SYSTEMATIC REVIEW AND META-ANALYSIS

Systematic Review and Network Meta-Analysis Comparing Bifurcation Techniques for Percutaneous Coronary Intervention

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BACKGROUND: Bifurcation lesions account for 20% of all percutaneous coronary interventions and represent a complex subset which are associated with lower procedural success and higher rates of restenosis. The ideal bifurcation technique, however, remains elusive.

METHODS AND RESULTS: Extensive search of the literature was performed to pull data from randomized clinical trials that met predetermined inclusion criteria. Conventional meta-analysis produced pooled relative risk (RR) and 95% CI of 2-stent technique versus provisional stent on prespecified outcomes. Both frequentist and Bayesian network meta-analyses were performed to compare bifurcation techniques. A total of 8318 patients were included from 29 randomized clinical trials. Conventional meta-analysis showed no significant differences in all-cause mortality, cardiac death, major adverse cardiac events, myocardial infarction, stent thrombosis, target lesion revascularization, and target vessel revascularization between 2-stent techniques and provisional stenting. Frequentist network meta-analysis revealed that double kissing crush was associated with lower cardiac death (RR, 0.57; 95% CI, 0.38–0.84), major adverse cardiac events (RR, 0.50; 95% CI, 0.39–0.64), myocardial infarction (RR, 0.60; 95% CI, 0.39–0.90), stent thrombosis (RR, 0.50; 95% CI, 0.28–0.88), target lesion revascularization, and target vessel revascularization when compared with provisional stenting. Double kissing crush was also superior to other 2-stent techniques, including T-stent or T and protrusion, dedicated bifurcation stent, and culotte.

CONCLUSIONS: Double kissing crush was associated with lower risk of cardiac death, major adverse cardiac events, myocardial infarction, stent thrombosis, target lesion revascularization, and target vessel revascularization compared with provisional stenting and was superior to other 2-stent techniques. Superiority of 2-stent strategy over provisional stenting was observed in subgroup meta-analysis stratified to side branch lesion length ≥10 mm.

Key Words: bifurcation technique ■ coronary ■ DK crush ■ percutaneous coronary intervention ■ provisional ■ stent ■ two-stent

See Editorial by Alasnag and Mamas

Bifurcation lesions account for up to 20% of all percutaneous coronary interventions (PCI) and have been associated with worse clinical outcomes when compared with non-bifurcation lesions.1,2 Over the years, several bifurcation techniques have been developed to improve procedural and clinical outcomes, but the ideal technique remains elusive.3 The European Bifurcation Club published its 14th consensus statement in 2019 and advocated for provisional stenting strategy as the standard technique.
for majority of bifurcation lesions.\textsuperscript{4} Upfront 2-stent approach should be reserved for select cases with appropriate lesion preparation, proximal optimization technique (POT) and final kissing balloon inflation (FKBI).\textsuperscript{4} Double kissing (DK) crush received a class IIB recommendation as the choice or upfront 2-stent technique.\textsuperscript{5}

Two previous Bayesian network meta-analysis have compared the outcomes between different bifurcation techniques but were limited by misclassification and lack of contemporary intervention practices in older trials.\textsuperscript{6,7} Additional trials comparing bifurcation techniques have since been published, therefore, we performed an updated network meta-analysis using both frequentist and Bayesian models to compare the various bifurcation techniques.

**CLINICAL PERSPECTIVE**

**What Is New?**
- We used both frequentist and Bayesian approaches of network meta-analysis in comparing different bifurcation techniques.
- We included the findings of newer trials, performed multiple sensitivity analyses, and incorporated results from trials on dedicated bifurcation stents to produce more robust indirect evidence.

**What Are the Clinical Implications?**
- Results of our conventional analysis demonstrated no benefit of 2-stent strategies over provisional stenting.
- Two-stent strategy should be favored over provisional stenting when lesion length of the side branch is >10 mm.
- Double kissing crush technique of bifurcation had more favorable clinical outcomes when compared with provisional stenting, crush, culotte, or T-stenting or T and protrusion.

**METHODS**

**Search Strategy and Inclusion Criteria**
The authors declare that all supporting data are available within the article. An extensive literature search was conducted by 2 authors (D.P. and S.A.) using the online libraries, PubMed, Medline, Embase, and Cochrane Library from inception to November 24, 2021. The search terms applied were “bifurcation,” “coronary,” and “randomized trial.” The inclusion criteria were as follows: (1) randomized controlled trials (RCTs) with 1 bifurcation technique in case group and another bifurcation technique in the control group; (2) pre-specified end points which included all-cause mortality, cardiac death, major adverse cardiac events (MACE), myocardial infarction (MI), stent thrombosis, target lesion revascularization (TLR), and target vessel revascularization (TVR). Multiple bifurcation techniques could be included in 1 arm if the percentage of each technique was specified. If an RCT had multiple publications, the latest data were collected. For 6 RCTs that included >1 bifurcation technique in 1 arm,\textsuperscript{8–13} outcomes were attributed to the predominantly used technique.

**Data Extraction and Quality Assessment**
Two authors (D.P. and S.A.) collaboratively reviewed full text articles to assess for predetermined eligibility. All the articles were perused for reference citations which were also included if eligible. For each selected RCT, author, published year, follow-up period, bifurcation techniques, duration of antiplatelet therapy, dual antiplatelet agent, and stent types were arranged into tables (Table 1 and Table S1). Inclusion and exclusion criteria of the RCTs were also summarized in Tables S2 and S3. Anatomical characteristics of bifurcation lesions, demographics, clinical presentation, procedural characteristics, definition of outcomes, and quantitative coronary angiography at baseline were extracted and further organized in Table 2 and Tables S3 through S6. The present meta-analysis adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines.\textsuperscript{14} Risk of biases were assessed using Cochrane Collaboration’s tool (Table S7).\textsuperscript{15} Only data from published papers that are publicly available were used, so the study was not under the purview of the institutional review board.

**Statistical Analysis**
For conventional meta-analysis, random effects model based on DerSimonian and Laird method was used to produce pooled relative risk (RR) and 95% CI of 2-stent technique versus provisional stent on prespecified outcomes. Haldane-Ascorbne corrections were made for zero-cell corrections. Egger and Begg-Mazumdar tests
## Table 1. Characteristics of Selected Trials

| Trial            | Author | Y      | Follow-up | DAPT | Left main | Total | Predominant bifurcation Technique n | Control |
|------------------|--------|--------|-----------|------|-----------|-------|------------------------------------|---------|
| EBC MAIN^9       | Hildick-Smith et al | 2021   | 1 y       | 6 mo | Yes       | 467   | Culotte (53%), T/TAP (32%), DK crush (5%), missing (7%) | 237     |
| NBBS IV^10       | Kumsars et al | 2020   | 2 y       | 12 mo| Yes       | 446   | Culotte (66%), crush (22%), T-stent (7%), others (6%)   | 228     |
| DEFINITION II^13 | Zhang et al | 2020   | 1 y       | 12 mo| Yes       | 653   | DK crush (78%), culotte (18%), TAP (3%), others (1%)   | 328     |
| DKCRUSH-V^16     | Chen et al | 2019   | 3 y       | 12 mo| Yes       | 482   | DK crush                                             | 240     |
| COBRA^17         | Bennett et al | 2018   | 5 y       | 12 mo| No        | 40    | DBS                                                | 150     |
| DKCRUSH-II^18    | Chen et al | 2017   | 5 y       | 12 mo| Yes       | 366   | Culotte                                             | 183     |
| BBK I^19         | Ferenc et al | 2016   | 1 y       | 6 mo | Yes       | 300   | Crush                                               | 150     |
| POLBOS II^20     | Gil et al | 2016   | 1 y       | 12 mo| Yes       | 202   | DBS                                                | 102     |
| EBC TWO^21       | Hildick-Smith et al | 2016   | 1 y       | 12 mo| No        | 200   | Culotte                                             | 97      |
| SMART-STRATEGY^22| Song et al | 2016   | 3 y       |      | Yes       | 258   | TAP                                                | 130     |
| Zhang et al      | Zhang et al | 2016   | 9 mo      | 12 mo| Yes       | 104   | Culotte                                             | 52      |
| Zheng et al      | Zheng et al | 2016   | 1 y       | 12 mo| Yes       | 300   | Crush                                               | 150     |
| DKCRUSH-III^25   | Chen et al | 2015   | 3 y       | 12 mo| Yes       | 415   | DK crush                                             | 208     |
| BBK I^18         | Ferenc et al | 2015   | 5 y       | 6 mo | No        | 202   | T-stent                                             | 101     |
| TRYTON^17        | Genereux et al | 2015   | 9 mo      | 6-12 mo| No    | 704   | DBS                                                | 355     |
| POLBOS II^20     | Gil et al | 2015   | 1 y       | 12 mo| Yes       | 243   | DBS                                                | 120     |
| PERFECT^29       | Kim et al | 2015   | 1 y       | 12 mo| No        | 419   | Crush                                               | 213     |
| NSTS^30          | Kervinen et al | 2013   | 3 y       | 6-12 mo| Yes    | 424   | Crush                                               | 209     |
| NBS^31           | Maeng et al | 2013   | 5 y       | 6-12 mo| Yes    | 404   | Crush (50%), culotte (21%), others (29%) | 202     |
| Ruiz-Salmeron et al (2013)^32 | Ruiz-Salmeron et al | 2013   | 9 mo      | 12 mo| No        | 65    | T-stent                                             | 34      |
| Ye et al (2012)^32| Ye et al | 2012   | 1 y       | 12 mo| No        | 68    | DK crush                                             | 38      |
| BBC ONE^33       | Hildick-Smith et al | 2010   | 9 mo      | 9 mo | No        | 500   | Crush (68.1%), culotte (30.2%), others (1.6%) | 250     |
| Lin et al (2010)^31 | Lin et al | 2010   | 8 mo      | 12 mo| No        | 108   | DK crush (65%), culotte (25%), others (10%) | 54      |
| Ye et al (2010)^33 | Ye et al | 2010   | 8 mo      | 12 mo| No        | 51    | DK crush                                             | 25      |
| CACTUS^34        | Colombo et al | 2009   | 6 mo      | 6 mo | No        | 350   | Crush                                               | 177     |
| Cervinka et al (2008)^35 | Cervinka et al | 2008   | 1 y       | 1 mo | No        | 60    | DBS                                                | 30      |

(Continued)
Table 1. Continued

| Trial | Author | Y Follow-up | DAPT | Left main | Total | Predominant bifurcation Technique n | Technique n |
|-------|---------|-------------|------|-----------|-------|-------------------------------------|-------------|
| DKCRUSH-I | Chen et al | 2008 | 8 mo | Yes | 311 | DK crush | 155 |
| | Colombo et al | 2004 | 6 mo | No | 85 | T-stent | 63 |
| | Colombo et al | (2004)37 | | | | | |
| | Pan et al | 2004 | 6 mo | Yes | 91 | T-stent | 44 |
| BBC ONE indicates British Bifurcation Coronary Study; BBK I, Bifurcations Bad Krozingen I; BBK II, Bifurcations Bad Krozingen II; CACTUS, Coronary Bifurcations: Application of the Crushing Technique Using Everolimus-Eluting Stents; COBRA, Complex Coronary Bifurcation Lesions: Randomized Comparison of a Strategy Using a Dedicated Self-Expanding Stent Versus a Culotte Stenting for Treatment of Coronary Bifurcation Lesions; DBS, dedicated bifurcation stent; DEFINITION II, Definitions and Impact of Complex Bifurcation Lesions on Clinical Outcomes After Percutaneous Coronary Intervention Using Drug-Eluting Stents; DKCRUSH-I, Study Comparing the Double Kissing Crush With Classical Crush for the Treatment of Coronary Bifurcation Lesions; DKCRUSH-II, Double Kissing Crush Versus Culotte Stenting for the Treatment of Coronary Bifurcation Lesions; DKCRUSH-III, Double Kissing Crush Versus Culotte Stenting for the Treatment of Unprotected Distal Left Main Coronary Stent Study; EBC MAIN, European Bifurcation Club Left Main Coronary Stent Study; EBC TWO, European Bifurcation Coronary Two; NBBS IV, Nordic-Baltic Bifurcation Study IV; NSTS, Nordic Stent Technique Study; PERFECT, Optimal Stenting Strategy for True Bifurcation Lesions; POLBOS I, Polish Bifurcation Optimal Stenting I; POLBOS II, Polish Bifurcation Optimal Stenting II; PS, provisional stent; SMART-STRATEGY, Smart Angioplasty Research Team-Optimal STRATEGY for Provisional Side Branch Intervention in Coronary Bifurcation Lesions; T/TAP, T-stenting or T and protrusion; and TRYTON, Prospective, Single Blind, Randomized Controlled Study to Evaluate the Safety & Effectiveness of the Tryton Side Branch Stent Used With DES in Treatment of de Novo Bifurcation Lesions in the Main Branch & Side Branch in Native Coronaries.

13 trials.‡References 8, 11, 17, 21, 26, 27, 29, 31–35, 37.
‡References 4, 9, 10, 12, 13, 16, 18–20, 22–25, 28, 30, 36, 38.

RESULTS

Bibliographic Search and Trial Characteristics

After a comprehensive search of the literature, 29 RCTs, published from 2004 to 2021, were included in the study (Figure 1). A total of 8318 patients were included consisting of 3225 provisional stenting, 1357 crush, 1356 culotte, 1231 DK crush, 627 dedicated bifurcation stent (DBS), and 522 T-stent or T and protrusion (T/TAP) (Table 1). The follow-up period ranged from 6 months to 5 years. Left main (LM) bifurcations were included in 16 trials1 while solely non-LM bifurcations were included in 13 trials.2 Most of the trials prescribed clopidogrel as the dual antiplatelet agent, with some older studies also were applied after visualization of funnel plots to evaluate for publication biases (Table S8). Both Cochran’s Q and Higgins and Thompson’s I² statistic were generated to describe the heterogeneities among the trials. P value <0.05 or 95% CI not including 1 was statistically significant.

Network meta-analysis based on frequentist framework was first performed to produce network estimates from direct and indirect estimates. To evaluate for inconsistencies, node-splitting analysis was conducted to compare direct and indirect evidence for each outcome. P value <0.05 signified the presence of inconsistency. Tau-squared and I² were used to assess the heterogeneities in the network models, which was then broken down into heterogeneities within designs and between designs, each evaluated with Cochran’s Q (Table S9). P-scores of each bifurcation technique were also calculated for all outcomes (Table S10). P-scores were interpreted only for outcomes in which the network meta-analysis showed significant difference among the bifurcation techniques. Bayesian network meta-analysis was additionally performed whereby estimates of the bifurcation techniques were calculated through a generalized linear model fitted under a hierarchic Bayesian random-effect framework. Models were computed by Markov-chain Monte Carlo simulations using 4 chains, 5000 adaptations, and 100,000 iterations. Convergence was observed by visual inspection of time-series and density plots. Surface under the cumulative ranking scores were calculated from the Bayesian model to validate the P-scores from the frequentist model (Table S11). Hierarchy of bifurcation techniques were then displayed using rankograms (Table S12). Frequentist network meta-analysis was performed with meta and netmeta packages, and Bayesian network meta-analysis with gemtc and rjags packages, all with the use of R version 4.0.5 (R Foundation for Statistical Computing, Vienna, Austria).
| Case/control, % | EBC MAIN<sup>9</sup> | NBBS IV<sup>10</sup> | DEFINITION II<sup>13</sup> | DKCRUSH-I<sup>8</sup> | COBRA<sup>12</sup> | DKCRUSH-I<sup>16</sup> | BBK<sup>11</sup> | POLBOS<sup>13</sup> | EBC TWO<sup>21</sup> |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Age, y         | 71.4/70.8       | 63.0/64.0       | 63.0/64.0       | 65.0/64.0       | 66.0/64.0       | 63.9/64.7       | 66.3/69.1       | 67.2/66.6       | 63.5/62.9       |
| Male           | 74/79           | ...             | 77.7/76.9       | 82.9/77.7       | 14.0/15.0       | 78.8/75.8       | 71.3/76.0       | 76.9/75.0       | 78.0/85.0       |
| BMI, mean      | 28.4/28.6       | ...             | 24.8/24.7       | ...             | ...             | ...             | ...             | ...             | ...             |
| Diabetes       | 27.0/29.0       | 15.4/16.5       | 34.1/35.7       | 28.8/25.6       | 25.0/20.0       | 19.6/23.1       | 27.3/28.0       | 44.1/32.0       | 31.0/25.0       |
| Hypertension   | 82.0/79.0       | 65.6/70.0       | 66.2/70.1       | 72.9/64.5       | 75.0/70.0       | 65.2/60.9       | 88.0/85.3       | 84.3/81.0       | 68.0/63.0       |
| Dyslipidemia   | 72.0/70.0       | 81.1/82.0       | 69.2/68.6       | 47.5/47.5       | 95.0/95.0       | 33.7/29.1       | ...             | 83.3/81.0       | 70.0/70.0       |
| Smoking        | 13.0/16.0       | 21.1/18.9       | 28.4/30.2       | ...             | 25.0/20.0       | ...             | 11.3/11.3       | 20.6/26.0       | 50.0/56.0       |
| PVD            | 16.0/14.0       | ...             | 5.8/4.6         | ...             | ...             | ...             | ...             | ...             | ...             |
| Renal failure  | 4.0/5.0         | ...             | ...             | ...             | ...             | ...             | ...             | ...             | ...             |
| Family history | 33.0/33.0       | 47.4/50.0       | ...             | ...             | ...             | ...             | ...             | ...             | ...             |
| Previous MI    | 28.0/26.0       | ...             | 11.9/12.9       | 21.7/21.1       | 30.0/10.0       | 17.4/14.2       | 16.0/21.3       | 43.1/48.0       | 41.0/39.0       |
| Previous PCI   | 43.0/41.0       | 33.5/35.5       | 19.8/16.6       | ...             | 40.0/20.0       | 21.2/20.9       | 38.0/32.0       | 52.0/57.0       | 41.0/40.0       |
| Previous stroke| 7.0/7.0         | ...             | ...             | ...             | ...             | ...             | ...             | ...             | ...             |
| LVEF, mean     | 56.0/57.0       | 59.0/60.0       | ...             | 67.0/68.0       | ...             | 56.0/57.0       | ...             | ...             | ...             |
| Stable CAD     | 60.0/66.0       | ...             | ...             | 80.0/80.0       | ...             | ...             | ...             | ...             | 68.0/69.0       |
| Stable angina  | ...             | 82.4/86.6       | 24.1/21.8       | ...             | 15.3/11.0       | ...             | ...             | ...             | ...             |
| Silent ischemia| ...             | 1.3/0.5         | 5.2/5.2         | ...             | 1.6/5.8         | ...             | ...             | ...             | ...             |
| ACS            | 40.0/33.0       | ...             | ...             | ...             | ...             | ...             | ...             | ...             | ...             |
| Unstable angina| ...             | 16.7/12.9       | 48.8/50.5       | ...             | 20.0/20.0       | 66.8/68.7       | ...             | ...             | ...             |
| Acute MI       | ...             | ...             | 22.0/22.5       | ...             | 16.3/16.3       | ...             | ...             | ...             | ...             |
| SYNTAX, mean   | 23.2/22.6       | ...             | 24.7/24.2       | ...             | ...             | 17.5/18.2       | ...             | ...             | ...             |
| 0–22           | 26.0/30.0       | ...             | 44.8/48.6       | ...             | ...             | ...             | ...             | ...             | ...             |
| 22–32          | 57.0/56.0       | ...             | 33.8/32.6       | ...             | ...             | ...             | ...             | ...             | ...             |
| >32            | ...             | ...             | 21.3/18.8       | 37.9/36.4       | ...             | ...             | ...             | ...             | ...             |
| Medina class   | ...             | ...             | ...             | ...             | ...             | ...             | ...             | ...             | ...             |
| Complex features| ...             | ...             | ...             | ...             | ...             | ...             | ...             | ...             | ...             |

Table 2.  Demographics, Clinical Presentation, and Characteristics of Lesion

(Continued)

Comparison of PCI Bifurcation Techniques

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Table 2. Continued

| Case/control, % | EBC MAIN | NBBS MAIN | DEFINITION II | DKCRUSH-V | COBRA | DKCRUSH-II | BBK | POLBOS II | EBC TWO |
|-----------------|----------|-----------|---------------|-----------|-------|------------|-----|-----------|---------|
| Calcification   | 54.0/4.0 | 43.6/48.4 | 38.7/40.3     | 37.1/39.7 | ...   | ...        | ... | ...       | 17.0/19.0 |
| Tortuosity      | 24.0/19.0 | 7.0/2.8   | ...           | ...       | ...   | ...        | ... | ...       | 15.0/10.0 |
| Lesion location |          |           |               |           |       |            |     |           |         |
| Left main       | 100/100  | 1.3/2.7   | 28.7/28.9     | 100/100   | ...   | 17.8/15.7  | 18.7/15.3 | 35.3/38  | ...     |
| LAD             |          | 76.7/74.2 | 62.5/60.6     | ...       | ...   | 60.5/59.5  | 54.7/55.3 | 44.1/43  | 77/78   |
| LCx             |          | 17.6/16.6 | 5.2/7.7       | ...       | ...   | 12.4/16.2  | 24.0/25.3 | 15.7/15.0 | 19.75   |
| RCA             |          | 4.0/6.5   | 3.7/2.8       | ...       | ...   | 9.2/8.6    | 2.7/4.0 | 4.9/4.0   | 4/6     |
| Age, y          | 61.5/61.8 | 64.2/64.5 | 63.0/64.0     | 64.3/63.3 | 66.9/66.7 | 64.5/64.6 | 65.9/66.2 | 60.9/61.1 | 65.0/65.0 | 63.0/63.0 |
| Male            | 83.1/82.0 | 0.83/0.92 | 72.7/74.0     | 77.1/79.9 | 78.2/79.4 | 71.8/73.4 | 68.8/68.3 | 75.1/75.2 | 71.0/71.0 | 78.0/76.0 |
| BMI, mean       | ...       | ...       | ...           | ...       | ...   | ...        | ... | 24.9/24.9 | ...     |
| Diabetes        | 25.4/28.9 | 21.2/19.2 | 22.0/24.7     | 31.9/30.1 | 18.8/25.7 | 23.9/26.1 | 37.5/25.2 | 25.8/29.1 | 13.0/15.0 | 12.0/13.0 |
| Hypertension    | 57.7/54.7 | 63.5/67.3 | 70.7/77.2     | 70.5/61.2 | 89.1/97.1 | 73.2/73.6 | 78.3/73.2 | 55.4/55.3 | 62.0/60.0 | 58.0/54.0 |
| Dyslipidemia    | 131/12.5  | 115.5/11.5 | 76.0/70.0     | 41.4/42.1 | ...   | 741/77.3   | 62.5/56.9 | 62.0/57.3 | 84.0/74.0 | 72.0/78.0 |
| Smoking         | 17.7/25.8 | 51.9/59.6 | 38.7/44.7     | ...       | 13.9  | ...        | 21.7/25.2 | 25.4/32.5 | 20.0/27.0 | ...     |
| PVD             | ...       | ...       | ...           | ...       | ...   | 9.2/5.7    | ... | ...       | ...     |
| Renal failure   | 3.1/1.6   | ...       | ...           | ...       | ...   | 23.7/20.8  | ... | 10.9/9.8  | 0.5/0.5  | ...     |
| Family history  | 14.6/13.3 | ...       | 30.0/34.7     | ...       | ...   | 36.9/32.5  | ... | 14.1/12.6 | 57.0/62.0 | 54.0/56.0 |
| Previous MI     | 3.8/5.5   | 19.2/23.1 | ...           | ...       | ...   | 20.8/18.8  | 30.0/37.8 | 45.8/35.0 | 42.4/4.4 | ...     |
| Previous PCI    | 6.9/10.9  | 23.1/25.0 | 26.7/22.7     | ...       | 51.5/44.6 | 38.0/41.8  | 49.2/48.0 | ...       | 40.0/34.0 | 25.0/25.0 |
| Previous stroke | 7.7/3.9   | ...       | ...           | ...       | ...   | 2.3/3.8    | ... | ...       | ...     |
| LVEF, mean      | 59.3/60.5 | ...       | ...           | ...       | ...   | 61.0/59.0  | 57.7/57.5 | 60.4/59.5 | 57.0/57.0 | ...     |
| Stable CAD      | ...       | ...       | ...           | ...       | ...   | ...        | 91.8/94.3 | ...       | ...     |
| Stable angina   | 63.1/62.5 | 38.5/28.8 | 9.3/8.0       | ...       | ...   | 73.8/74.8  | ... | 78.0/72.0 | ...     |
| Silent ischemia | 5.4/10.2  | ...       | 8.0/6.0       | ...       | ...   | 5.6/5.2    | ... | 2.0/3.0   | ...     |
| ACS             | ...       | ...       | ...           | ...       | ...   | ...        | ... | ...       | ...     |
| Unstable angina | 23.8/20.3 | 53.8/48.1 | 82.7/86.0     | ...       | ...   | 20.0/19.8  | ... | 21.0/26.0 | ...     |
| Acute MI        | 7.7/7.0   | ...       | ...           | ...       | ...   | ...        | ... | ...       | ...     |
| SYNTAX, mean    | ...       | ...       | ...           | ...       | ...   | ...        | ... | ...       | ...     |
| 0–22            | ...       | ...       | ...           | ...       | ...   | ...        | ... | ...       | ...     |
| 22–32           | ...       | ...       | ...           | ...       | ...   | ...        | ... | ...       | ...     |
| >32             | ...       | ...       | ...           | ...       | ...   | ...        | ... | ...       | ...     |
Table 2. Continued

| Case/control, % | SMART-STRATEGY<sup>22</sup> | Zhang et al (2016)<sup>23</sup> | Zheng et al (2016)<sup>24</sup> | DKCRUSH-II<sup>25</sup> | BBK<sup>26</sup> | TRYTON<sup>27</sup> | POLBOS I<sup>28</sup> | PERFECT<sup>29</sup> | NSTS<sup>30</sup> | NBS<sup>31</sup> |
|-----------------|--------------------------------|--------------------------------|--------------------------------|------------------------|---------------|----------------|----------------|----------------|----------------|----------------|
| Medina class    |                                |                                |                                |                        |               |                |                |                |                |                |
| 1,0,0           | 1.5/1.6                        | ...                            | ...                            | 2.0/3.0                | ...            | 4.2/4.9         | 1.0/2.0         |                |                |                |
| 0,1,0           | 14.6/20.3                      | ...                            | ...                            | 13.9/11.9              | ...            | 2.54/1          | 1.9/2.5         |                |                |                |
| 1,1,0           | 14.6/13.3                      | ...                            | ...                            | 9.9/11.9               | ...            | 16.7/15.4       | 2.4/10.9        |                |                |                |
| 1,1,1           | 58.5/53.1                      | 65.4/57.7                      | 72.7/74.0                      | 98.7/94.8              | 30.7/35.6      | 73.2/68.7       | 42.5/5.5        | 65.9/62.4      |                |                |
| 0,0,1           | 0.8/0.8                        | ...                            | ...                            | 5.9/5.0                | ...            | 1.4/1.0         |                |                |                |                |
| 1,0,1           | 3.1/1.3                        | 13.5/11.5                      | 18.0/21.3                      | ...                    | 5.9/7.9        | 11.5/12.4       | 10.8/7.3        | 8.7/8.9        |                |                |
| 0,1,1           | 6.9/4.7                        | 21.2/30.8                      | 9.3/4.7                        | 1.3/5.2                | 31.7/24.8      | 14.6/18.7       | 23.3/22.8       | 18.8/12.4      |                |                |
| Complex features|                                |                                |                                |                        |                |                |                |                |                |                |
| Trifurcation    |                                | ...                            | ...                            | ...                    | ...            | ...             | ...             | ...            |                |                |
| Calcification   |                                |                                |                                |                        |                | 16.422.3        |                |                |                |                |
| Tortuosity      |                                |                                |                                |                        |                | 2.5/4.1         | 11.5/12.4       |                |                |                |
| Lesion location |                                |                                |                                |                        |                |                |                |                |                |                |
| Left main       | 43.8/44.5                      | 26.9/30.8                      | 8.7/12.7                       | 100/100                | ...            | 22.5/14.8       | 10/10           | 1/2            |                |                |
| LAD             | 50.8/40.6                      | 65.4/63.5                      | 64.0/68.0                      | ...                    | 73.3/75.2      | 75.8            | 52.5/69.9       | 93.9/92.2      | 63/66          | 74/73          |
| LCx             | 2.3/7.8                        | 3.8/5.8                        | 23.3/17.3                      | ...                    | 20.8/15.8      | 18.2            | 175/13.0        | 4.7/3.3        | 20/20          | 18/17          |
| RCA             | 3.1/7.0                        | 3.8/0                          | 4.0/2.0                        | ...                    | 5.9/8.9        | 6.0             | 7.5/2.4         | 14/0.5         | 2/4            | 6/7            |

