**Title**

Bayesian meta-analysis of studies with rare events: Do the choice of prior distributions and the exclusion of studies without events in both arms matter?

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| **Table S1.** Rosiglitazone MA data set |
| **GSKTrialNo** | **Duration****(weeks)** | **Rosiglitazone** | **Control** |
| **Total # patients** | **MI** | **CVD** | **Total # patients** | **MI** | **CVD** |
| **49653/011** | 24 | 357 | 2 | 1 | 176 | 0 | 0 |
| **49653/020** | 52 | 391 | 2 | 0 | 207 | 1 | 0 |
| **49653/024** | 26 | 774 | 1 | 0 | 185 | 1 | 0 |
| **49653/093** | 26 | 213 | 0 | 0 | 109 | 1 | 0 |
| **49653/094** | 26 | 232 | 1 | 1 | 116 | 0 | 0 |
| **100684** | 52 | 43 | 0 | 0 | 47 | 1 | 0 |
| **49653/143** | 24 | 121 | 1 | 0 | 124 | 0 | 0 |
| **49653/211** | 52 | 110 | 5 | 3 | 114 | 2 | 2 |
| **49653/284** | 24 | 382 | 1 | 0 | 384 | 0 | 0 |
| **712753/008** | 48 | 284 | 1 | 0 | 135 | 0 | 0 |
| **AVM100264** | 52 | 294 | 0 | 2 | 302 | 1 | 1 |
| **BRL49653C/185** | 32 | 563 | 2 | 0 | 142 | 0 | 0 |
| **BRL49653/334** | 52 | 278 | 2 | 0 | 279 | 1 | 1 |
| **BRL49653/347** | 24 | 418 | 2 | 0 | 212 | 0 | 0 |
| **49653/015** | 24 | 395 | 2 | 2 | 198 | 1 | 0 |
| **49653/079** | 26 | 203 | 1 | 1 | 106 | 1 | 1 |
| **49653/080** | 156 | 104 | 1 | 0 | 99 | 2 | 0 |
| **49653/082** | 26 | 212 | 2 | 1 | 107 | 0 | 0 |
| **49653/085** | 26 | 138 | 3 | 1 | 139 | 1 | 0 |
| **49653/095** | 26 | 196 | 0 | 1 | 96 | 0 | 0 |
| **49653/097** | 156 | 122 | 0 | 0 | 120 | 1 | 0 |
| **49653/125** | 26 | 175 | 0 | 0 | 173 | 1 | 0 |
| **49653/127** | 26 | 56 | 1 | 0 | 58 | 0 | 0 |
| **49653/128** | 28 | 39 | 1 | 0 | 38 | 0 | 0 |
| **49653/134** | 28 | 561 | 0 | 1 | 276 | 2 | 0 |
| **49653/135** | 104 | 116 | 2 | 2 | 111 | 3 | 1 |
| **49653/136** | 26 | 148 | 1 | 2 | 143 | 0 | 0 |
| **49653/145** | 26 | 231 | 1 | 1 | 242 | 0 | 0 |
| **49653/147** | 26 | 89 | 1 | 0 | 88 | 0 | 0 |
| **49653/162** | 26 | 168 | 1 | 1 | 172 | 0 | 0 |
| **49653/234** | 26 | 116 | 0 | 0 | 61 | 0 | 0 |
| **49653/330** | 52 | 1172 | 1 | 1 | 377 | 0 | 0 |
| **49653/331** | 52 | 706 | 0 | 1 | 325 | 0 | 0 |
| **49653/137** | 32 | 204 | 1 | 0 | 185 | 2 | 1 |
| **SB-712753/002** | 24 | 288 | 1 | 1 | 280 | 0 | 0 |
| **SB-712753/003** | 32 | 254 | 1 | 0 | 272 | 0 | 0 |
| **SB-712753/007** | 32 | 314 | 1 | 0 | 154 | 0 | 0 |
| **SB-712753/009** | 24 | 162 | 0 | 0 | 160 | 0 | 0 |
| **49653/132** | 24 | 442 | 1 | 1 | 112 | 0 | 0 |
| **AVA100193** | 24 | 394 | 1 | 1 | 124 | 0 | 0 |
| **49653/044** | 26 | 101 | 0 | 0 | 51 | 0 | 0 |
| **49653/096** | 26 | 232 | 0 | 0 | 115 | 0 | 0 |
| **49653/325** | 24 | 196 | 0 | 0 | 195 | 0 | 0 |
| **49653/282** | 24 | 70 | 0 | 0 | 75 | 0 | 0 |
| **49653/369** | 26 | 25 | 0 | 0 | 24 | 0 | 0 |
| **DREAM-trial18** | 156 | 2635 | 15 | 12 | 2634 | 9 | 10 |
| **ADOPT19** | 208 | 1456 | 27 | 2 | 2895 | 41 | 5 |
| **797620/004** | 24 | 676 | 0 | 0 | 225 | 0 | 0 |

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| **Table S2.** Characteristics of simulated FE MA data sets for $log⁡(OR)$ = 0 |
| **id** | **Ratio a** | **# trials** | $$p\_{ic}$$ | **Total # patients b** | **No events in both arms** | **No events to analyze** | **Mean****# zeros** | **Mean****# trials** |
| **1** | 1:1 | 10 | [0.01, 0.04] | [40, 60] | 12% | 0 | 22% | 23 |
| **2** | 1:1 | 10 | [0.01, 0.03] | [30, 50] | 23% | 1 |
| **3** | 1:1 | 50 | [0.01, 0.04] | [20, 40] | 26% | 0 |
| **4** | 1:1 | 20 | [0.01, 0.038] | [20, 40] | 27% | 0 |
| **5** | 1:1 | 10 | [0.01, 0.02] | [20, 40] | 42% | 27 | 55% | 25 |
| **6** | 1:1 | 20 | [0.005, 0.01] | [30, 50] | 55% | 4 |
| **7** | 1:1 | 20 | [0.005, 0.01] | [20, 50] | 64% | 16 |
| **8** | 1:1 | 50 | [0.005, 0.01] | [20, 40] | 60% | 0 |
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| **1** | 1:2 | 10 | [0.01, 0.03] | [25, 45] | 15% | 2 | 21% | 23 |
| **2** | 1:2 | 20 | [0.01, 0.03] | [20, 40] | 20% | 0 |
| **3** | 1:2 | 50 | [0.01, 0.03] | [20, 60] | 20% | 0 |
| **4** | 1:2 | 10 | [0.01, 0.02] | [20, 40] | 28% | 13 |
| **5** | 1:2 | 20 | [0.005, 0.015] | [20, 40] | 40% | 1 | 45% | 28 |
| **6** | 1:2 | 50 | [0.005, 0.015] | [20, 40] | 43% | 0 |
| **7** | 1:2 | 20 | [0.005, 0.01] | [20, 40] | 45% | 4 |
| **8** | 1:2 | 20 | [0.005, 0.01] | [30, 40] | 50% | 4 |
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| **1** | 1:4 | 10 | [0.01, 0.04] | [10, 30] | 14% | 7 | 22% | 18 |
| **2** | 1:4 | 20 | [0.01, 0.015] | [15, 35] | 20% | 1 |
| **3** | 1:4 | 20 | [0.005, 0.015] | [20, 40] | 25% | 1 |
| **4** | 1:4 | 20 | [0.005, 0.01] | [20, 50] | 30% | 3 |
| **5** | 1:4 | 10 | [0.005, 0.02] | [10, 40] | 34% | 43 | 39% | 25 |
| **6** | 1:4 | 20 | [0.01, 0.02] | [10, 20] | 35% | 5 |
| **7** | 1:4 | 50 | [0.005, 0.02] | [10, 25] | 38% | 0 |
| **8** | 1:4 | 20 | [0.005, 0.012] | [12, 22] | 50% | 53 |
| a We assigned treatment vs. control group for the ratio of group sizesb Total number of patients in treatment group |

