SUPPLEMENTARY DATA

SEARCH STRATEGY

PubMed/Medline: (((((("myocardial"[All Fields] AND "infarction"[All Fields]) OR "st elevation myocardial infarction"[All Fields] AND "myocardial infarction"[MeSH Terms] OR ("myocardial"[All Fields] AND "infarction"[All Fields]) OR "myocardial infarction"[All Fields] AND "revascularisation"[All Fields] OR "revascularisations"[All Fields] OR "revascularise"[All Fields] OR "revascularised"[All Fields] OR "revascularising"[All Fields] OR "revascularization"[All Fields] OR "revascularizations"[All Fields] OR "revascularize"[All Fields] OR "revascularized"[All Fields] OR "revascularizes"[All Fields] OR "revascularizing"[All Fields] AND "multivessel"[All Fields] OR "multivessels"[All Fields] AND ("complete"[All Fields] OR "completed"[All Fields] OR "completely"[All Fields] OR "completeness"[All Fields] OR "completer"[All Fields] OR "completers"[All Fields] OR "completes"[All Fields] OR "completing"[All Fields] OR "completion"[All Fields] OR "completions"[All Fields]) AND ("revascularisation"[All Fields] OR "revascularisations"[All Fields] OR "revascularise"[All Fields] OR "revascularised"[All Fields] OR "revascularising"[All Fields] OR "revascularization"[All Fields] OR "revascularizations"[All Fields] OR "revascularize"[All Fields] OR "revascularized"[All Fields] OR "revascularizes"[All Fields] OR "revascularizing"[All Fields]) AND ("culprit"[All Fields] OR "culprits"[All Fields]) AND ("revascularisation"[All Fields] OR "revascularisations"[All Fields] OR "revascularise"[All Fields] OR "revascularised"[All Fields] OR "revascularising"[All Fields] OR "revascularization"[All Fields] OR "revascularizations"[All Fields] OR "revascularize"[All Fields] OR "revascularized"[All Fields] OR "revascularizes"[All Fields] OR "revascularizing"[All Fields]) AND ("multivessel"[All Fields] OR "multivessels"[All Fields]) AND ("revascularisation"[All Fields] OR "revascularisations"[All Fields] OR "revascularise"[All Fields] OR "revascularised"[All Fields] OR "revascularising"[All Fields] OR "revascularization"[All Fields] OR "revascularizations"[All Fields] OR "revascularize"[All Fields] OR "revascularized"[All Fields] OR "revascularizes"[All Fields] OR "revascularizing"[All Fields])))) AND ("percutaneous coronary intervention"[MeSH Terms] OR ("percutaneous"[All Fields] AND

"coronary"[All Fields] AND "intervention"[All Fields]) OR "percutaneous coronary intervention"[All Fields]) AND ("stent s"[All Fields] OR "stentings"[All Fields] OR "stents"[MeSH Terms] OR "stents"[All Fields] OR "stent"[All Fields] OR "stented"[All Fields] OR "stenting"[All Fields])) OR ("clinical trials as topic"[MeSH Terms] OR ("clinical"[All Fields] AND "trials"[All Fields] AND "topic"[All Fields]) OR "clinical trials as topic"[All Fields] OR "trial"[All Fields] OR "trial s"[All Fields] OR "trialed"[All Fields] OR "trialing"[All Fields] OR "trials"[All Fields]) OR (("random allocation"[MeSH Terms] OR ("random"[All Fields] AND "allocation"[All Fields]) OR "random allocation"[All Fields] OR "random"[All Fields] OR "randomization"[All Fields] OR "randomized"[All Fields] OR "randomisation"[All Fields] OR "randomisations"[All Fields] OR "randomise"[All Fields] OR "randomised"[All Fields] OR "randomising"[All Fields] OR "randomizations"[All Fields] OR "randomize"[All Fields] OR "randomizes"[All Fields] OR "randomizing"[All Fields] OR "randomness"[All Fields] OR "randoms"[All Fields]) AND ("clinical trials as topic"[MeSH Terms] OR ("clinical"[All Fields] AND "trials"[All Fields] AND "topic"[All Fields]) OR "clinical trials as topic"[All Fields] OR "trial"[All Fields] OR "trial s"[All Fields] OR "trialed"[All Fields] OR "trialing"[All Fields] OR "trials"[All Fields])).

SUPPLEMENTARY METHOD

Search strategy, study selection, data abstraction and quality assessment

1. Search strategy and study selection

Search terms included the keywords and the corresponding MeSH for: “myocardial infarction”, “multivessel”, “revascularization”, “complete revascularization”, “multivessel revascularization”, “culprit only”, “percutaneous coronary intervention”, “trial”, and “randomized trial”. Inclusion criteria for further assessment were: *a)* stable STEMI patients undergoing successful PCI of a culprit lesion; *b)* evidence of multivessel CAD at the time of index PCI; *c)* random allocation during index hospitalization to either MV-PCI or culprit vessel only PCI; *d)* trial completion with ≥ 6-month clinical follow-up.

Comparisons focusing only on non-ST-segment elevation myocardial infarction (NSTEMI) patients or including stable patients with STEMI treated with revascularization strategies other than MV-PCI or culprit vessel only PCI, or studying participants in cardiogenic shock were ineligible for inclusion in the meta-analysis. Two investigators independently assessed publications for eligibility at the title and/or abstract level. A third investigator helped resolve possible divergences. If the studies met the inclusion criteria, they were subject to further analysis.

2. Data abstraction and quality assessment

Trial-level data concerning the overall number of patients, mean age, and proportions according to male sex, type 2 diabetes, arterial hypertension, or current and/or former smoking habit on admission, prior MI, and localization of MI were extracted from each trial. The risk of bias was evaluated independently for each study, in accordance with the Cochrane Risk of Bias (RoB 2) tool for randomized trials version 2 to assess the quality of included trials.[1] We did not assign composite quality scores.[2]

SUPPLEMENTARY METHOD

Statistical framework for network and pairwise meta-analyses

1. Network meta-analysis

The random-effects model served to estimate the risk for all outcomes. To account for imbalances in follow-up duration among included studies, we also calculated random-effects ratios (IRRs) with relative (95%CI) for the primary outcome. The quality of the network of evidence was assessed by evaluating weights, comparisons, and influence of individual studies for each outcome. Heterogeneity was assessed by the inconsistency factor (I^2), with <25% considered low, 25%-50% moderate, and > 50% high.[3] The consistency between direct and indirect evidence was evaluated using the node-splitting method. This approach involves partitioning the contributions to each comparison into direct

and indirect evidence and assessing the contrast between the two components of evidence.[4] Heterogeneity within study-to-study comparisons was further assessed by I^2 and prediction intervals for the expected treatment effect of a new study evaluating the timing of MV-PCI. For all outcomes, we provided a ranking of strategies based on *P*-values according to Rücker et al.[5] The *P*-values measures the average degree of certainty that a strategy or intervention is better than the competing ones. For instance, the *P*-value value is between 0 and 1: the higher the value, the greater the probability that a strategy or intervention is highly effective or safe, while a lower value shows that a strategy or intervention is ineffective. A series of sensitivity analyses were conducted for the primary outcome, with the risk estimates being restricted to those studies that employed angiography as the sole means of guiding MV-PCI, included only patients presenting with STEMI, used more potent P2Y12-inhibitors (namely, ticagrelor or prasugrel), had more stringent criteria for defining multivessel CAD (≥ 70% diameter stenosis in a nonculprit vessel) or enrolled a sample size of > 500 participants. The impact of small study effects and publication bias on the primary outcome was further examined by means of a comparison-adjusted funnel plot and Egger's linear regression test.

2. Pairwise meta-analysis

For this analysis, study-level risk estimates were pooled using the Mantel-Haenszel random-effects model with Hartung-Knapp adjustment. Between-study heterogeneity was quantified using the I^2 statistic accompanied by a chi-square test, and between-study variance was measured using the Paule-Mandel estimator for tau2.[6] Importantly, the use of the Paule-Mandel method or estimating tau2 in combination with the Hartung-Knapp adjustment broadens the CIs for risk estimates, allowing for a better assessment of statistical uncertainty.[7] For the primary outcome, we displayed also the 95% prediction interval of the pooled estimate.[8] For all outcomes of interest we also calculated the risk difference (x 100) with 95%CI using the Mantel-Haenszel random-effects model with Hartung-Knapp adjustment.