Table 2. Continued

| Case/control, % | Ruiz-Salmeron et al (2013)<sup>3</sup> | Ye et al (2012)<sup>3</sup> | BBC One<sup>3</sup> | Lin et al (2010)<sup>3</sup> | Ye et al (2010)<sup>3</sup> | CACTUS<sup>3</sup> | Cervinka et al (2008)<sup>3</sup> | DKCRUSH-I<sup>3</sup> | Colombo et al (2004)<sup>3</sup> | Pan et al (2004)<sup>3</sup> |
|-----------------|----------------------------------------|-----------------------------|---------------------|-----------------------------|------------------------|-------------------|-------------------------------|---------------------|-----------------------------|-----------------------------|
| Age, y          | 63.6/63.4                              | 63.5/61.7                   | 64.0/64.0           | 59.2/60.6                   | 63.6/63.2              | 65.0/670          | 65.3/61.5                  | 63.8/63.9            | 63.0/62.0                   | 58.0/61.0                   |
| Male            | 78.0/85.0                              | 63.2/76.7                   | 77.0/77.0           | 75.9/83.3                   | 64.0/73.1              | 80.2/76.3         | 85.0/83.0                 | 76.2/70.0             | 76.0/91.0                   | 86.0/72.0                   |
| BMI, mean       | ...                                    | 28.0/28.0                   | ...                 | ...                         | ...                    | ...               | ...                          | ...                    |                            |                            |
| Diabetes        | 33.0/45.0                              | 18.4/13.3                   | 11.0/13.0           | 13.0/18.5                   | 16.0/19.2              | 23.7/22.0         | 30.0/27.0                 | 27.0/8.4               | 39.0/42.0                   |                            |
| Hypertension    | 72.0/67.0                              | 76.3/66.7                   | 62.0/57.0           | 83.3/90.7                   | 76.0/73.1              | 70.6/79.8         | 76.2/76.6                 | 570/59.0              |                            |                            |
| Dyslipidemia    | 64.0/51.0                              | 18.4/20.0                   | 76.0/76.0           | ...                         | 16.0/11.5              | 63.8/70.5         | 67.0/70.0                 | 68.6/62.6              | 41.0/53.0                   |                            |
| Smoking         | 50.0/61.0                              | 17.0/17.0                   | 24.1/29.6           | ...                         | ...                    | ...               | ...                          | ...                    |                            |                            |
| PVD             | ...                                    | 5.0/10.0                    | ...                 | ...                         | ...                    | ...               | ...                          | ...                    |                            |                            |
| Renal failure   | ...                                    | ...                         | ...                 | ...                         | ...                    | ...               | ...                          | ...                    |                            |                            |
| Family history  | ...                                    | ...                         | ...                 | ...                         | ...                    | ...               | ...                          | ...                    |                            |                            |
| Previous MI     | ...                                    | ...                         | ...                 | ...                         | ...                    | ...               | ...                          | ...                    |                            |                            |
| Previous PCI    | ...                                    | ...                         | ...                 | ...                         | ...                    | ...               | ...                          | ...                    |                            |                            |
| Previous stroke | ...                                    | ...                         | ...                 | ...                         | ...                    | ...               | ...                          | ...                    |                            |                            |
| LVEF, mean      | ...                                    | ...                         | ...                 | ...                         | ...                    | ...               | ...                          | ...                    |                            |                            |
| Stable CAD      | ...                                    | ...                         | ...                 | ...                         | ...                    | ...               | ...                          | ...                    |                            |                            |
| Case/control, % | Ruiz-Salmeron et al (2013) | Ye et al (2012) | BBC One | Lin et al (2010) | Ye et al (2010) | CACTUS | Cervinka et al (2008) | DKCRUSH-I | Colombo et al (2004) | Pan et al (2004) |
|-----------------|-----------------------------|----------------|---------|-----------------|---------------|--------|----------------------|-----------|--------------------|----------------|
| Stable angina   | ...                         | ...             | ...     | ...             | ...           | 31.1/36.4 | 55.0/50.0            | ...        | ...                | ...            |
| Silent ischemia | ...                         | ...             | ...     | ...             | ...           | 17.5/13.3 | ...                  | ...        | ...                | ...            |
| ACS             | ...                         | 29.0/27.0       | ...     | ...             | ...           | ...      | ...                  | ...        | ...                | ...            |
| Unstable angina | ...                         | 71.1/63.3       | ...     | 40.7/42.6       | 96.0/76.9     | 4.4/0.47.4 | 69.5/70.1           | 170/17.0   | ...                | ...            |
| Acute MI        | ...                         | ...             | ...     | ...             | ...           | ...      | 15.2/16.8            | ...        | ...                | ...            |
| SYNTAX, mean    | ...                         | ...             | ...     | ...             | ...           | ...      | ...                  | ...        | ...                | ...            |
| 0–22            | ...                         | ...             | ...     | ...             | ...           | ...      | ...                  | ...        | ...                | ...            |
| 22–32           | ...                         | ...             | ...     | ...             | ...           | ...      | ...                  | ...        | ...                | ...            |
| >32             | ...                         | ...             | ...     | ...             | ...           | ...      | ...                  | ...        | ...                | ...            |
| Medina class    | 1,0,0                       | 2.8/2.9         | ...     | 5.04/6.0        | ...           | ...      | 43.0/50.0            | ...        | ...                | ...            |
|                | 0,1,0                       | 0.5/9           | ...     | 2.0/4.0         | ...           | ...      | 20.0/20.0            | ...        | ...                | ...            |
|                | 1,1,0                       | 5.6/11.8        | ...     | 8.0/10.0        | ...           | ...      | ...                  | ...        | ...                | ...            |
|                | 1,1,1                       | 80.6/70.6       | ...     | 42.6/48.1       | ...           | ...      | 37.0/30.0            | ...        | ...                | ...            |
|                | 0,0,1                       | ...             | ...     | 1.0/0           | ...           | ...      | ...                  | ...        | ...                | ...            |
|                | 1,0,1                       | 8.3/8.8         | ...     | 10.0/8.0        | 24.1/16.7     | ...      | ...                  | ...        | ...                | ...            |
|                | 0,1,1                       | 2.8/0           | ...     | 14.0/13.0       | 33.3/35.2     | ...      | ...                  | ...        | ...                | ...            |
| Complex features|                            |                |         |                 |               |         |                      |           |                    |                |
| Trifurcation    | ...                         | ...             | ...     | 84.0/81.0       | ...           | ...      | ...                  | ...        | ...                | ...            |
| Calcification   | ...                         | ...             | ...     | 27.8/25.9       | ...           | ...      | ...                  | ...        | ...                | ...            |
| Tortuosity      | ...                         | ...             | ...     | ...             | ...           | ...      | ...                  | ...        | ...                | ...            |
| Lesion location |                            |                |         |                 |               |         |                      |           |                    |                |
| Left main       | ...                         | ...             | ...     | ...             | ...           | ...      | 15.3/15.9            | ...        | 5/6                |                |
| LAD             | 72/71                       | 78              | 84/81   | 79.6/83.3       | 74/70         | 80/77    | 65.7/61.7           | 75.3       | 75/71              |                |
| LCx             | 17/26                       | 15              | 11/14   | 11.1/9.3        | 19/25         | 17/23    | 11.3/14.0           | 17.6       | 13/17              |                |
| RCA             | 11/3                        | 7               | 5/4     | 9.3/7.4         | 7/5           | 3/0      | 76/8.4              | 8.2        | 7.6                |                |

ACS indicates acute coronary syndrome; BBC ONE, British Bifurcation Coronary Study; BBK I, Bifurcations Bad Krozingen I; BBK II, Bifurcations Bad Krozingen II; CACTUS, Coronary Bifurcations: Application of the Crushing Technique Using Sirolimus-eluting stents; CAD, coronary artery disease; COBRA, Complex Coronary Bifurcation Lesions: Randomized Comparison of a Strategy Using a Dedicated Self-Expanding Sirolimus-Eluting Stent Versus a Qutote Strategy Using Everolimus-Eluting Stents; DEFINITION II, Definitions and Impact of Complex Bifurcation Lesions on Clinical Outcomes After Percutaneous Coronary Intervention Using Drug-Eluting Stents; DKCRUSH-I, Study Comparing the Double Kissing Crush with Classical Crush for the Treatment of Coronary Bifurcation Lesions; DKCRUSH-II, Double Kissing Crush Versus Provisional Stenting Technique for Treatment of Coronary Bifurcation Lesions; DKCRUSH-III, Double Kissing Crush Versus Qutote Stenting for the Treatment of Unprotected Distal Left Main Bifurcation Lesions; DKCRUSH-V, Double Kissing Crush Versus Provisional Stenting for Left Main Bifurcation Lesions; EBC MAIN, European Bifurcation Club Left Main Coronary Stent Study; EBC TWO, European Bifurcation Coronary Two; LAD, left anterior descending coronary artery; LCX, left circumflex coronary artery; MI, myocardial infarction; NBBS IV, Nordic-Baltic Bifurcation Study IV; NBS, Nordic Bifurcation Study; NSTS, Nordic Stent Technique Study; PERFECT, Optimal Stenting Strategy for True Bifurcation Lesions; POLBOS I, Polish Bifurcation Optimal Stenting I; POLBOS II, Polish Bifurcation Optimal Stenting II; SMART-STRATEGY, Smart Angioplasty Research Team-Optimal STRATEGY for Provisional Side Branch Intervention in Coronary Bifurcation Lesions; PVD, peripheral vascular disease; RCA, right coronary artery; and TRYTON, Prospective, Single Blind, Randomized Controlled Study to Evaluate the Safety & Effectiveness of the Tryton Side Branch Stent Used With DES in Treatment of de Novo Bifurcation Lesions in the Main Branch & Side Branch in Native Coronaries.
administering ticlopidine (Table S1). The types of stents used varied widely across the studies. Demographics, clinical presentation, and characteristics of bifurcation lesions in each of the trials were also heterogeneous (Table 2). Clinical and anatomical inclusion criteria are summarized in Tables S2 and S3. Details of quantitative angiography and PCI procedural information were inconsistent across all trials (Tables S4 and S6).

Angiographic follow-ups were provided for most trials and ranged between 6 and 13 months after index procedure (Table S13).

Comparison of Bifurcation Techniques

Conventional meta-analysis was initially performed to compare clinical outcomes between 2-stent and provisional stent strategies. There were no significant differences in all-cause mortality, cardiac death, MACE, MI, stent thrombosis, TLR, and TVR (Figures S1 through S7). However, in subgroup analysis stratified to the length of side branch (SB) lesion, 2-stent strategies performed better than provisional stents at reducing cardiac death (RR, 0.60; 95% CI, 0.40–0.90), MACE (RR, 0.68; 95% CI, 0.50–0.93), TLR (RR, 0.55; 95% CI, 0.39–0.78), and TVR (RR, 0.58; 95% CI, 0.36–0.95) when the lesion in the SB was ≥10 mm (Figures S8 through S14). On the other hand, the risk of MACE (RR, 1.20; 95% CI, 1.00–1.44) was marginally greater in 2-stent strategy than provisional stenting when the length of the SB lesion was <10 mm (Figure S10).

Frequentist network meta-analysis (Figure 2) revealed that DK crush was associated with lower cardiac death (RR, 0.57; 95% CI, 0.38–0.84), MACE (RR, 0.50; 95% CI, 0.39–0.64), MI (RR, 0.60; 95% CI, 0.39–0.90), stent thrombosis (RR, 0.50; 95% CI, 0.28–0.88), TLR (RR, 0.44; 95% CI, 0.33–0.59), and TVR (RR, 0.48; 95% CI, 0.34–0.66) when compared with provisional stenting (Figure 3). T/TAP performed worse than provisional stenting and was associated with increased risk of stent thrombosis (RR, 2.37; 95% CI, 1.02–5.51). Node-splitting analysis showed no inconsistencies between direct and indirect evidence for all outcomes (Table S14).

DK crush was associated with lower risk of cardiac death, MACE, MI, stent thrombosis, TLR, and TVR compared with crush. It was also associated with lower risk of MACE, MI, stent thrombosis, TLR, and TVR compared...
end points including cardiac death, MACE, and MI. Subgroup analysis within conventional meta-analysis demonstrated upfront 2-stent strategy was superior to provisional stenting when the SB lesion length was ≥10 mm.

Two previous network meta-analyses have been reported comparing different bifurcation techniques. Crimi et al compiled 26 RCTs and showed that DK crush was associated with the lowest device-oriented clinical event consisting of cardiac death, target-vessel MI, stent thrombosis, TLR, and TVR. This was in line with the findings of the present network meta-analysis, which also presented highest P-scores as well as surface under the cumulative ranking scores for DK crush. However, Crimi et al mislabeled THUEBIS (Thueringer bifurcation Study) trial as a trial on DBS versus provisional stent and did not account for case groups in which >1 bifurcation techniques were used. Di Gioia et al performed a similar meticulous network meta-analysis on the same subject that included 21 RCTs and 3 sensitivity analyses. They showed that DK crush was associated with lower MACE which was driven by lower rates of TLR and TVR. However, they did not include trials with DBS, and their sensitivity analysis on trials with only non-LM bifurcations included a significant number of trials with LM bifurcations.

Several theories have been proposed to explain the superiority of DK crush over more conventional and less complex bifurcation techniques. DK crush is advantageous in that it is not affected by the bifurcation angle and maintains wire access in the MV. However, it is a complex multi-step process that requires crossing stent struts twice and results in greater radiation and contrast exposures. FKBI, an important step in the DK crush technique, may also be contributing to favorable outcomes. Summary of procedural characteristics in our analysis also showed that FKBI was performed more frequently in the DK crush arms (Table S4). Bench modeling demonstrated greater occurrence of stent malaposition in single kissing compared with DK with FKBI. Chen et al claimed that DK crush reduced the strut layer in the SB ostium, thereby increasing the success of the final kissing balloon inflation. Ye et al also explained the superiority of DK crush with the higher rate of FKBI, which potentially leads to improved stent apposition, optimized stent geometry, and reduced flow disturbance. However, FKBI after PCI of distal LM bifurcation lesions was not associated with improved outcomes within the EXCEL (Evaluation of XIENCE Versus Coronary Artery Bypass Surgery for Effectiveness of Left Main Revascularization) trial. Similarly, in DEFINITION II (Definitions and Impact of Complex Bifurcation Lesions on Clinical Outcomes After Percutaneous Coronary Intervention Using Drug-Eluting Stents) trial, despite having similar percentages

**Figure 2.** Network plot of selected trials.
The network plot demonstrates the number of studies and patients included among trials that compared double kissing crush, dedicated bifurcation stent, culotte, crush, provisional stenting, and T-stent or T and protrusion. The size of the blue circles and blue lines are proportional to the total sample size and number of relevant studies, respectively. DBS indicates dedicated bifurcation stent; DK, double kissing; PS, provisional stenting; and T/TAP, T-stent or T and protrusion.

with culotte. Similarly, DK crush was associated with better outcomes compared with DBS, T/TAP, and provisional stent (Table S15). The superiority of DK crush was consistently observed in sensitivity analysis of trials that only included true bifurcations (Table S16) or those that excluded LM bifurcations (Table S17). Similar outcomes were found on sensitivity analysis excluding trials without LM bifurcations (Table S18). After excluding trials allowing multiple bifurcation techniques in 1 arm, outcomes still favored DK crush (Table S19).

P-scores calculated by the frequentist model demonstrated that DK crush ranked the highest for MACE, MI, stent thrombosis, TLR, and TVR, most often followed by provisional strategy (Figure 4). Culotte, crush, and T/TAP were associated with lower ranks. Surface under the cumulative ranking scores from Bayesian model produced identical results (Figures S15 and S16). Rankograms redemonstrated the superiority of DK crush and the inferiority of culotte, crush, and T/TAP (Figure 5).

**DISCUSSION**
The results from our present comprehensive meta-analysis show that DK crush was superior to other bifurcation techniques in reducing the risk of not only stent thrombosis, TLR, TVR, but also the hard
Coronary intravascular imaging has shifted the paradigm of coronary interventions from “guessing” based on quantitative angiography to “knowing” accurate vessel and lesion characteristics. Recent meta-analysis demonstrated that the use of intravascular ultrasound during bifurcation PCI was associated with lower risk of MACE compared with angiography-guided PCI.44 Only 9 out of the 29 RCTs included in our present study reported the use of intravascular ultrasound, which was not significantly different between the 2 arms except in the PERFECT trial (Table S4). Similarly, only European Bifurcation Club MAIN reported the percentage of optical coherence tomography in both its arms. Perhaps a more standardized and uniform use and reporting of imaging would improve our understanding of bifurcation lesion preparation and optimization.

Proximal optimization technique, which was introduced in 2010, has been proposed to reconstruct the natural and fractal geometry of coronary bifurcations and achieve optimal stent expansion and apposition in the proximal segment. POT was strongly favored over other strategies. In the case of bifurcations with ostial lesions, the POT technique allows proximal optimization of the ostial side branch with an appropriate stent, followed by distal optimization of the parent vessel stenting. This approach has been associated with better long-term outcomes compared with angiography-guided PCI and provisional stenting.

References 9, 13, 16, 18, 22, 25, 29, 34, 37, 42.
recommended by European Bifurcation Club across all 2 stent strategies. However, it was reported in only 5 RCTs. The difference in POT percentage was not significant between the 2 arms in the European Bifurcation Club MAIN (European Bifurcation Club Left Main Coronary Stent Study (EBC MAIN)) and DKCRUSH-V (Double Kissing Crush versus Provisional Stenting for Left Main Distal Bifurcation Lesions) trials, but was significantly different in DEFINITION II and POLBOS I and II (Polish Bifurcation Optimal Stenting Polish Bifurcation Optimal Stenting) trials (Table S4). Analysis of eULTIMASTER (Prospective, Single-Arm, Multi Centre Observations Ultimaster Des) multinational registry showed that POT was associated with reduction in target lesion failure and stent thrombosis regardless of bifurcation anatomy and technique, so the potential differences in the use of POT could have also affected the studied outcomes.

Other potential confounding variables such as the site of access (radial versus femoral) were only reported in 10 RCTs. However, the difference was not significant between any of the 2 arms (Table S4), and a propensity-matched analysis of Coronary Bifurcation Stenting Registry in Korea also did not observe any differences in cardiac death, MI, TLR, and MACE between transradial and transfemoral approaches. Antiplatelet use after bifurcation stenting varied across trials. More recent trials included ticagrelor and prasugrel as their choice of antiplatelet, while most other studies used clopidogrel and some older studies used ticlopidine (Table S1). A recent network meta-analysis suggested that ticagrelor and prasugrel performed better than clopidogrel in reducing cardiovascular outcomes, so choice of dual antiplatelet agent also needs dedicated analysis in bifurcation lesions. Furthermore, the heterogeneities in the anatomical characteristics of the bifurcation lesions in each of the RCTs were greatly variable, with some trials including more complex cases as those described in the DEFINITION criteria, limiting our results to be applied across all patient population (Tables S4 and S7).

Limitations
The present network meta-analysis is subject to several limitations. Individual patient level data were unavailable. The time RCTs were conducted spanned from the year 2004 to 2021, and there have been significant improvements in secondary prevention, stent design, choice of anti-proliferative agent in stents, and functional testing of lesions. Events were attributed to the most performed bifurcation technique in 6 RCTs where >1 technique was performed. Sensitivity analyses accounting for heterogeneities
Comparison of PCI Bifurcation Techniques

among the trials were conducted, which yielded similar results (Tables S15 through S19). Several RCTs were subject to high risk of bias primarily attributable to the lack of blinding and conducting open-label studies. Operators could not be masked because of the nature of the study. Significant crossovers occurred in many of the provisional stent arms, and many of the RCTs were conducted by the same group of experts at high-volume centers who would be more proficient in performing complex interventions. Outcomes after DK crush may vary depending on the level of expertise of operators, so further studies reproducing similar safety and efficacy will be required to validate the superiority of the DK crush technique.

CONCLUSIONS

The findings of the present network meta-analysis of bifurcation techniques showed that DK crush was associated with lower risk of cardiac death, MACE, MI, stent thrombosis, TLR, and TVR compared with provisional stenting. Superiority of 2-stent strategy over provisional stenting was observed in subgroup meta-analysis stratified to SB lesion length ≥10 mm. Given the findings from successive network meta-analysis, including our present study, and those from DEFINITION II and DKCRUSH-V trials, DK crush can be considered over other 2-stent strategies in patients with complex bifurcation lesions. Further studies will be required to reproduce and validate these findings.