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| **Table S3.** Characteristics of simulated FE MA data sets for $log⁡(OR)$ = 0.69 |
| **id** | **Ratio a** | **# trials**  | $$p\_{ic}$$ | **Total # patients b** | **No events in both arms** | **No events to analyze** | **Mean # zeros** | **Mean # trials** |
| **1** | 1:1 | 10 | [0.01, 0.03] | [30, 50] | 13% | 0 | 21% | 23 |
| **2** | 1:1 | 20 | [0.01, 0.04] | [20, 60] | 20% | 0 |
| **3** | 1:1 | 50 | [0.01, 0.03] | [20, 40] | 20% | 0 |
| **4** | 1:1 | 10 | [0.01, 0.02] | [20, 40] | 29% | 19 |
| **5** | 1:1 | 50 | [0.005, 0.017] | [20, 40] | 40% | 0 | 47% | 33 |
| **6** | 1:1 | 10 | [0.005, 0.01] | [20, 60] | 43% | 53 |
| **7** | 1:1 | 20 | [0.005, 0.01] | [20, 40] | 51% | 14 |
| **8** | 1:1 | 50 | [0.005, 0.01] | [20, 40] | 52% | 0 |
|  |  |
| **1** | 1:2 | 10 | [0.01, 0.03] | [25, 45] | 9% | 0 | 19% | 23 |
| **2** | 1:2 | 50 | [0.005, 0.03] | [20, 40] | 18% | 0 |
| **3** | 1:2 | 10 | [0.01, 0.02] | [20, 40] | 20% | 1 |
| **4** | 1:2 | 20 | [0.005, 0.015] | [20, 40] | 30% | 0 |
| **5** | 1:2 | 50 | [0.005, 0.015] | [20, 40] | 32% | 0 | 44% | 33 |
| **6** | 1:2 | 10 | [0.005, 0.01] | [20, 40] | 42% | 27 |
| **7** | 1:2 | 20 | [0.005, 0.01] | [20, 30] | 50% | 1 |
| **8** | 1:2 | 50 | [0.004, 0.01] | [20, 30] | 50% | 0 |
|  |  |
| **1** | 1:4 | 10 | [0.01, 0.03] | [10, 30] | 14% | 2 | 22% | 18 |
| **2** | 1:4 | 20 | [0.01, 0.015] | [15, 35] | 20% | 0 |
| **3** | 1:4 | 20 | [0.005, 0.015] | [20, 40] | 25% | 0 |
| **4** | 1:4 | 20 | [0.005, 0.01] | [20, 50] | 30% | 0 |
| **5** | 1:4 | 10 | [0.005, 0.02] | [10, 40] | 34% | 16 | 39% | 25 |
| **6** | 1:4 | 20 | [0.01, 0.02] | [10, 20] | 35% | 0 |
| **7** | 1:4 | 50 | [0.005, 0.02] | [10, 30] | 38% | 0 |
| **8** | 1:4 | 20 | [0.005, 0.015] | [10, 20] | 50% | 1 |
| a We assigned treatment vs. control group for the ratio of group sizesb Total number of patients in treatment group |

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| **Table S4.** Characteristics of simulated REs MA data sets for log(ORi) ~ N (0, 0.2) |
| **id** | **Ratio a** | **# trials** | $$p\_{ic}$$ | **Total # patients b** | **No events in both arms** | **No events to analyze** | **Mean # zeros** | **Mean** **# trials** |
| **1** | 1:1 | 20 | [0.01, 0.04] | [40, 60] | 12% | 0 | 20% | 28 |
| **2** | 1:1 | 50 | [0.005, 0.035] | [40, 60] | 18% | 0 |
| **3** | 1:1 | 20 | [0.005, 0.03] | [40, 60] | 20% | 0 |
| **4** | 1:1 | 20 | [0.005, 0.025] | [40, 50] | 30% | 0 |
| **5** | 1:1 | 20 | [0.01, 0.02] | [30, 50] | 31% | 0 | 46% | 35 |
| **6** | 1:1 | 50 | [0.005, 0.025] | [30, 50] | 34% | 0 |
| **7** | 1:1 | 50 | [0.005, 0.015] | [20, 40] | 56% | 0 |
| **8** | 1:1 | 20 | [0.005, 0.01] | [20, 40] | 64% | 30 |
|  |  |
| **1** | 1:2 | 20 | [0.01, 0.04] | [40, 60] | 7% | 0 | 18% | 35 |
| **2** | 1:2 | 50 | [0.005, 0.03] | [30, 50] | 18% | 0 |
| **3** | 1:2 | 20 | [0.01, 0.02] | [30, 50] | 20% | 0 |
| **4** | 1:2 | 50 | [0.005, 0.02] | [30, 50] | 26% | 0 |
| **5** | 1:2 | 50 | [0.005, 0.01] | [20, 40] | 50% | 0 | 51% | 35 |
| **6** | 1:2 | 20 | [0.005, 0.01] | [20, 40] | 50% | 17 |
| **7** | 1:2 | 20 | [0.005, 0.01] | [20, 40] | 52% | 17 |
| **8** | 1:2 | 50 | [0.005, 0.01] | [20, 40] | 52% | 0 |
|  |  |
| **1** | 1:4 | 20 | [0.01, 0.03] | [10, 30] | 7% | 0 | 16% | 28 |
| **2** | 1:4 | 20 | [0.005, 0.018] | [15, 30] | 12% | 6 |
| **3** | 1:4 | 20 | [0.005, 0.012] | [10, 28] | 19% | 38 |
| **4** | 1:4 | 50 | [0.01, 0.02] | [10, 30] | 25% | 0 |
| **5** | 1:4 | 20 | [0.01, 0.02] | [10, 25] | 31% | 6 | 49% | 28 |
| **6** | 1:4 | 50 | [0.005, 0.01] | [10, 30] | 48% | 0 |
| **7** | 1:4 | 20 | [0.005, 0.01] | [10, 28] | 52% | 62 |
| **8** | 1:4 | 20 | [0.005, 0.075] | [10, 21] | 64% | 131 |
| a We assigned treatment vs. control group for the ratio of group sizesb Total number of patients in treatment group |