Table 1 of the supplementary data

PRISMA network meta-analysis checklist

Section/topic	Item #	Checklist item	Reported on
Title			
	1	Identify the report as a systematic review incorporating a network meta-analysis (or related form of meta-analysis)	Title
Abstract			
Structured summary	2	Provide a structured summary including, as applicable: a) Background: main objectives b) Methods: data sources (study eligibility criteria, participants, and interventions), study appraisal, and synthesis methods, such as network meta-analysis c) Results: number of studies and participants identified, summary estimates with corresponding confidence/credible intervals. Treatment rankings may also be discussed. Authors may choose to summarize pairwise comparisons against a chosen treatment included in their analyses for brevity d) Discussion/conclusions: limitations, conclusions and implications of findings e) Other: primary source of funding, systematic review registration number with registry name	Abstract
Introduction			
Rationale	3	Describe the rationale for the review in the context of what is already known, including mention of why a network meta-analysis has been conducted	Introduction
Objectives	4	Provide an explicit statement of questions being addressed, with reference to participants, interventions, comparisons, outcomes, and study design (PICOS[a])	Introduction
Methods			
Protocol and registration	5	Indicate whether a review protocol exists and if and where it can be accessed (eg, web address); and, if available, provide registration information, including registration number	Methods
Eligibility criteria	6	Specify study characteristics (eg, PICOS, length of follow-up) and report characteristics (eg, years considered, language, publication status) used as criteria for eligibility, giving rationale. Clearly describe eligible treatments included in	Methods

		the treatment network, and note whether any have been clustered or merged into the same node (with justification)	
Information sources	7	Describe all information sources (eg, databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched	Methods
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated	Methods; Supplementary data
Study selection	9	State the process for selecting studies (ie, screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis)	Methods; Supplementary data
Data collection process	10	Describe method of data extraction from reports (eg, piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators	Methods; Supplementary data
Data items	11	List and define all variables for which data were sought (eg, PICOS, funding sources) and any assumptions and simplifications made	Methods; Supplementary data
Geometry of the network	S1	Describe methods used to explore the geometry of the treatment network under study and potential biases related to it. This should include how the evidence base has been graphically summarized for presentation, and what characteristics were compiled and used to describe the evidence base to readers	Methods; Supplementary data
Risk of bias within individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis	Methods; Supplementary data
Summary measures	13	State the principal summary measures (eg, risk ratio, difference in means). Also describe the use of additional summary measures assessed, such as treatment rankings and surface under the cumulative ranking curve (SUCRA) values, as well as modified approaches used to present summary findings from meta-analyses	Methods
Planned methods of analysis	14	Describe the methods of handling data and combining results of studies for each network meta-analysis. This should include, but not be limited to: • Handling of multi-arm trials • Selection of variance structure • Selection of prior distributions in Bayesian analyses • Assessment of model fit	Methods

Assessment of inconsistency	S2	Describe the statistical methods used to evaluate the agreement of direct and indirect evidence in the treatment network(s) studied. Describe efforts taken to address its presence when found	Methods; Supplementary data
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (eg, publication bias, selective reporting within studies)	Methods; Supplementary data
Additional analyses	16	Describe methods of additional analyses if done, indicating which were pre-specified. This may include, but not be limited to, the following: • Sensitivity or subgroup analyses • Meta-regression analyses • Alternative formulations of the treatment network • Use of alternative prior distributions for Bayesian analyses (if applicable)	Methods; Supplementary data
Results[b]			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram	Results
Presentation of network structure	S3	Provide a network graph of the included studies to enable visualization of the geometry of the treatment network	Results
Summary of network geometry	S4	Provide a brief overview of characteristics of the treatment network. This may include commentary on the abundance of trials and randomized patients for the different interventions and pairwise comparisons in the network, gaps of evidence in the treatment network, and potential biases reflected by the network structure	Results
Study characteristics	18	For each study, present characteristics for which data were extracted (eg, study size, PICOS, follow-up period) and provide the citations	Results
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment	Methods; Supplementary data
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: *a)* simple summary data for each intervention group, and *b)* effect estimates and confidence intervals. Modified approaches may be needed to deal with information from larger networks	Results
Synthesis of results	21	Present results of each meta-analysis done, including confidence/credible intervals. In larger networks, authors may focus on comparisons	Results; Supplementary data

		versus a particular comparator (eg, placebo or standard care), with full findings presented in an appendix. League tables and forest plots may be considered to summarize pairwise comparisons. If additional summary measures were explored (such as treatment rankings), these should also be presented	
Exploration for inconsistency	S5	Describe results from investigations of inconsistency. This may include such information as measures of model fit to compare consistency and inconsistency models, *P* values from statistical tests, or summary of inconsistency estimates from different parts of the treatment network.	Results; Supplementary data
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies for the evidence base being studied	Results; Supplementary data
Results of additional analyses	23	Give results of additional analyses, if done (eg, sensitivity or subgroup analyses, meta-regression analyses, alternative network geometries studied, alternative of prior distributions for Bayesian analyses, and so forth)	Results
Discussion			
Summary of evidence	24	Summarize the main findings, including the strength of evidence for each main outcome; consider their relevance to key groups (eg, healthcare providers, users, and policymakers).	Discussion
Limitations	25	Discuss limitations at study and outcome level (eg, risk of bias), and at review level (eg, incomplete retrieval of identified research, reporting bias). Comment on the validity of the assumptions, such as transitivity and consistency. Comment on any concerns regarding network geometry (eg, avoidance of certain comparisons)	Discussion
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research	Conclusions
Funding			
Funding	27	Describe sources of funding for the systematic review and other support (eg, supply of data). Role of funders for the systematic review. This should also include information regarding whether funding has been received from manufacturers of treatments in the network and/or whether some of the authors are content experts with professional conflicts of interest that could affect use of treatments in the network	Funding

[a] PICOS format (Population; Intervention; Comparison; Outcomes; Studies).

[b] Authors may wish to plan for use of appendices to present all relevant information in full detail for items in this section.

Table 2 of the supplementary data

Definitions of primary and main secondary outcomes among trials included in the analysis

Trial	Death of any cause	Cardiovascular death	Myocardial infarction	Unplanned ischemia-driven revascularization
BioVasc[9]	Death from any cause	Death from cardiovascular cause	Modified 3rd universal definition (if cardiac troponin values are already elevated or have been recently elevated, new ischemic symptoms ≥ 20 min and evidence of unequivocally new ischemic ECG changes were required)	Any revascularization prompted by dynamic ECG changes, new rise in cardiac enzymes, or both
CompareAcute[10]	Death from any cause	Death from cardiac cause	Periprocedural during PCI (< 48 hours after PCI): any rise of CKMB > 3 times ULN; during CABG (< 7 days after CABG): rise in the CK-MB level of 5 times ULN; in the setting of evolving MI: *a)* if the peak total CK (or CK-MB) from the index MI has not yet been reached: recurrent chest pain lasting > 20 minutes (or new ECG changes consistent with MI) and the peak CK (or CK-MB in absence of CK) level measured < 24 hours after the event is elevated by at least 50% above the previous level; *b)* if the elevated CK (or CK-MB) levels from the index MI are falling or have returned to normal < 24 hours post-index PCI: either a new elevation of CK > 2 x ULN < 24 hours post-index PCI if the CK level has returned to < ULN or a rise by > 50%	All first revascularizations (elective or urgent) and that were clinically indicated or not between the time of the index PCI and follow-up at 12 months

			above the previous nadir level if the CK level has not returned to < ULN. Spontaneous: typical rise and gradual fall (troponin) or more rapid rise and fall (CK-MB) of biochemical markers of myocardial necrosis with at least one of the following: ischemic symptoms; development of pathologic Q waves on the ECG; ECG changes indicative of ischemia (ST-segment elevation or depression); pathologic findings of an acute MI.	
COMPLETE[11]	Death from any cause	Death with a clear cardiovascular or unknown cause	Modified 3rd universal definition (if cardiac troponin values are already elevated or have been recently elevated, new ischemic symptoms ≥ 20 min and evidence of unequivocally new ischemic ECG changes were required)	Any revascularization due to ischemic signs or symptoms
CvLPRIT[12]	Death from any cause	Death from any cardiac causes, or other vascular causes (eg, pulmonary embolism, aortic dissection)	3rd universal definition	Target lesion re-interventions inside the implanted stent or within 5 mm proximally or distally or repeated interventions in the same vessel; PCI to lesions not identified previously; CABG for new symptoms or complications of PCI
DANAMI-3-PRIMULTI[13]	Death from any cause	Any death unless clearly attributed to another cause	Modified 3rd universal definition (if cardiac troponin values are already elevated or have been recently elevated, new ischemic symptoms ≥ 20 min and evidence of unequivocally new ischemic ECG changes were required)	Urgent and non-urgent PCI of lesions in non-infarct related arteries due to (subjective or objective) ischemic signs or symptoms
FIRE[14]	Death from any cause	Any death resulting from cardiac causes	4th universal definition	Any revascularization due to ischemic signs or symptoms