ARTICLE INFORMATION

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SUPPLEMENTAL MATERIAL
### Table S1. Type of dual antiplatelet agents and stents used in the trials.

| Trials            | Dual Antiplatelet Agent | Case                      | Stent                          | Dual Antiplatelet Agent | Control                     | Stent                          |
|-------------------|-------------------------|---------------------------|-------------------------------|-------------------------|-----------------------------|-------------------------------|
| EBC MAIN          | Clopidogrel (67%)       | Onyx ZES                  | Clopidogrel (66%)            | Ticagrelor (22%)        | Onyx ZES                    |
|                    | Ticagrelor (20%)        |                           |                               | Prasugrel (5%)          |                             |
|                    | Prasugrel (6%)          |                           |                               |                         |                             |
|                    |                         |                           |                               |                         |                             |
| NBBS IV            | Clopidogrel (100%)      | Cypher SES                | Clopidogrel (99.5%)          | Firebird-2 SES, Excel SES, BuMA SES, Partner SES, Xience EES, Endeavor ZES |
|                    |                         |                           |                               |                         |                             |
| DEFINITION II     | Clopidogrel (100%)      | Xience Prime EES, Resolute ZES | Clopidogrel (100%)          | Xience EES              |                             |
|                    |                         |                           |                               |                         |                             |
| DKCRUSH-V          | Clopidogrel (100%)      | Axxess BES, Biomatrix BES | Clopidogrel (100%)          | Excel SES               |                             |
|                    |                         |                           |                               |                         |                             |
| COBRA             | Clopidogrel (100%)      | Excel SES                 | Clopidogrel (100%)          | Firebird-2 SES, Xience V EES |
|                    |                         |                           |                               |                         |                             |
| DKCRUSH-II         | Clopidogrel (100%)      | Tryton side branch stent (100%), Xience EES (59.0%), Promus EES (27.5%), Resolute Integrity ZES (6.0%), Endeavor ZES (4.3%), SES (3.2%) | Clopidogrel (100%) | Cypher SES |
|                    |                         |                           |                               |                         |                             |
| BBK II             | Clopidogrel, ticagrelor, or prasugrel | Cypher SES (8%), Xience pro EES (8.7%), Promus EES (28.7%), Resolute ZES (36.0%), Orsiro SES (11.3%), Synergy SES (7.3%) | Clopidogrel, ticagrelor, or prasugrel | Cypher SES (10.0%), Xience pro EES (10.0%), Promus EES (32.7%), Resolute ZES (30.7%), Orsiro SES (14.0%), Synergy SES (3.3%) |
|                    |                         |                           |                               |                         |                             |
| POLBOS II         | -                       | BIOSS LIM SES             | -                             | -                       | -                           |
| EBC TWO            | Clopidogrel (100%)      | Nobori SES                | Clopidogrel (100%)          | Nobori SES              |                             |
| SMART-STRATEGY     | -                       | SES (48%), EES (27%), others (25%) | -                             | SES (47%), EES (31%), others (22%) |
| Zhang et al. (2016)| Clopidogrel (100%)      | SES (79%), ZES (12%), EES (10%) | Clopidogrel (100%)          | SES (62%), EES (19%), ZES (15%), PES (4%) |
| Zheng et al. (2016)| Clopidogrel (100%)      | SES                       | Clopidogrel (100%)          | SES                     |
|                  |                         |                           |                               |                         |                             |
| POLBOS I          | Clopidogrel (100%)      | BiOSS Expert PES          | Clopidogrel (100%)          | EES (41.5%), PES (38.2%), BES (9.8%), SES (8.9%), ZES (0.8%), TES (0.8%) |
| PERFECT           | Clopidogrel (100%)      | SES (60%), EES (28%), ZES (9%), PES (1%), others (3%) | Clopidogrel (100%) | EES (57%), EES (29), ZES (9%), PES (2%), others (3%) |
| NSTS              | Clopidogrel (100%)      | Cypher SES                | Clopidogrel (100%)          | Cypher SES              |
| NBS               | Clopidogrel (99.5%)     | Cypher SES                | Clopidogrel (100%)          | Cypher SES              |
| Ruiz et al. (2013)| -                      | Xience Prime EES          | -                             | Xience Prime EES        |
| Ye et al. (2012)  | Clopidogrel (100%)      | Cypher SES, Firebird-2 SES | Clopidogrel (100%)          | Cypher SES, Firebird-2 SES |
| BBC ONE           | Clopidogrel (100%)      | Taxus PES                 | Clopidogrel (100%)          | Taxus PES               |
| Lin et al. (2010) | Clopidogrel or ticloplidine | SES (57%), PES (43%)      | Clopidogrel or ticloplidine | SES (65%), PES (35%)    |
| Ye et al. (2010)  | Clopidogrel (100%)      | SES (57.4%)               | Clopidogrel (100%)          | SES (64.8%)             |
| CACTUS            | Clopidogrel or ticloplidine | Cypher SES                | Clopidogrel or ticloplidine | Cypher SES              |
| Cervinka et al. (2008)| Clopidogrel (100%)     | Twin-Rail BMS             | Clopidogrel (100%)          | Liberte BMS             |
| DKCRUSH-I         | Clopidogrel (100%)      | PES or SES                | Clopidogrel (100%)          | PES or SES              |
| Colombo et al. (2004)| Clopidogrel or ticloplidine | Cypher SES                | Clopidogrel or ticloplidine | Cypher SES              |
| Pan et al. (2004) | Clopidogrel (100%)      | SES                       | Clopidogrel (100%)          | SES                     |

Abbreviations: BES = biolimus-eluting stent; BMS = bare metal stent; EES = everolimus-eluting stent; PES = paclitaxel-eluting stent; SES = sirolimus-eluting stent; TES = tacrolimus-eluting stent; ZES = zirolimus-eluting stent.
| Case/Control | Inclusion Criteria | Exclusion Criteria |
|--------------|--------------------|--------------------|
| **EBC MAIN** | Age ≥18 years<br>Medina type 1,1,1 or 0,1,1<br>Both MV and SB >50% narrowed<br>Both MV and SB RVD ≥2.75mm<br>Ischemic symptoms, positive non-invasive imaging, positive fractional flow reserve, or LM stem IVUS-derived minimum luminal area <6mm² | Acute STEMI<br>Cardiogenic shock<br>Chronic total occlusion of either vessel<br>LM trifurcation with all three vessels ≥2.75mm diameter<br>LM stem diameter >5.75mm<br>Life expectancy <12 months<br>Known relevant allergies |
| **NBBS IV** | Stable angina pectoris, unstable angina, or silent ischemia<br>Medina 1,1,1, 1,0,1, or 0,1,1<br>MV diameter ≥3.0mm<br>SB diameter ≥2.75mm | STEMI within 24 hours<br>SB lesion length >15mm<br>Life expectancy <1 year<br> Serum creatinine >200µmol/L<br>Allergy to aspirin, clopidogrel, ticlopidine, sirolimus, or everolimus |
| **DEFINITION II** | Age ≥18 years<br>Medina 1,1,1 or 0,1,1<br>SB RVD ≥2.5mm<br>Native coronary lesion<br>Complex bifurcation lesions based on DEFINITION study | STEMI within 24 hours<br>Pregnancy or breastfeeding<br>Life expectancy <50% at 12 months<br>Scheduled major surgery in 12 months<br>Allergy to aspirin, clopidogrel, or ticagrelor<br>History of major hemorrhage<br>Chronic total occlusion in either LAD, LCx, or RAD<br>Severe calcification needing rotational atherectomy |
| **DKCRUSH-V** | Ages 18 to 80 years<br>Stable angina, unstable angina, or myocardial infarction<br>Medina 1,1,1 or 0,1,1<br>De novo unprotected LM lesion<br>Unprotected LM lesion with chronic total occlusion in LAD, LCx, or RCA after recanalization<br>Diameter stenosis in LAD/LM and LCx ≥50% by visual estimation | Acute myocardial infarction within 24 hours<br>Severe calcification needing rotational atherectomy<br>Restenotic lesion<br>Allergies to study or protocol-required medications<br>Intolerance to dual anti-platelet therapy<br>Life expectancy <12 months<br>Pregnancy or breastfeeding<br>Distal LM coronary restenosis |
| **COBRA** | Age >18 years<br>Stable angina, unstable angina, or positive functional study<br>De novo true native coronary bifurcation lesion<br>Medina 1,1,1, 1,0,1, or 0,1,1<br>Proximal MV RVD 2.75-3.75mm<br>SB RVD >2.25mm | LVEF <30%<br>Serum creatinine >2.0mg/dL<br>Previous or planned brachytherapy of target vessel<br>Unprotected lesion of the LM trunk 50%<br>Intraluminal thrombus in the target vessel<br>Moderate to severe calcification or tortuosity<br>Allergies to protocol stent or medications<br>Pregnancy or breastfeeding<br>Life expectancy <12 months |
| **DKCRUSH-II** | Age ≥18 years<br>Silent ischemia, angina, or acute myocardial infarction<br>Chronic total occlusion in MV or SB immediately after successful recanalization<br>Unprotected distal LM bifurcation lesions involving both ostia of LAD and LCx without chronic total occlusion in the RCA | Liver dysfunction<br>Life expectancy <12 months<br>Heavy calcification requiring rotational atherectomy<br>Pregnancy<br>Contraindication to one of the study drugs |
| Study | Criteria                                                                                                                                 |
|-------|------------------------------------------------------------------------------------------------------------------------------------------|
| BBK II | Only one coronary bifurcation lesion  
Medina 1,1,1 and 0,1,1  
Diameter stenosis >50% in both vessels with RVD between 2.5 and 4.0mm  
De novo bifurcation lesion  
MV RVD 2.5 to 4.0mm  
SB RVD ≥2.25mm and ≤1.0mm smaller than that of RV |
| POLBOS II | Age ≥18 years  
Stable coronary artery disease or non-STEMI  
De novo coronary bifurcation lesion  
MV RVD ≥2.5mm  
SB RVD ≥2.0mm  
Age ≥18 years  
Both MV and SV >50% narrowed  
Both MV and SV RVD ≥2.5mm  
SB ostial disease ≥5mm |
| EBC TWO | Stable coronary artery disease or non-STEMI  
De novo coronary bifurcation lesion  
MV RVD ≥2.5mm  
SB RVD ≥2.0mm  
SB lesion causing angina and a potential target for intervention |
| SMART-STRATEGY | Stable coronary artery disease or non-STEMI  
De novo coronary bifurcation lesion, including unprotected LM  
MV RVD ≥2.5mm  
SB RVD ≥2.3mm  
Age ≥18 years  
De novo true coronary bifurcation lesion  
Medina 1,1,1, 0,1,1, and 1,0,1  
Located either in LM stem, LAD, and LCx  
MV RVD ≥2.5mm  
SB RVD ≥2.0mm |
| Zhang et al. (2016) | De novo coronary true bifurcation lesion  
SB RVD ≥2.25mm  
Age ≥18 years  
Ischemic symptoms or myocardial ischemia  
LMV RVD ≤5mm  
Difference in RVD between LAC and LCX ≤1mm  
Medina 1,1,1 or 0,1,1  
De novo LM distal brain lesion  
Chronic total occlusion after successful recanalization |
| Zheng et al. (2016) | De novo coronary true bifurcation lesion  
SB RVD ≥2.25mm  
Age ≥18 years  
Ischemic symptoms or myocardial ischemia  
LMV RVD ≤5mm  
Difference in RVD between LAC and LCX ≤1mm  
Medina 1,1,1 or 0,1,1  
De novo LM distal brain lesion  
Chronic total occlusion after successful recanalization  
Acute STEMI  
Hemodynamic instability  
History of bleeding diathesis or coagulopathy  
Intraluminal thrombus  
Heavy calcification  
Severe tortuosity  
Contraindication to study drugs  
STEMI  
LVEF ≤30%  
Medina 0.0,1  
Serum creatinine ≥2.0mg/dL  
Inability to take dual antiplatelet therapy for 12 months  
Acute STEMI  
Cardiogenic shock  
Unprotected LM stem narrowing ≥50%  
Chronic total occlusion of either vessel  
Additional type C lesion requiring PCI  
LVEF ≤20%  
Platelet count ≤50,000/µL  
Life expectancy < 12 months  
Known relevant allergies  
Acute STEMI within 24 hours  
Life expectancy <12 months  
Allergies to any drugs used in the study  
Acute STEMI within 24 hours  
Liver or renal dysfunction  
LVEF ≤30%  
Life expectancy <1 year  
Platelet count ≤10,000/µL  
Suspected intolerance to any of the drugs used  
Acute myocardial infarction within 2 weeks  
Liver dysfunction  
Lung cancer  
LVEF <30%  
eGFR <40mL/min/1.73m²  
Trifurcation lesions or heavy calcification  
Pregnancy |
| Study   | Inclusion Criteria                                                                 | Exclusion Criteria                                                                 |
|---------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| BBK I   | Stable angina or positive stress test                                               | Platelet count ≤10,000/µL                                                          |
|         | De novo bifurcation lesion                                                          | Suspected intolerance to any of the study drugs                                      |
|         | Native coronary artery >50% diameter stenosis                                       | LM stenosis                                                                          |
|         | MV RVD 2.5-4mm                                                                      | Intraluminal thrombus                                                                |
|         | SB RVD ≥2.25mm                                                                      | Heavy calcification                                                                  |
|         |                                                                                     | Severe tortuosity                                                                    |
|         | Symptoms or objective evidence of ischemia                                          | Contraindication to drug or stent used in the study                                  |
|         | True bifurcation lesion ≥50% narrowing                                              | History of bleeding diathesis or coagulopathy                                        |
|         | Medina 1,1,1, 1,0,1, and 0,1,1                                                      |                                                                                     |
|         | MV RVD 2.5-4mm                                                                      |                                                                                     |
|         | SB RVD 2.5-3.5mm                                                                     |                                                                                     |
|         | Lesion length in MV ≤28mm                                                           |                                                                                     |
|         | Lesion length in SB ≤5mm                                                            |                                                                                     |
| TRYTON  | Age ≥18 years                                                                       | STEMI within 72 hours                                                                |
|         | Stable coronary artery disease or non-STEMI                                         | Non-STEMI within 7 days                                                              |
|         | De novo coronary bifurcation lesion                                                 | LVEF <30%                                                                           |
|         | MV RVD ≥2.5mm                                                                       | Serum creatinine >2.5mg/dL                                                           |
|         | SB RVD ≥2.0mm                                                                       | LM disease                                                                          |
|         |                                                                                     | Trifurcation lesion                                                                  |
|         |                                                                                     | Total occlusion of target vessel                                                    |
|         |                                                                                     | Severe calcification                                                                 |
|         |                                                                                     | Excessive tortuosity                                                                 |
|         |                                                                                     | Angiographic evidence of thrombus                                                   |
| POLBOS I| Age 18-75 years                                                                      | STEMI                                                                               |
|         | Angina with bifurcation coronary disease requiring protection                       | Medina 0,0,1                                                                         |
|         | MV RVD ≥2.5mm                                                                       | Serum creatinine ≥2.0mg/dL                                                           |
|         | MV lesion length ≤50mm                                                              | Inability to receive dual antiplatelet therapy for 12 months                         |
|         | SB RVD ≥2.0mm                                                                       | LVEF ≤30%                                                                           |
|         |                                                                                     | LM disease                                                                          |
|         |                                                                                     | In-stent restenosis                                                                  |
|         |                                                                                     | Graft lesions                                                                       |
|         |                                                                                     | Chronic total occlusion                                                              |
|         |                                                                                     | STEMI within 2 weeks                                                                 |
|         |                                                                                     | Decreased SB flow                                                                   |
|         |                                                                                     | Renal failure                                                                       |
|         |                                                                                     | LVEF ≤35%                                                                           |
|         |                                                                                     | Life expectancy <12 months                                                          |
| PERFECT | Age ≥18 years                                                                       | STEMI                                                                               |
|         | Stable coronary artery disease or non-STEMI                                         | Medina 0,0,1                                                                         |
|         | De novo coronary bifurcation lesion                                                 | Serum creatinine ≥2.0mg/dL                                                           |
|         | MV RVD ≥2.5mm                                                                       | Inability to receive dual antiplatelet therapy for 12 months                         |
|         | SB RVD ≥2.5mm                                                                       | LVEF ≤30%                                                                           |
|         |                                                                                     | LM disease                                                                          |
|         |                                                                                     | STEMI within 24 hours                                                                |
|         |                                                                                     | Life expectancy <12 months                                                          |
|         |                                                                                     | Serum creatinine ≥200µmol/L                                                          |
|         |                                                                                     | Allergy to any of the drugs used                                                     |
| NSTS    | Age ≥18 years                                                                       | STEMI                                                                               |
|         | Stable angina, unstable angina, or silent ischemia                                 | Life expectancy <12 months                                                          |
|         | De novo coronary bifurcation lesion                                                 | Serum creatinine ≥200µmol/L                                                          |
|         | MV RVD ≥3.0mm                                                                       | Allergy to any of the drugs used                                                     |
|         | SB RVD ≥2.5mm                                                                       | LM bifurcation in a left dominant system                                             |
| NBS     | Age ≥18 years                                                                       | STEMI                                                                               |
|         | Stable angina, unstable angina, or silent ischemia                                 | Life expectancy <12 months                                                          |
|         | MV RVD ≥2.5mm                                                                       | Serum creatinine ≥200µmol/L                                                          |
|         | SB RVD ≥2.0mm                                                                       | Allergy of any of the drugs used                                                     |
|         |                                                                                     | LM bifurcation in a left dominant system                                             |
| Ruiz et al. (2013) | True bifurcation lesions               | LM disease                                                                          |
|         | MV RVD 2.5-4mm                                                                      | Thrombotic lesions                                                                  |
|         | SB RVD ≥2mm                                                                         | Acute coronary syndrome within 48 hours                                              |
|         |                                                                                     | LVEF <30%                                                                           |
|         |                                                                                     | Serum creatinine >3mg/dL                                                             |
| Ye et al. (2012) | Age 18-75 years  
Medina 1,1,1, 1,0,1, or 0,1,1  
SB RVD ≥2.25mm | LVEF ≤30%  
Life expectancy <12 months  
Pregnancy  
Severe diffuse or calcified MV or SB lesions  
Platelet count ≤10,000/µL  
Serum creatinine >3mg/dL  
Cerebrovascular events within 6 months  
STEMI or other condition with refractory hypotension  
Intolerance to injection of adenosine |
|----------------|-----------------|-----------------|
| Ye et al. (2010) | Age ≥18 years  
MV RVD ≥2.5mm  
SB RVD ≥2.25mm | STEMI  
Cardiogenic shock  
Chronic total occlusion of either vessel  
LM stem narrowing ≥50%  
Additional type C or bifurcation lesion that required PCI  
LVEF ≤20%  
Platelet count ≤50,000/µL  
Life expectancy <12 months  
Known relevant allergies |
| BBC ONE | Age ≥18 years  
MV RVD ≥2.5mm  
SB RVD ≥2.25mm | Myocardial infarction within 24 hours  
Life expectancy <12 months  
Serum creatinine >3.0mg/dL  
Allergy to any of the drugs used  
LM bifurcation in a left dominant system |
| Lin et al. (2010) | Age ≥18 years  
Stable angina, unstable angina, or silent ischemia  
De novo coronary true bifurcation lesion  
Bifurcation angle ≤60 degrees  
MV RVD ≥2.5mm  
SB RVD ≥2.22mm | Not reported |
| Ye et al. (2010) | Age 18-75 years  
Single vessel disease with de novo bifurcation lesion  
Medina 1,1,1, 1,0,1, or 0,1,1  
MV RVD ≥2.0mm  
SB RVD ≥2.0mm | STEMI  
LVEF ≤30%  
Life expectancy <1 year  
Pregnancy  
Severely diffuse or calcified lesions  
Platelet count ≤100,000/µL  
Cerebrovascular events within 6 months  
Allergy to aspirin, clopidogrel, or sirolimus |
| CACTUS | Age ≥18 years  
Stable angina, unstable angina, or silent ischemia  
De novo true coronary bifurcation lesion  
Stenosis in both MB and ostium of the SB >50%  
Both branches with TIMI flow ≥1  
Treatable lesion length ≤28mm  
MV RVD 2.5-3.5mm  
SB RVD 2.25-3.5mm | Myocardial infarction within 24 hours  
LM trunk unprotected by a graft  
Visible thrombus within target lesion  
Chronic total occlusion  
LVEF <35%  
Serum creatinine ≥2.65µmol/L  
Contraindication to one of the study drugs |
| Cervinka et al. (2008) | Symptoms or signs of angina  
All types but Medina 0,1,0  
Lesion length <15mm  
MV RVD 2.7-4.0mm  
SB RVD >2.2mm | Not reported |
| DKCRUSH-I | MV RVD ≥2.5mm  
SB RVD ≥2.0mm | Life expectancy <12 months  
Liver dysfunction |
Two or more bifurcation lesions if there was one bifurcation lesion per vessel. Another single lesion in a different target vessel that could be covered by a single DES were also included.

| **Plasma creatinine ≥200µmol/L** | **Cerebrovascular within 6 months** |
|----------------------------------|-----------------------------------|
| **History of coronary artery bypass grafting** | **Allergy to aspirin, clopidogrel, and stent** |

**Colombo et al. (2004)**

- Age ≥18 years
- Stable angina, unstable angina, or silent ischemia
- De novo true coronary bifurcation lesion
- Stenosis in both MB and ostium of the SB >50%
- Both branches with TIMI flow ≥1
- Treatable lesion length ≤24mm
- Both MV and SB RVD 2.5-3.5mm

**Myocardial infarction within 24 hours**

- **Stenosis of LM unprotected by graft**
- **Thrombus within the target lesion**
- **LVEF ≤35%**
- **Serum creatinine ≥3.0mg/dL**
- **Suspected intolerance to one of the study drugs**

**Pan et al. (2004)**

- Lesion located in major bifurcation regardless of morphology and angulation
- MV RVD ≥2.5mm
- SB RVD ≥2.25mm
- Significant stenosis in both main vessel and SB origin

**Diffuse SB lesions**

Abbreviations: IVUS = intravascular ultrasound; LAD = left anterior descending coronary artery; LCx = left circumflex coronary artery; LM = left main coronary artery; LVEF = left ventricular ejection fraction; MV = main vessel; RCA = right coronary artery; RVD = reference vessel diameter; SB = side branch (vessel); STEMI = ST elevation myocardial infarction
Table S3. Anatomical characteristics of bifurcation lesions included in each trial.

| Trial               | Left Main Included | True Bifurcation | Medina Classification | Main Vessel | Side Branch | Lesion Length, mm |
|---------------------|--------------------|------------------|-----------------------|-------------|-------------|-------------------|
|                     |                    |                  |                       | Diameter, mm | Stenosis, % | Diameter, mm | Stenosis, % |              |
| EBC MAIN            | Yes                | Yes              | 1,1,1                 | 0,1,1        | ≥2.75       | >50%           | ≥2.75       | >50%          | -           |
| NBBS IV             | Yes                | Yes              | 1,1,1                 | 1,0,1        | ≥3.0        | ≥50%           | ≥2.75       | ≥50%          | SB ≤15      |
| DEFINITION II       | Yes                | Yes              | 1,1,1                 | 0,1,1        | <2.5*       | -              | ≥2.5        | Distal LM ≥70%* | MV ≥25*     |
|                     |                    |                  |                       |             |             | Non-LM ≥90%*   |             | Non-LM ≥90%*   |             |
| DKCRUSH-V           | Yes                | Yes              | 1,1,1                 | 0,1,1        | -           | ≥50%           | -           | ≥50%          | -           |
|                     |                    |                  |                       |             |             |                 |             |               |             |
| COBRA               | No                 | Yes              | 1,1,1                 | 0,1,1        | 2.75-3.75   | -              | 2.25        | -             | -           |
|                     |                    |                  |                       |             |             |                 |             |               |             |
| DKCRUSH-II          | Yes                | Yes              | 1,1,1                 | 0,1,1        | 2.5-4.0     | >50%           | 2.5-4.0     | >50%          | ≤2 stents   |
| BBK II              | Yes                | No               | 1,1,1                 | 0,1,1        | 2.5-4.0     | -              | 2.25        | -             | -           |
|                     |                    |                  |                       |             |             |                 |             |               |             |
| POLBOS II           | Yes                | No               | 1,1,1                 | 0,0,1        | ≥2.5        | -              | ≥2.0        | -             | -           |
|                     |                    |                  |                       |             |             |                 |             |               |             |
| EBC TWO             | No                 | Yes              | 1,1,1                 | 0,1,1        | ≥2.5        | >50%           | ≥2.5        | >50%          | -           |
|                     |                    |                  |                       |             |             |                 |             |               |             |
| SMART-STRATEGY      | Yes                | No               | 1,1,1                 | 0,0,1        | ≥2.5        | -              | ≥2.3        | -             | -           |
|                     |                    |                  |                       |             |             |                 |             |               |             |
| Zhang et al. (2016) | Yes                | Yes              | 1,0,1                 | 0,1,1        | ≥2.5        | -              | ≥2.0        | -             | -           |
| Study                  | Recommendation | Result | Category | Rating | Obs. (mm) | MV | SB |
|------------------------|----------------|--------|----------|--------|-----------|-----|----|
| Zheng et al. (2016)    | Yes            | Yes    | 1,1,1    | -      | ≥2.25     | -   |    |
| DKCRUSH-III            | Yes            | Yes    | 1,1,1    | ≤5     | -         | -   |    |
| BBK I                  | No             | No     | 1,0,0    | 2.5-4  | >50%      | ≥2.25| >50%|
|                       |                |        | 0,1,0    | >2     |           |     |    |
| TRYTON                 | No             | Yes    | 1,0,1    | 2.5-4  | ≥50%      | 2.5-3.5| ≥50%|
|                       |                |        | 0,1,1    | >2.5   |           |     |    |
|                       |                |        | 1,1,1    | >50%   |           |     |    |
|                       |                |        | 1,0,1    | >50%   |           |     |    |
| POLBOS I               | Yes            | No     | 1,0,0    | ≥2.5   | -         | ≥2.0 |    |
|                       |                |        | 0,1,0    |        |           |     |    |
|                       |                |        | 1,1,0    |        |           |     |    |
|                       |                |        | 1,1,1    |        |           |     |    |
|                       |                |        | 1,0,1    |        |           |     |    |
|                       |                |        | 0,1,1    |        |           |     |    |
| PERFECT                | No             | No     | 1,0,0    | ≥2.5   | -         | ≥2.0 | ≥50%| MV ≤50 |
|                       |                |        | 0,1,0    |        |           |     |    |
|                       |                |        | 1,1,0    |        |           |     |    |
|                       |                |        | 1,1,1    |        |           |     |    |
|                       |                |        | 1,0,1    |        |           |     |    |
|                       |                |        | 0,1,1    |        |           |     |    |
| NSTS                   | Yes            | No     | -        | ≥3.0   | -         | ≥2.5 | -   |
| NBS                    | Yes            | No     | -        | ≥2.5   | -         | ≥2.0 | -   |
| Ruiz et al. (2013)     | No             | No     | 1,0,0    | 2.5-4  | -         | >2   | -   |
|                       |                |        | 0,1,0    |        |           |     |    |
|                       |                |        | 1,1,0    |        |           |     |    |
|                       |                |        | 1,1,1    |        |           |     |    |
|                       |                |        | 1,0,1    |        |           |     |    |
|                       |                |        | 0,1,1    |        |           |     |    |
| Ye et al. (2012)       | No             | Yes    | 1,0,1    | -      | -         | ≥2.25| -   |
|                       |                |        | 0,1,1    |        |           |     | <2 stents |
| BBC ONE                | No             | No     | ≥2.5     | -      | ≥2.25     | -   |    |
| Study                 | No | Yes | ≥2.5 | - | ≥2.2 | - | - | ≥2.0 | - | ≥2.0 | - | - | 2.5-3.5 | >50% | 2.25-3.5 | >50% | ≤28 | 2.7-4.0 | - | >2.2 | - | - | <15 | ≤2 stents | ≤24 | ≤24 | Significant | Significant | - |
|----------------------|----|-----|------|---|------|---|---|------|---|------|---|---|--------|------|----------|------|-----|--------|---|------|---|---|-----|----|----|---|---|-----|------|
| Lin et al. (2010)    | No | Yes |      |   |      |   |   |      |   |      |   |   |        |      |          |      |     |        |   |      |   |   |     |    |    |   |   |     |      |
| Ye et al. (2010)     | No | Yes |      |   |      |   |   |      |   |      |   |   |        |      |          |      |     |        |   |      |   |   |     |    |    |   |   |     |      |
| CACTUS               | No | Yes | 1,0,1|   | 1,1,1|   |   |      |   | 1,0,1|   |   | 2.5-3.5| >50% | 2.25-3.5 | >50% | ≤28 |        |   |      |   |   |     |    |    |   |   |     |      |
| Cervinka et al. (2008)| No | No  | 1,0,0|   | 0,1,0|   |   |      |   | 1,0,1|   |   | 2.7-4.0| -    | >2.2    | -    | <15 |        |   |      |   |   |     |    |    |   |   |     |      |
| DKCRUSH-I            | Yes| Yes |      |   |      |   |   |      |   |      |   |   |        |      |          |      |     |        |   |      |   |   |     |    |    |   |   |     |      |
| Colombo et al. (2004)| No | Yes |      |   |      |   |   |      |   |      |   |   |        |      |          |      |     |        |   |      |   |   |     |    |    |   |   |     |      |
| Pan et al. (2004)    | Yes| Yes | 1,1,1|   | 0,1,1|   |   |      |   | 1,1,1|   |   | ≥2.5   | Significant | ≥2.25 | Significant | - |

*One of the criteria of complex bifurcation lesions included in the trial

Abbreviations: LM = left main coronary artery; MV = main vessel; SB = side branch
## Table S4. Procedural characteristics.

| Trial                      | Case/Control | Radial Approach, % | Intravascular Ultrasound, % | Stent Diameter, mm ± SD      | Stent Length, mm ± SD      | Main Vessel | Side Branch | POT, % | FKBI, % |
|----------------------------|--------------|--------------------|-----------------------------|-----------------------------|-----------------------------|-------------|------------|--------|--------|
| EBC MAIN                   | 70/71        | 31/36              | 3.6±0.6/3.8±0.5             | 21.8±7.0/22.1±7.0          | 3.6±0.6/3.5±0.6             | 19.3±6.7/17.6±6.9  | 87/85      | 93/22  |
| NBBS IV                    | -            | -                  | 24.3±9.6/25.0±9.5           | -                           | 9±6:13/13[8:15]*            | -            | -         | 91.2/36.1 |
| DEFINITION II              | 80.6/78.7    | 24.4/31.1          | 3.1±0.3/3.0±0.3             | 46.3±19.3/46.5±19.7        | 2.6±0.3/2.8±0.4             | 25.6±11.3/26.5±12.3 | 64.6/100   | 99.3/95.9 |
| DKCRUSH-V                  | -            | 42.9/40.5          | -                           | -                           | -                           | -            | 99.2/98.8 | 99.6/78.9 |
| COBRA                      | -            | -                  | 3.4±0.2/3.0±0.3             | 49.2±14.1/49.1±17.8**      | 2.7±0.2/2.7±0.3             | -            | -         | 100/100 |
| DKCRUSH-II                 | -            | 46.2/47.8          | -                           | 28.6±12.4/28.8±13.5        | -                           | 16.2±9.1/16.7±8.6  | -          | 100/79.2 |
| BBK II                     | 35.3/37.3    | -                  | 3.3±0.4/3.3±0.4             | 26.7±9.4/26.4±11.7         | 2.9±0.4/2.8±0.4             | 21.6±7.7/18.5±8.9 | -          | 100/100 |
| POLBOS II                  | 63.7/81      | -                  | 3.7±0.5/3.3±0.5             | 17.8±2.7/19.9±6.3          | -                           | -            | 37.3/68    | 32.7/49.0 |
| EBC TWO                    | 57/63        | -                  | 3.0±0.3/3.1±0.3             | 22.9±5.1/23.4±4.8          | 2.7±0.3/2.6±0.3             | 20.7±5.5/19.9±6.8 | -          | 96/94   |
| SMART-STRATEGY             | -            | 98.5/96.9          | 3.3±0.4/3.3±0.4             | 25.1±5.3/24.9±5.6          | 2.9±0.4/2.8±0.2             | 17.7±5.6/18.4±7.8 | -          | 68.5/25.8 |
| Zheng et al. (2016)        | -            | -                  | 22.8±7.5/24.6±6.7          | -                           | 10.4±5.6/10.2±5.8          | -            | 71.3/86.0 | -        |
| DKCRUSH-III                | 58.1/58.9    | 69.0/73.7          | 3.4±0.3/3.3±0.4             | 35.5±14.0/35.7±16.0        | 3.0±0.4/3.0±0.4             | 25.9±13.8/26.7±11.9 | -          | 99.5/99.5 |
| BBK I                      | -            | -                  | -                           | -                           | -                           | -            | 100/100    | -        |
| TRYTON                     | 34.6/35.5    | -                  | 3.1±0.4/3.1±0.4             | 14.8±4.0/14.4±3.5          | 2.6±0.4/2.4±0.4             | 13.4±3.3/13.8±3.5 | -          | 89.3/88.8 |
| POLBOS I                   | 80.8/82.1    | -                  | 3.7±0.3/3.2±0.5             | 17.4±2.5/20.7±6.8          | -                           | -            | 37.5/69.1 | 30.8/49.6 |
| PERFECT                    | 11.7/12.1    | 91.5/79.6          | 3.3±0.3/3.3±0.3             | 37.3±14.7/36.9±15.3        | 2.7±0.2/2.7±0.2             | 21.4±6.7/21.5±6.9 | -          | 95.8/79.1 |
| NSTS                       | -            | -                  | 23.5±9.3/23.6±9.1          | -                           | 10.6±5.6/10.6±5.8          | -            | 85/92      | -        |
| NBS                        | -            | -                  | 23.2±8.6/23.4±8.6          | -                           | 10.3±5.0/2.8±6.1           | -            | 74/32      | -        |
| Ruiz et al. (2013)         | -            | -                  | 22±11/25±11                | -                           | -                           | -            | 64/42      | -        |
| Ye et al. (2012)           | -            | -                  | 3.1±0.4/3.2±0.4             | 33.5±12.4/30.7±16.3        | 2.7±0.3/2.8±0.3             | 20.7±7.4/18.0±8.2 | -          | 100/86.7 |
| BBC ONE                    | 29/34        | -                  | 3.2±0.3/3.2±0.3             | 22±61/21±6                | 2.6±0.3/NR                 | 16±5/NR      | -          | 90/31   |
| Lin et al. (2010)          | -            | -                  | 3.5±0.1/3.6±0.2             | 23.6±2.1/23.8±2.6          | 2.9±0.1/2.9±0.2             | 12.7±2.8/12.9±3.1 | -          | 90.7/94.4 |
| Ye et al. (2010)           | -            | -                  | -                           | -                           | -                           | -            | -          | -        |
| CACTUS                     | -            | 3.4/4.1            | 23.8±5.9/22.2±5.7          | -                           | 17.9±5.0/18.1±6.2          | -            | 92.1/90.2  | -        |
| Cervinka et al. (2008)      | -            | -                  | -                           | -                           | -                           | -            | 97/97      | -        |
| DKCRUSH-I                  | -            | -                  | 3.4±0.4/3.4±0.5             | 22.2±12.5/25.0±12.7        | 2.7±0.4/2.8±0.4             | 17.4±5.6/17.9±7.0 | -          | 100/76.1 |
| Colombo et al. (2004)       | -            | 100/100            | 3.1±0.3/3.2±0.3             | -                           | 2.7±0.3/2.6±0.4             | -            | 90.5/81.8  | -        |
| Pan et al. (2004)           | -            | 2.9±0.3/2.9±0.3    | 26±9/25±12                | -                           | -                           | -            | 77/60      | -        |

*Median with interquartile range

**Includes stent length in the side branch

Abbreviation: FKBI = final kissing balloon inflation; NR = not reported; POT = proximal optimization technique; SD = standard deviation
## Table S5. Definition of outcomes.

| Trial          | Cardiac Death                                                                                           | Myocardial Infarction                                                                 | Target Lesion Revascularization | Target Vessel Revascularization | Stent Thrombosis | Major Adverse Cardiac Events |
|----------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------|-------------------------------|-------------------|-------------------------------|
| EBC MAIN       | Not specified                                                                                           | Third Universal Definition of Myocardial Infarction except for PCI- and CABG-related MI, for which Society for Cardiovascular Angiography and Interventions (SCAI) consensus definition was used | Repeat revascularization of MV or SB within treated vessel or 5mm adjacent area | Not specified | ARC definition | All-cause death, MI, TLR |
| NBBS IV        | Death from coronary artery disease, heart failure, or cardiac procedure within 28 days                  | Rise or fall of cardiac biomarkers with at least one value above the 99th percentile of ULN and evidence of ischemia in the myocardium documented by either ischemic symptoms, ECG changes, evidence of new loss of viable myocardium, or new RMWA Sudden and unexpected cardiac death Pathological findings suggestive of acute MI | Repeat revascularization by PCI or CABG of the target lesion in stented segments or their 5mm margins | Not specified | ARC definition | Cardiac death, non-procedural MI, clinically indicated TLR, definite stent thrombosis within 6 months |
| DEFINITION II  | Death from sudden cardiac death, acute MI, arrhythmia, heart failure, stroke, other cardiovascular causes, or bleeding | Post-procedure (within 48 hours after PCI): CK-MB ≥10 times ULN or ≥5 times with new pathologic Q waves in at least 2 contiguous leads or new LBBB, rise in CK-MB to aforementioned increment from the most recent pre-procedure level Spontaneous MI (48 hours after PCI): rise of CK-MB or troponin >1 times ULN with evidence of prolonged ischemia, ischemic ST segment changes, new pathological Q waves, angiographic evidence of flow-limiting complication, imaging evidence of new loss of viable myocardium, or new RWMA | Repeat revascularization for target lesions in the presence of symptoms or objective signs of ischemia | Repeat revascularization for target vessels in the presence of symptoms or objective signs of ischemia | ARC definition | Cardiac death, target-vessel MI, clinically driven TLR |
| DKCRUSH-V      | Any death without a clear non-cardiac cause                                                               | Peri-procedural MI: CK-MB >10 times ULN or >5 times ULN with either new pathological Q waves in 2 contiguous leads; angiographically documented graft or coronary artery occlusion or new severe stenosis with thrombosis; or imaging evidence of new loss of viable myocardium or new RWMA Spontaneous MI 72 hours after PCI: clinical syndrome consistent with MI with CK-MB or troponin >1 times ULN and new ST segment elevation or depression or equivalent | Angina or ischemic referable to the target lesion requiring clinically driven PCI or CABG | Not specified | ARC definition | Cardiac death, target-vessel MI (all MI unless clearly attributable to non-target vessel), TLR |
| COBRA          | All deaths considered cardiac unless unequivocal non-cardiac cause demonstrated                            | Evidence of myocardial necrosis consistent with myocardial ischemia, typically including detection of cardiac biomarkers with at least one value above the 99th percentile of ULN together with ischemic symptoms, pathognomonic ECG, or imaging evidence of ischemia By convention, increase of cardiac biomarkers above 3 times ULN was used to defined PCI-related MI | Revascularization of significant angiographic restenosis ≥70% anywhere in the target lesion in combination with angina or FFR <0.80 in MV or SB subtending a large myocardial territory | Not specified | Not specified | Cardiac death, MI (CK-MB based), TVR |
| DKCRUSH-II     | All deaths considered cardiac                                                                                | Rise of biochemical markers above 99th percentile with at least one of the following ischemic symptoms: | Repeat revascularization by | Repeat revascularization by | ARC definition | Cardiac death, MI, TVR |
| Trial | Definition | Additional Criteria |
|-------|------------|---------------------|
| BBK II | PCI or surgery of the target lesion | CABG or repeat PCI involving the stented segment and performed for symptoms or signs of ischemia in the presence of angiographic restenosis |
| POLBOS II | Re-vascularization of any segment of the index coronary artery | Not specified |
| EBC TWO | PCI or CABG of either the MV or SB and/or TIMI flow <3 in either the MV or SB after vasodilators | All-cause death, MI, TLR |
| SMART-STRATEGY | Repeat PCI of lesion within 5 mm of stent or CABG of the target vessel | Repeat revascularization of target vessel by PCI or CABG |
| Zhang et al. (2016) | Repeat target lesion therapy either by PCI or CABG | All-cause death, MI, TLR, TVR, stent thrombosis |
| Zheng et al. (2016) | ARC definition | ARC definition |
| DKCRUSH-III | Any repeat PCI of the stented segment, including 5mm proximal and distal margins | Not specified |
| BBK I | CABG or repeat PCI involving the stented segment and | Not specified |

**ECG changes indicative of ischemia, development of pathological Q waves, and no relation to PCI procedure**

- During hospitalization: presence of new Q waves in 2 or more contiguous ECG leads or an elevation of CK or CK-MB to at least 3 times of ULN in 2 samples
- After discharge: ESC/ACC guidelines (2000) and based on new rise in troponin T associated with typical symptoms, ECG changes, and/or angiographic findings

**Not specified**

- ARC definition
- Target-vessel failure, target bifurcation revascularization, TVL, TVR
- Cardiac death, MI, TVR, stent thrombosis
- Cardiac death, MI, TVR, stent thrombosis

**Typical rise and fall of biochemical markers of myocardial necrosis with ischemic symptoms or ECG changes as per ESC/ACC 2000**

- Peri-procedural MI: elevation of troponin >5 times the 99th percentile in patients with normal baseline values or rise >20% if the baseline values are elevated and are stable or falling
- In addition, either symptoms suggestive of myocardial ischemia, new ischemic ECG changes, angiographic findings consistent with procedural complication, or imaging demonstrating of new loss of viable myocardium or new RWMA

**Typical rise and fall of biochemical markers of myocardial necrosis with ischemic symptoms or ECG changes as per ESC/ACC 2000**

- NQWMI: CK-MB or troponin-T/I increase ≥3 times ULN with clinical signs of MI but without Q waves and not related to intervention
- QWMI: New pathological Q waves in 2 or more contiguous leads with clinical signs of MI

**Zhang et al. (2016)**

- Repeat target lesion therapy either by PCI or surgery
- Repeat target vessel therapy either by PCI or surgery

**Zheng et al. (2016)**

- Any repeat PCI of the stented segment, including 5mm proximal and distal margins
- Not specified
| Study | Definition | CK-MB >3 times ULN | Repeat revascularization | ARC definition | Outcome 1 | Outcome 2 | Outcome 3 |
|-------|------------|--------------------|-------------------------|---------------|-----------|-----------|-----------|
| TRYTON | Not specified | CK-MB >3 times ULN | Clinically or ischemia-driven revascularization of target lesion | All-cause death, MI, CABG, TLR |
| POLBOS I | All deaths deemed cardiac unless proven otherwise | Third Universal Definition of Myocardial Infarction | Re-intervention of target lesion because of symptomatic stenosis ≥50% of diameter | Not specified | Cardiac death, MI TLR |
| PERFECT | All deaths considered cardiac unless unequivocal non-cardiac cause established | Increase in CK-MB >3 times ULN with ischemic symptoms or new ischemic ECG changes | Repeat revascularization with PCI or CABG within the stent or adjacent 5mm margins | Not specified | All-cause death, MI, TVR |
| NSTS | All deaths considered cardiac unless other cause documented | Rise of biochemical markers above the 99th percentile of ULN with ischemic symptoms, ischemic ECG changes, pathological Q waves, or no relation to PCI procedure | Repeat revascularization by PCI or surgery of the target lesion | All-cause death, MI, TVR, stent thrombosis |
| NBS | All deaths considered cardiac unless other cause documented | NQWMI: CK-MB or troponin-T/I increase ≥3 times ULN with clinical signs of MI and not related to intervention QWMI: New pathological Q waves in 2 or more contiguous leads with clinical signs of MI | Repeat revascularization by PCI or surgery of the target lesion | Angiographically verified | Cardiac death, MI, TVR, stent thrombosis |
| Ruiz et al. (2013) | Not specified | Hospital admission with diagnosis of acute coronary syndrome with or without ST segment elevation | Repeat revascularization of target vessel | All-cause death, MI, TVR |
| Ye et al. (2012) | All deaths considered cardiac unless otherwise documented | Rise of CK-MB 3 times ULN | Repeat revascularization for a stenosis >50% in target lesion | Cardiac death, MI, TLR, TVR |
| BBC ONE | Not specified | First 24 hours after PCI: CK 3 times ULN, CK rise to 50% of the previous value for patient who already had a diagnosis of MI After 24 hours from PCI: ESC/ACC guidelines (2000) | PCI or CABG of either the MV or SB and/or TIMI flow <3 in either the MV or SB after vasodilators | All-cause death, MI, target-vessel failure |
| Lin et al. (2010) | Not specified | Not specified | Repeat revascularization within the treated vessel | All-cause death, MI, TVR, stent thrombosis |
| Ye et al. (2010) | All deaths considered cardiac | Rise of CK-MB 3 times ULN | Repeat revascularization for a stenosis diameter ≥50% within the stent or adjacent 5mm margins | Cardiac death, MI, TLR, TVR |
| Study | Definition of QWMI | Definition of NQWMI | Revascularization within 5mm of the stent edges | Revascularization within the treated vessel | Revascularization in the treated vessel | Cause of death or MI | Cause of death, MI, TVR |
|-------|------------------|--------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|------------------|--------------------------|
| CACTUS | QWMI: New Q waves in 2 or more contiguous leads with post-procedure CK or CK-MB above ULN and CK-MB >10% of CK level. | NQWMI: Post-procedural CK levels 2 times ULN with elevated CK-MB in the absence of pathological Q waves. | Not specified | Not specified | Not specified | ARC definition | Cardiac death, MI, TVR |
| Cervinka et al. (2008) | QWMI: New Q waves in 2 or more ECG leads with post-procedural elevation of CK 3 times ULN and CK-MB >10% of CK level. | NQWMI: Post-procedural elevation of CK 3 times ULN and CK-MB above normal. | Revascularization within 5mm of the stent edges. | Revascularization in the treated vessel. | ARC definition | All-cause death, MI, CABG, PCI |
| DKCRUSH-I | CK-MB enzyme elevation 3 times ULN either with or without Q waves in at least two contiguous leads on ECG. | Not specified | Repeat revascularization with a diameter stenosis ≥50% within the stent or in the 5mm distal or proximal margins. | Repeat revascularization within the treated vessel. | ARC definition | Cardiac death, MI, TLR |
| Colombo et al. (2004) | Not specified | Not specified | Not specified | Not specified | Not specified | In-stent occlusion or thrombus, or death or MI within 30 days. | Cardiac death, MI, TVR |
| Pan et al. (2004) | Increase in CK level 3 times ULN | Not specified | Not specified | Not specified | Not specified | Cardiac death, MI, TVR |

Abbreviations: CABG = coronary artery bypass graft; CK = creatine kinase; ECG = electrocardiogram; FFR = fractional flow reserve; MI = myocardial infarction; MV = main vessel; NQWMI = non-Q-wave myocardial infarction; PCI = percutaneous coronary intervention; QWMI = Q-wave myocardial infarction; RWMA = regional wall motion abnormality; SB = side branch; TLR = target lesion revascularization; TVR = target vessel revascularization; ULN = upper limit of normal.
| Trial                | Proximal Main Vessel | Distal Main Vessel | Side Branch |
|---------------------|----------------------|-------------------|-------------|
|                     | RVD (mm)  | MLD (mm)  | DS (%) | Length (mm) | RVD (mm)  | MLD (mm)  | DS (%) | Length (mm) | RVD (mm)  | MLD (mm)  | DS (%) | Length (mm) |
| EBC MAIN            | 3.8 ± 0.7 | 1.6 ± 0.8 | 56 ± 21 | 6.3 ± 2.8 | 2.9 ± 0.6 | 1.3 ± 0.5 | 56 ± 17 | 8.0 ± 5.1 | 2.7 ± 0.5 | 1.19 ± 0.5 | 55 ± 16 | 7.9 ± 5.7 |
| NBBS IV             | 3.8 ± 0.8 | 1.8 ± 0.9 | 53 ± 21 | 6.4 ± 3.2 | 2.8 ± 0.4 | 1.1 ± 0.4 | 59 ± 14 | 8.4 ± 6.1 | 2.7 ± 0.6 | 1.29 ± 0.6 | 52 ± 19 | 5.8 ± 4.0 |
| DEFINITION II       | 3.2 ± 0.6 | 1.4 ± 0.6 | 57 ± 17 | 19.5 ± 8.9 | 2.61 ± 0.5 | 1.43 ± 0.6 | 43 ± 22 | - | 2.40 ± 0.5 | 1.21 ± 0.5 | 49 ± 17 | 7.7 ± 4.9 |
| DKCRUSH-V           | 3.1 ± 0.5 | 1.29 ± 0.6 | 59 ± 16 | 20.8 ± 9.9 | 2.57 ± 0.5 | 1.43 ± 0.6 | 40 ± 20 | - | 2.33 ± 0.5 | 1.43 ± 0.7 | 43 ± 18 | 6.4 ± 4.1 |
| COBRA               | 3.5 ± 0.5 | 2.0 ± 1.0 | 43 ± 26 | 41 ± 13* | 2.7 ± 0.4 | 1.12 ± 0.5 | 58 ± 19 | - | 2.38 ± 0.4 | 0.91 ± 0.4 | 62 ± 16 | 20.7 ± 10 |
| DKCRUSH-II          | 3.4 ± 0.5 | 1.86 ± 0.7 | 57 ± 13 | 7.35 ± 3.7 | 2.56 ± 0.5 | 1.32 ± 0.5 | 48 ± 16 | 10.6 ± 8.0 | 2.33 ± 0.3 | 0.94 ± 0.4 | 59 ± 18 | 9.2 ± 5.9 |
| BBK II              | 2.9 ± 0.3 | 1.46 ± 0.7 | 62 ± 14 | 10.1 ± 3.7 | 2.49 ± 0.6 | 1.51 ± 0.6 | 39 ± 17 | 7.6 ± 5.8 | 2.21 ± 0.4 | 1.19 ± 0.6 | 46 ± 23 | 7.1 ± 5.3 |
| POLBOS II           | 3.6 ± 0.2 | 1.40 ± 0.2 | 61 ± 14 | 9.3 ± 3.4 | 3.01 ± 0.1 | 1.56 ± 0.2 | 48 ± 16 | 8.3 ± 2.9 | 2.45 ± 0.4 | 1.13 ± 0.2 | 54 ± 24 | 4.2 ± 2.1 |
| EBC TWO             | - | 1.1 ± 0.5 | 48 ± 21 | 18 ± 8.8 | - | - | - | - | 0.93 ± 0.3 | 55 ± 14 | 10.8 ± 7.3 |
| SMART-STRATEGY      | 3.1 ± 0.6 | 0.82 ± 0.5 | 73 ± 15 | 13.7 ± 8.1 | - | - | - | - | 0.96 ± 0.4 | 54 ± 16 | 9.7 ± 7.1 |
| Zhang et al. (2016) | 3.0 ± 0.5 | 0.77 ± 0.5 | 75 ± 15 | 13.2 ± 6.9 | - | - | - | - | 2.49 ± 0.5 | 1.27 ± 0.7 | 50 ± 23 | 4.9 ± 4.0 |
| Zheng et al. (2016) | 3.4 ± 0.6 | 1.29 ± 0.9 | 61 ± 27 | 7.6 ± 4.9 | 0.76 ± 0.6 | 75 ± 21 | 14.7 ± 7.7 | 2.44 ± 0.4 | 0.59 ± 0.3 | 76 ± 11 | 12.8 ± 4.9 |
| DKCRUSH-III         | 3.4 ± 0.4 | 1.85 ± 0.5 | 56 ± 9 | 16.1 ± 6.3 | - | 1.42 ± 0.5 | 64 ± 8 | - | 2.6 ± 0.3 | 1.23 ± 0.3 | 56 ± 10 | 7.9 ± 4.1 |
| BBK I               | 3.1 ± 0.4 | 1.63 ± 0.9 | 47 ± 26 | 20.9 ± 8.2 | - | 1.20 ± 0.7 | 55 ± 24 | - | 2.38 ± 0.3 | 2.30 ± 0.4 | 54 ± 22 | 9.9 ± 4.2 |
| TRYTON              | 3.1 ± 0.4 | 1.53 ± 0.8 | 50 ± 27 | 21.7 ± 7.5 | - | 1.28 ± 0.7 | 53 ± 24 | - | 2.39 ± 0.3 | 1.97 ± 0.5 | 53 ± 23 | 10.4 ± 4.1 |
| POLBOS I            | 3.6 ± 0.3 | 1.14 ± 0.4 | 64 ± 12 | 26.9 ± 15 | 2.6 ± 0.4 | - | - | - | 2.2 ± 0.4 | 1.1 ± 0.4 | 57 ± 14 | 10.3 ± 8.2 |
| PERFECT             | 3.7 ± 0.5 | 1.14 ± 0.4 | 66 ± 12 | 27.8 ± 13 | 2.6 ± 0.4 | - | - | - | 2.2 ± 0.4 | 1.1 ± 0.4 | 53 ± 17 | 8.3 ± 7.3 |
| NSTS                | 3.0 ± 0.7 | 1.98 ± 0.8 | 36 ± 22 | 17.4 ± 10 | 2.59 ± 0.6 | 1.53 ± 0.7 | 40 ± 23.41 | - | 2.39 ± 0.6 | 1.45 ± 0.6 | 39 ± 23 | 7.3 ± 5.8 |
| NBS                 | 3.0 ± 0.7 | 1.8 ± 0.8 | 40 ± 23 | 17.4 ± 10 | 2.49 ± 0.6 | 1.48 ± 0.7 | 40 ± 24 | - | 2.38 ± 0.6 | 1.39 ± 0.7 | 42 ± 23 | 7.5 ± 6.0 |
| Ruiz et al. (2013)  | 2.9 ± 0.7 | 1.43 ± 0.8 | 40 ± 27 | 23.4 ± 8.6 | 2.41 ± 0.6 | 1.18 ± 0.7 | 52 ± 24 | - | 2.24 ± 0.5 | 1.21 ± 0.6 | 46 ± 26 | 6.0 ± 4.8 |
| Ye et al. (2012)    | 2.9 ± 0.5 | 0.97 ± 0.3 | 64 ± 7 | 28.9 ± 11 | - | - | - | - | 2.27 ± 0.3 | 0.97 ± 0.3 | 70 ± 7 | 16.9 ± 8.2 |
| BBC ONE             | - | - | 85 ± 11 | - | - | - | - | - | 0.10 ± 0.4 | 45 ± 20 | - |

Note: DS = Diameter Stenosis, MLD = Minimum Lumen Diameter, RVD = Reference Vessel Diameter, Length = Length of Stenosis.
| Study                  | DS (mm) | MLD (mm) | RVD (mm) | 87 ± 10 | 63 ± 31 |
|------------------------|---------|----------|----------|---------|---------|
| Lin et al. (2010)      | 3.9 ± 0.4 | 60 ± 8 | 23.6 ± 2.1 | 3.82 ± 0.5 | 1.43 ± 0.2 | 62 ± 5 | 2.79 ± 0.2 | 0.84 ± 0.1 | 70 ± 5 | 12.7 ± 2.8 |
|                        | 4.0 ± 0.4 | 60 ± 8 | 23.8 ± 2.6 | 3.91 ± 0.6 | 1.45 ± 0.3 | 63 ± 4 | 2.82 ± 0.3 | 0.85 ± 0.2 | 70 ± 5 | 12.9 ± 3.1 |
| Ye et al. (2010)       | 3.1 ± 0.6 | 60 ± 8 | 12.6 ± 7.2 | 2.4 ± 0.5 | 1.4 ± 0.6 | - | 29.3 ± 8.3 | 2.2 ± 0.4 | 1.2 ± 0.4 | 17.1 ± 8.0 |
|                        | 3.3 ± 0.7 | 60 ± 8 | 12.3 ± 5.1 | 2.8 ± 0.7 | 1.6 ± 0.6 | - | 25.3 ± 7.7 | 2.4 ± 0.7 | 1.3 ± 0.5 | - | 11.5 ± 6.9 |
| CACTUS                 | 2.9 ± 0.3 | 68 ± 12 | 15.8 ± 8.7 | - | - | - | - | 2.16 ± 0.3 | 0.83 ± 0.3 | 61 ± 13 | 5.7 ± 4.2 |
| Ye et al. (2010)       | 2.7 ± 0.4 | 69 ± 12 | 14.7 ± 8.2 | - | - | - | - | 2.16 ± 0.3 | 0.83 ± 0.3 | 61 ± 13 | 5.7 ± 4.2 |
| Cervinka et al. (2008) | 3.4 ± 0.4 | 60 ± 8 | 21.3 ± 11 | 2.53 ± 0.4 | 0.65 ± 0.3 | 66 ± 20 | - | 2.46 ± 0.5 | 0.84 ± 0.6 | 65 ± 20 | 10.3 ± 6.3 |
|                        | 3.5 ± 0.4 | - | 20.0 ± 10 | 2.56 ± 0.5 | 0.62 ± 0.3 | 62 ± 12 | - | 2.45 ± 0.5 | 0.84 ± 0.5 | 66 ± 19 | 10.5 ± 7.5 |
| DKCRUSH-I              | 2.85 ± 0.5 | 65 ± 13 | 21.3 ± 11 | 2.53 ± 0.4 | 0.65 ± 0.3 | 66 ± 20 | - | 2.46 ± 0.5 | 0.84 ± 0.6 | 65 ± 20 | 10.3 ± 6.3 |
|                        | 2.86 ± 0.6 | 64 ± 14 | 20.0 ± 10 | 2.56 ± 0.5 | 0.62 ± 0.3 | 62 ± 12 | - | 2.45 ± 0.5 | 0.84 ± 0.5 | 66 ± 19 | 10.5 ± 7.5 |
| Colombo et al. (2004)  | 2.6 ± 0.4 | 62 ± 12 | 10.8 ± 4.8 | - | - | - | - | 2.1 ± 0.3 | 0.88 ± 0.4 | 57 ± 17 | 5.5 ± 4.1 |
|                        | 2.6 ± 0.5 | 65 ± 11 | 12.2 ± 5.6 | - | - | - | - | 2.1 ± 0.3 | 1.14 ± 0.5 | 46 ± 22 | 5.1 ± 4.4 |
| Pan et al. (2004)      | 0.74 ± 0.5 | 77 ± 14 | - | - | - | - | - | 0.93 ± 0.4 | 64 ± 13 | - |

*Lesion length including both proximal and distal main vessel
Abbreviations: DS = diameter stenosis; MLD = minimum lumen diameter; RVD = reference vessel diameter
Table S7. Risk of bias in the selected trials using the Cochrane Risk Assessment Tool.

| Trial             | Random Sequence Generation (Selection Bias) | Allocation Concealment (Selection Bias) | Blinding of Participants and Personnel* (Performance Bias) | Blinding of Outcome Assessment (Detection Bias) | Incomplete Outcome Data (Attrition Bias) | Selective Reporting (Reporting Bias) | Other Bias |
|-------------------|---------------------------------------------|------------------------------------------|-------------------------------------------------------------|-------------------------------------------------|----------------------------------------|-------------------------------------|------------|
| EBC MAIN          | Low                                         | Low                                      | Low                                                         | Low                                             | Low                                    | Low                                                | Low        |
| NBBS IV           | High                                        | High                                     | High                                                        | High                                            | Low                                    | Low                                                | Low        |
| DEFINITION II     | Low                                         | Low                                      | Unclear                                                     | Low                                             | Low                                    | Low                                                | Low        |
| DKCRUSH-V         | Low                                         | Low                                      | Unclear                                                     | Low                                             | Low                                    | Low                                                | Low        |
| COBRA             | Low                                         | Unclear                                  | Low                                                         | Low                                             | Low                                    | Low                                                | Low        |
| DKCRUSH-II        | Unclear                                     | Low                                      | Low                                                         | Low                                             | Low                                    | Low                                                | Low        |
| BBK II            | Low                                         | High                                     | Low                                                         | Low                                             | Low                                    | Low                                                | Low        |
| POLBOS II         | Low                                         | High                                     | Low                                                         | Unclear                                         | Low                                    | Low                                                | Low        |
| EBC TWO           | Low                                         | Unclear                                  | Low                                                         | Unclear                                         | Low                                    | Low                                                | Low        |
| SMART-STRATEGY    | Unclear                                     | Low                                      | High                                                        | Low                                             | Low                                    | Low                                                | Low        |
| Zhang et al. (2016) | Low                                         | Unclear                                  | Low                                                         | Unclear                                         | Low                                    | Low                                                | Low        |
| Zheng et al. (2016) | Unclear                                     | Low                                      | Unclear                                                     | Unclear                                         | Low                                    | Low                                                | Low        |
| DKCRUSH-III       | Unclear                                     | Low                                      | Unclear                                                     | Low                                             | Low                                    | Low                                                | Low        |
| BBK I             | Low                                         | High                                     | Unclear                                                     | Low                                             | Unclear                                | Unclear                                            | Low        |
| TRYTON            | Low                                         | Low                                      | Low                                                         | High                                            | Low                                    | Low                                                | Low        |
| POLBOS I          | Low                                         | Low                                      | High                                                        | Low                                             | Low                                    | High                                                | Low        |
| PERFECT           | Low                                         | Low                                      | High                                                        | Unclear                                         | Low                                    | Low                                                | Low        |
| NSTS              | Low                                         | High                                     | Low                                                         | Unclear                                         | Low                                    | Low                                                | Low        |
| NBS               | Low                                         | High                                     | Low                                                         | Unclear                                         | Low                                    | Unclear                                            | Low        |
| Ruiz et al. (2013) | Unclear                                     | Low                                      | Unclear                                                     | High                                            | Unclear                                | Low                                                | High       |
| Ye et al. (2012)  | High                                        | High                                     | Unclear                                                     | Low                                             | Low                                    | Unclear                                            | Low        |
| BBC ONE           | Low                                         | Low                                      | Unclear                                                     | Low                                             | Low                                    | Low                                                | Low        |
| Lin et al. (2010) | Low                                         | Unclear                                  | Low                                                         | Unclear                                         | Low                                    | Unclear                                            | Low        |
| Ye et al. (2010)  | High                                        | High                                     | Unclear                                                     | Low                                             | Low                                    | Unclear                                            | Low        |
| CACTUS            | Unclear                                     | Low                                      | Unclear                                                     | Low                                             | Low                                    | Low                                                | Low        |
| Cervinka et al. (2008) | Low                                         | Unclear                                  | Low                                                         | Low                                             | Low                                    | Low                                                | Low        |
| DKCRUSH-I         | Low                                         | Unclear                                  | Low                                                         | Low                                             | Low                                    | Unclear                                            | Low        |
| Colombo et al. (2004) | Unclear                                     | Low                                      | Unclear                                                     | Low                                             | Unclear                                | High                                              | Low        |
| Pan et al. (2004) | High                                        | High                                     | Unclear                                                     | Low                                             | Unclear                                | High                                              | Low        |

*Single-blinded trials were assessed to have low risk of bias as operators could not be completely blinded due to the nature of the study.
|                          | Begg and Mazumdar’ Test, \( P \)-value | Egger’s Test, \( P \)-value |
|------------------------|----------------------------------------|-----------------------------|
| All-cause mortality    | 0.93                                   | 0.44                        |
| Cardiac Death          | 0.09                                   | 0.40                        |
| Major Adverse Cardiac Events | 0.32                             | 0.39                        |
| Myocardial Infarction  | 0.43                                   | 0.29                        |
| Stent Thrombosis       | 0.37                                   | 0.02                        |
| Target Lesion Revascularization | 0.71                   | 0.93                        |
| Target Vessel Revascularization | 0.09                  | 0.40                        |
Table S9. Assessment of heterogeneities in the network model.

| Outcome                                    | $\tau^2$ | $I^2$ | Total |       |       |       |       |       |       |
|--------------------------------------------|----------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                            | Q        | DF    | $P$-value | Q    | DF    | $P$-value | Q    | DF    | $P$-value |
| All-cause mortality                        | 0        | 14    | 0.9884 | 2.59  | 11    | 0.9951 | 2.21  | 3     | 0.5292  |
| Cardiac Death                              | 0        | 18    | 0.9990 | 4.27  | 13    | 0.9880 | 0.65  | 5     | 0.9856  |
| Major Adverse Cardiac Events               | 0.0172   | 21    | 0.2632 | 20.02 | 16    | 0.2195 | 4.62  | 5     | 0.4637  |
| Myocardial Infarction                      | 0.0366   | 24    | 0.2997 | 22.79 | 19    | 0.2469 | 4.32  | 5     | 0.5048  |
| Stent Thrombosis                           | 0        | 23    | 0.9770 | 8.48  | 18    | 0.9705 | 3.06  | 5     | 0.6915  |
| Target Lesion Revascularization            | 0        | 21    | 0.8578 | 10.29 | 16    | 0.8510 | 3.98  | 5     | 0.5526  |
| Target Vessel Revascularization            | 0        | 18    | 0.7042 | 9.38  | 14    | 0.8058 | 5.00  | 4     | 0.2877  |

Abbreviations: DF = degrees of freedom
Table S10. P-scores of each bifurcation technique for every outcome.

|                                | Provisional | Culotte | DK Crush | DBS | T/TAP | Crush |
|--------------------------------|-------------|---------|----------|-----|-------|-------|
| All-cause mortality            | 0.6064      | 0.2766  | 0.7387   | 0.6744 | 0.4972 | 0.2067 |
| Cardiac Death                  | 0.4960      | 0.3649  | 0.8473   | 0.8622 | 0.1751 | 0.2545 |
| Major Adverse Cardiac Events   | 0.6867      | 0.5076  | 1.0000   | 0.3854 | 0.1755 | 0.2448 |
| Myocardial Infarction          | 0.5580      | 0.4343  | 0.9522   | 0.3304 | 0.5796 | 0.1455 |
| Stent Thrombosis               | 0.6430      | 0.3731  | 0.9809   | 0.3513 | 0.1125 | 0.5392 |
| Target Lesion Revascularization| 0.6451      | 0.5208  | 1.0000   | 0.2306 | 0.1571 | 0.4465 |
| Target Vessel Revascularization| 0.6205      | 0.5899  | 0.9997   | 0.1762 | 0.2957 | 0.3180 |

Abbreviation: DBS = dedicated bifurcation stent; DK crush = double kissing crush; T/TAP = T-stenting or T and protrusion
Table S11. SUCRA scores of each bifurcation technique for every outcome.

|                               | Provisional | Culotte | DK Crush | DBS   | T/TAP | Crush |
|--------------------------------|-------------|---------|----------|-------|-------|-------|
| All-cause mortality            | 0.5826      | 0.3111  | 0.7048   | 0.6655| 0.5119| 0.2242|
| Cardiac Death                  | 0.4923      | 0.3676  | 0.8292   | 0.8639| 0.1853| 0.2627|
| Major Adverse Cardiac Events   | 0.6759      | 0.5046  | 0.9998   | 0.3968| 0.1721| 0.2508|
| Myocardial Infarction          | 0.5278      | 0.4266  | 0.9324   | 0.41019| 0.5663| 0.1450|
| Stent Thrombosis               | 0.6474      | 0.3854  | 0.9750   | 0.3596| 0.1264| 0.5061|
| Target Lesion Revascularization| 0.6271      | 0.5055  | 0.9999   | 0.2486| 0.1576| 0.4613|
| Target Vessel Revascularization| 0.5822      | 0.5730  | 0.9987   | 0.1864| 0.3228| 0.3369|

Abbreviation: DBS = dedicated bifurcation stent; DK crush = double kissing crush; T/TAP = T-stenting or T and protrusion
Table S12. Best rank analyses with hierarchical Bayesian model for each outcome.

|                      | 1st     | 2nd     | 3rd     | 4th     | 5th     | 6th     |
|----------------------|---------|---------|---------|---------|---------|---------|
| **All-cause Mortality** |         |         |         |         |         |         |
| Culotte              | 0.03300 | 0.07775 | 0.11763 | 0.20628 | 0.32578 | 0.23958 |
| DK Crush             | 0.33365 | 0.26843 | 0.15513 | 0.11625 | 0.07445 | 0.05210 |
| DBS                  | 0.37618 | 0.18980 | 0.12650 | 0.11200 | 0.09328 | 0.10225 |
| Crush                | 0.01923 | 0.04540 | 0.07813 | 0.15545 | 0.28853 | 0.41328 |
| T/TAP                | 0.18905 | 0.17388 | 0.14315 | 0.17163 | 0.14450 | 0.17780 |
| PS                   | 0.04890 | 0.24475 | 0.37948 | 0.23840 | 0.07348 | 0.01500 |
| **Cardiac Death**    |         |         |         |         |         |         |
| Culotte              | 0.01343 | 0.06648 | 0.18848 | 0.31595 | 0.30783 | 0.10785 |
| DK Crush             | 0.28798 | 0.59903 | 0.09003 | 0.01778 | 0.00440 | 0.00080 |
| DBS                  | 0.66385 | 0.17045 | 0.06743 | 0.03983 | 0.03675 | 0.02170 |
| Crush                | 0.00420 | 0.02993 | 0.09915 | 0.23995 | 0.39528 | 0.23150 |
| T/TAP                | 0.02810 | 0.05340 | 0.08155 | 0.09883 | 0.12485 | 0.61328 |
| PS                   | 0.00245 | 0.08073 | 0.47338 | 0.28768 | 0.13090 | 0.02488 |
| **Major Adverse Cardiac Events** |         |         |         |         |         |         |
| Culotte              | 0.00003 | 0.22493 | 0.29793 | 0.28718 | 0.15508 | 0.03488 |
| DK Crush             | 0.99903 | 0.00098 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| DBS                  | 0.00088 | 0.17345 | 0.19593 | 0.22605 | 0.24593 | 0.15778 |
| Crush                | 0.00000 | 0.01795 | 0.08110 | 0.26393 | 0.41103 | 0.22600 |
| T/TAP                | 0.00008 | 0.06313 | 0.06823 | 0.11473 | 0.17348 | 0.58038 |
| PS                   | 0.00000 | 0.51958 | 0.35683 | 0.10813 | 0.01450 | 0.00098 |
| **Myocardial Infarction** |       |         |         |         |         |         |
| Culotte              | 0.01085 | 0.14490 | 0.23765 | 0.27080 | 0.24463 | 0.09118 |
| DK Crush             | 0.72735 | 0.22533 | 0.03380 | 0.00978 | 0.00315 | 0.00060 |
| DBS                  | 0.05663 | 0.16495 | 0.16580 | 0.17635 | 0.21653 | 0.21975 |
| Crush                | 0.00060 | 0.01100 | 0.04065 | 0.11825 | 0.31935 | 0.51015 |
| T/TAP                | 0.20100 | 0.28068 | 0.12290 | 0.10935 | 0.11648 | 0.16960 |
| PS                   | 0.00358 | 0.17315 | 0.39920 | 0.31548 | 0.09988 | 0.00873 |
|                  |       |       |       |       |       |
|------------------|-------|-------|-------|-------|-------|
|                  | 1st   | 2nd   | 3rd   | 4th   | 5th   | 6th   |
| **Stent Thrombosis** | Culotte | 0.00573 | 0.07410 | 0.19285 | 0.36505 | 0.29340 | 0.06888 |
|                  | DK Crush | 0.89528 | 0.08993 | 0.01055 | 0.00333 | 0.00085 | 0.00008 |
|                  | DBS | 0.07113 | 0.15840 | 0.10823 | 0.11203 | 0.26023 | 0.29000 |
|                  | Crush | 0.01613 | 0.21670 | 0.28818 | 0.27925 | 0.15993 | 0.03983 |
|                  | T/TAP | 0.00220 | 0.01653 | 0.04500 | 0.08358 | 0.25273 | 0.59998 |
|                  | PS | 0.00955 | 0.44435 | 0.35520 | 0.15678 | 0.03288 | 0.00125 |
| **Target Lesion** | **Revascularization** |       |       |       |       |       |
|                  |       |       |       |       |       |       |
|                  |       |       |       |       |       |       |
|                  |       |       |       |       |       |       |
| **Stent Thrombosis** | Culotte | 0.00003 | 0.26973 | 0.24548 | 0.27343 | 0.16533 | 0.04603 |
|                  | DK Crush | 0.99973 | 0.00028 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
|                  | DBS | 0.00023 | 0.08858 | 0.09708 | 0.14105 | 0.31400 | 0.35908 |
|                  | Crush | 0.00000 | 0.20553 | 0.23448 | 0.29223 | 0.19633 | 0.07145 |
|                  | T/TAP | 0.00003 | 0.03478 | 0.05028 | 0.10430 | 0.28953 | 0.52110 |
|                  | PS | 0.00000 | 0.40113 | 0.37270 | 0.18900 | 0.03483 | 0.00235 |
| **Target Vessel** | **Revascularization** |       |       |       |       |       |
|                  |       |       |       |       |       |       |
|                  |       |       |       |       |       |       |
| **Stent Thrombosis** | Culotte | 0.00090 | 0.41400 | 0.24023 | 0.18490 | 0.11398 | 0.04600 |
|                  | DK Crush | 0.99393 | 0.00580 | 0.00023 | 0.00005 | 0.00000 | 0.00000 |
|                  | DBS | 0.00053 | 0.04838 | 0.07040 | 0.12575 | 0.27323 | 0.48173 |
|                  | Crush | 0.00008 | 0.06155 | 0.16600 | 0.31193 | 0.31615 | 0.14430 |
|                  | T/TAP | 0.00450 | 0.18350 | 0.11535 | 0.13800 | 0.23550 | 0.32315 |
|                  | PS | 0.00008 | 0.28678 | 0.40780 | 0.23938 | 0.06115 | 0.00483 |
Table S13. Follow up coronary angiography and time at outcome assessment.

| Trial               | Angiographic Follow Up | Clinical Follow Up |
|---------------------|------------------------|--------------------|
| EBC MAIN            | N/A                    | 1 year             |
| NBBS IV             | 8 months               | 2 years            |
| DEFINITION II       | 13 months              | 1 year             |
| DKCRUSH-V           | 13 months              | 3 years            |
| COBRA               | 9 months               | 5 years            |
| DKCRUSH-II          | 8 months               | 5 years            |
| BBK II              | 9 months               | 1 year             |
| POLBOS II           | 12 months              | 1 year             |
| EBC TWO             | N/A                    | 1 year             |
| SMART-STRATEGY      | 9 months               | 3 years            |
| *Zhang et al. (2016)* | 9 months              | 9 months            |
| *Zheng et al. (2016)* | 12 months             | 1 year             |
| DKCRUSH-III         | 8 months               | 3 years            |
| BBK I               | 9 months               | 5 years            |
| Tryton              | 9 months               | 9 months            |
| POLBOS I            | 12 months              | 1 year             |
| PERFECT             | 8 months               | 1 year             |
| NSTS                | 8 months               | 3 years            |
| NBS                 | 8 months               | 5 years            |
| *Ruiz et al. (2013)* | 9 months              | 9 months            |
| Ye et al. (2012)    | 8 months               | 1 year             |
| BBC ONE             | N/A                    | 9 months            |
| *Lin et al. (2010)* | 8 months               | 8 months            |
| Ye et al. (2010)    | 8 months               | 8 months            |
| CACTUS              | 6 months               | 6 months            |
| *Cervinka et al. (2008)* | 12 months        | 1 year             |
| DKCRUSH-I           | 8 months               | 8 months            |
| Colombo et al. (2004)| 6 months             | 6 months            |
| Pan et al. (2004)   | 6 months               | 6 months            |
Table S14. Node-splitting analysis for each outcome.

| Outcome                      | Comparison         | $K$ | Prop | NMA | Direct | Indirect | Difference | Z-value | P-value |
|------------------------------|--------------------|-----|------|-----|--------|----------|------------|---------|---------|
| All-cause Mortality          | Culotte vs Crush   | 2   | 0.59 | -0.0670 | 0.2098 | -0.4617 | 0.6714 | 1.13 | 0.2593 |
|                              | Culotte vs DBS      | 1   | 0.18 | 0.4225 | -0.6931 | 0.6727 | -1.3658 | -1.04 | 0.2968 |
|                              | Culotte vs PS       | 3   | 0.57 | 0.2922 | 0.1136 | 0.5272 | -0.4136 | -0.74 | 0.4566 |
|                              | Culotte vs T/TAP    | 1   | 0.24 | 0.2070 | 0.4055 | 0.1443 | 0.2612 | 0.25 | 0.8015 |
|                              | DBS vs PS           | 4   | 0.86 | -0.1303 | -0.3172 | 1.0486 | -1.3658 | -1.04 | 0.2968 |
|                              | PS vs Crush         | 3   | 0.72 | -0.3592 | -0.5460 | 0.1254 | -0.6714 | -1.13 | 0.2593 |
|                              | PS vs T/TAP         | 3   | 0.84 | -0.0852 | -0.1281 | 0.1331 | -0.2612 | -0.25 | 0.8015 |
| Cardiac Death                | Culotte vs Crush   | 2   | 0.66 | -0.1545 | -0.1324 | -0.1977 | 0.0652 | 0.08 | 0.9374 |
|                              | Culotte vs DBS      | 1   | 0.19 | 1.1243 | 0.0000 | 1.3844 | -1.3844 | -0.63 | 0.5278 |
|                              | Culotte vs DK Crush | 1   | 0.36 | 0.7791 | 0.6980 | 0.8242 | -0.1262 | -0.14 | 0.8851 |
|                              | Culotte vs PS       | 2   | 0.23 | 0.2097 | 0.2682 | 0.1923 | 0.0759 | 0.08 | 0.9374 |
|                              | Culotte vs T/TAP    | 1   | 0.36 | -0.5517 | 0.0000 | -0.8612 | 0.8612 | 0.49 | 0.6248 |
|                              | DBS vs PS           | 4   | 0.85 | -0.9146 | -1.1254 | 0.2589 | -1.3844 | -0.63 | 0.5278 |
|                              | DK Crush vs Crush  | 1   | 0.12 | -0.9337 | -1.0922 | -0.9111 | -0.1811 | -0.15 | 0.8828 |
|                              | DK Crush vs PS      | 6   | 0.92 | -0.5694 | -0.5715 | -0.5445 | -0.0270 | -0.04 | 0.9721 |
|                              | PS vs Crush         | 3   | 0.61 | -0.3642 | -0.3582 | -0.3737 | 0.0155 | 0.02 | 0.9841 |
|                              | PS vs T/TAP         | 2   | 0.70 | -0.7614 | 1.0224 | -0.1612 | -0.8612 | -0.49 | 0.6248 |
| Major Adverse Cardiac Events | Culotte vs Crush   | 2   | 0.45 | -0.1336 | -0.2095 | -0.0707 | -0.1388 | -0.47 | 0.6350 |
|                              | Culotte vs DBS      | 1   | 0.02 | -0.0641 | 1.6094 | -0.0967 | 1.7062 | 1.11 | 0.2675 |
|                              | Culotte vs DK Crush | 1   | 0.30 | 0.7825 | 1.0634 | 0.6611 | 0.4023 | 1.14 | 0.2539 |
|                              | Culotte vs PS       | 4   | 0.46 | 0.0832 | 0.0785 | 0.0872 | -0.0086 | -0.03 | 0.9745 |
|                              | Culotte vs T/TAP    | 1   | 0.38 | -0.2345 | -0.5878 | -0.0169 | -0.5709 | -1.12 | 0.2607 |
|                              | DBS vs PS           | 4   | 0.99 | 0.1472 | 0.1667 | -1.5395 | 1.7062 | 1.11 | 0.2675 |
|                              | DK Crush vs Crush  | 1   | 0.26 | -0.9161 | -0.7408 | -0.9779 | 0.2371 | 0.69 | 0.4875 |
|                              | DK Crush vs PS      | 6   | 0.72 | -0.6993 | -0.6729 | -0.7658 | 0.0928 | 0.33 | 0.7382 |
|                              | PS vs Crush         | 4   | 0.72 | -0.2168 | -0.2239 | -0.1982 | -0.0258 | -0.10 | 0.9181 |
|                              | PS vs T/TAP         | 2   | 0.70 | -0.3177 | -0.1438 | -0.7147 | 0.5709 | 1.12 | 0.2607 |
| Myocardial Infarction        | Culotte vs Crush   | 2   | 0.36 | -0.2197 | -0.2961 | -0.1758 | -0.1203 | -0.27 | 0.7902 |
|                              | Culotte vs DBS      | 1   | 0.04 | -0.0859 | 1.0986 | -0.1319 | 1.2305 | 0.75 | 0.4547 |
|                              | Culotte vs DK Crush | 1   | 0.28 | 0.5944 | 0.8921 | 0.4775 | 0.4146 | 0.73 | 0.4625 |
|                              | Culotte vs PS       | 4   | 0.61 | 0.0767 | -0.0161 | 0.2245 | -0.2406 | -0.60 | 0.5467 |
|                              | Culotte vs T/TAP    | 1   | 0.16 | 0.1723 | 0.6931 | 0.0736 | 0.6196 | 0.46 | 0.6453 |
|                              | DBS vs PS           | 4   | 0.98 | 0.1627 | 0.1912 | -1.0393 | 1.2305 | 0.75 | 0.4547 |
|                  | Culotte vs Crush | 2 | 0.73 | 0.1854 | 2.310 | 0.0647 | 0.1663 | 0.25 | 0.7998 |
|------------------|------------------|----|------|--------|-------|--------|--------|------|--------|
|                  | Culotte vs DBS   | 1  | 0.14 | -0.1501| 0.0000| -0.1752| 0.1752 | 0.08 | 0.9346 |
|                  | Culotte vs DK Crush | 1  | 0.14 | 1.0032 | 2.0843| 0.8325 | 1.2518 | 1.10 | 0.2707 |
|                  | Culotte vs PS    | 4  | 0.54 | 0.3083 | -0.0551| 0.7361 | -0.7912| -1.26 | 0.2065 |
|                  | Culotte vs T/TAP | 1  | 0.10 | -0.5529| 1.0986| -0.7400| 1.8386 | 1.07 | 0.2847 |
|                  | DBS vs PS        | 4  | 0.88 | 0.4584 | 0.4797| 0.3045 | 0.1752 | 0.08 | 0.9346 |
|                  | DK Crush vs Crush | 1  | 0.23 | -0.8178| -0.9099| -0.7910| -0.1189| -0.13 | 0.8996 |
|                  | DK Crush vs PS   | 5  | 0.84 | -0.6949| -0.5874| -1.2717| 0.6843 | 0.87 | 0.3849 |
|                  | PS vs Crush      | 4  | 0.47 | -0.1229| -0.1794| -0.0723| -0.1071| -0.16 | 0.8694 |
|                  | PS vs T/TAP      | 5  | 0.93 | -0.8612| -0.9855| 0.8530 | -1.8386| -1.07 | 0.2847 |