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| **Table S5.** Characteristics of simulated REs MA data sets for log(ORi) ~ N (0.69, 0.2) |
| **id** | **Ratio a** | **Number of trials** | $$p\_{ic}$$ | **Total # patients b** | **No events in both arms** | **No events to analyze** | **Mean # zeros** | **Mean # trials** |
| **1** | 1:1 | 20 | [0.01, 0.04] | [40, 60] | 5% | 0 | 16% | 35 |
| **2** | 1:1 | 50 | [0.005, 0.03] | [30, 50] | 18% | 0 |
| **3** | 1:1 | 20 | [0.01, 0.02] | [30, 50] | 19% | 0 |
| **4** | 1:1 | 50 | [0.01, 0.03] | [25, 60] | 22% | 0 |
| **5** | 1:1 | 50 | [0.005, 0.02] | [20, 40] | 36% | 0 | 48% | 35 |
| **6** | 1:1 | 20 | [0.005, 0.01] | [20, 40] | 51% | 14 |
| **7** | 1:1 | 20 | [0.005, 0.01] | [20, 40] | 52% | 14 |
| **8** | 1:1 | 50 | [0.005, 0.01] | [20, 40] | 52% | 0 |
|  |  |
| **1** | 1:2 | 20 | [0.01, 0.04] | [40, 60] | 4% | 0 | 11% | 28 |
| **2** | 1:2 | 20 | [0.01, 0.02] | [30, 50] | 10% | 0 |
| **3** | 1:2 | 20 | [0.01, 0.02] | [30, 50] | 11% | 0 |
| **4** | 1:2 | 50 | [0.005, 0.02] | [25, 50] | 18% | 0 |
| **5** | 1:2 | 20 | [0.005, 0.01] | [20, 40] | 40% | 1 | 47% | 35 |
| **6** | 1:2 | 50 | [0.005, 0.01] | [20, 40] | 42% | 0 |
| **7** | 1:2 | 20 | [0.002, 0.01] | [20, 40] | 50% | 0 |
| **8** | 1:2 | 50 | [0.001, 0.01] | [20, 40] | 54% | 0 |
|  |  |
| **1** | 1:4 | 20 | [0.01, 0.03] | [10, 30] | 13% | 0 | 19% | 28 |
| **2** | 1:4 | 50 | [0.005, 0.035] | [10, 30] | 16% | 0 |
| **3** | 1:4 | 20 | [0.005, 0.02] | [10, 30] | 20% | 0 |
| **4** | 1:4 | 20 | [0.005, 0.02] | [10, 30] | 25% | 0 |
| **5** | 1:4 | 20 | [0.01, 0.017] | [10, 22] | 31% | 0 | 45% | 28 |
| **6** | 1:4 | 50 | [0.005, 0.01] | [10, 30] | 42% | 0 |
| **7** | 1:4 | 20 | [0.005, 0.01] | [10, 25] | 47% | 6 |
| **8** | 1:4 | 20 | [0.005, 0.007] | [10, 20] | 60% | 33 |
| a We assigned treatment vs. control group for the ratio of group sizesb Total number of patients in treatment group |

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| **Table S6.** Characteristics of simulated REs MA data sets for log (ORi) ~ N (0, 0.5) |
| **id** | **Ratio a** | **Number of trials** | $$p\_{ic}$$ | **Total # patients b** | **No events in both arms** | **No events to analyze** | **Mean # zeros** | **Mean # trials** |
| **1** | 1:1 | 20 | [0.02, 0.035] | [25, 55] | 12% | 0 | 18% | 28 |
| **2** | 1:1 | 20 | [0.015, 0.035] | [25, 55] | 16% | 0 |
| **3** | 1:1 | 50 | [0.02, 0.03] | [20, 50] | 18% | 0 |
| **4** | 1:1 | 20 | [0.01, 0.03] | [20, 50] | 27% | 0 |
| **5** | 1:1 | 50 | [0.02, 0.03] | [20, 55] | 34% | 0 | 49% | 35 |
| **6** | 1:1 | 20 | [0.01, 0.03] | [20, 50] | 40% | 0 |
| **7** | 1:1 | 50 | [0.01, 0.025] | [20, 50] | 56% | 0 |
| **8** | 1:1 | 20 | [0.01, 0.025] | [20, 50] | 65% | 25 |
|  |  |
| **1** | 1:2 | 20 | [0.01, 0.03] | [20, 40] | 7% | 0 | 15% | 28 |
| **2** | 1:2 | 20 | [0.01, 0.02] | [20, 50] | 15% | 0 |
| **3** | 1:2 | 50 | [0.005, 0.02] | [15, 45] | 18% | 0 |
| **4** | 1:2 | 20 | [0.005, 0.02] | [15, 45] | 20% | 0 |
| **5** | 1:2 | 20 | [0.005, 0.01] | [20, 40] | 50% | 12 | 54% | 35 |
| **6** | 1:2 | 20 | [0.005, 0.0095] | [20, 40] | 52% | 12 |
| **7** | 1:2 | 50 | [0.005, 0.01] | [20, 40] | 52% | 0 |
| **8** | 1:2 | 50 | [0.005, 0.008] | [20, 30] | 60% | 0 |
|  |  |
| **1** | 1:4 | 20 | [0.01, 0.03] | [20, 40] | 7% | 0 | 14% | 28 |
| **2** | 1:4 | 20 | [0.01, 0.02] | [20, 50] | 10% | 0 |
| **3** | 1:4 | 50 | [0.005, 0.02] | [15, 45] | 20% | 0 |
| **4** | 1:4 | 20 | [0.005, 0.02] | [15, 45] | 20% | 0 |
| **5** | 1:4 | 20 | [0.01, 0.02] | [10, 25] | 31% | 7 | 49% | 28 |
| **6** | 1:4 | 50 | [0.005, 0.01] | [10, 30] | 48% | 0 |
| **7** | 1:4 | 20 | [0.005, 0.01] | [10, 26] | 52% | 59 |
| **8** | 1:4 | 20 | [0.005, 0.0075] | [10, 20] | 64% | 121 |
| a We assigned treatment vs. control group for the ratio of group sizesb Total number of patients in treatment group |

