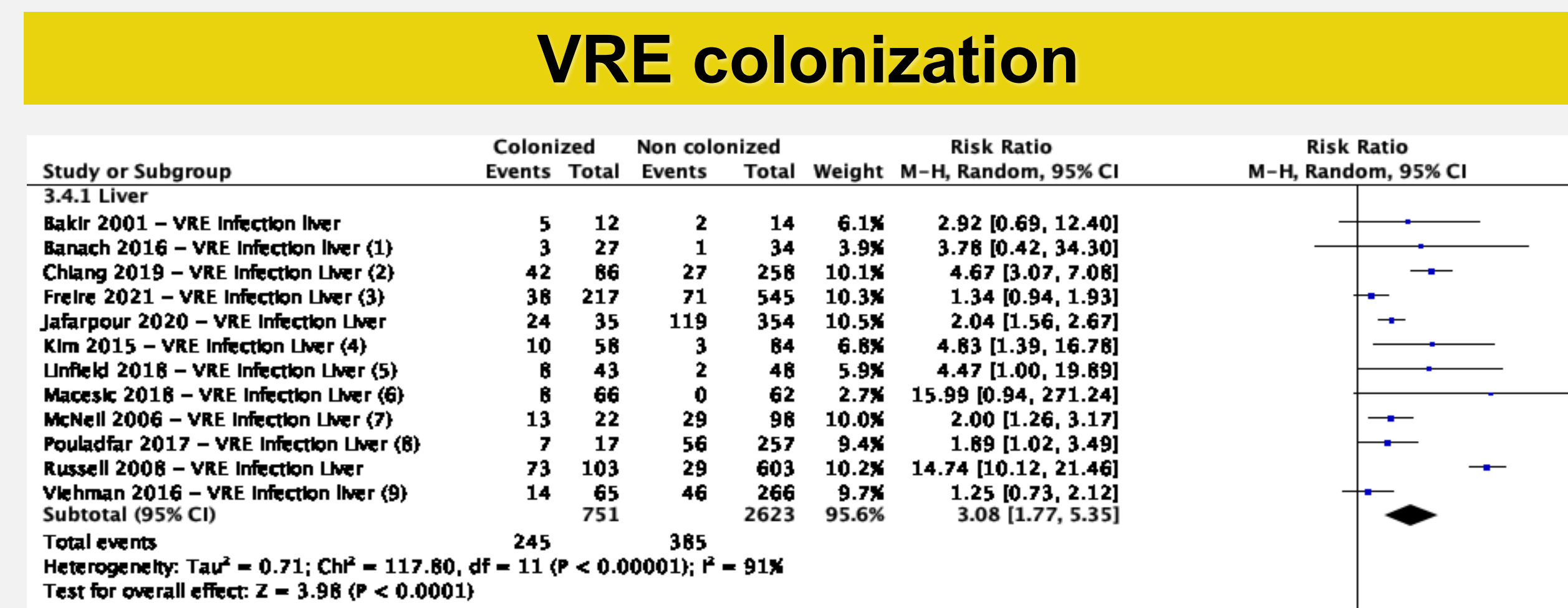
RESULTS

Organ	VRE (# of study)	MRSA	CRE	MDR PsA	ESBL
Liver	See graphs below	See graphs below	See graphs below	Infection (1), col 6/22 vs non-col 3/154; RR=14, 95%CI 3.77,51.99; p<0.001.	Infection (5), col 78/274 vs non-col 65/1729; RR=6.79; 95%CI 3.41,13.52, p<0.001; I ² (73%).
Kidney		Mortality or graft loss (1) col 0/28 vs non-col 0/56.	Infection (1) col 64/309 vs non-col 54/453; RR= 1.74, 95%CI: 1.25, 2.42; p <0.001.		Infection (1) col 50/74 vs non-col 75/318; RR= 2.86, 95%CI: 2.22,3.69; p <0.001.
Lung		Infection (1), col 12/38 vs non-col 12/461; RR= 12.13, 95%CI: 5.85, 25.14; p <0.001.		Mortality or graft loss (1) col 2/25 vs 1/19; RR=1.52 [95%CI 0.15, 15.55]; p=0.72.	
Intestine or MVT	Infection (1) col 8/22 vs non-col 1/23; RR=8.36; 95%CI 1.14,61.49, p=0.04		Infection (1), col 4/6 vs 2/39; RR=13, 95%CI 3.01,56.18; p<0.001.		