Hamza M, et al.[15]	Death from any cause	N/R	N/R	Any ischemia-driven revascularization by PCI or CABG
HELP AMI[16]	Death from any cause	N/R	N/R	Any revascularization involving either culprit vessel or nonculprit vessel
MULTISTARS AMI[17]	Death from any cause	Any death due to a clear cardiac cause (eg, MI, low-output failure, fatal arrhythmia), or unknown cause (unwitnessed death)	Modified 3rd universal definition (rise of cardiac biomarkers and ≥ 1 of the following: symptoms of ischemia, ECG changes, non-invasive imaging evidence for myocardial ischemia, intracoronary thrombus formation by coronary angiography)	Any unplanned revascularization due to angina symptoms, new ischemic ECG changes, or signs of reversible myocardial ischemia on non-invasive imaging
Politi L, et al.[18]	Death from any cause	Any death unless clearly attributed to another cause	N/R	Any PCI or CABG occurring after the baseline procedure and justified by recurrent symptoms, re-infarction or objective evidence of significant ischemia on provocative testing
PRAMI[19]	Death from any cause	Any death unless clearly attributed to another cause	Symptoms of cardiac ischemia and a troponin level > 99th centile. Recurrent MI (< 14 days after randomization): new ECG evidence of STEMI or LBBB and angiographic evidence of coronary-artery occlusion	Any revascularization by PCI or CABG

CABG, coronary artery bypass-graft: CK-MB, creatine kinase-MB; ECG, electrocardiogram; LBBB, left-bundle branch block; MI, myocardial infarction; N/R, not reported; PCI, percutaneous coronary intervention; STEMI; ST-segment elevation myocardial infarction; ULN, upper level of normal.

Table 3 of the supplementary data

Ranking of revascularization strategies for each outcome of interest

Outcome	Strategy*	*P*-value
Death of any cause		
	Staged MV-PCI (index)	.78
	Staged MV-PCI (subsequent)	.60
	Same sitting MV-PCI	.57
	Culprit vessel only PCI	.05
Cardiovascular death		
	Same sitting MV-PCI	.75
	Staged MV-PCI (index)	.64
	Staged MV-PCI (subsequent)	.60
	Culprit vessel only PCI	.01
Myocardial infarction		
	Same sitting MV-PCI	.99
	Staged MV-PCI (index)	.67
	Staged MV-PCI (subsequent)	.17
	Culprit vessel only PCI	.16
Unplanned ischemia-driven revascularization		
	Staged MV-PCI (index)	.86
	Same sitting MV-PCI	.80
	Staged MV-PCI (subsequent)	.17
	Culprit vessel only PCI	.17
Major bleeding		
	Same sitting MV-PCI	.82
	Staged MV-PCI (index)	.72
	Staged MV-PCI (subsequent)	.33
	Culprit vessel only PCI	.14
Stroke		
	Culprit vessel only PCI	.70
	Same sitting MV-PCI	.69
	Staged MV-PCI (subsequent)	.49
	Staged MV-PCI (index)	.11
Acute kidney injury		
	Staged MV-PCI (subsequent)	.84
	Same sitting MV-PCI	.71
	Culprit vessel only PCI	.34
	Staged MV-PCI (index)	.11

MV-PCI, multivessel percutaneous coronary intervention; PCI, percutaneous coronary intervention.

* The revascularization strategies are listed from possibly the best to the worst option, to display which strategy in the network is likely to be the most efficacious and which the less.

Table 4 of the supplementary data

Evaluation of consistency of network meta-analysis model

Comparison	K	Prop	Nma	Direct	Indirect	RoR	Z	*P*-value
Same sitting MV-PCI: culprit vessel only PCI	3	0.69	0.78	0.65	1.15	0.56	-1.39	.16
Staged MV-PCI (index): culprit vessel only PCI	4	0.91	0.71	0.75	0.45	1.65	1.14	.25
Staged MV-PCI (subsequent): culprit vessel only PCI	0	0	0.76	-	0.76	-	-	-
Same sitting MV-PCI: staged MV-PCI (index)	1	0.11	1.08	1.50	1.04	1.44	0.55	.58
Same sitting MV-PCI: staged MV-PCI (subsequent)	3	0.51	1.02	1.28	0.80	1.61	1.15	.25
Staged MV-PCI (index): staged MV-PCI (subsequent)	2	0.89	0.94	0.90	1.44	0.62	-1.15	.25

Direct, estimated treatment effect derived from direct evidence; Indirect, estimated treatment effect derived from indirect evidence; K, number of studies providing direct evidence; MV-PCI, multivessel percutaneous coronary intervention; Nma, estimated treatment effect in network meta-analysis; PCI, percutaneous coronary intervention; Prop, direct evidence proportion; RoR, ratio of ratios; Z, value of test for disagreement (direct versus indirect).

Table 5 of the supplementary data

League of risk estimates for each outcome of interest from network meta-analysis

Outcome				
Death of any cause				
	Culprit vessel only PCI	1.55 0.97-2.45)	1.33 (1.03-1.73)	-
	1.29 (0.88-1.89)	Same sitting MV-PCI	1.50 (0.44-5.07)	1.29 (0.73-2.28)
	1.40 (1.09-1.80)	1.09 (0.73-1.62)	Staged MV-PCI (index)	0.89 (0.68-1.16)
	1.31 (0.94-1.84)	1.02 (0.68-1.53)	0.94(0.73-1.21)	Staged MV-PCI (subsequent)
Cardiovascular death				
	Culprit vessel only PCI	2.44 (1.20-4.97)	1.59 (1.09-2.31)	-
	1.84 (1.05-3.21)	Same sitting MV-PCI	2.00 (0.38-10.54)	1.14 (0.55-2.36)
	1.70 (1.19-2.42)	0.92 (0.52-1.61)	Staged MV-PCI (index)	0.93 (0.65-1.31)
	1.66 (1.05-2.63)	0.90 (0.52-1.57)	0.98 (0.70-1.36)	Staged MV-PCI (subsequent)
Myocardial infarction				
	Culprit vessel only PCI	2.52 (1.41-4.52)	1.49 (1.08-2.05)	-
	2.56 (1.67-3.93)	Same sitting MV-PCI	0.50 (0.09-2.63)	0.39 (0.24-0.63)
	1.48 (1.10-1.99)	0.58 (0.38-0.87)	Staged MV-PCI (index)	0.68 (0.54-0.86)
	1.00 (0.71-1.44)	0.39 (0.26-0.58)	0.68 (0.54-0.85)	Staged MV-PCI (subsequent)
Unplanned ischemia-driven revascularization				
	Culprit vessel only PCI	3.55 (1.46-8.63)	2.46 (1.16-5.20)	-
	2.68 (1.21-5.88)	Same sitting MV-PCI	0.75 (0.13-4.18)	0.51 (0.21-1.24)
	2.97 (1.48-5.94)	1.11 (0.46-2.66)	Staged MV-PCI (index)	0.18 (0.05-0.62)
	1.00 (0.38-2.62)	0.37 (0.17-0.82)	0.34 (0.13-0.85)	Staged MV-PCI (subsequent)
Major bleeding				
	Culprit vessel only PCI	1.80 (0.52-6.23)	1.16 (0.71-1.90)	-
	1.73 (0.83-3.61)	Same sitting MV-PCI	-	0.90 (0.50-1.63)

	1.16 (0.73-1.86)	0.67 (0.34-1.30)	Staged MV-PCI (index)	1.32 (0.81-2.16)
	1.55 (0.84-2.89)	0.90 (0.52-1.54)	1.33 (0.84-2.11)	Staged MV-PCI (subsequent)
Stroke				
	Culprit vessel only PCI	1.03 (0.15-7.20)	0.60 (0.27-1.37)	-
	0.96 (0.36-2.61)	Same sitting MV-PCI	-	0.84 (0.43-1.63)
	0.61 (0.28-1.31)	0.63 (0.26-1.36)	Staged MV-PCI (index)	1.32 (0.81-2.13)
	0.81 (0.34-1.91)	0.84 (0.44-1.58)	1.32 (0.83-2.11)	Staged MV-PCI (subsequent)
Acute kidney injury				
	Culprit vessel only PCI	1.82 (0.53-6.22)	0.91 (0.73-1.13)	-
	1.45 (0.69-3.05)	Same sitting MV-PCI	0.50 (0.05-5.38)	1.16 (0.56-2.42)
	0.91 (0.73-1.14)	0.63 (0.30-1.30)	Staged MV-PCI (index)	1.65 (0.95-2.87)
	1.57 (0.90-2.72)	1.08 (0.57-2.06)	1.72 (1.03-2.88)	Staged MV-PCI (subsequent)

MV-PCI, multivessel percutaneous coronary intervention; PCI, percutaneous coronary intervention.

Risk estimates are reported as risk ratio (95% confidence interval). A risk ratio < 1 means that the risk of having an event for the column therapy is lower than that for the row therapy.

Figure 1 of the supplemetary data. PRISMA network meta-analysis flow chart for the trial selection process. MV-PCI, multivessel percutaneous coronary intervention. PCI, percutaneous coronary intervention.

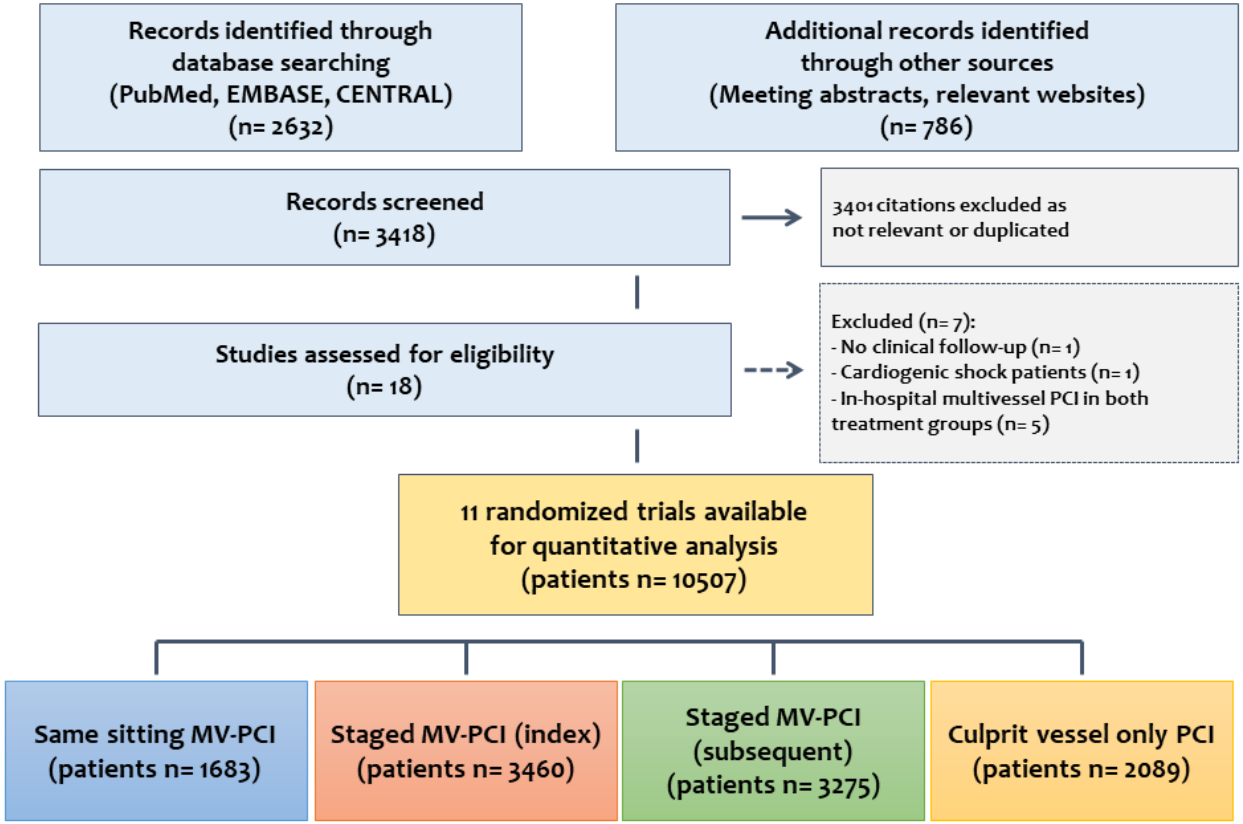


Figure 2 of the supplemetary data. Cochrane Risk of Bias tool for randomized trials (RoB 2). MV-PCI, multivessel percutaneous coronary intervention; PCI, percutaneous coronary intervention.

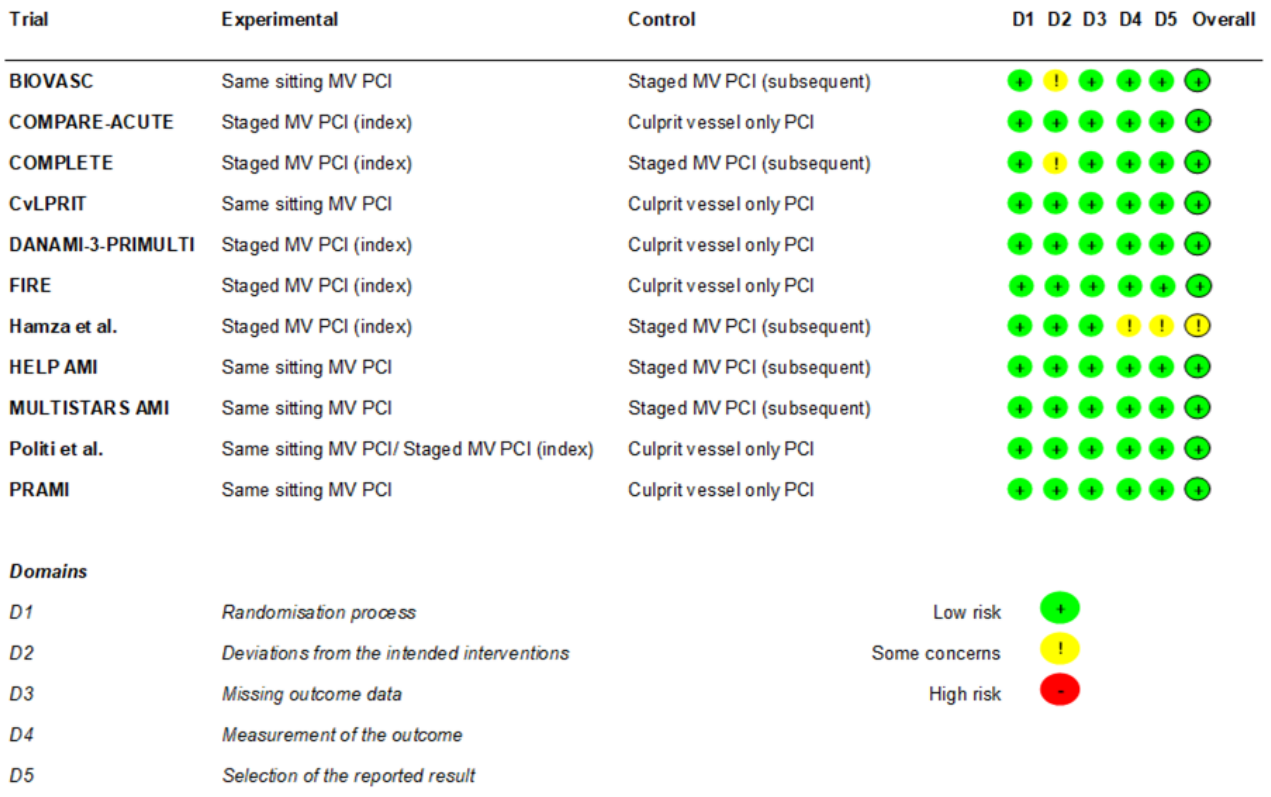


Figure 3 of the supplemetary data. Network of treatment strategies for all-cause death. The nodes in the graph layout correspond to the revascularization strategies and edges display the direct comparisons for all-cause death. The edge thickness is proportional to the number of comparisons available, whilst the colored area highlights the 3-arm trial. MV-PCI, multivessel percutaneous coronary intervention, PCI, percutaneous coronary intervention.

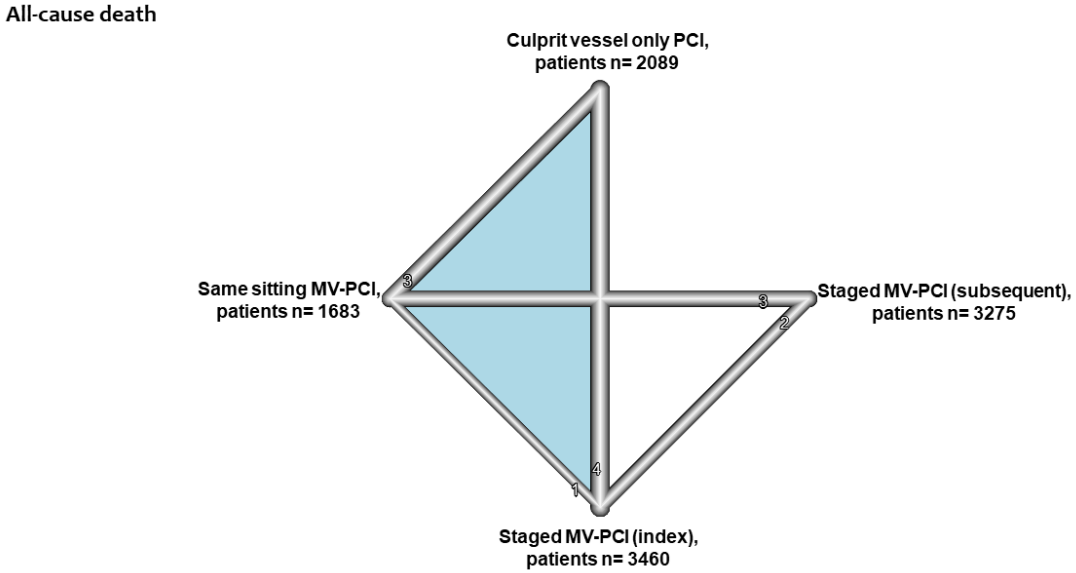


Figure 4 of the supplemetary data. Comparison-adjusted funnel plot for all-cause death. The assessment of publication bias in the network meta-analysis for all-cause death was performed by defining an order for the hypothesized publication bias mechanism. For this analysis, the trials of revascularization strategies were sorted from "culprit vessel only PCI" to "same sitting MV-PCI". This order served to define the sign of each effect in the plot. PCI, percutaneous coronary intervention; MV-PCI, multivessel percutaneous coronary intervention.

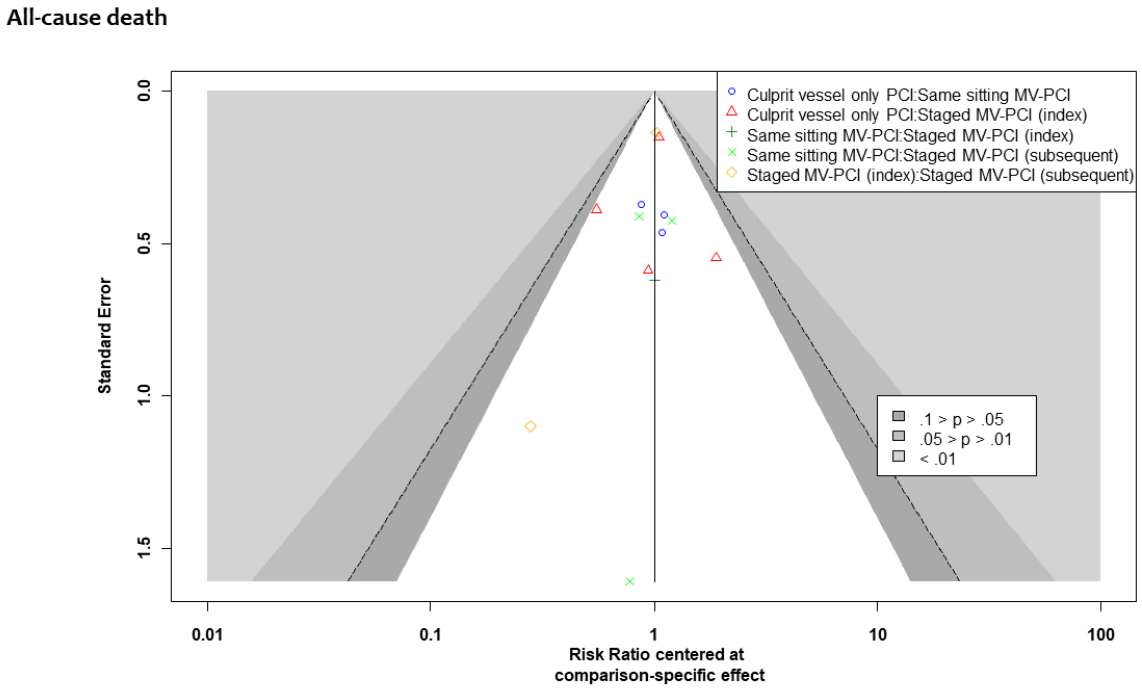
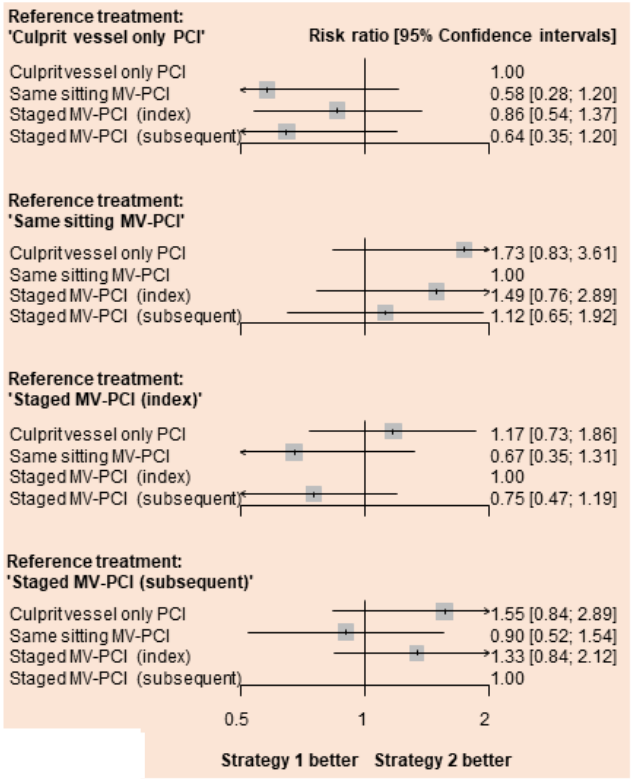
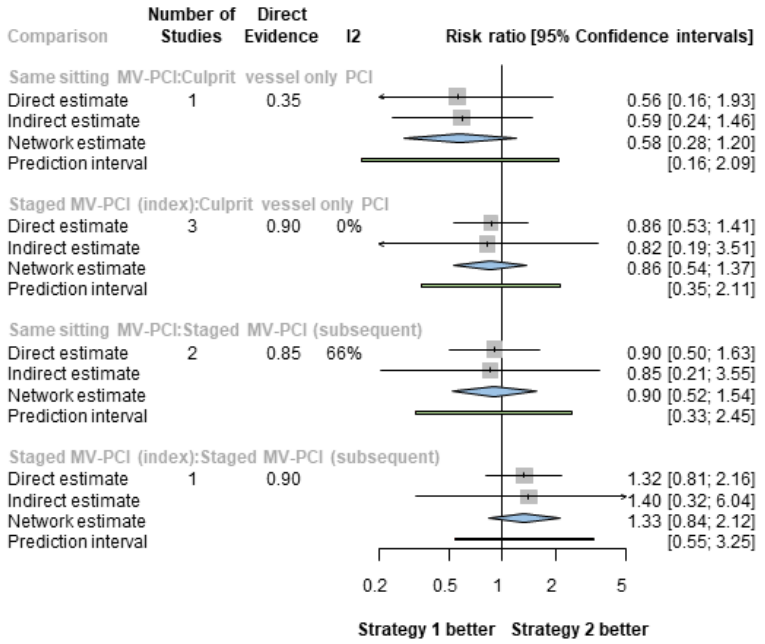


Figure 5 of the supplemetary data. Forest plots. A: forest plot from network meta-analysis for major bleeding. The forest plots of pooled risk ratios and 95%CI for major bleeding are derived by network meta-analysis. B: forest plot from node-split model analysis for major bleeding. The forest plots of pooled risk ratios and 95%CI for major bleeding are derived by a node-splitting analysis of inconsistency between cumulated direct and indirect evidence. The number under the label “direct evidence” describes the proportion of direct evidence within the network estimate. C: forest plot from network meta-analysis for stroke. The forest plots of pooled risk ratios and 95%CI for stroke are derived by network meta-analysis. D: forest plot from node-split model analysis for stroke. The forest plots of pooled risk ratios and 95%CI for stroke are derived by a node-splitting analysis of inconsistency between cumulated direct and indirect evidence. The number under the label “direct evidence” describes the proportion of direct evidence within the network estimate. E: forest plot from network meta-analysis for acute kidney injury. The forest plots of pooled risk ratios and 95%CI for acute kidney injury are derived by network meta-analysis. F: forest plot from node-split model analysis for acute kidney injury. The forest plots of pooled risk ratios and 95%CI for acute kidney injury are derived by a node-splitting analysis of inconsistency between cumulated direct and indirect evidence. The number under the label “direct evidence” describes the proportion of direct evidence within the network estimate. 95%CI, 95% confidence interval; MV-PCI, multivessel percutaneous coronary intervention; PCI, percutaneous coronary intervention.