**Stent Thrombosis**

|                  | Culotte vs Crush | 2  | 0.39 | -0.0418| -0.1169| 0.0066 | -0.1236| -0.31 | 0.7547 |
|------------------|------------------|----|------|--------|-------|--------|--------|------|--------|
|                  | Culotte vs DBS   | 1  | 0.03 | -0.2152| 1.0986| -0.2540| 1.3526 | 0.83 | 0.4058 |
|                  | Culotte vs DK Crush | 1  | 0.26 | 0.8872 | 1.2927| 0.7442 | 0.5485 | 1.22 | 0.2231 |
|                  | Culotte vs PS    | 3  | 0.51 | 0.0604 | 0.0776| 0.0425 | 0.0351 | 0.11 | 0.9150 |
|                  | Culotte vs T/TAP | 1  | 0.36 | -0.2713| -0.6931| -0.0343| -0.6589| -1.35 | 0.1782 |
|                  | DBS vs PS        | 4  | 0.98 | 0.2756 | 0.3005| -1.0521| 1.3526 | 0.83 | 0.4058 |
|                  | DK Crush vs Crush | 1  | 0.37 | -0.9290| -0.7218| -1.0531| 0.3313 | 0.86 | 0.3904 |
|                  | DK Crush vs PS   | 6  | 0.71 | -0.8268| -0.8113| -0.8645| 0.0531 | 0.16 | 0.8731 |
|                  | PS vs Crush      | 3  | 0.61 | -0.1022| -0.1616| -0.0085| -0.1531| -0.47 | 0.6391 |
|                  | PS vs T/TAP      | 4  | 0.77 | -0.3317| -0.1800| 0.8389 | 0.6589 | 1.35 | 0.1782 |

**Target Lesion Revascularization**

|                  | Culotte vs Crush | 2  | 0.53 | -0.1634| -0.2146| -0.1060| -0.1086| -0.31 | 0.7588 |
|------------------|------------------|----|------|--------|-------|--------|--------|------|--------|
|                  | Culotte vs DBS   | 1  | 0.05 | -0.3027| 0.6931| -0.3560| 1.0491 | 0.86 | 0.3877 |
|                  | Culotte vs DK Crush | 1  | 0.40 | 0.7409 | 1.1835| 0.4510 | 0.7325 | 1.81 | 0.0708 |
|                  | Culotte vs PS    | 3  | 0.37 | -0.0014| -0.3762| 0.2234 | -0.5995| -1.61 | 0.1084 |
|                  | DBS vs PS        | 4  | 0.97 | 0.3013 | 0.3308| -0.7183| 1.0491 | 0.86 | 0.3877 |
|                  | DK Crush vs Crush | 1  | 0.39 | -0.9042| -0.7473| -1.0052| 0.2578 | 0.72 | 0.4744 |
|                  | DK Crush vs PS   | 3  | 0.58 | -0.7422| -0.6233| -0.9040| 0.2807 | 0.83 | 0.4049 |
|                  | PS vs Crush      | 4  | 0.71 | -0.1620| -0.1919| -0.0885| -0.1034| -0.34 | 0.7340 |
Table S15. Pooled estimates of network meta-analysis for each outcome.

|                                | Culotte  | DK Crush | DBS       | T/TAP     | Crush     | Provisional |
|--------------------------------|----------|----------|-----------|-----------|-----------|-------------|
| **All-cause Mortality** (19 trials) | 0.65 (0.31-1.37) | 0.66 (0.24-1.77) | 0.81 (0.34-1.94) | 1.07 (0.60-1.90) | 0.75 (0.44-1.28) |           |
| 1.55 (0.73-3.28)               |          |          |           |           |           |             |
| 1.53 (0.57-4.12)               | 0.98 (0.35-2.74) |          |           |           |           |             |
| 1.23 (0.52-2.94)               | 0.79 (0.32-1.98) | 0.81 (0.25-2.56) | T/TAP     | 1.32 (0.54-3.22) | 0.92 (0.43-1.95) |           |
| 0.94 (0.53-1.66)               | 0.60 (0.29-1.26) | 0.61 (0.22-1.68) | 0.76 (0.31-1.86) | Crush     | 0.70 (0.41-1.18) |           |
| 1.34 (0.78-2.30)               | 0.86 (0.51-1.45) | 0.88 (0.36-2.12) | 1.09 (0.51-2.32) | 1.43 (0.85-2.42) |           |             |

| **Cardiac Death** (23 trials) | Culotte  | DK Crush | DBS       |            | Crush     | Provisional |
| 2.18 (0.96-4.95)               | 0.71 (0.14-3.47) | 3.78 (0.75-19.20) | 2.54 (1.15-5.64) | 1.77 (1.19-2.63) |           |
| 3.08 (0.57-16.50)              | 1.41 (0.29-6.92) |            | 5.34 (0.59-48.20) | 3.59 (0.66-19.41) | 2.50 (0.53-11.69) |           |
| 0.58 (0.11-3.02)               | 0.26 (0.05-1.34) | 0.19 (0.02-1.69) | T/TAP     | 0.67 (0.12-3.67) | 0.47 (0.10-2.28) |           |
| 0.86 (0.40-1.85)               | 0.39 (0.18-0.87) | 0.28 (0.05-1.50) | 1.49 (0.27-8.12) | Crush     | 0.69 (0.33-1.46) |           |
| 1.23 (0.56-2.73)               | 0.57 (0.38-0.84) | 0.40 (0.09-1.88) | 2.14 (0.44-10.46) | 1.44 (0.68-3.03) |           | Provisional |

| **Major Adverse Cardiac Events** (26 trials) | Culotte  | DK Crush | DBS       | T/TAP     | Crush     | Provisional |
| 2.19 (1.59-3.00)               | 2.33 (1.56-3.49) | 2.76 (1.66-3.49) | 2.50 (1.86-3.35) | 2.01 (1.57-2.57) |           |
| 0.94 (0.62-1.42)               | 0.43 (0.29-0.64) |            | 1.19 (0.68-2.07) | 1.07 (0.73-1.58) | 0.86 (0.63-1.19) |           |
| 0.79 (0.49-1.28)               | 0.36 (0.22-0.60) | 0.84 (0.48-1.47) | T/TAP     | 0.90 (0.55-1.48) | 0.73 (0.46-1.15) |           |
| 0.87 (0.66-1.16)               | 0.40 (0.30-0.54) | 0.93 (0.63-1.38) | 1.11 (0.67-1.82) | Crush     | 0.81 (0.65-1.00) |           |
| 1.09 (0.83-1.42)               | 0.50 (0.39-0.64) | 1.16 (0.84-1.60) | 1.37 (0.87-2.17) | 1.24 (1.00-1.55) |           | Provisional |

| **Myocardial Infarction** (29 trials) | Culotte  | DK Crush | DBS       | T/TAP     | Crush     | Provisional |
| 1.81 (1.10-2.98)               | 1.97 (1.04-3.74) | 1.53 (0.56-4.13) | 2.26 (1.44-3.53) | 1.68 (1.11-2.55) |           |
| 0.92 (0.50-1.69)               | 0.51 (0.27-0.96) |            | 0.77 (0.28-2.17) | 1.14 (0.64-2.04) | 0.85 (0.52-1.38) |           |
| 1.19 (0.45-3.12)               | 0.66 (0.24-1.78) | 1.29 (0.46-3.63) | T/TAP     | 1.48 (0.57-3.86) | 1.10 (0.44-2.73) |           |
| 0.80 (0.52-1.23)               | 0.44 (0.28-0.69) | 0.87 (0.49-1.56) | 0.68 (0.26-1.76) | Crush     | 0.74 (0.54-1.02) |           |
| 1.08 (0.74-1.58)               | 0.60 (0.39-0.90) | 1.18 (0.72-1.91) | 0.91 (0.37-2.26) | 1.35 (0.98-1.85) |           | Provisional |

| **Stent Thrombosis** (28 trials) | Culotte  | DK Crush | DBS       | T/TAP     | Crush     | Provisional |
| 2.73 (1.27-5.86)               | 3.17 (0.73-13.3) | 4.74 (1.72-13.04) | 2.27 (1.05-4.90) | 2.00 (1.14-3.51) |           |
| 0.86 (0.20-3.73)               | 0.32 (0.07-1.38) |            | 1.50 (0.30-7.45) | 0.71 (0.16-3.17) | 0.63 (0.16-2.48) |           |
| 0.58 (0.21-1.59)               | 0.21 (0.08-0.58) | 0.67 (0.13-3.33) | T/TAP     | 0.48 (0.17-1.36) | 0.42 (0.18-0.98) |           |
| 1.20 (0.68-2.14)               | 0.44 (0.20-0.95) | 1.40 (0.32-6.20) | 2.09 (0.74-5.94) | Crush     | 0.88 (0.47-1.67) |           |
| 1.36 (0.74-2.51)               | 0.50 (0.28-0.88) | 1.58 (0.40-6.21) | 2.37 (1.02-5.51) | 1.13 (0.60-2.14) |           | Provisional |

| **Target Lesion Revascularization** (26 trials) | Culotte  | DK Crush | DBS       |            |           |           |
| 2.43 (1.65-3.58)               | 3.01 (1.79-5.07) | 3.19 (1.95-5.20) | 2.53 (1.76-3.65) | 2.29 (1.70-3.07) |           |
| 0.81 (0.47-1.37)               | 0.33 (0.20-0.56) | 1.06 (0.59-1.90) | 0.84 (0.50-1.43) | 0.76 (0.49-1.17) |           |
| Target Vessel Revascularization (23 trials) | 0.76 (0.48-1.21) | 0.31 (0.19-0.51) | 0.95 (0.53-1.70) | T/TAP | 0.79 (0.48-1.30) | 0.72 (0.48-1.07) |
|-------------------------------------------|-------------------|-------------------|-------------------|-------|-------------------|-------------------|
| 0.96 (0.66-1.40) | 0.39 (0.27-0.57) | 1.19 (0.70-2.02) | 1.26 (0.77-2.06) | Crush | 0.90 (0.66-1.23) |
| 1.06 (0.77-1.47) | 0.44 (0.33-0.59) | 1.32 (0.86-2.02) | 1.39 (0.93-2.09) | 1.11 (0.81-1.51) | Provisional |
| Culotte | 0.48 (0.32-0.70) | 1.35 (0.80-2.28) | 1.25 (0.66-2.35) | 1.18 (0.83-1.66) | 1.00 (0.70-1.43) |
| 2.10 (1.42-3.09) | DK Crush | 2.84 (1.71-4.72) | 2.61 (1.41-4.86) | 2.47 (1.75-3.49) | 2.10 (1.52-2.91) |
| 0.74 (0.44-1.25) | 0.35 (0.21-0.59) | DBS | 0.92 (0.48-1.78) | 0.87 (0.54-1.40) | 0.74 (0.50-1.10) |
| 0.80 (0.43-1.51) | 0.38 (0.21-0.71) | 1.09 (0.56-2.09) | T/TAP | 0.94 (0.52-1.71) | 0.80 (0.47-1.36) |
| 0.85 (0.60-1.20) | 0.40 (0.29-0.57) | 1.15 (0.71-1.85) | 1.06 (0.59-1.91) | Crush | 0.85 (0.65-1.11) |
| 1.00 (0.70-1.42) | 0.48 (0.34-0.66) | 1.35 (0.91-2.00) | 1.24 (0.74-2.11) | 1.18 (0.90-1.54) | Provisional |
| Table S16. Sensitivity analysis of trials that only included true bifurcations. |
|---------------------------------------------------------------|
| **All-cause Mortality** (10 trials)                          |
| Culotte            | 0.77 (0.32-1.87) | 0.88 (0.20-3.87) | 0.55 (0.05-5.82) | 2.00 (0.18-21.82) | 0.89 (0.44-1.83) |
| DK Crush           | 1.30 (0.54-3.14) | 1.14 (0.28-4.62) | 0.72 (0.07-7.16) | 2.59 (0.20-33.13) | 1.16 (0.69-1.95) |
| DBS                | 1.14 (0.26-5.01) | 0.88 (0.22-3.56) | 0.63 (0.05-8.40) | 2.27 (0.14-37.88) | 1.02 (0.28-3.72) |
| T/TAP              | 1.81 (0.17-18.99) | 1.39 (0.14-13.92) | 1.59 (0.12-21.18) | N/A                 | 1.61 (0.17-15.17) |
| Crush              | 0.50 (0.05-5.46) | 0.41 (0.03-5.18) | 0.56 (0.04-8.28) | 0.29 (0.01-8.33) | 0.47 (0.04-5.68) |
| Provisional        | 1.12 (0.55-2.29) | 0.86 (0.51-1.45) | 0.98 (0.27-3.61) | 0.62 (0.07-5.83) | 2.24 (0.18-27.15) |
| **Cardiac Death** (12 trials)                               |
| Culotte            | 0.52 (0.19-1.40) | 0.95 (0.09-9.87) | N/A               | 1.21 (0.25-5.89) | 0.93 (0.34-2.54) |
| DK Crush           | 1.93 (0.72-5.21) | 1.83 (0.18-18.13) | N/A               | 2.34 (0.52-10.58) | 1.79 (1.20-2.69) |
| DBS                | 1.06 (0.10-11.01) | 0.55 (0.06-5.43) | N/A               | 1.28 (0.09-18.75) | 0.98 (0.10-9.52) |
| Crush              | 0.83 (0.17-4.02) | 0.43 (0.09-1.94) | 0.78 (0.05-11.47) | N/A               | 0.77 (0.17-3.52) |
| Provisional        | 1.08 (0.39-2.94) | 0.56 (0.37-0.84) | 1.02 (0.11-9.90) | N/A               | 1.30 (0.28-5.99) |
| **Major Adverse Cardiac Events** (14 trials)                 |
| Culotte            | 0.72 (0.33-1.57) | 1.29 (0.47-3.56) | N/A               | 1.13 (0.47-2.70) | 1.00 (0.55-1.81) |
| DK Crush           | 1.40 (0.64-3.05) | 1.80 (0.68-4.74) | N/A               | 1.57 (0.59-4.17) | 1.40 (0.84-2.33) |
| DBS                | 0.77 (0.28-2.14) | 0.56 (0.21-1.46) | N/A               | 0.87 (0.27-2.81) | 0.78 (0.34-1.76) |
| Crush              | 0.83 (0.17-4.02) | 0.43 (0.09-1.94) | 0.78 (0.05-11.47) | N/A               | 0.77 (0.17-3.52) |
| Provisional        | 1.08 (0.39-2.94) | 0.56 (0.37-0.84) | 1.02 (0.11-9.90) | N/A               | 1.30 (0.28-5.99) |
| **Myocardial Infarction** (16 trials)                        |
| Culotte            | 0.55 (0.34-0.89) | 1.35 (0.80-2.30) | 1.19 (0.28-5.06) | 1.05 (0.61-1.81) | 0.99 (0.68-1.44) |
| DK Crush           | 1.82 (1.13-2.94) | 2.46 (1.42-4.28) | 2.17 (0.51-9.27) | 1.92 (1.21-3.04) | 1.81 (1.21-2.69) |
| DBS                | 0.74 (0.43-1.26) | 0.41 (0.23-0.70) | N/A               | 0.99 (0.44-1.87) |
| 0.78 (0.21-3.75)   | 0.78 (0.43-1.42) | 0.73 (0.50-1.08) | 0.54 (0.06-4.60) | 0.57 (0.12-2.70) | 0.36 (0.11-1.14) |
| Crush              | 0.95 (0.55-1.63) | 0.52 (0.33-0.83) | 1.29 (0.71-2.35) | 1.13 (0.26-4.93) | 0.94 (0.59-1.50) |
| Provisional        | 1.00 (0.55-1.81) | 0.72 (0.43-1.19) | 1.29 (0.57-2.94) | N/A               | 1.13 (0.49-2.59) |
| **Stent Thrombosis** (15 trials)                             |
| Culotte            | 0.47 (0.20-1.09) | 1.36 (0.21-9.03) | 2.54 (0.65-9.95) | 1.45 (0.49-4.33) | 0.91 (0.44-1.87) |
| DK Crush           | 2.15 (0.92-5.03) | 2.93 (0.44-19.43) | 5.46 (1.50-19.86) | 3.12 (1.08-8.98) | 1.95 (1.11-3.46) |
| DBS                | 0.73 (0.11-4.86) | 0.34 (0.05-2.27) | N/A               | 1.86 (0.22-16.01) | 1.07 (0.14-8.40) |
| T/TAP              | 0.39 (0.10-1.54) | 0.18 (0.05-0.67) | 0.54 (0.06-4.60) | 0.57 (0.12-2.70) | 0.36 (0.11-1.14) |
| Crush              | 0.69 (0.23-2.06) | 0.32 (0.11-0.92) | 0.94 (0.12-7.40) | 1.75 (0.37-8.27) | 0.63 (0.22-1.76) |
| Provisional        | 1.10 (0.53-2.26) | 0.51 (0.29-0.90) | 1.50 (0.24-9.17) | 2.79 (0.88-8.90) | 1.60 (0.57-4.49) |
| **Target Lesion Revascularization** (15 trials)               |
| Culotte            | 0.42 (0.24-0.73) | 1.30 (0.60-2.81) | 2.00 (0.40-10.03) | 1.18 (0.60-2.31) | 0.95 (0.62-1.45) |
| DK Crush           | 2.37 (1.37-4.12) | 3.08 (1.48-6.42) | 4.76 (0.97-23.39) | 2.79 (1.35-5.79) | 2.25 (1.58-3.20) |
| DBS                | 0.77 (0.36-1.67) | 0.32 (0.16-0.68) | N/A               | 1.54 (0.29-8.30) | 0.91 (0.37-2.24) |
| Provisional        | 0.73 (0.38-1.39) | 0.37 (0.19-0.75) | N/A               | 1.01 (0.37-2.81) | 0.73 (0.38-1.39) |
| Target Vessel Revascularization (12 trials) | 0.50 (0.10-2.50) | 0.21 (0.04-1.03) | 0.65 (0.12-3.48) | T/TAP | 0.59 (0.11-3.15) | 0.47 (0.10-2.24) |
|------------------------------------------|------------------|------------------|------------------|-------|------------------|------------------|
| Culotte                                  | 1.08 (0.64-1.84) | 0.41 (0.26-0.65) | 1.22 (0.55-2.66) | 1.97 (0.38-10.01) | Crush | 0.93 (0.58-1.49) |
| DK Crush                                 | 1.61 (0.69-1.61) | 0.44 (0.31-0.63) | 1.37 (0.72-2.61) | 2.11 (0.45-9.99) | 1.24 (0.65-2.35) | Provisional |
| Culotte                                  | 0.76 (0.38-1.49) | 2.00 (0.85-4.72) | 1.64 (0.45-5.94) | 1.41 (0.72-2.75) | 1.41 (0.84-2.37) |
| DK Crush                                 | 1.32 (0.67-2.60) | 2.65 (1.19-5.92) | 2.17 (0.62-7.60) | 1.86 (0.88-3.93) | 1.87 (1.21-2.87) |
| Culotte                                  | 0.50 (0.21-1.18) | 0.38 (0.17-0.84) | 2.00 (0.85-4.72) | 1.64 (0.45-5.94) | 1.41 (0.72-2.75) | 1.41 (0.84-2.37) |
| DK Crush                                 | 0.61 (0.17-2.22) | 0.46 (0.13-1.62) | 1.22 (0.31-4.77) | 0.86 (0.23-3.24) | 0.86 (0.26-2.80) |
| Culotte                                  | 0.95 (0.54-1.66) | 0.43 (0.27-0.70) | 1.25 (0.53-2.97) | 1.13 (0.31-4.16) | Crush | 0.97 (0.59-1.62) |
| DK Crush                                 | 0.71 (0.42-1.20) | 0.54 (0.35-0.82) | 1.42 (0.72-2.80) | 1.16 (0.36-3.77) | 1.00 (0.54-1.84) | Provisional |
**Table S17. Sensitivity analysis excluding trials that did not include left main bifurcations.**

| Event Type                                    | Culotte        | DK Crush       | DBS            | T/TAP          | Crush         | Provisional |
|-----------------------------------------------|----------------|----------------|----------------|----------------|---------------|-------------|
| **All-cause Mortality**                        |                |                |                |                |               |             |
| (11 trials)                                   | 1.67 (0.76-3.68) | 2.80 (0.62-12.71) | 1.90 (0.40-9.01) | 0.99 (0.54-1.80) | 1.44 (0.80-2.61) |              |
|                                              | 0.60 (0.27-1.32) | 1.68 (0.38-7.41)  | 1.14 (0.21-6.21) | 0.59 (0.27-1.28) | 0.86 (0.51-1.45) |              |
|                                              | 0.36 (0.08-1.62) | T/TAP          | 0.68 (0.08-5.72) | 0.35 (0.08-1.59) | 0.51 (0.13-2.07) |              |
|                                              | 0.53 (0.11-2.49) |               |                | 0.52 (0.10-2.68) | 0.76 (0.15-3.81) |              |
|                                              | 1.01 (0.55-1.84) |               |                | 1.46 (0.82-2.58) | Provisioinal   |             |
|                                              | 0.69 (0.38-1.26) |               |                |                |                |             |
| **Cardiac Death**                             |                |                |                |                |               |             |
| (14 trials)                                   | 2.39 (1.02-5.57) | 8.09 (0.84-78.34) | 0.52 (0.09-3.10) | 0.86 (0.39-1.89) | 1.36 (0.59-3.14) |              |
|                                              | 0.42 (0.18-0.98) | 3.39 (0.39-29.14) | 0.22 (0.04-1.28) | 0.36 (0.15-0.84) | 0.57 (0.38-0.86) |              |
|                                              | 0.12 (0.01-1.20) | 0.30 (0.03-2.54)  | 0.60 (0.00-0.99) | 0.11 (0.01-1.02) | 0.17 (0.02-1.39) |              |
|                                              | 1.92 (0.32-11.47)| 4.59 (0.78-27.00) | 1.65 (0.26-10.47)| 2.62 (0.46-14.94)| 1.59 (0.70-3.58) |              |
|                                              | 1.16 (0.53-2.56) | 2.78 (1.18-6.51)  | 1.78 (0.84-1.10) | 1.59 (0.70-3.58) | Provisional   |             |
| **Major Adverse Cardiac Events**              |                |                |                |                |               |             |
| (15 trials)                                   | 2.16 (1.61-2.91) | 1.27 (0.73-2.20)  | 0.48 (0.24-0.96) | 0.87 (0.66-1.16) | 1.19 (0.91-1.56) |              |
|                                              | 0.60 (0.34-0.62) | 0.59 (0.34-1.00)  | 0.22 (0.10-0.47) | 0.40 (0.30-0.55) | 0.55 (0.43-0.70) |              |
|                                              | 0.79 (0.45-1.37) | 0.30 (0.03-2.54)  | 0.38 (0.16-0.91) | 0.69 (0.39-1.20) | 0.94 (0.58-1.52) |              |
|                                              | 2.09 (1.04-4.19) | 4.51 (2.13-9.55)  | 1.65 (0.26-10.47)| 1.83 (0.87-3.85) | 2.48 (1.19-5.18) |              |
|                                              | 1.14 (0.861.51) | 2.57 (1.18-6.51)  | 1.78 (0.84-1.10) | 1.36 (0.10-1.80) | 1.27 (0.74-2.19) |              |
|                                              | 0.84 (0.64-1.10) | 1.82 (1.44-2.30)  | 1.07 (0.66-1.73) | Provisional   |              |             |
| **Myocardial Infarction**                     |                |                |                |                |               |             |
| (16 trials)                                   | 1.67 (0.97-2.88) | 1.63 (0.42-6.27)  | 0.65 (0.12-3.61) | 0.78 (0.46-1.35) | 0.94 (0.59-1.50) |              |
|                                              | 0.60 (0.35-1.03) | 0.98 (0.25-3.77)  | 0.39 (0.07-2.25) | 0.47 (0.27-0.82) | 0.56 (0.35-0.91) |              |
|                                              | 0.61 (0.16-2.35) | 0.39 (0.14-3.77)  | 0.40 (0.15-0.84) | 0.48 (0.12-1.91) | 0.58 (0.16-2.03) |              |
|                                              | 1.54 (0.28-8.51) | 2.57 (1.44-14.84)| 1.21 (0.21-7.04) | 1.27 (0.69-2.07) | 1.27 (0.74-2.19) |              |
|                                              | 1.27 (0.74-2.19) | 2.13 (1.23-3.69)  | 1.07 (0.67-1.70) | Provisional   |              |             |
| **Stent Thrombosis**                          |                |                |                |                |               |             |
| (16 trials)                                   | 2.25 (1.00-5.04) | 0.66 (0.07-5.95)  | 0.44 (0.13-1.54) | 1.32 (0.73-2.41) | 1.06 (0.53-2.10) |              |
|                                              | 0.45 (0.20-1.00) | 0.29 (0.03-2.57)  | 0.20 (0.06-0.68) | 0.59 (0.25-1.38) | 0.47 (0.26-0.84) |              |
|                                              | 1.51 (0.17-13.58)| 3.39 (0.39-29.60) | 0.67 (0.06-7.05) | 2.00 (0.22-18.39)| 1.60 (0.20-12.88)|              |
|                                              | 2.26 (0.65-7.90) | 5.08 (1.48-17.46) | 2.39 (0.80-7.17) | 2.99 (0.81-11.01)| 1.25 (0.59-2.67) |              |
|                                              | 0.76 (0.42-1.38) | 1.70 (0.73-3.97)  | 0.80 (0.38-1.71) | Provisional   |              |             |
|                                              | 0.95 (0.48-1.88) | 2.12 (1.19-3.80)  | 0.42 (0.14-1.25) |              |              |             |
| **Target Lesion Revascularization**           |                |                |                |                |               |             |
| (16 trials)                                   | 2.34 (1.57-3.49) | 0.84 (0.43-1.65)  | 2.34 (1.57-3.49) | 0.84 (0.43-1.65) |                |              |
|                                              | 0.43 (0.29-0.64) | 0.36 (0.18-0.70)  | 1.19 (0.61-2.33) | 1.99 (0.81-11.01)| 1.30 (0.59-2.89) |              |
|                                              | 1.55 (0.89-2.68) | 3.62 (1.97-6.65)  | 2.39 (0.80-7.17) | 3.62 (1.97-6.65) | 1.30 (0.59-2.89) |              |
|                                              | 1.07 (0.72-1.60) | 2.51 (1.70-3.72)  | 2.08 (1.51-2.86) | Provisional   |              |             |
|                                              | 0.89 (0.64-1.24) | 2.08 (1.51-2.86)  | 0.74 (0.42-1.34) |              |              |             |
| Target Vessel Revascularization (12 trials) | 0.65 (0.37-1.12) | 0.28 (0.15-0.51) | 0.77 (0.35-1.70) | T/TAP | 0.69 (0.37-1.29) | 0.57 (0.33-0.99) |
|------------------------------------------|------------------|------------------|------------------|-------|------------------|------------------|
| Culotte                                  | 0.93 (0.63-1.39) | 0.40 (0.27-0.59) | 1.11 (0.56-2.19) | 1.44 (0.77-2.68) | Crush | 0.83 (0.58-1.18) |
| DK Crush                                 | 1.13 (0.81-1.57) | 0.48 (0.35-0.66) | 1.34 (0.47-2.40) | 1.74 (1.01-2.99) | 1.21 (0.84-1.73) | Provisional     |
| Culotte                                  | 2.03 (1.30-3.19) | 0.49 (0.31-0.77) | 1.27 (0.64-2.55) | 1.32 (0.60-2.90) | 1.19 (0.79-1.79) | 0.93 (0.60-1.43) |
| DK Crush                                 | 0.78 (0.39-1.57) | 0.39 (0.19-0.77) | 2.59 (1.31-5.13) | 2.68 (1.23-5.86) | 2.42 (1.58-3.72) | 1.88 (1.23-2.87) |
| Culotte                                  | 0.76 (0.34-1.67) | 0.37 (0.17-0.82) | 0.97 (0.41-2.26) | 1.04 (0.44-2.42) | 0.94 (0.48-1.83) | 0.73 (0.42-1.25) |
| DK Crush                                 | 0.84 (0.56-1.26) | 0.41 (0.27-0.63) | 1.07 (0.55-2.09) | 1.11 (0.51-2.39) | Crush | 0.78 (0.52-1.16) |
| Culotte                                  | 1.08 (0.70-1.67) | 0.53 (0.35-0.81) | 1.37 (0.80-2.35) | 1.42 (0.74-2.75) | 1.29 (0.86-1.93) | Provisional     |
Table S18. Sensitivity analysis of trials that included only non-left main bifurcations.

|                                | Culotte | N/A | 1.86 (0.12-28.03) | 2.33 (0.18-29.33) | 3.06 (0.19-49.33) | 1.88 (0.17-20.44) |
|--------------------------------|---------|-----|-------------------|-------------------|-------------------|-------------------|
|                                | N/A     | DK Crush | N/A               | N/A               | N/A               | N/A               |
| All-cause Mortality            | 0.54 (0.04-8.14) | N/A | 1.26 (0.27-5.94)  | 1.65 (0.24-11.38) | 1.02 (0.28-3.72)  |
| (7 trials)                     | 0.43 (0.03-5.41) | N/A | 0.80 (0.17-3.77)  | T/TAP             | 1.32 (0.25-6.95)  | 0.81 (0.34-1.90)  |
|                                | 0.33 (0.02-5.26) | N/A | 0.61 (0.09-4.17)  | 0.76 (0.14-4.02)  | Crush             | 0.61 (0.15-2.56)  |
|                                | 0.53 (0.05-5.76) | N/A | 0.98 (0.27-3.61)  | 1.24 (0.53-2.91)  | 1.63 (0.39-6.78)  | Provisional       |
| Cardiac Death                  | N/A     | DK Crush | 1.68 (0.05-53.06) | 1.55 (0.02-127.3) | 1.72 (0.10-29.10) | 1.69 (0.21-13.52) |
| (8 trials)                     | N/A     | DBS     | 0.92 (0.01-108.7) | 1.03 (0.04-29.57) | 1.01 (0.06-15.93) |                   |
|                                | N/A     | 1.08 (0.01-127.9) | T/TAP             | 1.12 (0.01-85.22) | 1.09 (0.02-53.52) |                   |
|                                | N/A     | 0.58 (0.03-9.80) | 0.97 (0.03-27.97) | 0.90 (0.01-68.53) | Crush             | 0.98 (0.14-6.66)  |
|                                | N/A     | 0.59 (0.07-4.73) | 0.99 (0.06-15.66) | 0.91 (0.02-44.74) | 1.02 (0.15-6.92)  | Provisional       |
| Major Adverse Cardiac Events   | 4.96 (1.55-15.80) | DK Crush | 5.18 (2.28-11.74) | 3.73 (1.51-9.21)  | 4.45 (2.01-9.83)  | 3.73 (1.77-7.87)  |
| (10 trials)                    | 0.96 (0.37-2.47) | 0.19 (0.09-0.44) | DBS               | 0.72 (0.39-1.33)  | 0.86 (0.56-1.32)  | 0.72 (0.51-1.01)  |
|                                | 1.33 (0.48-3.69) | 0.27 (0.11-0.66) | 1.39 (0.75-2.55)  | T/TAP             | 1.19 (0.67-2.12)  | 1.00 (0.60-1.66)  |
|                                | 1.11 (0.44-2.81) | 0.22 (0.10-0.50) | 1.16 (0.76-1.79)  | 0.84 (0.47-1.49)  | Crush             | 0.84 (0.64-1.10)  |
|                                | 1.33 (0.55-3.22) | 0.27 (0.13-0.56) | 1.39 (0.99-1.94)  | 1.00 (0.60-1.66)  | 1.19 (0.91-1.56)  | Provisional       |
| Myocardial Infarction          | 4.85 (0.47-50.54) | DK Crush | 3.16 (0.37-26.77) | 1.67 (0.16-16.98) | 3.27 (0.40-26.55) | 2.28 (0.29-17.70) |
| (12 trials)                    | 1.53 (0.42-5.58) | 0.32 (0.04-2.67) | DBS               | 0.53 (0.15-1.84)  | 1.03 (0.49-2.19)  | 0.72 (0.39-1.32)  |
|                                | 2.91 (0.60-14.15) | 0.60 (0.06-6.12) | 1.90 (0.54-6.64)  | T/TAP             | 1.96 (0.60-6.39)  | 1.37 (0.46-4.10)  |
|                                | 1.48 (0.44-5.04) | 0.31 (0.04-2.49) | 0.97 (0.46-2.05)  | 0.51 (0.16-1.66)  | Crush             | 0.70 (0.45-1.09)  |
|                                | 2.12 (0.68-6.64) | 0.44 (0.06-3.39) | 1.39 (0.76-2.54)  | 0.73 (0.24-2.18)  | 1.43 (0.92-2.23)  | Provisional       |
| Stent Thrombosis               | 6.75 (0.24-189.0) | DK Crush | 3.46 (0.14-84.60) | 4.72 (0.29-77.39) | 5.27 (0.33-83.63) | 2.12 (0.18-24.84) |
| (11 trials)                    | 1.94 (0.09-40.56) | 0.29 (0.01-7.07) | DBS               | 1.36 (0.12-15.56) | 1.52 (0.14-16.73) | 0.61 (0.08-4.71)  |
|                                | 1.43 (0.11-19.47) | 0.21 (0.01-3.48) | 0.73 (0.06-8.37)  | T/TAP             | 0.73 (0.06-8.37)  | 1.12 (0.18-6.97)  |
|                                | 1.28 (0.10-16.79) | 0.19 (0.01-3.01) | 0.66 (0.06-7.20)  | 0.89 (0.14-5.57)  | Crush             | 0.40 (0.11-1.41)  |
|                                | 3.19 (0.34-30.11) | 0.47 (0.04-5.53) | 1.63 (0.21-12.55) | 2.23 (0.59-8.41)  | 2.49 (0.71-8.74)  | Provisional       |
| Target Lesion Revascularization| N/A     | DK Crush | 5.54 (1.85-16.62) | 4.32 (1.47-12.68) | 3.78 (1.25-11.39) | 4.05 (1.66-9.86)  |
| (9 trials)                     | N/A     | DBS     | 0.78 (0.32-1.89)  | 0.68 (0.27-1.71)  | 0.73 (0.38-1.39)  |                   |
| Target Vessel Revascularization (10 trials) | N/A | 0.23 (0.08-0.68) | 1.28 (0.53-3.11) | T/TAP | 0.87 (0.36-2.13) | 0.94 (0.51-1.72) |
|------------------------------------------|-----|-------------------|------------------|------|------------------|------------------|
| N/A                                      | 0.26 (0.09-0.80) | 1.47 (0.59-3.67) | 1.14 (0.47-2.79) | Crush | 1.07 (0.56-2.06) |                   |
| N/A                                      | 0.25 (0.10-0.60) | 1.37 (0.72-2.61) | 1.07 (0.58-1.96) | 0.93 (0.49-1.79) | Provisional      |                   |
| Culotte                                  | 0.71 (0.06-8.11) | 4.01 (0.38-41.95) | 2.20 (0.18-26.81) | 3.03 (0.31-29.99) | 2.83 (0.30-26.70) |                   |
| DK Crush                                 | 1.40 (0.12-15.97) | 5.63 (1.78-17.86) | 3.08 (0.73-13.05) | 4.26 (1.51-12.00) | 3.96 (1.56-10.07) |                   |
| 0.25 (0.02-2.60)                         | 0.18 (0.06-0.56) | DBS               | 0.55 (0.15-2.00) | 0.76 (0.33-1.71) | 0.70 (0.36-1.39) |                   |
| 0.45 (0.04-5.55)                         | 0.32 (0.08-1.37) | 1.83 (0.50-6.66) | T/TAP            | 1.38 (0.42-4.53) | 1.29 (0.43-3.86) |                   |
| 0.33 (0.03-3.26)                         | 0.23 (0.08-0.66) | 1.32 (0.59-2.99) | 0.72 (0.22-2.38) | Crush | 0.93 (0.59-1.46) |                   |
| 0.35 (0.04-3.35)                         | 0.25 (0.10-0.64) | 1.42 (0.72-2.80) | 0.78 (0.26-2.34) | 1.07 (0.68-1.69) | Provisional      |                   |
Table S19. Sensitivity analysis excluding trials with multiple bifurcation techniques in either arm.

| Event Type                        | Culotte       | DK Crush     | DBS          | T/TAP        | Crush      | Provisional |
|-----------------------------------|---------------|--------------|--------------|--------------|------------|-------------|
| All-cause Mortality (14 trials)   | 0.87 (0.25-3.06) | 0.94 (0.31-2.83) | 0.81 (0.26-2.58) | 1.15 (0.33-4.03) | 0.91 (0.29-2.85) | 1.10 (0.35-3.47) |
| Cardiac Death (19 trials)         | 0.44 (0.17-1.17) | 0.76 (0.15-3.75) | 1.61 (0.27-9.75) | 2.26 (0.86-5.94) | 1.11 (0.48-2.57) | 0.76 (0.26-2.22) |
| Major Adverse Cardiac Events (20 trials) | 0.48 (0.34-0.66) | 1.12 (0.74-1.71) | 1.33 (0.87-2.03) | 2.10 (1.51-2.92) | 1.04 (0.78-1.40) | 0.94 (0.68-1.29) |
| Myocardial Infarction (23 trials) | 0.53 (0.31-0.91) | 1.06 (0.57-1.96) | 0.82 (0.32-2.12) | 1.89 (1.10-3.24) | 0.94 (0.58-1.50) | 0.84 (0.51-1.39) |
| Stent Thrombosis (22 trials)      | 0.22 (0.08-0.59) | 0.64 (0.13-3.15) | 0.92 (0.27-3.12) | 4.56 (1.71-12.19) | 0.92 (0.73-1.91) | 0.94 (0.58-1.50) |
| Target Lesion Revascularization (21 trials) | 0.42 (0.26-0.68) | 1.23 (0.65-2.34) | 0.92 (0.27-3.12) | 2.36 (1.47-3.79) | 0.92 (0.73-1.91) | 0.94 (0.58-1.50) |
| Target Vessel Revascularization (19 trials) |  
|--------------------------------------------|
| 0.77 (0.45-1.30) | 0.32 (0.19-0.54) | 0.94 (0.52-1.71) | T/TAP | 0.73 (0.42-1.27) | 0.72 (0.47-1.09) |
| 1.05 (0.66-1.66) | 0.45 (0.29-0.68) | 1.29 (0.71-2.37) | 1.37 (0.97-2.38) | Crush | 0.98 (0.64-1.52) |
| 1.07 (0.66-1.73) | 0.45 (0.32-0.65) | 1.32 (0.86-2.02) | 1.40 (0.92-2.11) | 1.02 (0.66-1.57) | Provisional |

Culotte

| 0.43 (0.38-0.66) | 1.06 (0.57-1.97) | 0.97 (0.47-2.00) | 0.99 (0.67-1.46) | 0.78 (0.47-1.28) |

DK Crush

| 2.47 (1.43-4.28) | 2.26 (1.17-4.35) | 2.30 (1.56-3.39) | 1.81 (1.23-2.68) |

0.94 (0.51-1.76) | 0.40 (0.23-0.70) | DBS | 0.91 (0.47-1.76) | 0.93 (0.52-1.65) | 0.73 (0.50-1.09) |

1.03 (0.50-2.13) | 0.44 (0.23-0.85) | 1.09 (0.57-2.11) | T/TAP | 1.02 (0.52-2.01) | 0.80 (0.47-1.36) |

1.01 (0.68-1.50) | 0.43 (0.30-0.64) | 1.07 (0.60-1.91) | 0.98 (0.50-1.93) | Crush | 0.79 (0.51-1.21) |

1.29 (0.78-2.11) | 0.55 (0.37-0.81) | 1.36 (0.92-2.02) | 1.24 (0.74-1.94) | 1.27 (0.83-1.94) | Provisional |
Figure S1. Forest plot of two-stent versus provisional stent on all-cause mortality.

| Study               | Experimental Events | Experimental Total | Control Events | Control Total | Weight | Risk Ratio Random, 95% CI |
|---------------------|---------------------|--------------------|----------------|---------------|--------|--------------------------|
| EBC MAIN            | 10.0                | 237                | 7.0           | 230           | 8.8%   | 1.39 [0.54; 3.58]         |
| NBBS IV             | 5.0                 | 228                | 5.0           | 218           | 5.3%   | 0.96 [0.28; 3.26]         |
| DEFINITION II       | 9.0                 | 328                | 11.0          | 325           | 10.5%  | 0.81 [0.34; 1.93]         |
| DKCRUSH-V           | 16.0                | 240                | 18.0          | 242           | 18.7%  | 0.90 [0.47; 1.72]         |
| POLBOS II           | 1.0                 | 102                | 3.0           | 100           | 1.6%   | 0.33 [0.03; 3.09]         |
| EBC TWO             | 1.0                 | 97                 | 2.0           | 103           | 1.4%   | 0.53 [0.05; 5.76]         |
| Zheng et al. (2016) | 2.0                 | 150                | 1.0           | 150           | 1.4%   | 2.00 [0.18; 21.82]        |
| BBK I               | 10.0                | 151                | 8.0           | 101           | 10.0%  | 1.25 [0.51; 3.04]         |
| TRYTON              | 4.0                 | 355                | 4.0           | 349           | 4.2%   | 0.98 [0.25; 3.90]         |
| POLBOS I            | 2.0                 | 120                | 3.0           | 123           | 2.5%   | 0.68 [0.12; 4.02]         |
| PERFECT             | 3.0                 | 213                | 2.0           | 206           | 2.5%   | 1.45 [0.24; 8.59]         |
| NSTS                | 10.0                | 209                | 14.0          | 215           | 12.7%  | 0.73 [0.33; 1.62]         |
| NBS                 | 21.0                | 202                | 12.0          | 202           | 17.0%  | 1.75 [0.88; 3.46]         |
| BBC One             | 2.0                 | 250                | 1.0           | 250           | 1.4%   | 2.00 [0.18; 21.92]        |
| Cervinka et al. (2008) | 0.0               | 30                 | 0.0           | 30            | 0.5%   | 1.00 [0.02; 48.82]        |
| Colombo et al. (2004) | 1.0               | 63                 | 0.0           | 22            | 0.8%   | 1.08 [0.05; 25.54]        |
| Pan et al. (2004)   | 0.0                 | 44                 | 1.0           | 47            | 0.8%   | 0.36 [0.01; 8.50]         |

Total (95% CI) 2972 2916 100.0% 1.05 [0.79; 1.39]

Heterogeneity: Tau² = 0; Chi² = 6.73, df = 16 (P = 0.98); I² = 0%
Figure S2. Forest plot of two-stent versus provisional stent on cardiac death.

| Study                | Experimental Events | Experimental Total | Control Events | Control Total | Weight | Risk Ratio Random, 95% CI |
|----------------------|---------------------|--------------------|----------------|---------------|--------|--------------------------|
| NBBS IV              | 2.0                 | 228                | 2.0            | 218           | 3.9%   | 0.96 [0.14; 6.73]        |
| DEFINITION II        | 7.0                 | 328                | 8.0            | 325           | 12.5%  | 0.87 [0.32; 2.36]        |
| DKCRUSH-V            | 20.0                | 240                | 41.0           | 242           | 30.6%  | 0.49 [0.30; 0.81]        |
| DKCRUSH-II           | 4.0                 | 183                | 6.0            | 183           | 8.7%   | 0.67 [0.19; 2.32]        |
| POLBOS II            | 0.0                 | 102                | 3.0            | 100           | 1.8%   | 0.14 [0.01; 2.68]        |
| SMART-STRATEGY       | 4.0                 | 130                | 1.0            | 128           | 3.2%   | 3.94 [0.45; 34.76]       |
| Zhang et al. (2016)  | 1.0                 | 52                 | 0.0            | 52            | 1.5%   | 3.00 [0.13; 71.99]       |
| Zheng et al. (2016)  | 2.0                 | 150                | 1.0            | 150           | 2.7%   | 2.00 [0.18; 21.82]       |
| TRYTON               | 0.0                 | 355                | 0.0            | 349           | 1.0%   | 0.98 [0.02; 49.41]       |
| POLBOS I             | 0.0                 | 120                | 20             | 123           | 1.7%   | 0.20 [0.01; 4.23]        |
| PERFECT              | 2.0                 | 213                | 1.0            | 206           | 2.6%   | 1.93 [0.18; 21.17]       |
| NSTS                 | 7.0                 | 209                | 7.0            | 215           | 12.0%  | 1.03 [0.37; 2.88]        |
| NBS                  | 8.0                 | 202                | 5.0            | 202           | 10.7%  | 1.60 [0.53; 4.81]        |
| Ruiz et al. (2013)   | 0.0                 | 34                 | 0.0            | 31            | 1.0%   | 0.91 [0.02; 44.74]       |
| Ye et al. (2012)     | 0.0                 | 38                 | 0.0            | 30            | 1.0%   | 0.79 [0.02; 38.93]       |
| Lin et al. (2010)    | 0.0                 | 54                 | 1.0            | 54            | 1.5%   | 0.33 [0.01; 8.01]        |
| Ye et al. (2010)     | 0.0                 | 25                 | 0.0            | 26            | 1.0%   | 1.04 [0.02; 50.43]       |
| CACTUS               | 0.0                 | 177                | 1.0            | 173           | 1.5%   | 0.33 [0.01; 7.94]        |
| Cervinka et al. (2008)| 0.0            | 30                 | 0.0            | 30            | 1.0%   | 1.00 [0.02; 48.82]       |

**Total (95% CI)**

| Study                | Experimental Events | Experimental Total | Control Events | Control Total | Weight | Risk Ratio Random, 95% CI |
|----------------------|---------------------|--------------------|----------------|---------------|--------|--------------------------|
| **Total (95% CI)**   | **2880**            | **2847**           | **100.0%**     | **80**        | **0.80** | **0.54; 1.19** |

Heterogeneity: $\tau^2 = 0.0688$; $\chi^2 = 11.78$, df = 18 ($P = 0.86$); $I^2 = 0\%$
Figure S3. Forest plot of two-stent versus provisional stent on major adverse cardiac events.

| Study                  | Experimental Events Total | Control Events Total | Weight | Risk Ratio Random, 95% CI |
|------------------------|---------------------------|----------------------|--------|--------------------------|
| EBC MAIN               | 42.0                      | 34.0                 | 237    | 230                      | 1.20 [0.79; 1.81] |
| NBBS IV                | 5.0                       | 12.0                 | 228    | 218                      | 0.40 [0.14; 1.11] |
| DEFINITION II          | 20.0                      | 37.0                 | 328    | 325                      | 0.54 [0.32; 0.90] |
| DKCRUSH-V              | 20.0                      | 41.0                 | 240    | 242                      | 0.49 [0.30; 0.81] |
| DKCRUSH-II             | 29.0                      | 44.0                 | 183    | 183                      | 0.66 [0.43; 1.00] |
| POLBOS II              | 12.0                      | 15.0                 | 102    | 100                      | 0.78 [0.39; 1.59] |
| EBC TWO                | 10.0                      | 8.0                  | 97     | 103                      | 1.33 [0.55; 3.22] |
| SMART-STRATEGY         | 8.0                       | 1.0                  | 130    | 128                      | 7.88 [1.00; 62.08] |
| Zhang et al. (2016)    | 4.0                       | 2.0                  | 52     | 52                       | 2.00 [0.38; 10.45] |
| Zheng et al. (2016)    | 10.0                      | 8.0                  | 150    | 150                      | 1.25 [0.51; 3.08] |
| BBK I                  | 23.0                      | 23.0                 | 101    | 101                      | 1.00 [0.60; 1.66] |
| TRYTON                 | 65.0                      | 45.0                 | 355    | 349                      | 1.42 [1.00; 2.02] |
| POLBOS I               | 16.0                      | 15.0                 | 120    | 123                      | 1.09 [0.57; 2.11] |
| PERFECT                | 38.0                      | 38.0                 | 213    | 206                      | 0.97 [0.64; 1.45] |
| NSTS                   | 43.0                      | 36.0                 | 209    | 215                      | 1.23 [0.82; 1.83] |
| NBS                    | 44.0                      | 32.0                 | 202    | 202                      | 1.38 [0.91; 2.07] |
| Ye et al. (2012)       | 1.0                       | 5.0                  | 38     | 30                       | 0.16 [0.02; 1.28] |
| BBC One                | 38.0                      | 20.0                 | 250    | 250                      | 1.90 [1.14; 3.17] |
| Lin et al. (2010)      | 6.0                       | 21.0                 | 54     | 54                       | 0.29 [0.13; 0.65] |
| Ye et al. (2010)       | 0.0                       | 1.0                  | 25     | 26                       | 0.35 [0.01; 8.12] |
| CACTUS                 | 28.0                      | 26.0                 | 177    | 173                      | 1.05 [0.64; 1.72] |
| Cervinka et al. (2008)  | 4.0                       | 4.0                  | 30     | 30                       | 1.00 [0.28; 3.63] |

Total (95% CI) 3522 3491 100.0% 0.95 [0.77; 1.17]

Heterogeneity: $\tau^2 = 0.1274, \text{Chi}^2 = 51.91, \text{df} = 21 (P < 0.01); i^2 = 60\%$
Figure S4. Forest plot of two-stent versus provisional stent on myocardial infarction.

| Study                  | Experimental | Control | Risk Ratio | Risk Ratio |
|------------------------|--------------|---------|------------|------------|
|                        | Events       | Total   | Events     | Total      | Weight     | Random, 95% CI | Random, 95% CI |
| EBC MAIN               | 24.0         | 237     | 23.0       | 230        | 8.7%       | 1.01 [0.59; 1.74] |
| NBBS IV                | 7.0          | 228     | 11.0       | 218        | 5.4%       | 0.61 [0.24; 1.54] |
| DEFINITION II          | 10.0         | 328     | 23.0       | 325        | 6.9%       | 0.43 [0.21; 0.89] |
| DKCRUSH-V              | 4.0          | 240     | 14.0       | 242        | 4.4%       | 0.29 [0.10; 0.86] |
| DKCRUSH-II             | 7.0          | 183     | 6.0        | 183        | 4.5%       | 1.17 [0.40; 3.40] |
| POLBOS II              | 2.0          | 102     | 3.0        | 100        | 2.1%       | 0.65 [0.11; 3.83] |
| EBC TWO                | 10.0         | 97      | 5.0        | 103        | 4.7%       | 2.12 [0.75; 5.99] |
| SMART-STRATEGY         | 4.0          | 130     | 0.0        | 128        | 0.9%       | 8.86 [0.48; 162.95] |
| Zheng et al. (2016)    | 0.0          | 52      | 3.0        | 52         | 0.9%       | 0.14 [0.01; 2.70] |
| Zheng et al. (2016)    | 7.0          | 150     | 3.0        | 150        | 3.3%       | 2.33 [0.61; 8.85] |
| BBK I                  | 2.0          | 101     | 4.0        | 101        | 2.3%       | 0.50 [0.09; 2.67] |
| TRYTON                 | 54.0         | 355     | 38.0       | 349        | 10.3%      | 1.40 [0.95; 2.06] |
| POLBOS I               | 2.0          | 120     | 4.0        | 123        | 2.3%       | 0.51 [0.10; 2.75] |
| PERFECT                | 30.0         | 213     | 29.0       | 206        | 9.4%       | 1.00 [0.62; 1.61] |
| NSTS                   | 14.0         | 209     | 13.0       | 215        | 6.9%       | 1.11 [0.53; 2.30] |
| NBS                    | 16.0         | 202     | 8.0        | 202        | 6.1%       | 2.00 [0.88; 4.57] |
| Ruiz et al. (2013)     | 0.0          | 34      | 1.0        | 31         | 0.8%       | 0.30 [0.01; 7.22] |
| Ye et al. (2012)       | 0.0          | 38      | 2.0        | 30         | 0.8%       | 0.16 [0.01; 3.19] |
| BBC One                | 28.0         | 250     | 9.0        | 250        | 6.9%       | 3.11 [1.50; 6.46] |
| Lin et al. (2010)      | 0.0          | 54      | 0.0        | 54         | 0.5%       | 1.00 [0.02; 49.50] |
| Ye et al. (2010)       | 0.0          | 25      | 0.0        | 26         | 0.5%       | 1.04 [0.02; 50.43] |
| CACTUS                 | 19.0         | 177     | 15.0       | 173        | 7.7%       | 1.24 [0.65; 2.36] |
| Cervinka et al. (2008) | 0.0          | 30      | 0.0        | 30         | 0.5%       | 1.00 [0.02; 48.82] |
| Colombo et al. (2004)  | 7.0          | 63      | 2.0        | 22         | 2.8%       | 1.22 [0.27; 5.45] |
| Pan et al. (2004)      | 0.0          | 44      | 0.0        | 47         | 0.5%       | 1.07 [0.02; 52.63] |

Total (95% CI) 3670      3598 100.0% 1.06 [0.80; 1.40]  
Heterogeneity: Tau² = 0.1638; Chi² = 36.13, df = 24 (P = 0.05); I² = 34%
Figure S5. Forest plot of two-stent versus provisional stent on stent thrombosis.

| Study                  | Experimental | Control | Risk Ratio  | Risk Ratio  |
|------------------------|--------------|---------|-------------|-------------|
|                        | Events       | Total   | Weight      | Random, 95% CI |
| EBC MAIN               | 3.0          | 237     | 5.2%        | 0.73 [0.16; 3.22] |
| NBBS IV                | 5.0          | 228     | 7.9%        | 0.80 [0.25; 2.57] |
| DEFINITION II          | 4.0          | 328     | 7.7%        | 0.50 [0.15; 1.63] |
| DKCRUSH-V              | 6.0          | 240     | 11.4%       | 0.43 [0.17; 1.11] |
| DKCRUSH-II             | 5.0          | 183     | 7.4%        | 1.00 [0.29; 3.40] |
| POLBOS II              | 1.0          | 102     | 1.6%        | 0.98 [0.06; 15.46] |
| EBC TWO                | 3.0          | 97      | 2.4%        | 3.19 [0.34; 30.11] |
| SMART-STRATEGY         | 2.0          | 130     | 1.4%        | 4.92 [0.24; 101.56] |
| Zhang et al. (2016)    | 0.0          | 52      | 0.8%        | 1.00 [0.02; 49.47] |
| Zheng et al. (2016)    | 4.0          | 150     | 4.2%        | 2.00 [0.37; 10.75] |
| BBK I                  | 5.0          | 101     | 4.5%        | 2.50 [0.50; 12.59] |
| TRYTON                 | 2.0          | 355     | 2.1%        | 1.97 [0.18; 21.59] |
| POLBOS I               | 1.0          | 120     | 1.2%        | 3.07 [0.13; 74.73] |
| PERFECT                | 1.0          | 213     | 1.2%        | 2.90 [0.12; 70.83] |
| NSTS                   | 11.0         | 209     | 16.4%       | 0.67 [0.32; 1.39] |
| NBS                    | 3.0          | 202     | 6.0%        | 0.50 [0.13; 1.97] |
| Ruiz et al. (2013)     | 0.0          | 34      | 0.8%        | 0.91 [0.02; 44.74] |
| Ye et al. (2012)       | 0.0          | 38      | 0.8%        | 0.79 [0.02; 38.93] |
| BBC One                | 5.0          | 250     | 2.7%        | 5.00 [0.59; 42.49] |
| Lin et al. (2010)      | 0.0          | 54      | 1.2%        | 0.33 [0.01; 8.01] |
| CACTUS                 | 3.0          | 177     | 3.8%        | 1.47 [0.25; 8.67] |
| Cervinka et al. (2008) | 0.0          | 30      | 0.8%        | 1.00 [0.02; 48.82] |
| Colombo et al. (2004)  | 3.0          | 63      | 1.5%        | 2.52 [0.14; 46.86] |
| Pan et al. (2004)      | 8.0          | 44      | 7.0%        | 2.85 [0.81; 10.06] |

Total (95% CI) 3646 3573 100.0% 1.00 [0.70; 1.42]

Heterogeneity: Tau$^2 = 0.0626$, Chi$^2 = 17.84$, df = 23 (P = 0.77); I$^2 = 0%
Figure S6. Forest plot of two-stent versus provisional stent on target lesion revascularization.

| Study                  | Experimental | Control | Risk Ratio |
|------------------------|--------------|---------|------------|
|                        | Events       | Total   | Weight     | Random, 95% CI |
| EBC MAIN               | 22.0         | 237     | 6.8%       | 1.53 [0.80; 2.91] |
| NBBS IV                | 14.0         | 228     | 6.7%       | 0.67 [0.35; 1.29]  |
| DEFINITION II          | 8.0          | 328     | 5.2%       | 0.44 [0.19; 1.00]  |
| DKCRUSH-V              | 12.0         | 240     | 6.6%       | 0.48 [0.25; 0.94]  |
| DKCRUSH-II             | 16.0         | 183     | 7.6%       | 0.53 [0.30; 0.94]  |
| POLBOS II              | 10.0         | 102     | 4.9%       | 1.09 [0.46; 2.57]  |
| SMART-STRATEGY         | 15.0         | 130     | 5.9%       | 1.34 [0.64; 2.81]  |
| Zhang et al. (2016)    | 4.0          | 52      | 1.1%       | 4.00 [0.46; 34.59] |
| Zheng et al. (2016)    | 8.0          | 150     | 3.8%       | 1.33 [0.47; 3.75]  |
| BBK I                  | 16.0         | 101     | 6.9%       | 1.00 [0.53; 1.89]  |
| TRYTON                 | 17.0         | 355     | 5.8%       | 1.52 [0.72; 3.20]  |
| POLBOS I               | 14.0         | 120     | 5.4%       | 1.59 [0.72; 3.54]  |
| PERFECT                | 4.0          | 213     | 3.0%       | 0.55 [0.16; 1.86]  |
| NSTS                   | 13.0         | 209     | 5.8%       | 1.03 [0.49; 2.17]  |
| NBS                    | 31.0         | 202     | 8.4%       | 1.35 [0.82; 2.23]  |
| Ye et al. (2012)       | 1.0          | 38      | 1.1%       | 0.26 [0.03; 2.40]  |
| Lin et al. (2010)      | 4.0          | 54      | 3.9%       | 0.24 [0.08; 0.65]  |
| Ye et al. (2010)       | 0.0          | 25      | 0.6%       | 0.35 [0.01; 8.12]  |
| CACTUS                 | 13.0         | 177     | 5.6%       | 1.16 [0.53; 2.51]  |
| Cervinka et al. (2008) | 4.0          | 30      | 2.7%       | 1.00 [0.28; 3.63]  |
| Colombo et al. (2004)  | 6.0          | 63      | 1.2%       | 2.10 [0.27; 16.45] |
| Pan et al. (2004)      | 2.0          | 44      | 1.0%       | 2.14 [0.20; 22.74] |

**Total (95% CI):** 3282 3207 100.0% 0.92 [0.72; 1.17]

Heterogeneity: $\tau^2 = 0.1120; \ Chi^2 = 33.38, df = 21 (P = 0.04); I^2 = 37\%$
Figure S7. Forest plot of two-stent versus provisional stent on target vessel revascularization.

| Study               | Experimental | Control | Risk Ratio |
|---------------------|--------------|---------|------------|
|                     | Events | Total | Events | Total | Weight | Random, 95% CI | Random, 95% CI |
| NBBS IV             | 15.0   | 228   | 23.0   | 218   | 7.9%   | 0.62 [0.33; 1.16] |
| DKCRUSH-II          | 23.0   | 183   | 35.0   | 183   | 10.7%  | 0.66 [0.40; 1.07] |
| POLBOS II           | 14.0   | 102   | 12.0   | 100   | 6.5%   | 1.14 [0.56; 2.35] |
| EBC TWO             | 1.0    | 97    | 3.0    | 103   | 0.9%   | 0.35 [0.04; 3.35] |
| SMART-STRATEGY      | 21.0   | 130   | 14.0   | 128   | 7.8%   | 1.48 [0.79; 2.77] |
| Zhang et al. (2016) | 4.0    | 52    | 1.0    | 52    | 1.0%   | 4.00 [0.46; 34.59] |
| Zheng et al. (2016) | 9.0    | 150   | 7.0    | 150   | 4.1%   | 1.29 [0.49; 3.36] |
| TRYTON              | 19.0   | 355   | 13.0   | 349   | 6.9%   | 1.44 [0.72; 2.86] |
| POLBOS I            | 19.0   | 120   | 12.0   | 123   | 7.1%   | 1.62 [0.82; 3.20] |
| PERFECT             | 6.0    | 213   | 7.0    | 206   | 3.4%   | 0.83 [0.28; 2.43] |
| NSTS                | 25.0   | 209   | 21.0   | 215   | 9.3%   | 1.22 [0.71; 2.12] |
| NBS                 | 37.0   | 202   | 27.0   | 202   | 11.4%  | 1.37 [0.87; 2.16] |
| Ruiz et al. (2013)  | 2.0    | 34    | 4.0    | 31    | 1.6%   | 0.46 [0.09; 2.32] |
| Ye et al. (2012)    | 1.0    | 38    | 3.0    | 30    | 0.9%   | 0.26 [0.03; 2.40] |
| BBC One             | 17.0   | 250   | 14.0   | 250   | 7.0%   | 1.21 [0.61; 2.41] |
| Lin et al. (2010)   | 4.0    | 54    | 16.0   | 54    | 3.7%   | 0.25 [0.09; 0.70] |
| CACTUS              | 14.0   | 177   | 13.0   | 173   | 6.4%   | 1.05 [0.51; 2.17] |
| Cervinka et al. (2008)| 0.0   | 30    | 0.0    | 30    | 0.3%   | 1.00 [0.02; 48.82] |
| Colombo et al. (2004)| 7.0   | 63    | 2.0    | 22    | 1.9%   | 1.22 [0.27; 5.45] |
| Pan et al. (2004)   | 2.0    | 44    | 2.0    | 47    | 1.2%   | 1.07 [0.16; 7.26] |

**Total (95% CI)**: 2732 / 2667 = 100.0%  1.02 [0.83; 1.27]

Heterogeneity: Tau² = 0.0524; Chi² = 24.37, df = 19 (P = 0.18); I² = 22%
Figure S8. Comparison of two-stent versus provisional stent stratified to lesion length of side branch on all-cause mortality.

| Study or Subgroup | Experimental | Control | Risk Ratio | Risk Ratio |
|-------------------|--------------|---------|------------|------------|
|                   | Events       | Total   | Events     | Total      | Random, 95% CI | Random, 95% CI |
| Group = SB <10mm  |              |         |            |            |               |               |
| EBC MAIN          | 10.0         | 237     | 7.0        | 230        | 1.39 [0.54; 3.58] |               |
| NBBS IV           | 5.0          | 228     | 5.0        | 218        | 0.96 [0.28; 3.26] |               |
| POLBOS II         | 1.0          | 102     | 3.0        | 100        | 0.33 [0.03; 3.09] |               |
| TRYTON            | 4.0          | 355     | 4.0        | 349        | 0.98 [0.25; 3.90] |               |
| POLBOS I          | 2.0          | 120     | 3.0        | 123        | 0.68 [0.12; 4.02] |               |
| NBS               | 21.0         | 202     | 12.0       | 202        | 1.75 [0.88; 3.46] |               |
| Colombo et al. (2004) | 1.0      | 63      | 0.0        | 22         | 1.08 [0.05; 25.54] |               |
| **Total (95% CI)** | **1308**   | **1245** |            |            | **1.27 [0.81; 1.97]** |               |

Heterogeneity: $\tau^2 = 0$; $\chi^2 = 3.1$, df = 6 ($P = 0.80$); $I^2 = 0$

| Group = SB ≥10mm | Experimental | Control | Risk Ratio | Risk Ratio |
|------------------|--------------|---------|------------|------------|
|                   | Events       | Total   | Events     | Total      | Random, 95% CI | Random, 95% CI |
| DEFINITION II     | 9.0          | 328     | 11.0       | 325        | 0.81 [0.34; 1.93] |               |
| DKCRUSH-V         | 16.0         | 240     | 18.0       | 242        | 0.90 [0.47; 1.72] |               |
| EBC TWO           | 1.0          | 97      | 2.0        | 103        | 0.53 [0.05; 5.76] |               |
| BBK I             | 10.0         | 101     | 8.0        | 101        | 1.25 [0.51; 3.04] |               |
| PERFECT           | 3.0          | 213     | 2.0        | 206        | 1.45 [0.24; 8.59] |               |
| **Total (95% CI)** | **979**     | **977** |            |            | **0.96 [0.62; 1.47]** |               |

Heterogeneity: $\tau^2 = 0$; $\chi^2 = 0.97$, df = 4 ($P = 0.91$); $I^2 = 0$

Test for subgroup differences: $\chi^2 = 0.80$, df = 1 ($P = 0.37$)
Figure S9. Comparison of two-stent versus provisional stent stratified to lesion length of side branch on cardiac death.

| Study or Subgroup | Experimental Events | Control Events | Risk Ratio Random, 95% CI | Risk Ratio Random, 95% CI |
|-------------------|---------------------|----------------|----------------------------|----------------------------|
|                   | Total | Total |                  |                            |
| Group = SB <10mm  |        |        |                  |                            |
| NBBS IV           | 2.0   | 228   | 2.0            | 218                        | 0.96 [0.14; 6.73]          |
| POLBOS II         | 0.0   | 102   | 3.0            | 100                        | 0.14 [0.01; 2.68]          |
| SMART-STRATEGY    | 4.0   | 130   | 1.0            | 128                        | 3.94 [0.45; 34.76]         |
| TRYTON            | 0.0   | 355   | 0.0            | 349                        | 0.98 [0.02; 49.41]         |
| POLBOS I          | 0.0   | 120   | 2.0            | 123                        | 0.20 [0.01; 4.23]          |
| NBS               | 8.0   | 202   | 5.0            | 202                        | 1.60 [0.53; 4.81]          |
| CACTUS            | 0.0   | 177   | 1.0            | 173                        | 0.33 [0.01; 7.94]          |
| **Total (95% CI)** | 1318  | 1297  |                 | 1.10 [0.51; 2.37]         |
|                   |        |        |                  |                            |
| Heterogeneity: Tau^2 = 0; Chi^2 = 5.4, df = 6 (P = 0.49); I^2 = 0% |

| Group = SB ≥10mm  |        |        |                  |                            |
|                   | Total | Total |                  |                            |
| DEFINITION II     | 7.0   | 328   | 8.0            | 325                        | 0.87 [0.32; 2.36]          |
| DKCRUSH-V         | 20.0  | 240   | 41.0           | 242                        | 0.49 [0.30; 0.81]          |
| DKCRUSH-II        | 4.0   | 183   | 6.0            | 183                        | 0.67 [0.19; 2.32]          |
| Zhang et al. (2016) | 1.0  | 52    | 0.0            | 52                         | 3.00 [0.13; 71.99]         |
| PERFECT           | 2.0   | 213   | 1.0            | 206                        | 1.93 [0.18; 21.17]         |
| Ye et al. (2012)  | 0.0   | 38    | 0.9            | 38                         | 0.79 [0.02; 38.93]         |
| Lin et al. (2010) | 0.0   | 54    | 1.0            | 54                         | 0.33 [0.01; 8.01]          |
| Ye et al. (2010)  | 0.0   | 25    | 0.0            | 26                         | 1.04 [0.02; 50.43]         |
| **Total (95% CI)** | 1137  | 1122  |                 | 0.60 [0.40; 0.90]         |
|                   |        |        |                  |                            |
| Heterogeneity: Tau^2 = 0; Chi^2 = 3.28, df = 7 (P = 0.86); I^2 = 0% |
| Test for subgroup differences: Chi^2 = 1.83, df = 1 (P = 0.18) |
Figure S10. Comparison of two-stent versus provisional stent stratified to lesion length of side branch on major adverse cardiac events.

| Study or Subgroup | Experimental Events | Control Events | Risk Ratio Random, 95% CI |
|-------------------|---------------------|----------------|--------------------------|
| **Group = SB <10mm** |                     |                |                          |
| EBC MAIN          | 42.0                | 34.0           | 1.20 [0.79; 1.81]        |
| NBBS IV           | 5.0                 | 12.0           | 0.40 [0.14; 1.11]        |
| POLBOS II         | 12.0                | 15.0           | 0.78 [0.39; 1.59]        |
| SMART-STRATEGY    | 8.0                 | 1.0            | 7.88 [1.00; 62.08]       |
| TRYTON            | 65.0                | 45.0           | 1.42 [1.00; 2.02]        |
| POLBOS I          | 16.0                | 15.0           | 1.09 [0.57; 2.11]        |
| NBS               | 44.0                | 32.0           | 1.38 [0.91; 2.07]        |
| CACTUS            | 28.0                | 26.0           | 1.05 [0.64; 1.72]        |
| **Total (95% CI)**| **1551**            | **1523**       | **1.20 [1.00; 1.44]**    |

Heterogeneity: Tau² = < 0.0001; Chi² = 10.67, df = 7 (P = 0.15); I² = 34%

| Study or Subgroup | Experimental Events | Control Events | Risk Ratio Random, 95% CI |
|-------------------|---------------------|----------------|--------------------------|
| **Group = SB ≥10mm** |                     |                |                          |
| DEFINITION II     | 20.0                | 37.0           | 0.54 [0.32; 0.90]        |
| DKCRUSH-V         | 20.0                | 41.0           | 0.49 [0.30; 0.81]        |
| DKCRUSH-II        | 29.0                | 44.0           | 0.66 [0.43; 1.00]        |
| EBC TWO           | 10.0                | 8.0            | 1.33 [0.55; 3.22]        |
| Zhang et al. (2016)| 4.0                 | 2.0            | 2.00 [0.38; 10.45]       |
| BBK I             | 23.0                | 23.0           | 1.00 [0.60; 1.66]        |
| PERFECT           | 38.0                | 38.0           | 0.97 [0.64; 1.45]        |
| Ye et al. (2012)  | 1.0                 | 5.0            | 0.16 [0.02; 1.28]        |
| Lin et al. (2010) | 6.0                 | 21.0           | 0.29 [0.13; 0.65]        |
| Ye et al. (2010)  | 0.0                 | 1.0            | 0.35 [0.01; 8.12]        |
| **Total (95% CI)**| **1332**            | **1323**       | **0.68 [0.50; 0.93]**    |

Heterogeneity: Tau² = 0.0966; Chi² = 17.5, df = 9 (P = 0.04); I² = 49%

Test for subgroup differences: Chi² = 9.64, df = 1 (P < 0.01)
Figure S11. Comparison of two-stent versus provisional stent stratified to lesion length of side branch on myocardial infarction.

| Study or Subgroup | Experimental | Control | Risk Ratio |
|-------------------|--------------|---------|------------|
|                   | Events Total| Events Total| Random, 95% CI |
| Group = SB <10mm  |              |         |            |
| EBC MAIN          | 24.0 237    | 23.0 230 | 1.01 [0.59; 1.74] |
| NBBS IV           | 7.0 228     | 11.0 218 | 0.61 [0.24; 1.54] |
| POLBOS II         | 2.0 102     | 3.0 100  | 0.65 [0.11; 3.83] |
| SMART-STRATEGY    | 4.0 130     | 0.0 128  | 8.86 [0.48; 162.95] |
| TRYTON            | 54.0 355    | 38.0 349 | 1.40 [0.95; 2.06] |
| POLBOS I          | 2.0 120     | 4.0 123  | 0.51 [0.10; 2.75] |
| NBS               | 16.0 202    | 8.0 202  | 2.00 [0.88; 4.57] |
| CACTUS            | 19.0 177    | 15.0 173 | 1.24 [0.65; 2.36] |
| Colombo et al. (2004) | 7.0 63  | 2.0 22   | 1.22 [0.27; 5.45] |
| **Total (95% CI)**| **1615**    | **1546** | **1.22 [0.95; 1.56]** |

Heterogeneity: $\tau^2 = 0.0001; \chi^2 = 7.74, df = 8 (P = 0.46); I^2 = 0\%$

| Study or Subgroup | Experimental | Control | Risk Ratio |
|-------------------|--------------|---------|------------|
|                   | Events Total| Events Total| Random, 95% CI |
| Group = SB ≥10mm  |              |         |            |
| DEFINITION II     | 10.0 328    | 23.0 325 | 0.43 [0.21; 0.89] |
| DKCRUSH-V         | 4.0 240     | 14.0 242 | 0.29 [0.10; 0.86] |
| DKCRUSH-II        | 7.0 183     | 6.0 183  | 1.17 [0.40; 3.40] |
| EBC TWO           | 10.0 97     | 5.0 103  | 2.12 [0.75; 5.99] |
| Zhang et al. (2016) | 0.0 52     | 3.0 52   | 0.14 [0.01; 2.70] |
| BBK I             | 2.0 101     | 4.0 101  | 0.50 [0.09; 2.67] |
| PERFECT           | 30.0 213    | 29.0 206 | 1.00 [0.62; 1.61] |
| Ye et al. (2012)  | 0.0 38      | 2.0 30   | 0.16 [0.01; 3.19] |
| Lin et al. (2010) | 0.0 54      | 0.0 54   | 1.00 [0.02; 49.50] |
| Ye et al. (2010)  | 0.0 25      | 0.0 26   | 1.04 [0.02; 50.43] |
| **Total (95% CI)**| **1335**    | **1326** | **0.70 [0.41; 1.19]** |

Heterogeneity: $\tau^2 = 0.2518; \chi^2 = 13.59, df = 9 (P = 0.14); I^2 = 34\%$

Test for subgroup differences: $\chi^2 = 3.42, df = 1 (P = 0.06)$
Figure S12. Comparison of two-stent versus provisional stent stratified to lesion length of side branch on stent thrombosis.

| Study or Subgroup | Experimental | Control | Risk Ratio Random, 95% CI | Risk Ratio Random, 95% CI |
|-------------------|--------------|---------|--------------------------|--------------------------|
| Group = SB <10mm  | Events Total | Events Total |                          |                          |
| EBC MAIN          | 3.0 237     | 4.0 230 | 0.73 [0.16; 3.22]         |                          |
| NBBS IV           | 5.0 228     | 6.0 218 | 0.80 [0.25; 2.57]         |                          |
| POLBOS II         | 1.0 102     | 1.0 100 | 0.98 [0.06; 15.46]        |                          |
| SMART-STRATEGY    | 2.5 131     | 0.5 129 | 4.92 [0.24; 101.56]       |                          |
| TRYTON            | 2.0 355     | 1.0 349 | 1.97 [0.18; 21.59]        |                          |
| POLBOS I          | 1.0 120     | 0.0 123 | 3.07 [0.13; 74.73]        |                          |
| NBS               | 3.0 202     | 6.0 202 | 0.50 [0.13; 1.97]         |                          |
| CACTUS            | 3.0 177     | 2.0 173 | 1.47 [0.25; 8.67]         |                          |
| Colombo et al. (2004) | 3.0 63 | 0.0 22 | 2.52 [0.14; 46.66]        |                          |
| **Total (95% CI)** | **1617** | **1548** | **0.98 [0.53; 1.81]** |                          |

Heterogeneity: Tau^2 = 0; Chi^2 = 3.7, df = 8 (P = 0.88); I^2 = 0%

| Group = SB ≥10mm | Experimental | Control | Risk Ratio Random, 95% CI | Risk Ratio Random, 95% CI |
|-------------------|--------------|---------|--------------------------|--------------------------|
| DEFINITION II     | 4.0 328      | 8.0 325 | 0.50 [0.15; 1.63]         |                          |
| DKCRUSH-V         | 6.0 240      | 14.0 242 | 0.43 [0.17; 1.11]        |                          |
| DKCRUSH-II        | 5.0 183      | 5.0 183 | 1.00 [0.29; 3.40]        |                          |
| EBC TWO           | 3.0 97       | 1.0 103 | 3.19 [0.34; 30.11]       |                          |
| Zhang et al. (2016) | 0.0 52 | 0.0 52 | 1.00 [0.02; 49.47]       |                          |
| BBK I             | 5.0 101      | 2.0 101 | 2.50 [0.50; 12.59]       |                          |
| PERFECT           | 1.0 213      | 0.0 206 | 2.90 [0.12; 70.83]       |                          |
| Ye et al. (2012)  | 0.0 38       | 0.0 30  | 0.79 [0.02; 38.93]       |                          |
| Lin et al. (2010) | 0.0 54       | 1.0 54  | 0.33 [0.01; 8.01]        |                          |
| **Total (95% CI)** | **1310** | **1300** | **0.81 [0.45; 1.48]** |                          |

Heterogeneity: Tau^2 = 0.0920; Chi^2 = 6.68, df = 8 (P = 0.57); I^2 = 0%

Test for subgroup differences: Chi^2 = 0.19, df = 1 (P = 0.67)
Figure S13. Comparison of two-stent versus provisional stent stratified to lesion length of side branch on target lesion revascularization.

| Study or Subgroup | Experimental | Control | Risk Ratio | Risk Ratio |
|-------------------|--------------|---------|------------|------------|
|                   | