

Supplementary Material

- **Table 1S.** Search strategy.
- **Table 2S.** Agreement between the reviewers for titles and abstracts screening and for full-text selection.
- **Figure 1S.** Forest plot for mortality in the ACS patient group. The fixed-effect model exhibited a RR of 0.77 (95%CI 0.57–1.05). Since the confidence interval includes the unit, the difference was not statistically significant.
- **Figure 2S.** Forest plot for mortality in the group of patients with suspected aortic dissection. The fixed-effect model exhibited a RR of 0.75 (95%CI 0.52 – 1.07). Since the confidence interval includes the unit, the difference was not statistically significant.
- **Figure 3S.** Forest plot for mortality in the group of patients with stroke. The random-effects model showed a RR of 0.91 (95%CI 0.37 – 2.27). Since the confidence interval includes the unit, the difference was not statistically significant.
- **Figure 4S.** Forest plot for mortality in the only study on septic patients. The model showed a RR of 1.81 (95%CI 1.04 – 3.17).
- **Figure 5S.** Forest plot for mortality in the group of pediatric patients with trauma. The random-effects model showed a RR of 1.47 (95%CI 1.00 – 2.18). The difference was statistically significant in favor of GEMS.
- **Figure 6S.** Forest plot for mortality in the group of patients with traumatic brain injury. The random-effects model showed a RR of 1.21 (95%CI 1.00 – 1.47). The difference was statistically significant in favor of GEMS.
- **Figure 7S.** Forest plot for mortality in the group of patients with trauma. The random-effects model showed a RR of 1.13 (95%CI 0.96 – 1.34). Since the confidence interval includes the unit, the difference was not statistically significant.
- **Figure 8S.** Forest plot for mortality in the group of mixed patients. The random-effects model showed a RR of 1.36 (95%CI 0.70 – 2.64). Since the confidence interval includes the unit, the difference was not statistically significant.
- **Figure 9S.** Sensitivity analysis for mortality by Bayesian hierarchical model. The SMD was 0.15 (95%CI 0.03 - 0.28). The difference was statistically significant in favor of GEMS.
- **Figure 10S.** Sensitivity analysis for mortality. Forest plot of relative risks (RR) for mortality comparing HEMS versus GEMS. The analysis excludes studies derived from the same registry and overlapping time frames, retaining only the study with the largest sample size. Each horizontal line represents the RR with 95% CI for an individual study; the diamond indicates the pooled estimate. Between-study heterogeneity (I^2) is reported.
- **Figure 11S.** Sensitivity analysis for disability. Forest plot of relative risks (RR) for disability comparing HEMS versus GEMS. The analysis excludes studies derived from the same registry and overlapping time frames, retaining only the study with the largest sample size. Individual study estimates with 95% CIs are shown; the diamond denotes the pooled RR. Between-study heterogeneity (I^2) is indicated.
- **Figure 12S.** P-curve for mortality: 91% of the studies revealed a p-value of 0.01, the remaining 9% reported a p-value of 0.02.
- **Figure 13S.** Trial Sequential Analysis: the cumulative Z-score for the pooled sample size approached the alpha-boundary for futility. However, it did not seem to exceed it. Also did not reach the beta-boundary for 99% statistical power.
- **Figure 14S.** Risk of Bias for prospective and propensity score-matching studies.
- **Figure 15S.** Risk of Bias for retrospective studies.

- **Figure 16S.** Meta-CART model for mortality outcome. Analyzing possible sources of heterogeneity through classification and regression tree (CART) model, two moderators were found to be significantly (p-value =0.0005) responsible for a difference in effect size: less than 44% of patients with a ISS $\geq$ 15 in the HEMS group (effect of increasing RR) and the presence of the physician in the HEMS crew (effect of decreasing RR).
- **Figure 17S.** Meta-CART model for disability outcome. Analyzing possible sources of heterogeneity through classification and regression tree (CART) model, the absence of the physician in the HEMS crew was found to be significantly (p-value < 10e-4) responsible for a difference in effect size.

Table 1S

Library	Query	Records
PubMed	((“HEMS” OR “helicopter emergency medical system” OR “air emergency medical system”) AND (“GEMS” OR “ground emergency medical system” OR “ambulance emergency medical system” OR “car emergency medical system”)) NOT (animal[mh] NOT human[mh]) NOT (comment[pt] OR editorial[pt] OR meta-analysis[pt] OR practice-guideline[pt] OR review[pt]))	756
Scopus	(TITLE-ABS-KEY (helicopter AND emergency medical system) AND TITLE-ABS-KEY (HEMS AND GEMS) OR TITLE-ABS-KEY (HEMS AND helicopter AND emergency AND system) OR TITLE-ABS-KEY (HEMS) OR TITLE-ABS-KEY (HEMS AND mortality) AND NOT TITLE-ABS-KEY (case AND report) AND NOT TITLE-ABS-KEY (review AND article) AND NOT TITLE-ABS-KEY (animal AND model) AND NOT TITLE-ABS-KEY (review AND literature) AND NOT TITLE-ABS-KEY (systematic AND review))	116
CINHAL	(TITLE-ABS-KEY (helicopter AND emergency medical system) AND TITLE-ABS-KEY (HEMS AND GEMS) OR TITLE-ABS-KEY (HEMS AND helicopter AND emergency AND system) OR TITLE-ABS-KEY (HEMS) OR TITLE-ABS-KEY (HEMS AND mortality) AND NOT TITLE-ABS-KEY (case AND report) AND NOT TITLE-ABS-KEY (review AND article) AND NOT TITLE-ABS-KEY (animal AND model) AND NOT TITLE-ABS-KEY (review AND literature) AND NOT TITLE-ABS-KEY (systematic AND review))	212
Web of Science	(TITLE-ABS-KEY (helicopter AND emergency medical system) AND TITLE-ABS-KEY (HEMS AND GEMS) OR TITLE-ABS-KEY (HEMS AND helicopter AND emergency AND system) OR TITLE-ABS-KEY (HEMS) OR TITLE-ABS-KEY (HEMS AND mortality) AND NOT TITLE-ABS-KEY (case AND report) AND NOT TITLE-ABS-KEY (review AND article) AND NOT TITLE-ABS-KEY (animal AND model) AND NOT TITLE-ABS-KEY (review AND literature) AND NOT TITLE-ABS-KEY (systematic AND review))	511

Table 2S

Titles and Abstracts screening					
Pairwise comparison	Proportionate Agreement	Yes Probability	No Probability	Random Agreement Probability	Cohen's Kappa
DO vs TB	0.88416	0.09045	0.48761	0.57806	0.72546
DO vs UGS	0.88889	0.05564	0.57416	0.62979	0.69987
TB vs UGS	0.78601	0.04954	0.5804	0.62993	0.42175
Full text selection					
Pairwise comparison	Proportionate Agreement	Yes Probability	No Probability	Random Agreement Probability	Cohen's Kappa
DO vs LF	0.76923	0.53254	0.07101	0.60355	0.41791
DO vs TB	0.86905	0.23158	0.26729	0.49887	0.73869

Figure 1S

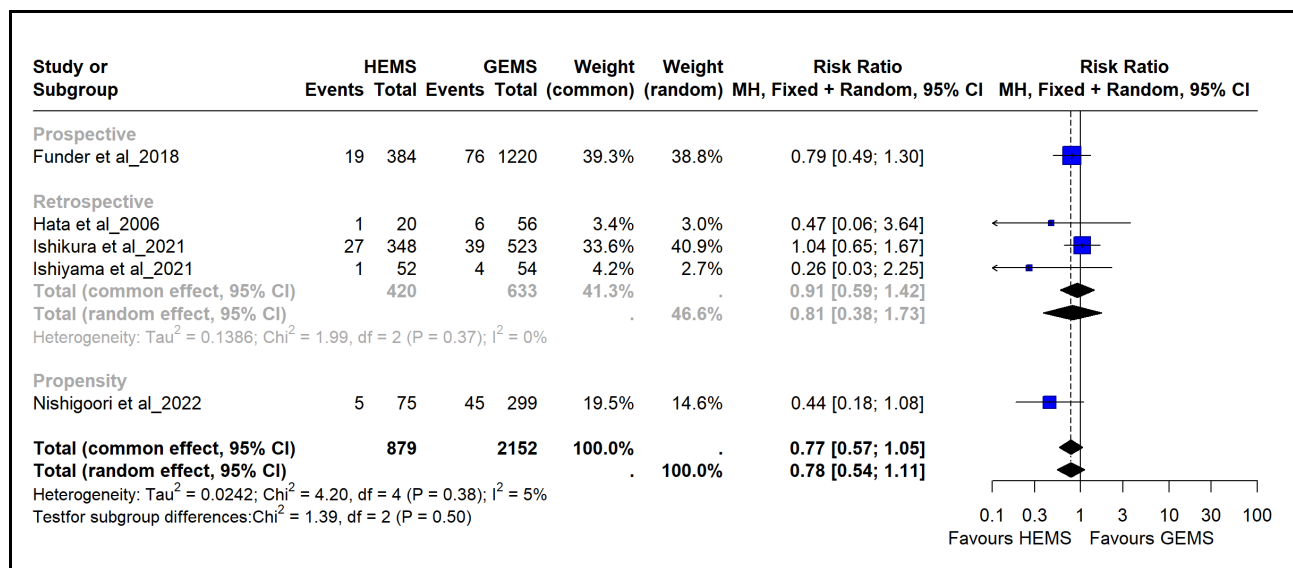


Figure 2S

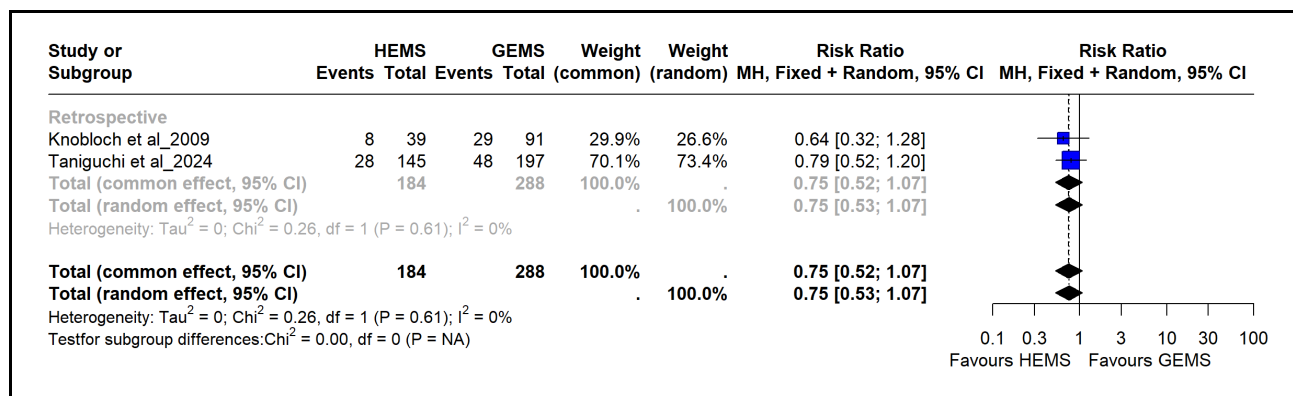


Figure 3S

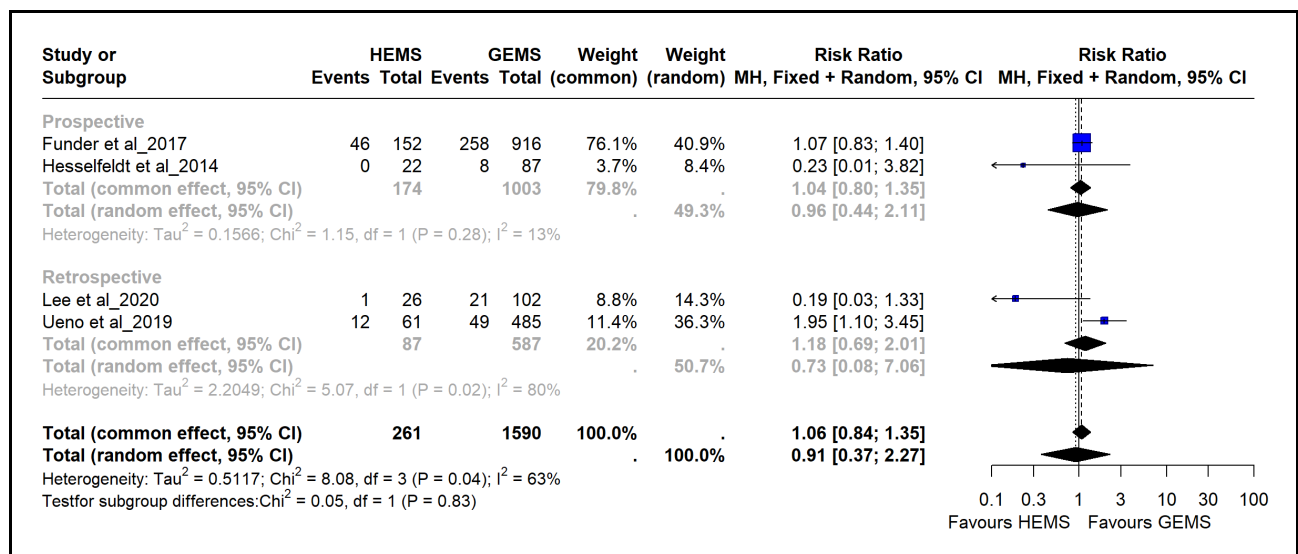


Figure 4S

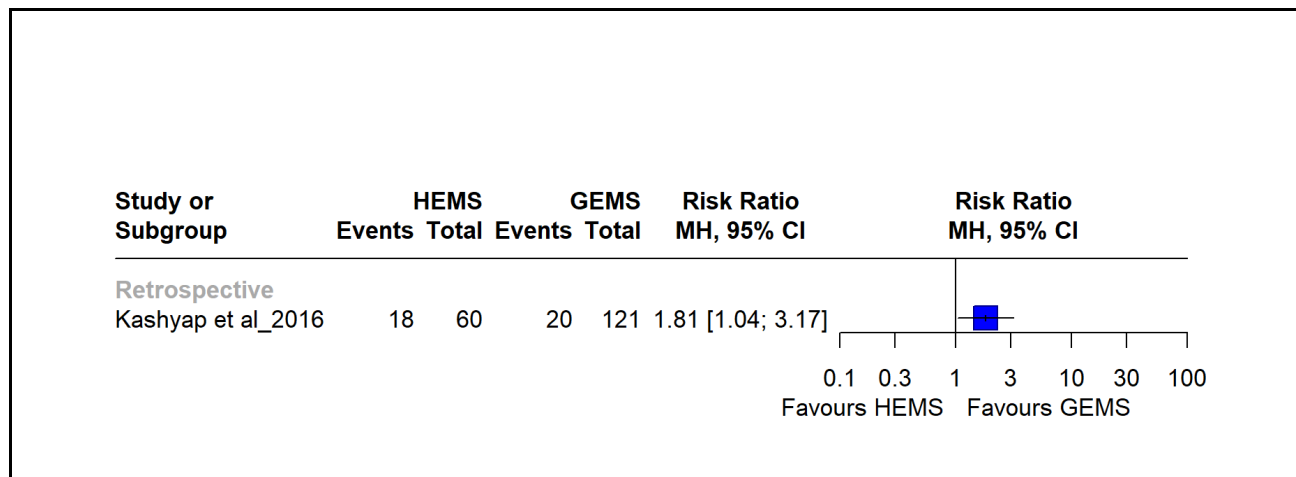


Figure 5S

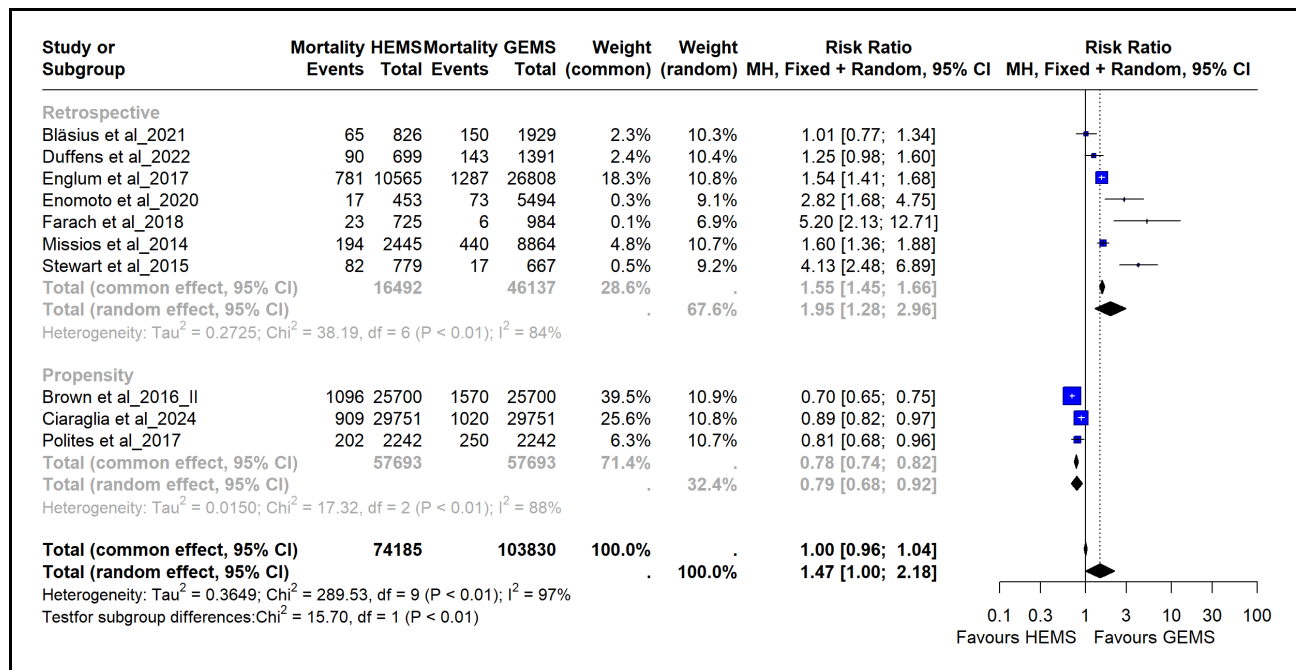


Figure 6S

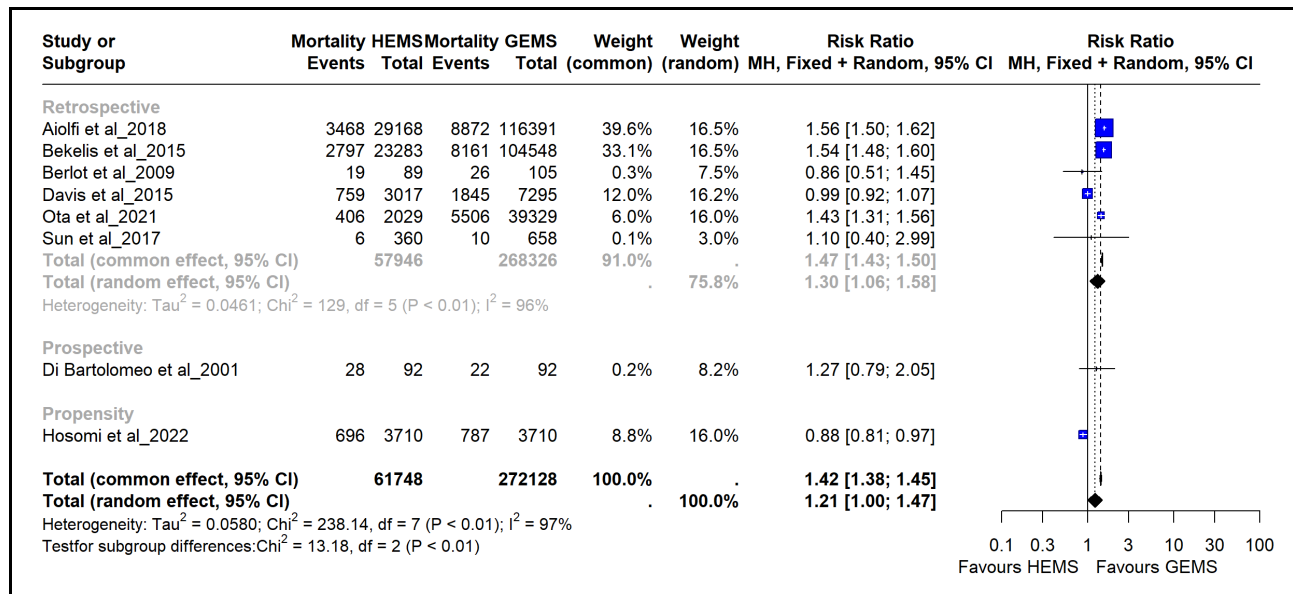


Figure 7S

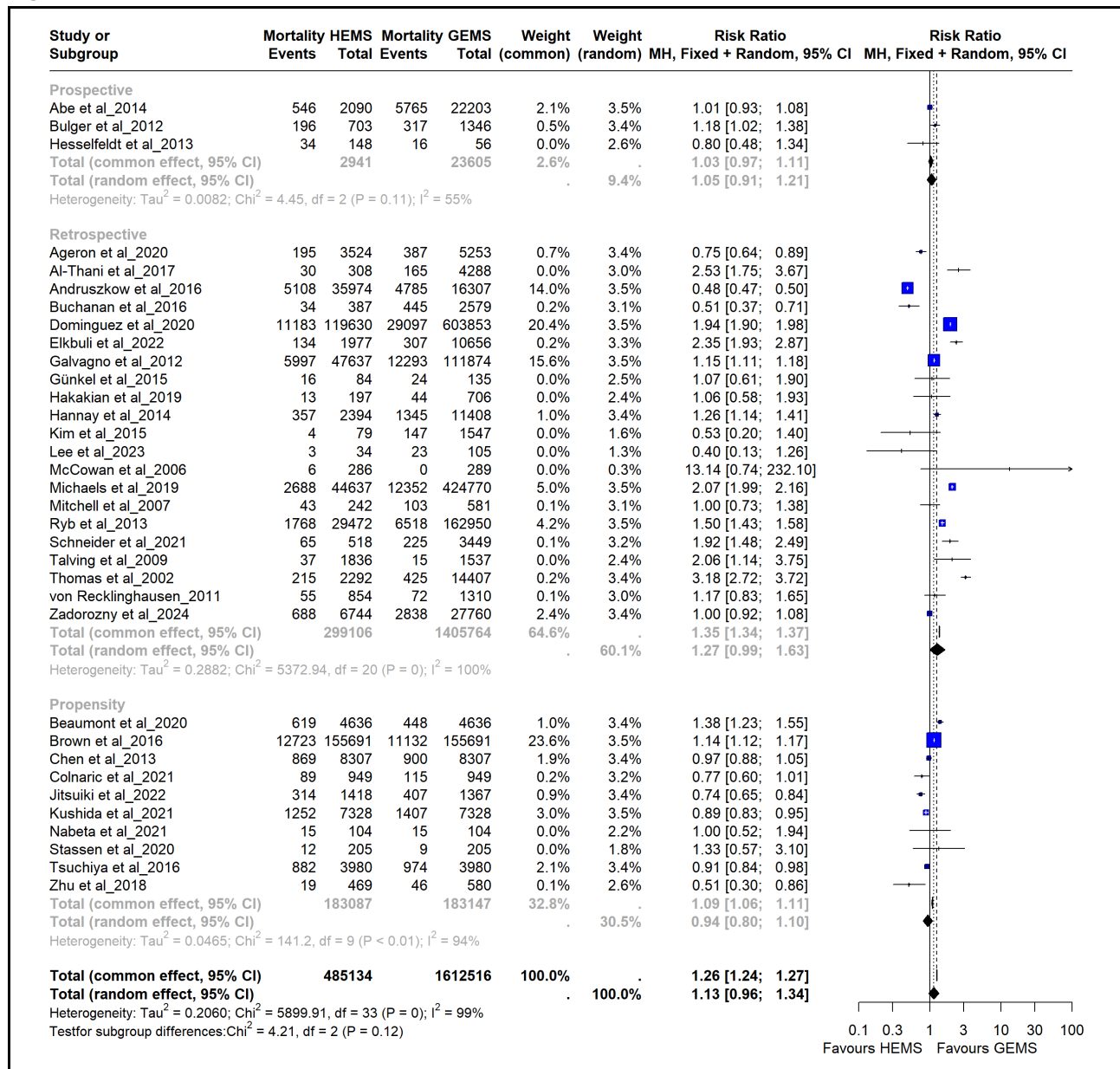


Figure 8S

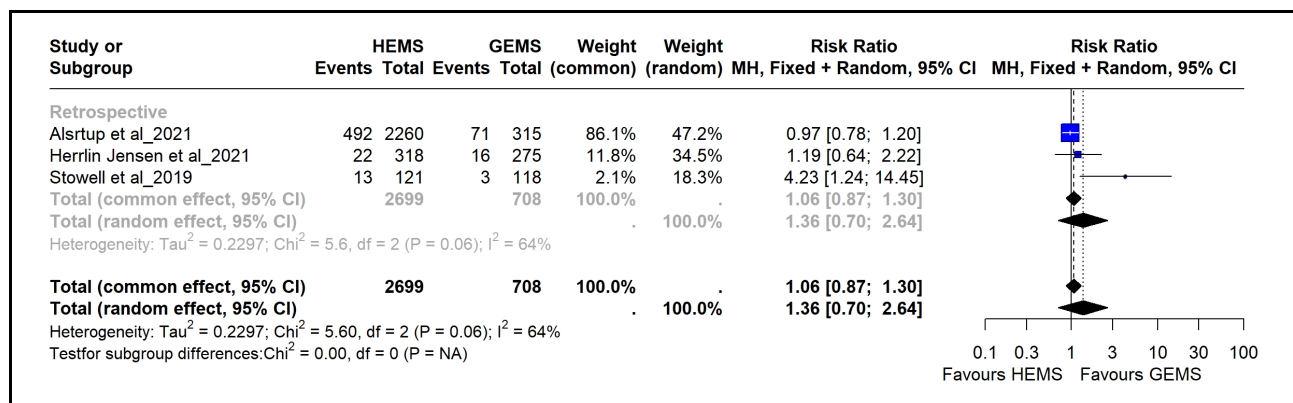


Figure 9S

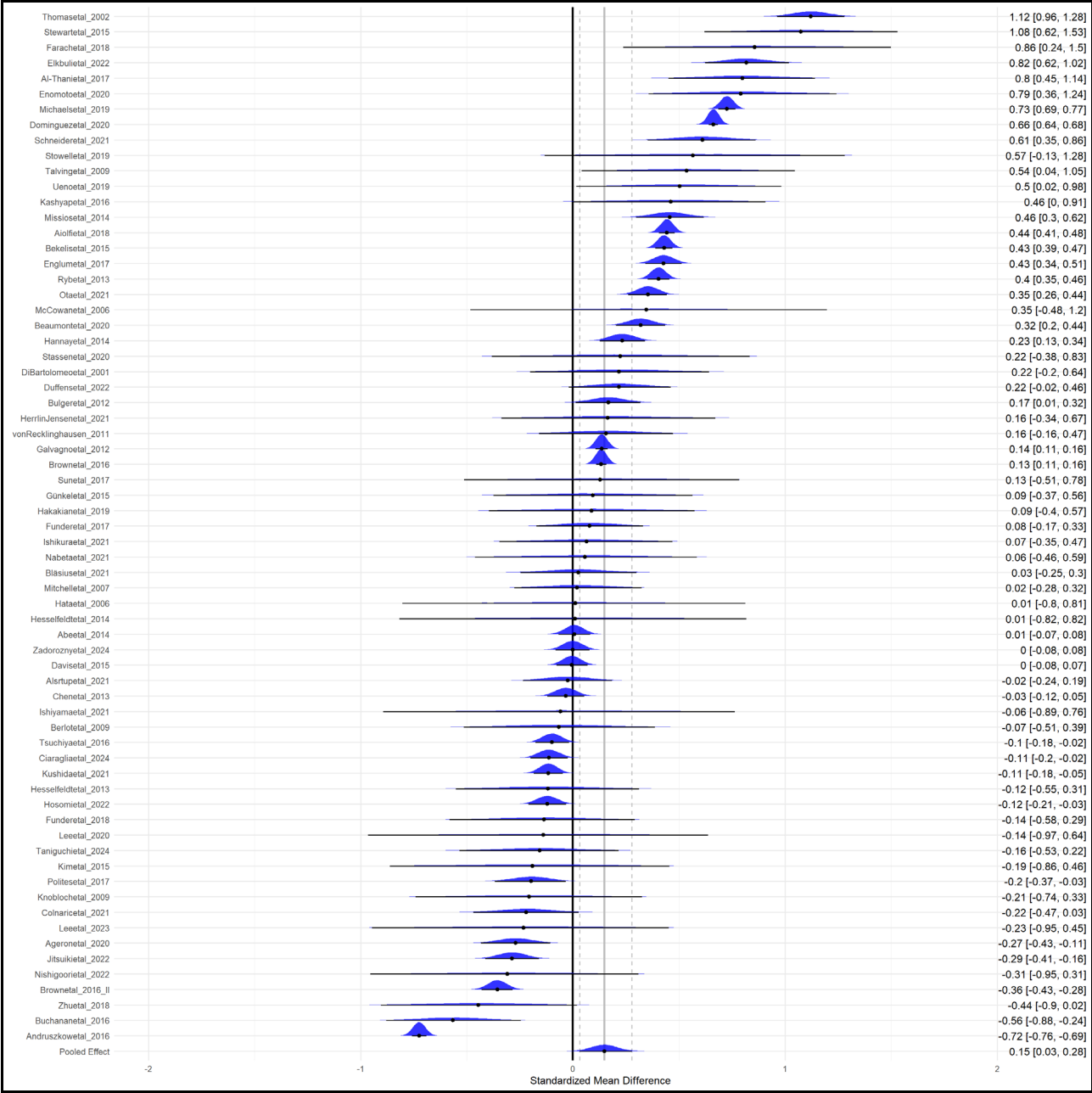


Figure 10S

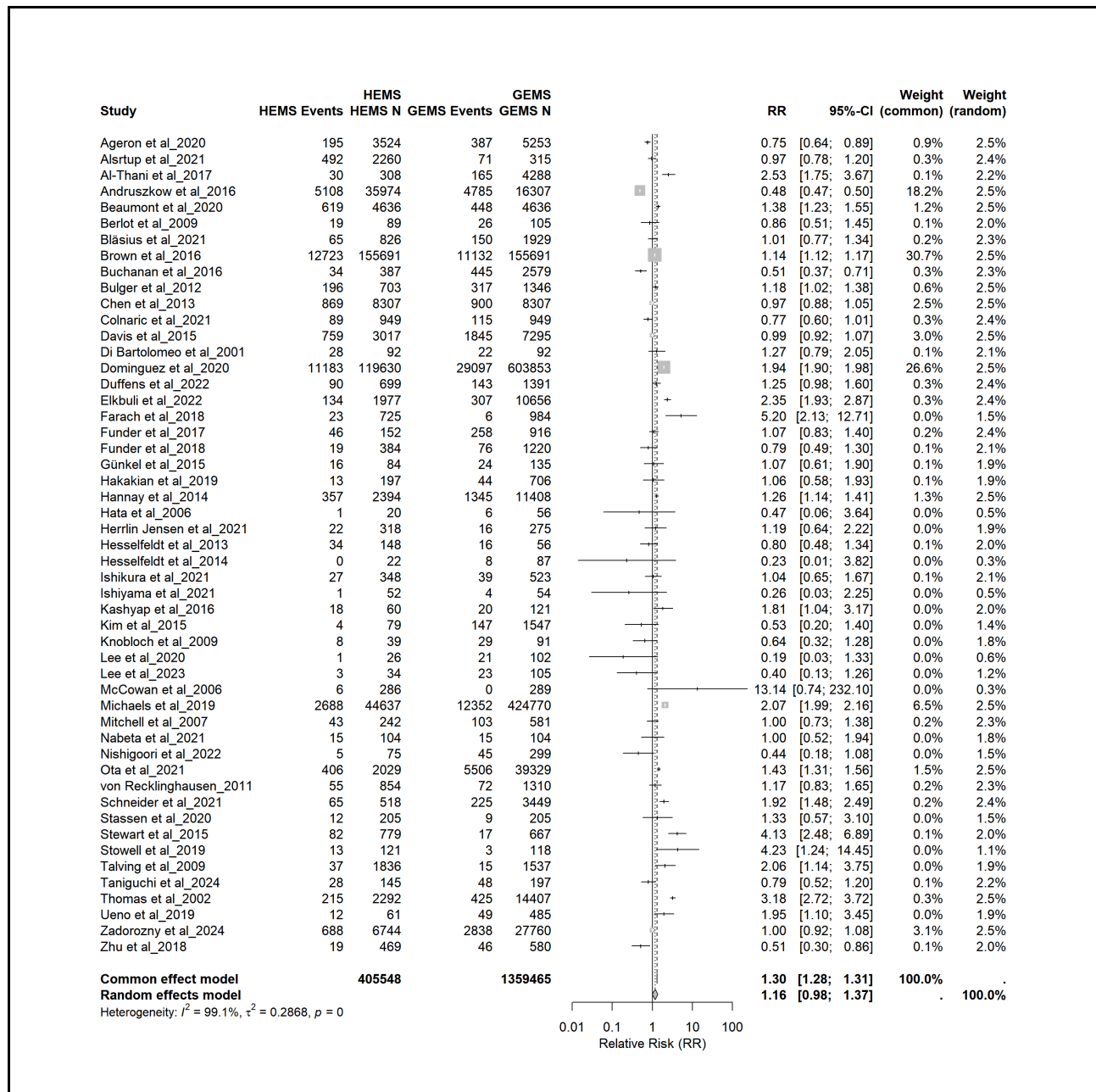


Figure 11S

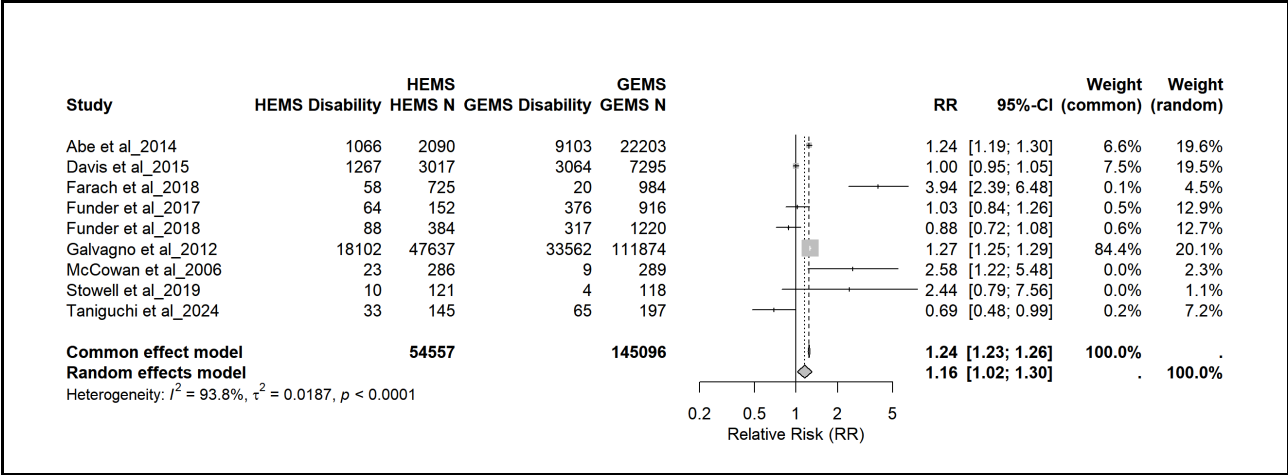


Figure 12S

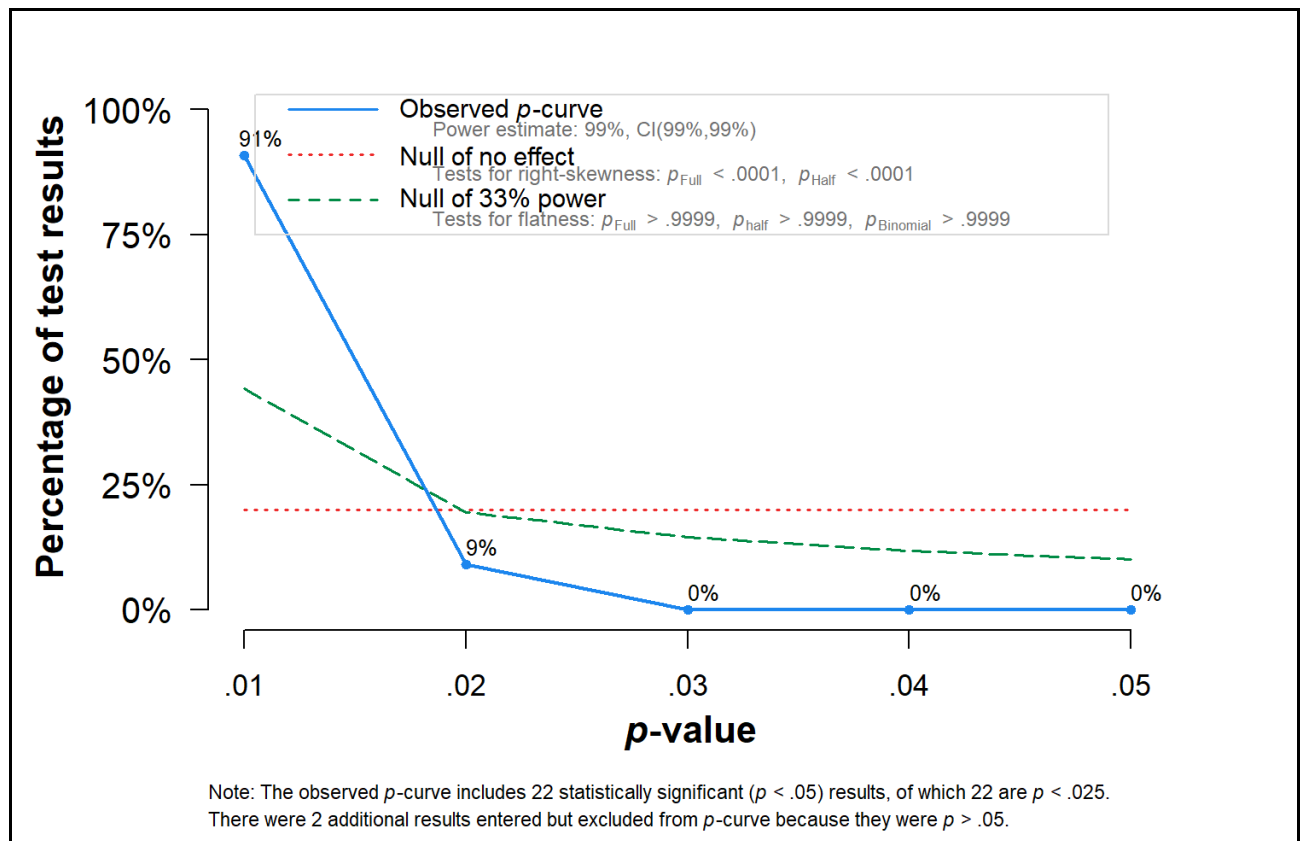


Figure 13S

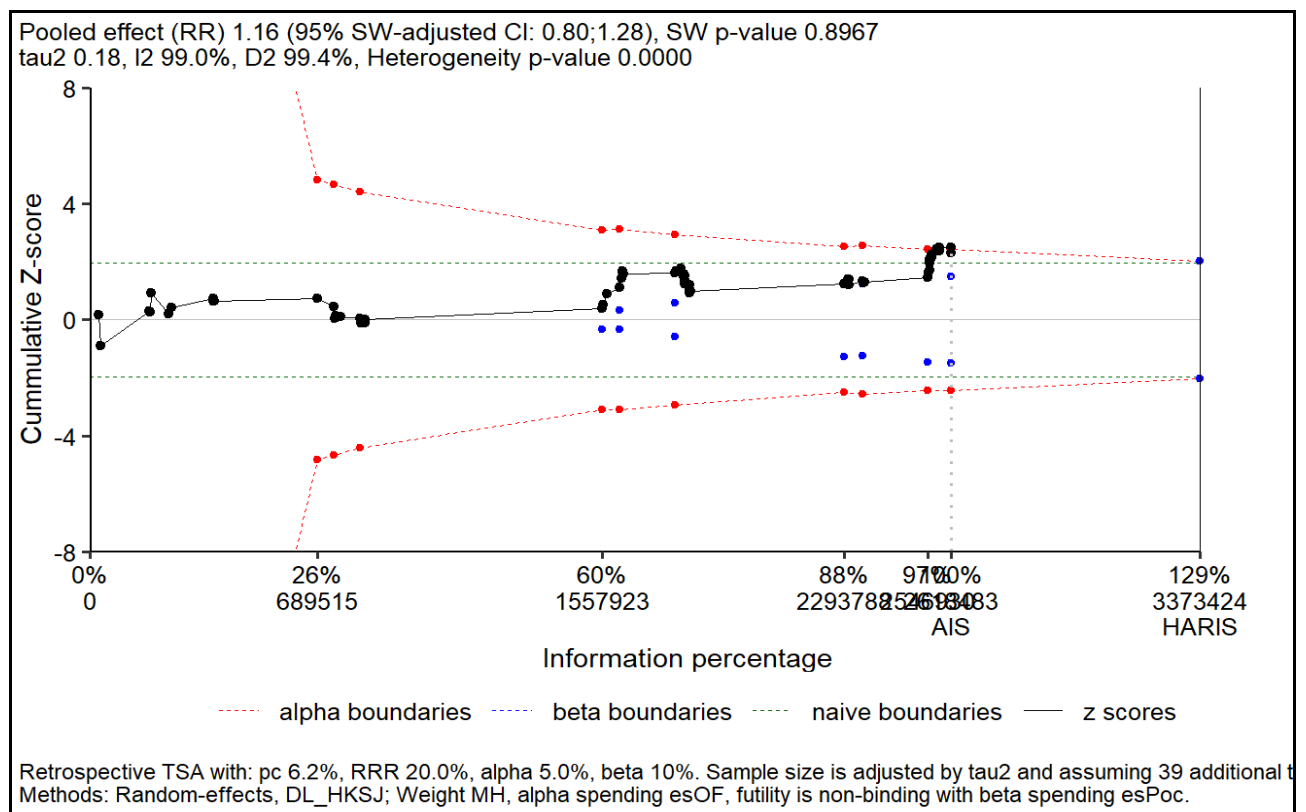


Figure 14S

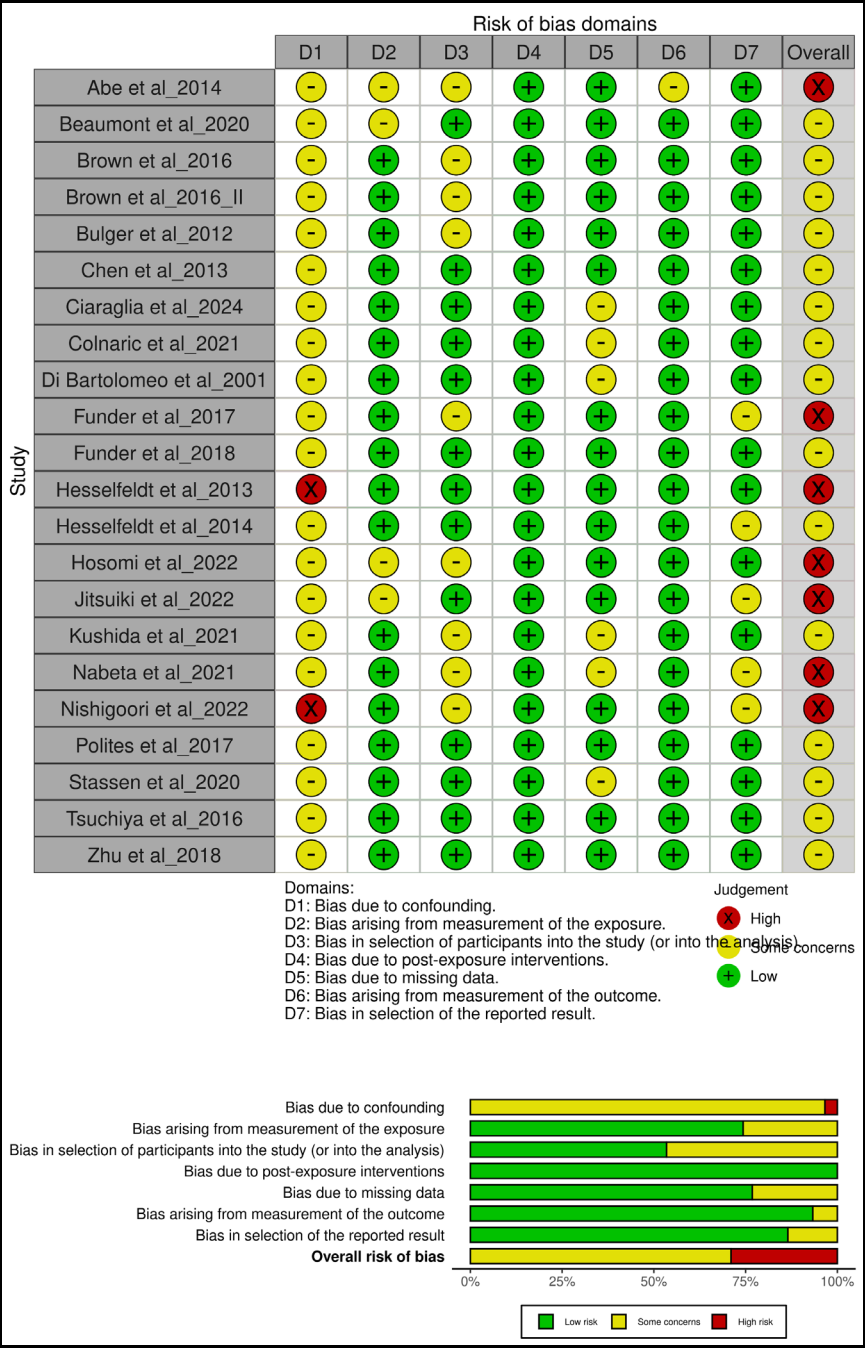


Figure 15S

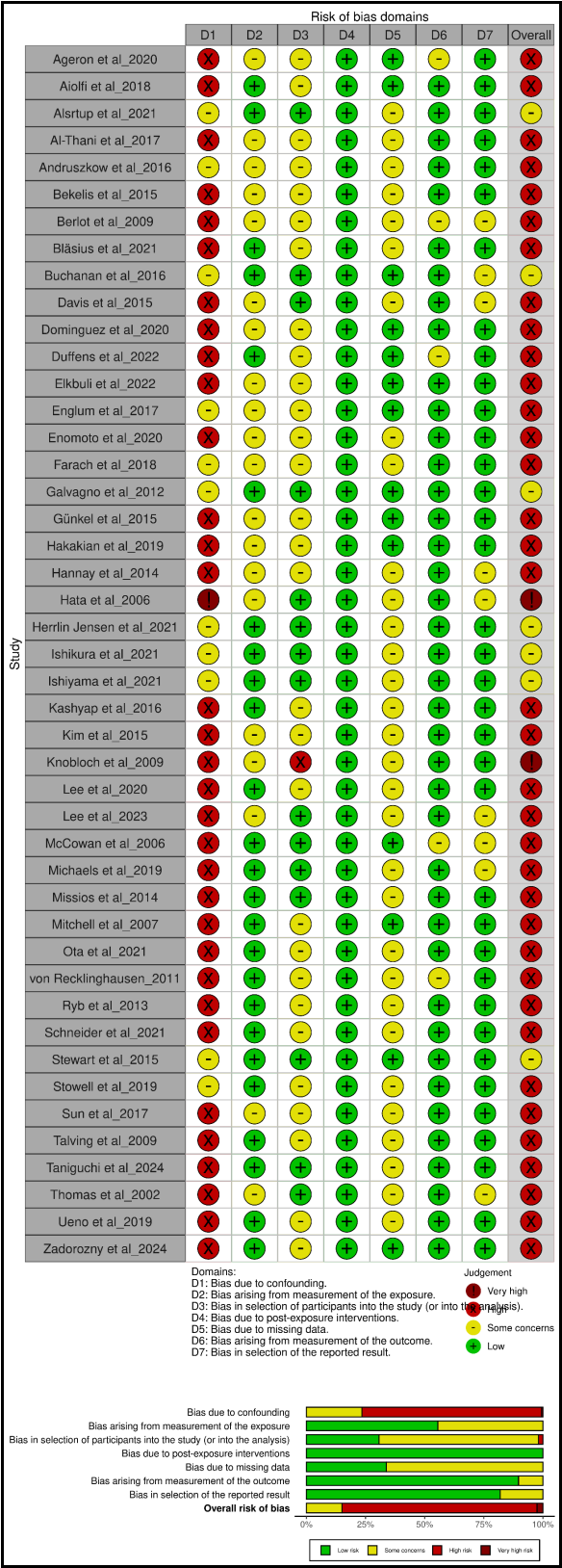


Figure 16S

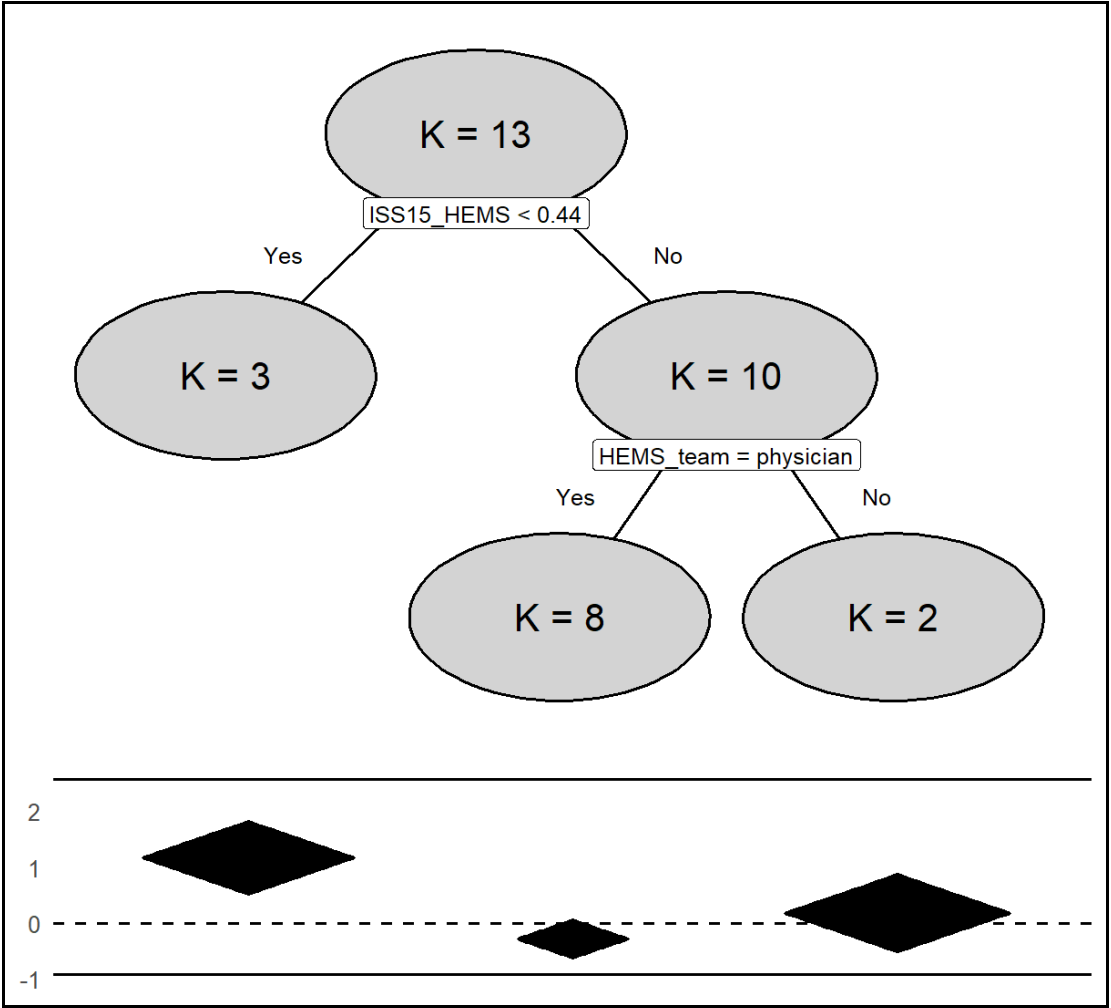


Figure 17S