Major bleeding

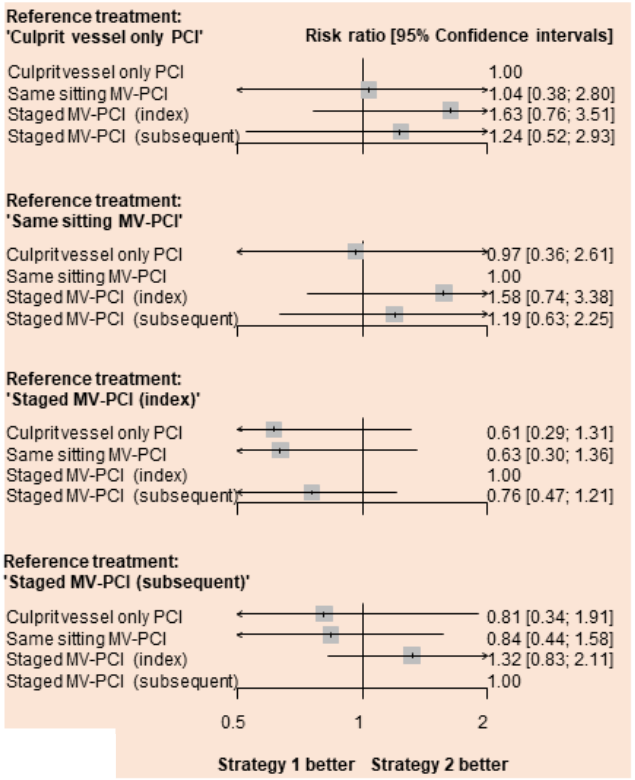
Number of trials	7
Number of pairwise comparisons	7
Number of treatments	4

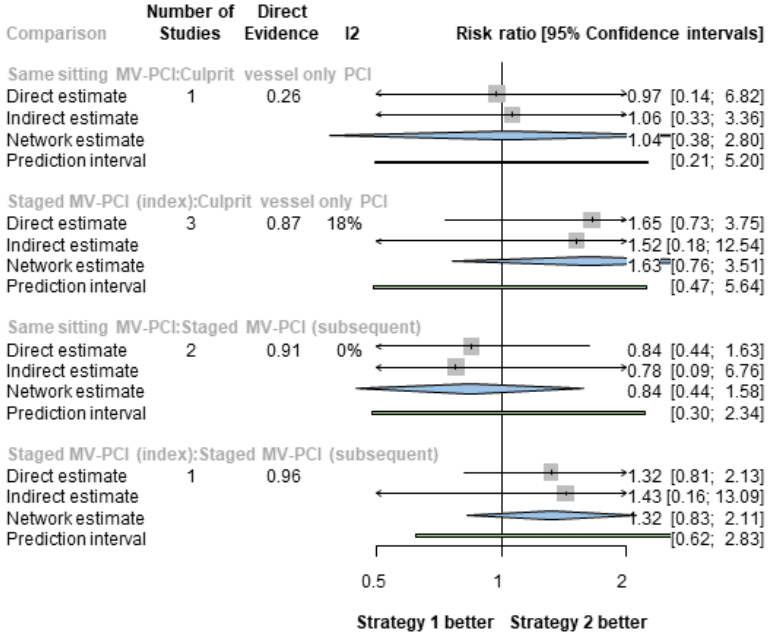




Stroke

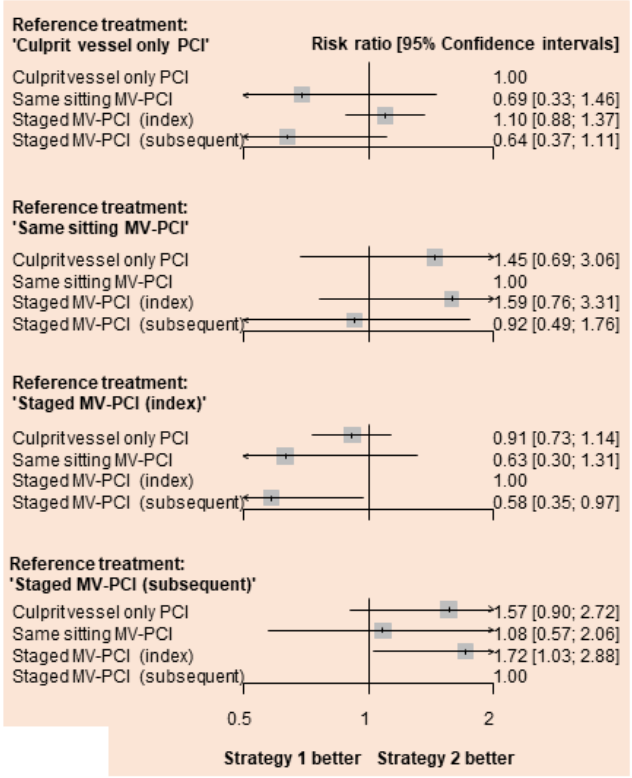
Number of trials	7
Number of pairwise comparisons	7
Number of treatments	4





Acute kidney injury

Number of trials	8
Number of pairwise comparisons	10
Number of treatments	4



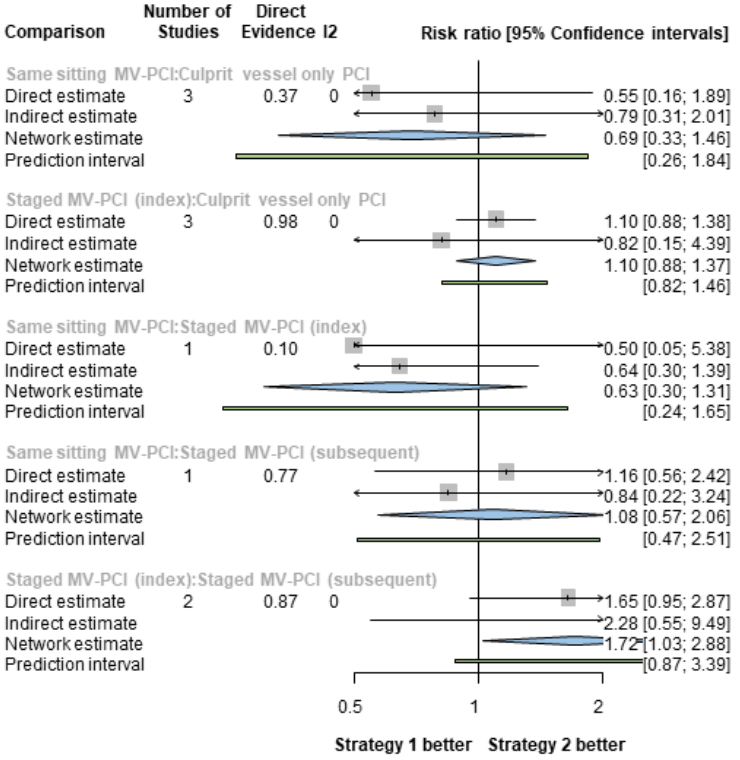
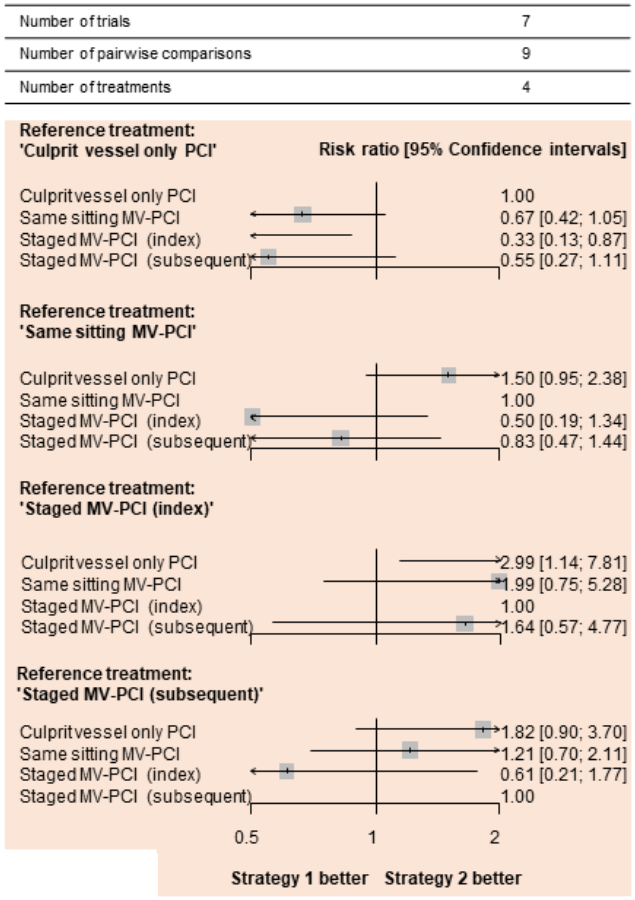
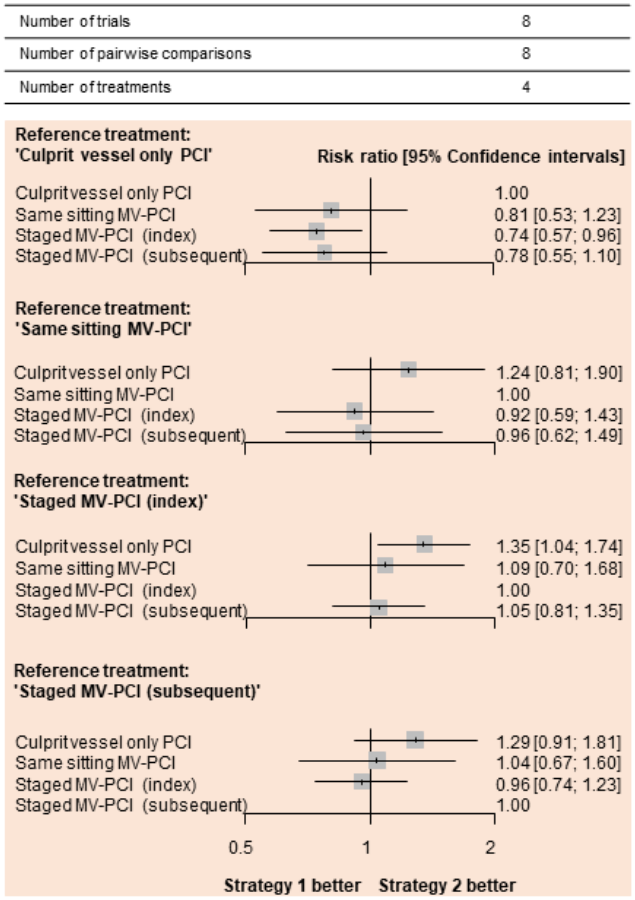


Figure 6 of the supplementary data. Forest plots. A: forest plot from network meta-analysis for all-cause death restricted to trials that used angiography alone to guide MV-PCI. The forest plots of pooled risk ratios and 95%CI are derived by network meta-analysis. B: forest plot from network meta-analysis for all-cause death restricted to trials in which more potent P2Y12-inhibitors were prescribed. The forest plots of pooled risk ratios and 95%CI are derived by network meta-analysis. C: forest plot from network meta-analysis for all-cause death restricted to trials which had more stringent criteria for defining multivessel CAD. The forest plots of pooled risk ratios and 95%CI are derived by network meta-analysis. 95%CI, 95% confidence interval; CAD, coronary artery disease; MV-PCI, multivessel percutaneous coronary intervention; PCI, percutaneous coronary intervention.

All-cause death





Number of trials	6
Number of pairwise comparisons	8
Number of treatments	4

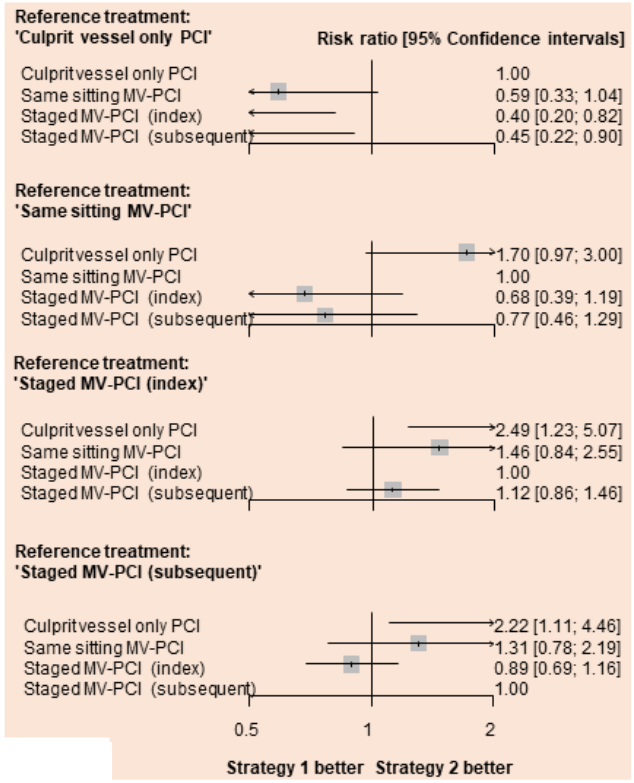
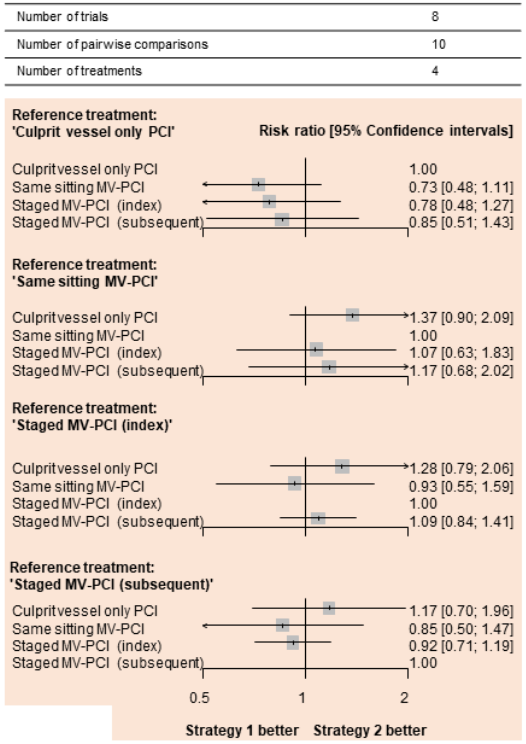


Figure 7 of the supplementary data. Forest plots. A: forest plot from network meta-analysis for all-cause death restricted to trials that included only patients with STEMI. The forest plots of pooled risk ratios and 95%CI are derived by network meta-analysis. B: forest plot from network meta-analysis for all-cause death restricted to trials enrolling > 500 participants. The forest plots of pooled risk ratios and 95%CI are derived by network meta-analysis. 95%CI, 95% confidence interval; MV-PCI, multivessel percutaneous coronary intervention; PCI: percutaneous coronary intervention; STEMI: ST-segment elevation myocardial infarction.



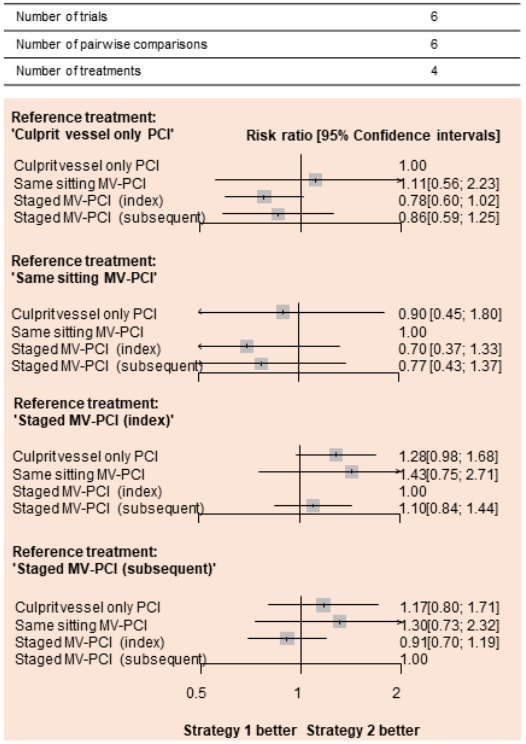


Figure 8 of the supplementary data. Forest plot from pairwise meta-analysis for all-cause death. Forest plot of risk ratio for all-cause death associated with a MV-PCI during index hospitalization strategy versus control. The group MV-PCI during index hospitalization includes participants allocated to a MV-PCI during either the same sitting or staged during the index hospitalization. The control group includes participants allocated to a MV-PCI during a subsequent hospitalization within 45 days or a culprit vessel only PCI. MV-PCI, multivessel percutaneous coronary intervention; PCI, percutaneous coronary intervention.

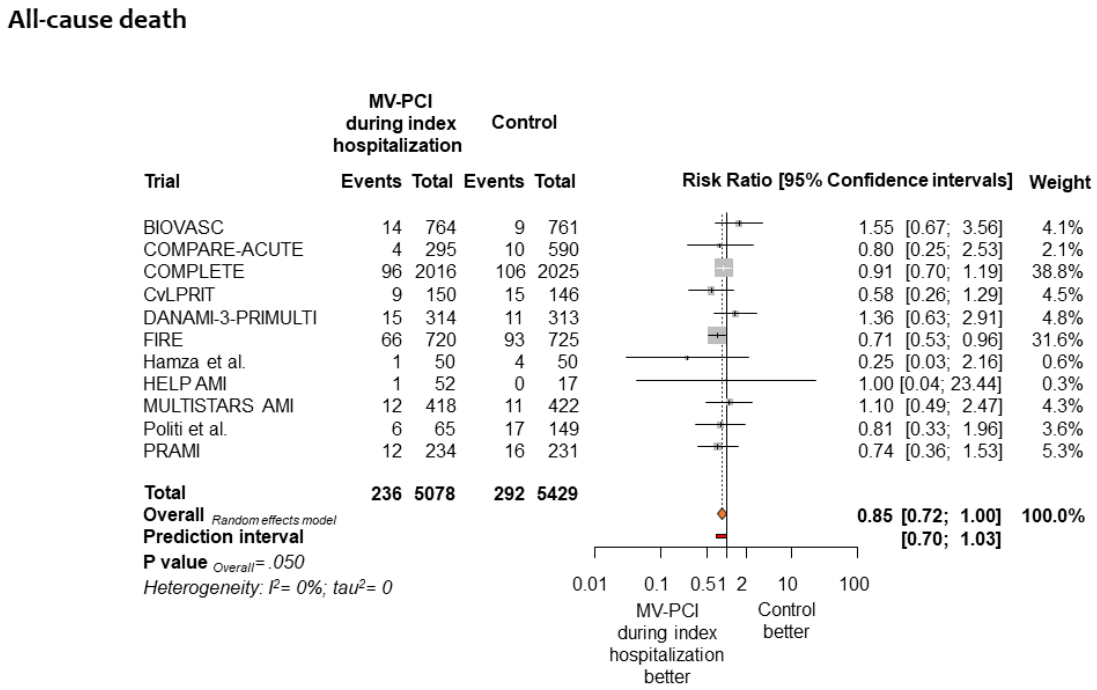
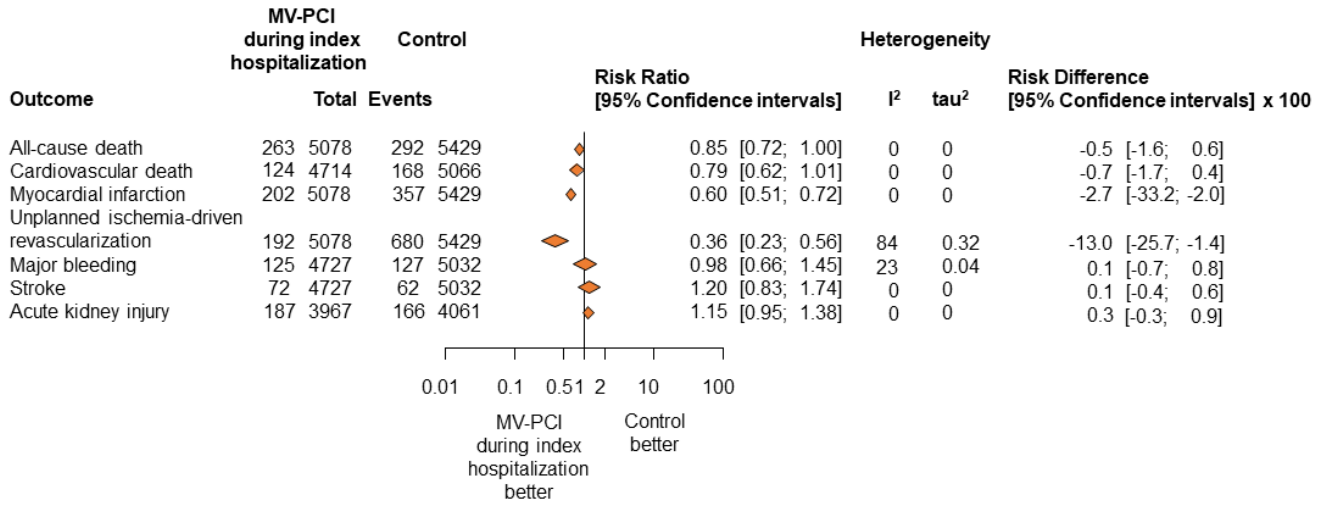


Figure 9 of the supplementary data. Forest plot from pairwise meta-analysis for other outcomes. Forest plot of summary risk ratios for other outcomes of interest associated with a MV-PCI during index hospitalization strategy versus control. Between-study heterogeneity was quantified using the I^2 statistic, and between-study variance with tau2. The risk difference between treatment groups has been expressed as percentage. The group MV-PCI during index hospitalization includes participants allocated to a MV-PCI during either the same sitting or staged during the index hospitalization. The control group includes participants allocated to a MV-PCI during a subsequent hospitalization within 45 days or a culprit vessel only PCI. MV-PCI, multivessel percutaneous coronary intervention; PCI, percutaneous coronary intervention.



REFERENCES OF SUPPLEMENTARY DATA

1. Sterne JAC, Savovic J, Page MJ, et al. RoB 2: a revised tool for assessing risk of bias in randomised trials. *BMJ*. 2019;366:l4898.

2. Juni P, Witschi A, Bloch R, Egger M. The hazards of scoring the quality of clinical trials for meta-analysis. *JAMA*. 1999;282:1054-1060.

3. Salanti G, Del Giovane C, Chaimani A, Caldwell DM, Higgins JP. Evaluating the quality of evidence from a network meta-analysis. *PloS one*. 2014;9:e99682.

4. Dias S, Welton NJ, Caldwell DM, Ades AE. Checking consistency in mixed treatment comparison meta-analysis. *Stat Med*. 2010;29:932-944.

5. Rucker G. Network meta-analysis, electrical networks and graph theory. *Res Synth Methods*. 2012;3:312-324.

6. Higgins JP, Altman DG, Gotzsche PC, et al. The Cochrane Collaboration's tool for assessing risk of bias in randomised trials. *BMJ*. 2011;343:d5928.

7. Higgins JPT, Thomas J, Chandler J, et al. Cochrane Handbook for Systematic Reviews of Interventions [Internet]. Chichester: Cochrane; 2023. Available at: https://training.cochrane.org/handbook.

8. IntHout J, Ioannidis JP, Rovers MM, Goeman JJ. Plea for routinely presenting prediction intervals in meta-analysis. *BMJ Open*. 2016;6:e010247.

9. Diletti R, den Dekker WK, Bennett J, et al. Immediate versus staged complete revascularisation in patients presenting with acute coronary syndrome and multivessel coronary disease [BIOVASC]: a prospective, open-label, non-inferiority, randomised trial. *Lancet*. 2023;401:1172-1182.

10. Smits PC, Abdel-Wahab M, Neumann FJ, et al. Fractional Flow Reserve-Guided Multivessel Angioplasty in Myocardial Infarction. *N Engl J Med*. 2017;376:1234-1244.

11. Mehta SR, Wood DA, Storey RF, et al. Complete Revascularization with Multivessel PCI for Myocardial Infarction. *N Engl J Med*. 2019;381:1411-1421.

12. Gershlick AH, Khan JN, Kelly DJ, et al. Randomized trial of complete versus lesion-only revascularization in patients undergoing primary percutaneous coronary intervention for STEMI and multivessel disease: the CvLPRIT trial. *J Am Coll Cardiol*. 2015;65:963-972.

13. Engstrøm T, Kelbæk H, Helqvist S, et al. Complete revascularisation versus treatment of the culprit lesion only in patients with ST-segment elevation myocardial infarction and multivessel disease [DANAMI-3—PRIMULTI]: an open-label, randomised controlled trial. *Lancet*. 2015;386:665-671.

14. Biscaglia S, Guiducci V, Escaned J, et al. Complete or Culprit-Only PCI in Older Patients with Myocardial Infarction. *N Engl J Med*. 2023;389:889-898.

15. Hamza M, Mahmoud N, Elgendy IY. A Randomized Trial of Complete Versus Culprit-Only Revascularization During Primary Percutaneous Coronary Intervention in Diabetic Patients With Acute ST Elevation Myocardial Infarction and Multi Vessel Disease. *J Interv Cardiol*. 2016;29:241-247.

16. Di Mario C, Mara S, Flavio A, et al. Single vs multivessel treatment during primary angioplasty: results of the multicentre randomised HEpacoat for cuLPrit or multivessel stenting for Acute Myocardial Infarction [HELP AMI] Study. *Int J Cardiovasc Intervent*. 2004;6:128-133.

17. Stähli BE, Varbella F, Linke A, et al. Timing of Complete Revascularization with Multivessel PCI for Myocardial Infarction. *N Engl J Med*. 2023;389:1368-1379.

18. Politi L, Sgura F, Rossi R, et al. A randomised trial of target-vessel versus multi-vessel revascularisation in ST-elevation myocardial infarction: major adverse cardiac events during long-term follow-up. *Heart*. 2010;96:662-667.

19. Wald DS, Morris JK, Wald NJ, et al. Randomized trial of preventive angioplasty in myocardial infarction. *N Engl J Med*. 2013;369:1115-1123.