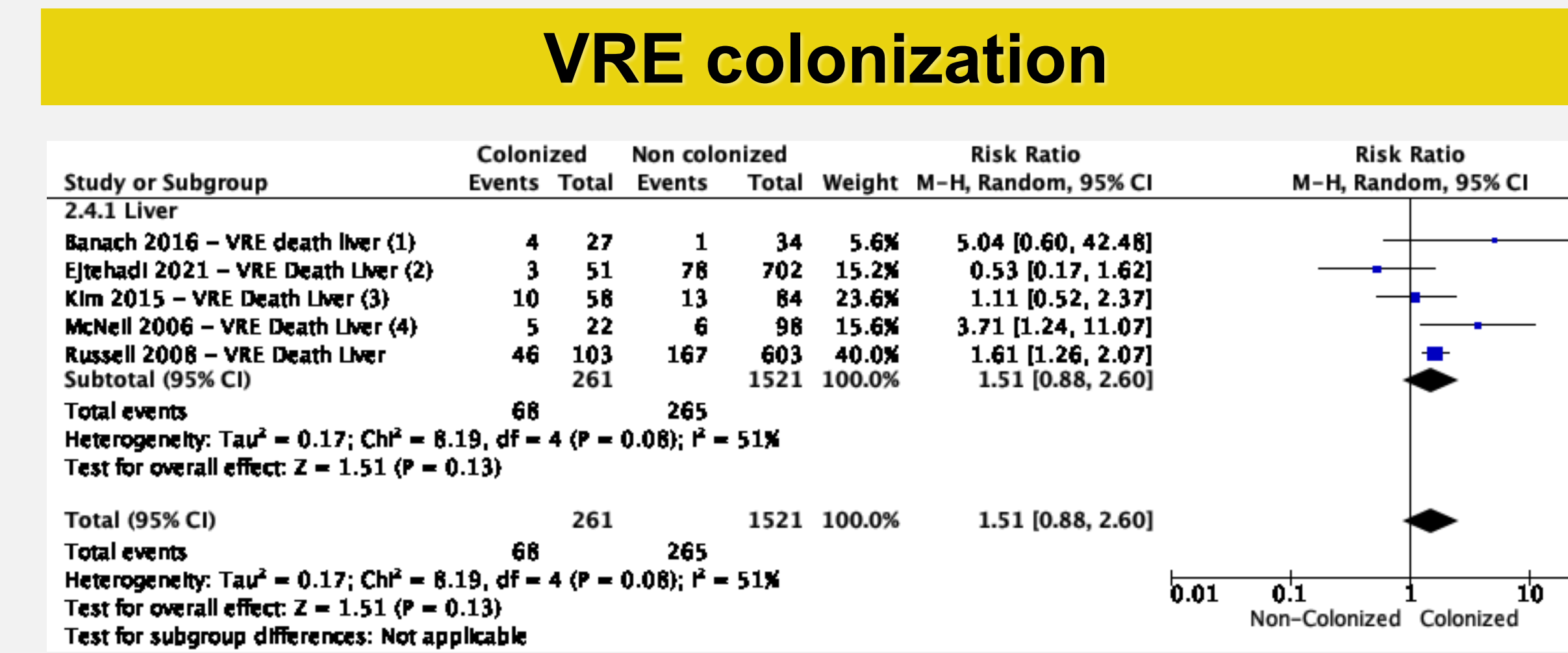
Figure 1 PRISMA flow chart



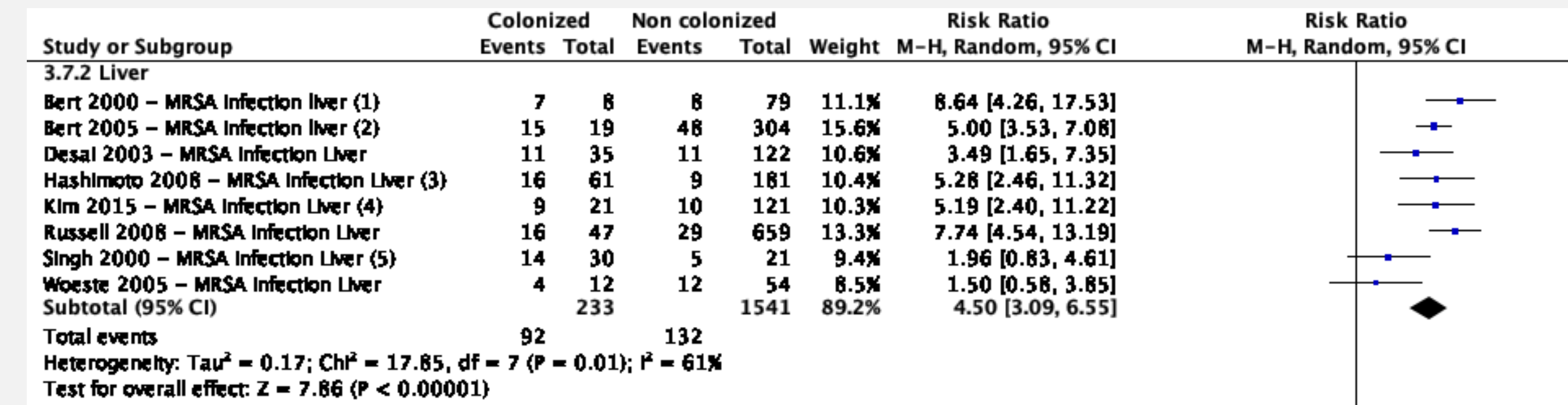
Liver Transplant: Risk of Infection



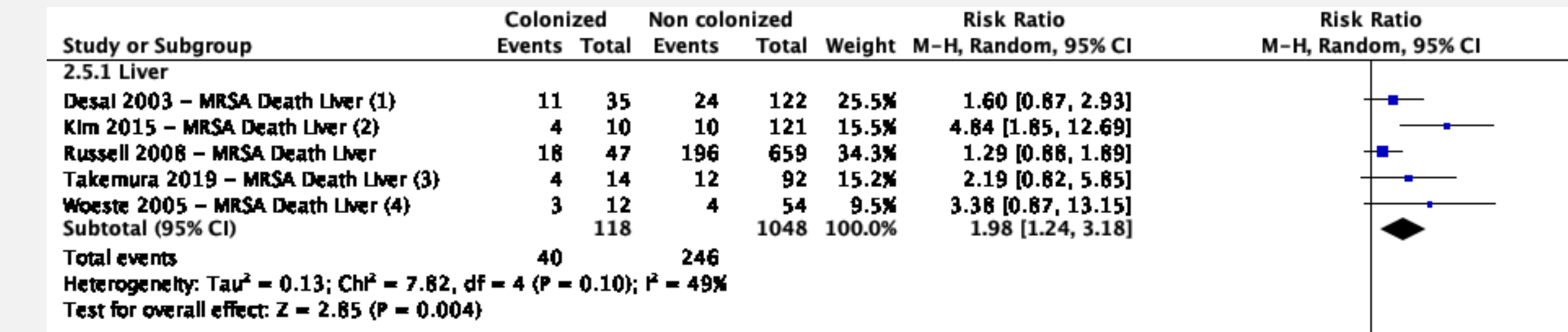
Liver Transplant: Risk of Mortality or Graft Loss



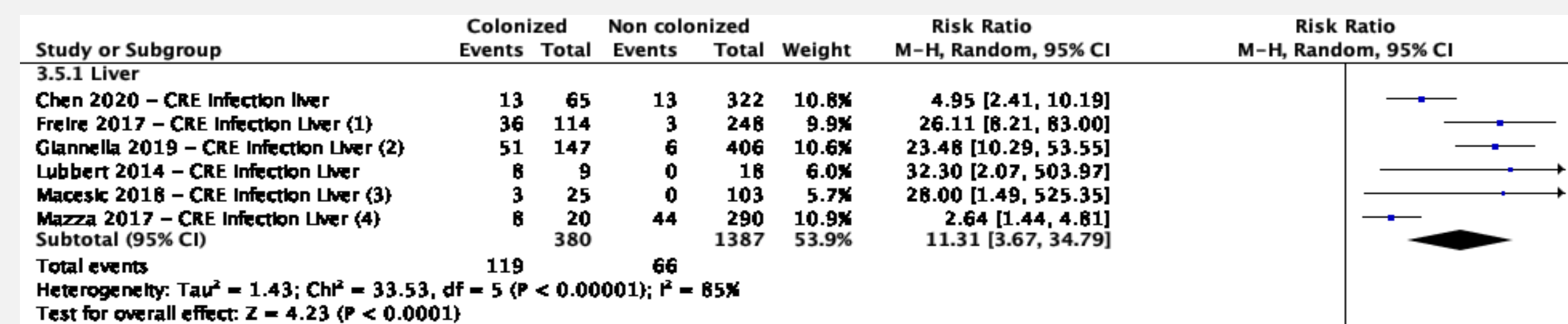
MRSA colonization



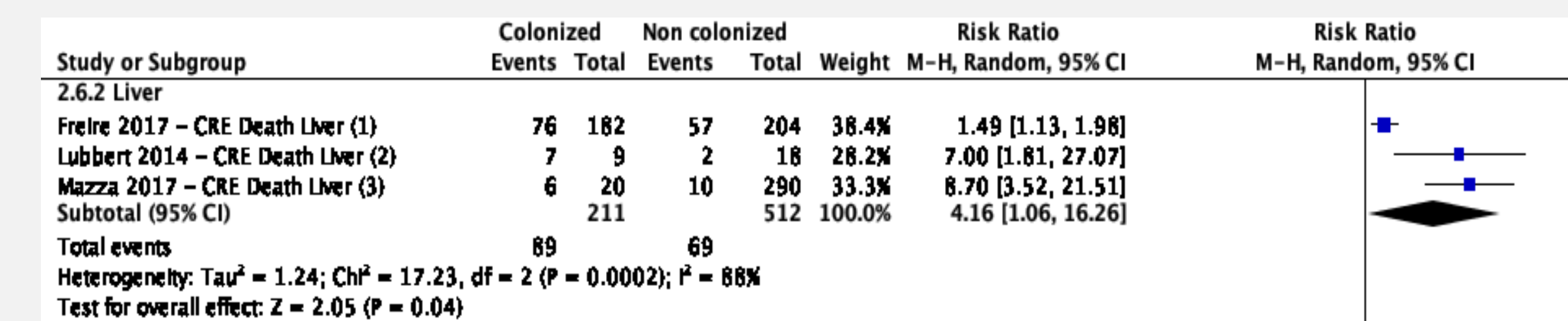
MRSA colonization



CRE colonization



CRE colonization



CONCLUSION

While colonization with VRE in liver transplant was not associated with increase mortality, CRE or MRSA colonization were associated with almost 4- or 2-fold increased risk of death, respectively. These data should be taken into account when stratifying the risk of transplant.

Abbreviations:
 GL: Graft loss;
 MDR: Multi Drug resistant;
 MRSA: Methicillin resistant Staphylococcus aureus; VRE: Vancomycin-resistant Enterococci; ESBL: Extended-spectrum beta-lactamase; CRE: carbapenem resistant Enterobacteriaceae; Col: colonized; CI: Confidence interval. Tx: transplant. MVT: multi-visceral transplant



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