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| **Table S7.** Characteristics of simulated REs MA data sets for log (ORi) ~ N (0.69, 0.5) |
| **id** | **Ratio a** | **Number of trials** | $$p\_{ic}$$ | **Total # patients b** | **No events in both arms** | **No events to analyze** | **Mean # zeros** | **Mean # trials** |
| **1** | 1:1 | 20 | [0.018, 0.032] | [20, 50] | 10% | 0 | 17% | 28 |
| **2** | 1:1 | 20 | [0.012, 0.031] | [20, 50] | 15% | 0 |
| **3** | 1:1 | 50 | [0.01, 0.03] | [18, 50] | 18% | 0 |
| **4** | 1:1 | 20 | [0.008, 0.025] | [18, 50] | 24% | 0 |
| **5** | 1:1 | 50 | [0.005, 0.02] | [20, 40] | 36% | 0 | 49% | 43 |
| **6** | 1:1 | 20 | [0.005, 0.01] | [20, 40] | 52% | 14 |
| **7** | 1:1 | 50 | [0.005, 0.01] | [20, 40] | 52% | 0 |
| **8** | 1:1 | 50 | [0.005, 0.01] | [20, 30] | 54% | 0 |
|  |  |
| **1** | 1:2 | 20 | [0.017, 0.028] | [18, 50] | 7% | 0 | 17% | 28 |
| **2** | 1:2 | 20 | [0.008, 0.025] | [15, 50] | 17% | 0 |
| **3** | 1:2 | 50 | [0.007, 0.02] | [18, 50] | 20% | 0 |
| **4** | 1:2 | 20 | [0.005, 0.02] | [20, 50] | 22% | 0 |
| **5** | 1:2 | 20 | [0.005, 0.01] | [20, 40] | 40% | 1 | 47% | 35 |
| **6** | 1:2 | 50 | [0.005, 0.01] | [20, 40] | 42% | 0 |
| **7** | 1:2 | 20 | [0.005, 0.01] | [20, 40] | 50% | 2 |
| **8** | 1:2 | 50 | [0.001, 0.01] | [20, 40] | 54% | 0 |
|  |  |
| **1** | 1:4 | 20 | [0.008, 0.025] | [18, 40] | 9% | 0 | 15% | 28 |
| **2** | 1:4 | 20 | [0.005, 0.02] | [18, 45] | 12% | 0 |
| **3** | 1:4 | 50 | [0.005, 0.017] | [15, 40] | 20% | 0 |
| **4** | 1:4 | 20 | [0.005, 0.016] | [15, 40] | 20% | 1 |
| **5** | 1:4 | 20 | [0.01, 0.017] | [10, 22] | 31% | 0 | 45% | 28 |
| **6** | 1:4 | 50 | [0.005, 0.01] | [10, 30] | 42% | 0 |
| **7** | 1:4 | 20 | [0.005, 0.01] | [10, 25] | 47% | 7 |
| **8** | 1:4 | 20 | [0.005, 0.007] | [10, 20] | 60% | 24 |
| a We assigned treatment vs. control group for the ratio of group sizesb Total number of patients in treatment group |

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| Table S8. 95% coverage and bias for different scenarios of FE MA for $log(OR)$ = 0 and $log(OR)$ = 0.69 |
| Prior for $p\_{ic}$ | **Ratio a** | **Deletion b** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Gel. & Rub. Statistic c** |
|  |  |  | $log(OR)$ **= 0** | $log(OR)$ **= 0.69** |  |
| *Beta(0.5, 0.5)* | **≤ 30%** d | **>30%** | **≤ 30%** | **>30%** |
|  | 1:1 | 0 | 0.783 | -0.374 | 0.796 | -0.578 | 0.688 | -0.438 | 0.554 | -0.665 | 1.0012 |
|  | 1:2 | 0 | 0.849 | -0.311 | 0.822 | -0.445 | 0.797 | -0.339 | 0.723 | -0.485 | 1.0012 |
|  | 1:4 | 0 | 0.898 | -0.330 | 0.887 | -0.373 | 0.884 | -0.290 | 0.837 | -0.395 | 1.0011 |
|  | 1:1 | 1 | 0.782 | -0.375 | 0.794 | -0.577 | 0.686 | -0.439 | 0.558 | -0.665 | 1.0013 |
|  | 1:2 | 1 | 0.848 | -0.310 | 0.823 | -0.445 | 0.798 | -0.339 | 0.724 | -0.485 | 1.0012 |
|  | 1:4 | 1 | 0.897 | -0.331 | 0.888 | -0.372 | 0.884 | -0.288 | 0.837 | -0.394 | 1.0011 |
| *Beta(1, 1)* |
|  | 1:1 | 0 | 0.473 | -0.646 | 0.479 | -0.933 | 0.305 | -0.760 | 0.173 | -1.078 | 1.0014 |
|  | 1:2 | 0 | 0.625 | -0.533 | 0.564 | -0.732 | 0.484 | -0.602 | 0.334 | -0.822 | 1.0012 |
|  | 1:4 | 0 | 0.785 | -0.531 | 0.746 | -0.598 | 0.694 | -0.516 | 0.571 | -0.676 | 1.0012 |
|  | 1:1 | 1 | 0.474 | -0.646 | 0.479 | -0.933 | 0.303 | -0.760 | 0.171 | -1.079 | 1.0014 |
|  | 1:2 | 1 | 0.625 | -0.534 | 0.566 | -0.732 | 0.484 | -0.601 | 0.335 | -0.821 | 1.0012 |
|  | 1:4 | 1 | 0.785 | -0.530 | 0.746 | -0.598 | 0.692 | -0.517 | 0.572 | -0.675 | 1.0012 |
| *Mantel-Haenszel* |
|  | 1:1 | - | 0.957 | 0.008 | 0.974 | 0.005 | 0.962 | 0.034 | 0.963 | 0.028 | NA |
|  | 1:2 | - | 0.962 | -0.003 | 0.970 | -0.037 | 0.959 | 0.005 | 0.962 | 0.008 | NA |
|  | 1:4 | - | 0.970 | -0.063 | 0.963 | -0.046 | 0.964 | -0.017 | 0.961 | -0.012 | NA |
| a We assigned treatment vs. control group for the ratio of group sizesb Deletion is a logical argument; one means trials with zero in both arms are excluded from the analyses.c The Gelman and Rubin diagnostic is used to check the convergence of multiple mcmc chains run in parallel.d Percentage of trials with no events in both arms. |

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| Table S9. 95% coverage and bias for different scenarios of REs MA $log(OR)$ = 0 for $τ \~ unif(0, 2)$ |
| Prior for $ logit\left(p\_{ic}\right)$ | **Ratioa** | **Deletionb** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Gel. & Rub. Statisticc** |
|  |  |  | $τ$ **= 0.2** | $τ$ **= 0.5** |  |
|  |  |  | **≤ 30%** d | **>30%** | **≤ 30%** | **>30%** |  |
| *normal(0, 10)* |  |  |  |  |
|  | 1:1 | 0 | 0.963 | -0.018 | 0.961 | -0.050 | 0.949 | 0.076 | 0.957 | 0.058 | 1.0039 |
|  | 1:2 | 0 | 0.947 | -0.090 | 0.940 | -0.202 | 0.947 | -0.015 | 0.941 | -0.132 | 1.0048 |
|  | 1:4 | 0 | 0.931 | -0.274 | 0.947 | -0.331 | 0.939 | -0.116 | 0.959 | -0.220 | 1.0048 |
|  | 1:1 | 1 | 0.962 | -0.018 | 0.960 | -0.051 | 0.950 | 0.077 | 0.957 | 0.059 | 1.0038 |
|  | 1:2 | 1 | 0.947 | -0.090 | 0.943 | -0.201 | 0.948 | -0.014 | 0.941 | -0.131 | 1.0048 |
|  | 1:4 | 1 | 0.933 | -0.276 | 0.948 | -0.327 | 0.937 | -0.118 | 0.960 | -0.221 | 1.0047 |
| *normal(0, 100)* |
|  | 1:1 | 0 | 0.960 | 0.029 | 0.955 | 0.024 | 0.938 | 0.120 | 0.944 | 0.134 | 1.0039 |
|  | 1:2 | 0 | 0.955 | -0.064 | 0.946 | -0.138 | 0.948 | 0.013 | 0.941 | -0.065 | 1.0051 |
|  | 1:4 | 0 | 0.935 | -0.246 | 0.955 | -0.283 | 0.941 | -0.093 | 0.961 | -0.179 | 1.0046 |
|  | 1:1 | 1 | 0.960 | 0.028 | 0.957 | 0.027 | 0.939 | 0.125 | 0.946 | 0.136 | 1.0039 |
|  | 1:2 | 1 | 0.954 | -0.059 | 0.948 | -0.140 | 0.948 | 0.014 | 0.943 | -0.066 | 1.0050 |
|  | 1:4 | 1 | 0.938 | -0.246 | 0.951 | -0.285 | 0.941 | -0.094 | 0.960 | -0.172 | 1.0046 |
| *Hierarchical* |
|  | 1:1 | 0 | 0.946 | -0.046 | 0.947 | -0.068 | 0.936 | 0.040 | 0.946 | 0.034 | 1.0154 |
|  | 1:2 | 0 | 0.938 | -0.088 | 0.936 | -0.186 | 0.933 | -0.037 | 0.934 | -0.125 | 1.0199 |
|  | 1:4 | 0 | 0.926 | -0.267 | 0.943 | -0.332 | 0.930 | -0.125 | 0.954 | -0.227 | 1.0075 |
|  | 1:1 | 1 | 0.946 | -0.048 | 0.947 | -0.063 | 0.937 | 0.037 | 0.944 | 0.027 | 1.0154 |
|  | 1:2 | 1 | 0.941 | -0.087 | 0.934 | -0.180 | 0.935 | -0.035 | 0.936 | -0.125 | 1.0118 |
|  | 1:4 | 1 | 0.929 | -0.269 | 0.945 | -0.330 | 0.930 | -0.128 | 0.954 | -0.222 | 1.0075 |
| *Mantel-Haenszel* |
|  | 1:1 | 0 | 0.946 | 0.027 | 0.959 | 0.031 | 0.902 | 0.125 | 0.947 | 0.129 | NA |
|  | 1:2 | 0 | 0.944 | 0.007 | 0.957 | 0 | 0.894 | 0.107 | 0.948 | 0.068 | NA |
|  | 1:4 | 0 | 0.955 | -0.020 | 0.959 | 0.011 | 0.900 | 0.086 | 0.938 | 0.116 | NA |
| a We assigned treatment vs. control group for the ratio of group sizesb deletion is a logical argument; zero means trials with zero in both arms are excluded from the analyses.c The Gelman and Rubin diagnostic is used to check the convergence of multiple mcmc chains run in parallel.d Percentage of trials with no events in both arms. |

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| Table S10. 95% coverage and bias for different scenarios of REs MA $log(OR)$ = 0.69 for $τ \~ unif(0, 2)$ |
| Prior for $ logit\left(p\_{ic}\right)$ | **Ratioa** | **Deletionb** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Gel. & Rub. Statisticc** |
|  |  |  | $τ$ **= 0.2** | $τ$ **= 0.5** |  |
|  |  |  | **≤ 30%** d | **>30%** | **≤ 30%** | **>30%** |  |
| *normal(0, 10)* |  |  |  |  |
|  | 1:1 | 0 | 0.964 | 0.047 | 0.965 | 0.064 | 0.932 | 0.153 | 0.952 | 0.145 | 1.0061 |
|  | 1:2 | 0 | 0.960 | -0.001 | 0.957 | -0.045 | 0.948 | 0.075 | 0.949 | 0.062 | 1.0046 |
|  | 1:4 | 0 | 0.948 | -0.074 | 0.949 | -0.173 | 0.946 | -0.015 | 0.951 | -0.052 | 1.0054 |
|  | 1:1 | 1 | 0.965 | 0.046 | 0.965 | 0.066 | 0.931 | 0.157 | 0.953 | 0.146 | 1.0054 |
|  | 1:2 | 1 | 0.962 | -0.002 | 0.955 | -0.047 | 0.948 | 0.079 | 0.949 | 0.062 | 1.0042 |
|  | 1:4 | 1 | 0.948 | -0.077 | 0.948 | -0.170 | 0.947 | -0.016 | 0.952 | -0.053 | 1.0040 |
| *normal(0, 100)* |
|  | 1:1 | 0 | 0.944 | 0.118 | 0.942 | 0.210 | 0.906 | 0.231 | 0.908 | 0.297 | 1.0059 |
|  | 1:2 | 0 | 0.958 | 0.038 | 0.950 | 0.040 | 0.935 | 0.123 | 0.937 | 0.150 | 1.0038 |
|  | 1:4 | 0 | 0.949 | -0.047 | 0.953 | -0.118 | 0.949 | 0.017 | 0.949 | 0.005 | 1.0039 |
|  | 1:1 | 1 | 0.944 | 0.118 | 0.945 | 0.209 | 0.907 | 0.231 | 0.909 | 0.296 | 1.0054 |
|  | 1:2 | 1 | 0.957 | 0.037 | 0.950 | 0.043 | 0.937 | 0.122 | 0.934 | 0.150 | 1.0040 |
|  | 1:4 | 1 | 0.950 | -0.051 | 0.951 | -0.115 | 0.949 | 0.017 | 0.949 | 0.009 | 1.0041 |
| *Hierarchical* |
|  | 1:1 | 0 | 0.947 | -0.003 | 0.950 | 0.010 | 0.930 | 0.067 | 0.936 | 0.094 | 1.0266 |
|  | 1:2 | 0 | 0.941 | -0.036 | 0.939 | -0.067 | 0.937 | 0.025 | 0.939 | 0.038 | 1.0152 |
|  | 1:4 | 0 | 0.935 | -0.106 | 0.939 | -0.182 | 0.940 | -0.045 | 0.943 | -0.073 | 1.0079 |
|  | 1:1 | 1 | 0.950 | -0.009 | 0.951 | 0.007 | 0.932 | 0.068 | 0.938 | 0.096 | 1.0280 |
|  | 1:2 | 1 | 0.943 | -0.034 | 0.941 | -0.067 | 0.938 | 0.026 | 0.937 | 0.034 | 1.0153 |
|  | 1:4 | 1 | 0.933 | -0.107 | 0.937 | -0.183 | 0.939 | -0.044 | 0.941 | -0.078 | 1.0083 |
| *Mantel-Haenszel* |
|  | 1:1 | 0 | 0.951 | 0.037 | 0.966 | 0.060 | 0.909 | 0.136 | 0.954 | 0.153 | NA |
|  | 1:2 | 0 | 0.934 | 0.024 | 0.959 | 0.027 | 0.895 | 0.121 | 0.937 | 0.131 | NA |
|  | 1:4 | 0 | 0.944 | 0.008 | 0.963 | 0.007 | 0.895 | 0.104 | 0.934 | 0.106 | NA |
| a We assigned treatment vs. control group for the ratio of group sizesb deletion is a logical argument; zero means trials with zero in both arms are excluded from the analyses.c The Gelman and Rubin diagnostic is used to check the convergence of multiple mcmc chains run in parallel.d Percentage of trials with no events in both arms. |

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| Table S11. 95% coverage and bias for different scenarios of REs MA $log(OR)$ = 0 for $τ \~ exp(2)$ |
| Prior for $ logit\left(p\_{ic}\right)$ | **Ratioa** | **Deletionb** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Gel. & Rub. Statisticc** |
|  |  |  | $τ$ **= 0.2** | $τ$ **= 0.5** |  |
|  |  |  | **≤ 30%** d | **>30%** | **≤ 30%** | **>30%** |  |
| *normal(0, 10)* |  |  |  |  |
|  | 1:1 | 0 | 0.950 | -0.014 | 0.954 | -0.045 | 0.927 | 0.085 | 0.944 | 0.073 | 1.0093 |
|  | 1:2 | 0 | 0.945 | -0.050 | 0.944 | -0.116 | 0.933 | 0.040 | 0.936 | -0.042 | 1.0110 |
|  | 1:4 | 0 | 0.941 | -0.143 | 0.952 | -0.174 | 0.939 | -0.005 | 0.957 | -0.066 | 1.0139 |
|  | 1:1 | 1 | 0.950 | -0.013 | 0.950 | -0.045 | 0.928 | 0.083 | 0.942 | 0.073 | 1.0095 |
|  | 1:2 | 1 | 0.947 | -0.047 | 0.945 | -0.117 | 0.933 | 0.040 | 0.941 | -0.042 | 1.0107 |
|  | 1:4 | 1 | 0.941 | -0.137 | 0.956 | -0.174 | 0.938 | -0.007 | 0.957 | -0.071 | 1.0139 |
| *normal(0, 100)* |
|  | 1:1 | 0 | 0.948 | 0.028 | 0.948 | 0.022 | 0.915 | 0.124 | 0.934 | 0.134 | 1.0094 |
|  | 1:2 | 0 | 0.951 | -0.023 | 0.943 | -0.059 | 0.933 | 0.069 | 0.934 | 0.018 | 1.0107 |
|  | 1:4 | 0 | 0.945 | -0.109 | 0.954 | -0.126 | 0.937 | 0.018 | 0.955 | -0.021 | 1.0134 |
|  | 1:1 | 1 | 0.949 | 0.029 | 0.947 | 0.022 | 0.916 | 0.127 | 0.932 | 0.139 | 1.0094 |
|  | 1:2 | 1 | 0.948 | -0.022 | 0.944 | -0.057 | 0.929 | 0.066 | 0.937 | 0.017 | 1.0106 |
|  | 1:4 | 1 | 0.941 | -0.108 | 0.956 | -0.134 | 0.937 | 0.014 | 0.955 | -0.022 | 1.0136 |
| *Hierarchical* |
|  | 1:1 | 0 | 0.943 | -0.013 | 0.945 | -0.020 | 0.922 | 0.080 | 0.936 | 0.086 | 1.0249 |
|  | 1:2 | 0 | 0.943 | -0.045 | 0.943 | -0.078 | 0.930 | 0.029 | 0.934 | -0.006 | 1.0190 |
|  | 1:4 | 0 | 0.938 | -0.121 | 0.953 | -0.143 | 0.933 | -0.007 | 0.955 | -0.044 | 1.0171 |
|  | 1:1 | 1 | 0.942 | -0.011 | 0.945 | -0.022 | 0.923 | 0.078 | 0.934 | 0.086 | 1.0246 |
|  | 1:2 | 1 | 0.942 | -0.043 | 0.942 | -0.082 | 0.928 | 0.034 | 0.932 | -0.008 | 1.0190 |
|  | 1:4 | 1 | 0.939 | -0.120 | 0.954 | -0.147 | 0.935 | -0.007 | 0.953 | -0.036 | 1.0173 |
| *Mantel-Haenszel* |
|  | 1:1 | 0 | 0.946 | 0.027 | 0.959 | 0.031 | 0.902 | 0.125 | 0.946 | 0.129 | NA |
|  | 1:2 | 0 | 0.944 | 0.007 | 0.957 | 0 | 0.894 | 0.107 | 0.948 | 0.068 | NA |
|  | 1:4 | 0 | 0.955 | -0.020 | 0.959 | 0.011 | 0.898 | 0.087 | 0.938 | 0.116 | NA |
| a We assigned treatment vs. control group for the ratio of group sizesb deletion is a logical argument; zero means trials with zero in both arms are excluded from the analyses.c The Gelman and Rubin diagnostic is used to check the convergence of multiple mcmc chains run in parallel.d Percentage of trials with no events in both arms. |

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| Table S12. 95% coverage and bias for different scenarios of REs MA $log(OR)$ = 0.69 for $τ \~ exp(2)$ |
| Prior for $ logit\left(p\_{ic}\right)$ | **Ratioa** | **Deletionb** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Gel. & Rub. Statisticc** |
|  |  |  | $τ$ **= 0.2** | $τ$ **= 0.5** |  |
|  |  |  | **≤ 30%** d | **>30%** | **≤ 30%** | **>30%** |  |
| *normal(0, 10)* |  |  |  |  |
|  | 1:1 | 0 | 0.955 | 0.023 | 0.959 | 0.016 | 0.920 | 0.128 | 0.947 | 0.100 | 1.0117 |
|  | 1:2 | 0 | 0.942 | 0.005 | 0.949 | -0.034 | 0.923 | 0.094 | 0.941 | 0.072 | 1.0098 |
|  | 1:4 | 0 | 0.944 | -0.033 | 0.944 | -0.090 | 0.930 | 0.045 | 0.938 | 0.020 | 1.0104 |
|  | 1:1 | 1 | 0.955 | 0.022 | 0.959 | 0.016 | 0.918 | 0.126 | 0.950 | 0.102 | 1.0122 |
|  | 1:2 | 1 | 0.946 | 0.004 | 0.948 | -0.037 | 0.923 | 0.091 | 0.936 | 0.073 | 1.0093 |
|  | 1:4 | 1 | 0.943 | -0.031 | 0.946 | -0.088 | 0.931 | 0.044 | 0.939 | 0.023 | 1.0097 |
| *normal(0, 100)* |
|  | 1:1 | 0 | 0.942 | 0.083 | 0.943 | 0.132 | 0.898 | 0.191 | 0.916 | 0.219 | 1.0124 |
|  | 1:2 | 0 | 0.940 | 0.039 | 0.941 | 0.040 | 0.913 | 0.131 | 0.920 | 0.151 | 1.0093 |
|  | 1:4 | 0 | 0.944 | -0.005 | 0.942 | -0.035 | 0.927 | 0.076 | 0.931 | 0.077 | 1.0098 |
|  | 1:1 | 1 | 0.938 | 0.082 | 0.943 | 0.139 | 0.898 | 0.192 | 0.913 | 0.218 | 1.0131 |
|  | 1:2 | 1 | 0.940 | 0.040 | 0.942 | 0.041 | 0.913 | 0.133 | 0.923 | 0.152 | 1.0092 |
|  | 1:4 | 1 | 0.943 | -0.004 | 0.947 | -0.042 | 0.927 | 0.073 | 0.932 | 0.077 | 1.0095 |
| *Hierarchical* |
|  | 1:1 | 0 | 0.945 | 0.013 | 0.947 | 0.034 | 0.920 | 0.092 | 0.928 | 0.119 | 1.0469 |
|  | 1:2 | 0 | 0.940 | -0.004 | 0.938 | -0.013 | 0.924 | 0.069 | 0.928 | 0.085 | 1.0245 |
|  | 1:4 | 0 | 0.938 | -0.043 | 0.942 | -0.076 | 0.930 | 0.031 | 0.931 | 0.034 | 1.0162 |
|  | 1:1 | 1 | 0.945 | 0.007 | 0.947 | 0.038 | 0.922 | 0.095 | 0.931 | 0.120 | 1.0462 |
|  | 1:2 | 1 | 0.937 | -0.008 | 0.939 | -0.013 | 0.924 | 0.069 | 0.927 | 0.091 | 1.0247 |
|  | 1:4 | 1 | 0.937 | -0.044 | 0.940 | -0.076 | 0.930 | 0.029 | 0.931 | 0.035 | 1.0163 |
| *Mantel-Haenszel* |
|  | 1:1 | 0 | 0.951 | 0.037 | 0.966 | 0.060 | 0.909 | 0.136 | 0.954 | 0.153 | NA |
|  | 1:2 | 0 | 0.934 | 0.024 | 0.959 | 0.027 | 0.895 | 0.121 | 0.937 | 0.131 | NA |
|  | 1:4 | 0 | 0.944 | 0.008 | 0.963 | 0.007 | 0.895 | 0.104 | 0.934 | 0.106 | NA |
| a We assigned treatment vs. control group for the ratio of group sizesb deletion is a logical argument; zero means trials with zero in both arms are excluded from the analyses.c The Gelman and Rubin diagnostic is used to check the convergence of multiple mcmc chains run in parallel.d Percentage of trials with no events in both arms. |

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| Table S13. 95% coverage and bias for different scenarios of REs MA $log(OR)$ = 0 for $τ \~ lognormal(-4.06, 1.45^{2})$ |
| Prior for $ logit\left(p\_{ic}\right)$ | **Ratioa** | **Deletionb** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Gel. & Rub. Statisticc** |
|  |  |  | $τ$ **= 0.2** | $τ$ **= 0.5** |  |
|  |  |  | **≤ 30%** d | **>30%** | **≤ 30%** | **>30%** |  |
| *normal(0, 10)* |  |  |  |  |
|  | 1:1 | 0 | 0.938 | -0.008 | 0.942 | -0.027 | 0.767 | 0.166 | 0.928 | 0.074 | 1.0186 |
|  | 1:2 | 0 | 0.935 | -0.021 | 0.937 | -0.067 | 0.900 | 0.079 | 0.927 | 0.009 | 1.0213 |
|  | 1:4 | 0 | 0.937 | -0.062 | 0.943 | -0.088 | 0.907 | 0.066 | 0.940 | 0.021 | 1.0431 |
|  | 1:1 | 1 | 0.938 | -0.004 | 0.942 | -0.026 | 0.767 | 0.165 | 0.928 | 0.074 | 1.0200 |
|  | 1:2 | 1 | 0.935 | -0.021 | 0.937 | -0.067 | 0.900 | 0.078 | 0.927 | 0.009 | 1.0211 |
|  | 1:4 | 1 | 0.937 | -0.062 | 0.942 | -0.088 | 0.907 | 0.066 | 0.940 | 0.021 | 1.0422 |
| *normal(0, 100)* |
|  | 1:1 | 0 | 0.934 | 0.028 | 0.938 | 0.024 | 0.753 | 0.216 | 0.916 | 0.132 | 1.0197 |
|  | 1:2 | 0 | 0.938 | 0.003 | 0.932 | -0.011 | 0.897 | 0.104 | 0.920 | 0.066 | 1.0208 |
|  | 1:4 | 0 | 0.932 | -0.034 | 0.943 | -0.045 | 0.903 | 0.088 | 0.933 | 0.067 | 1.0418 |
|  | 1:1 | 1 | 0.929 | 0.030 | 0.938 | 0.023 | 0.753 | 0.216 | 0.916 | 0.132 | 1.0190 |
|  | 1:2 | 1 | 0.938 | 0.003 | 0.932 | -0.010 | 0.897 | 0.104 | 0.920 | 0.066 | 1.0210 |
|  | 1:4 | 1 | 0.932 | -0.033 | 0.943 | -0.045 | 0.903 | 0.088 | 0.933 | 0.067 | 1.0419 |
| *Hierarchical* |
|  | 1:1 | 0 | 0.937 | 0.014 | 0.947 | 0.015 | 0.759 | 0.161 | 0.922 | 0.122 | 1.0272 |
|  | 1:2 | 0 | 0.938 | -0.006 | 0.935 | -0.022 | 0.904 | 0.092 | 0.924 | 0.052 | 1.0256 |
|  | 1:4 | 0 | 0.935 | -0.038 | 0.946 | -0.050 | 0.904 | 0.077 | 0.937 | 0.058 | 1.0448 |
|  | 1:1 | 1 | 0.935 | 0.016 | 0.947 | 0.015 | 0.759 | 0.161 | 0.922 | 0.122 | 1.0280 |
|  | 1:2 | 1 | 0.938 | -0.006 | 0.935 | -0.022 | 0.904 | 0.092 | 0.924 | 0.052 | 1.0258 |
|  | 1:4 | 1 | 0.935 | -0.038 | 0.946 | -0.050 | 0.904 | 0.077 | 0.937 | 0.058 | 1.0449 |
| *Mantel-Haenszel* |
|  | 1:1 | 0 | 0.946 | 0.027 | 0.959 | 0.031 | 0.902 | 0.125 | 0.946 | 0.129 | NA |
|  | 1:2 | 0 | 0.944 | 0.007 | 0.957 | 0 | 0.894 | 0.107 | 0.948 | 0.068 | NA |
|  | 1:4 | 0 | 0.955 | -0.020 | 0.959 | 0.011 | 0.898 | 0.087 | 0.938 | 0.116 | NA |
| a We assigned treatment vs. control group for the ratio of group sizesb deletion is a logical argument; zero means trials with zero in both arms are excluded from the analyses.c The Gelman and Rubin diagnostic is used to check the convergence of multiple mcmc chains run in parallel.d Percentage of trials with no events in both arms. |

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| Table S14. 95% coverage and bias for different scenarios of REs MA $log(OR)$ = 0.69 for $τ \~ lognormal(-4.06, 1.45^{2})$ |
| Prior for $ logit\left(p\_{ic}\right)$ | **Ratioa** | **Deletionb** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Coverage** | **Bias** | **Gel. & Rub. Statisticc** |
|  |  |  | $τ$ **= 0.2** | $τ$ **= 0.5** |  |
|  |  |  | **≤ 30%** d | **>30%** | **≤ 30%** | **>30%** |  |
| *normal(0, 10)* |  |  |  |  |
|  | 1:1 | 0 | 0.947 | 0.004 | 0.947 | -0.009 | 0.903 | 0.113 | 0.940 | 0.074 | 1.0205 |
|  | 1:2 | 0 | 0.931 | 0.012 | 0.936 | -0.025 | 0.896 | 0.104 | 0.928 | 0.084 | 1.0163 |
|  | 1:4 | 0 | 0.928 | -0.004 | 0.937 | -0.037 | 0.901 | 0.087 | 0.915 | 0.085 | 1.0211 |
|  | 1:1 | 1 | 0.947 | 0.004 | 0.947 | -0.009 | 0.903 | 0.113 | 0.940 | 0.074 | 1.0333 |
|  | 1:2 | 1 | 0.931 | 0.012 | 0.936 | -0.024 | 0.896 | 0.104 | 0.928 | 0.084 | 1.0290 |
|  | 1:4 | 1 | 0.928 | -0.004 | 0.937 | -0.038 | 0.901 | 0.087 | 0.915 | 0.085 | 1.0349 |
| *normal(0, 100)* |
|  | 1:1 | 0 | 0.936 | 0.053 | 0.940 | 0.089 | 0.881 | 0.165 | 0.917 | 0.172 | 1.0213 |
|  | 1:2 | 0 | 0.928 | 0.047 | 0.932 | 0.041 | 0.882 | 0.141 | 0.904 | 0.151 | 1.0167 |
|  | 1:4 | 0 | 0.929 | 0.022 | 0.934 | 0.007 | 0.888 | 0.114 | 0.911 | 0.139 | 1.0210 |
|  | 1:1 | 1 | 0.936 | 0.053 | 0.940 | 0.089 | 0.881 | 0.165 | 0.917 | 0.172 | 1.0374 |
|  | 1:2 | 1 | 0.928 | 0.047 | 0.931 | 0.041 | 0.882 | 0.141 | 0.904 | 0.151 | 1.0297 |
|  | 1:4 | 1 | 0.929 | 0.022 | 0.934 | 0.008 | 0.888 | 0.114 | 0.911 | 0.139 | 1.0354 |
| *Hierarchical* |
|  | 1:1 | 0 | 0.941 | 0.022 | 0.942 | 0.054 | 0.900 | 0.127 | 0.923 | 0.138 | 1.0303 |
|  | 1:2 | 0 | 0.928 | 0.018 | 0.933 | 0.018 | 0.895 | 0.109 | 0.911 | 0.119 | 1.0240 |
|  | 1:4 | 0 | 0.933 | 0 | 0.937 | -0.016 | 0.903 | 0.092 | 0.917 | 0.108 | 1.0223 |
|  | 1:1 | 1 | 0.941 | 0.022 | 0.942 | 0.054 | 0.900 | 0.127 | 0.923 | 0.137 | 1.0626 |
|  | 1:2 | 1 | 0.928 | 0.018 | 0.933 | 0.017 | 0.895 | 0.109 | 0.911 | 0.118 | 1.0407 |
|  | 1:4 | 1 | 0.932 | 0 | 0.937 | -0.018 | 0.903 | 0.092 | 0.917 | 0.109 | 1.0386 |
| *Mantel-Haenszel* |
|  | 1:1 | 0 | 0.951 | 0.037 | 0.966 | 0.060 | 0.909 | 0.136 | 0.954 | 0.153 | NA |
|  | 1:2 | 0 | 0.934 | 0.024 | 0.959 | 0.027 | 0.895 | 0.121 | 0.937 | 0.131 | NA |
|  | 1:4 | 0 | 0.944 | 0.008 | 0.963 | 0.007 | 0.895 | 0.104 | 0.934 | 0.106 | NA |
| a We assigned treatment vs. control group for the ratio of group sizesb deletion is a logical argument; zero means trials with zero in both arms are excluded from the analyses.c The Gelman and Rubin diagnostic is used to check the convergence of multiple mcmc chains run in parallel.d Percentage of trials with no events in both arms. |

**Figures**

**Figure S1.** Coverage probability of 95% CIs and bias of $ log⁡(OR\_{i}) $estimate for RE method with $τ \~ unif(0, 2)$ for different scenarios of $log⁡(OR\_{i}) \~ normal\left(0, 0.2\right)$ &$ normal\left(0, 0.5\right) $(trials with no events in both arms are included)

**Figure S2.** Coverage probability of 95% CIs and bias of$ log⁡(OR\_{i}) $estimate for RE method with $τ \~ unif(0, 2)$ for different scenarios of $log⁡(OR\_{i}) \~ normal\left(0.69, 0.5\right)$ &$ normal\left(0.69, 0.5\right) $(trials with no events in both arms are included)

**Figure S3.** Coverage probability of 95% CIs and bias of$ log⁡(OR\_{i}) $estimate for RE method with $τ \~ exp(2)$ for different scenarios of$ log⁡(OR\_{i}) \~ normal\left(0, 0.2\right)$ &$ normal\left(0, 0.5\right) $(trials with no events in both arms are included)

**Figure S4.** Coverage probability of 95% CIs and bias of$ log⁡(OR\_{i}) $estimate for RE method with $τ \~ exp(2)$ for different scenarios of $log⁡(OR\_{i}) \~ normal\left(0.69, 0.2\right)$ &$ normal\left(0.69, 0.2\right) $(trials with no events in both arms are included)

**Figure S5.** Coverage probability of 95% CIs and bias of$ log⁡(OR\_{i}) $estimate for RE method with $τ \~ lognormal(-4.06, 1.45^{2})$ for different scenarios of$ log⁡(OR\_{i}) \~ normal\left(0, 0.2\right)$ &$ normal\left(0, 0.5\right) $(trials with no events in both arms are included)

**Figure S6.** Coverage probability of 95% CIs and bias of$ log⁡(OR\_{i}) $estimate for RE method with $τ \~ lognormal\left(-4.06, 1.45^{2}\right) $for different scenarios of $log⁡(OR\_{i}) \~ normal\left(0.69, 0.2\right)$ &$ normal\left(0.69, 0.2\right) $(trials with no events in both arms are included)

References

LANE, P. W. 2013. Meta-analysis of incidence of rare events. *Stat Methods Med Res,* 22**,** 117-32.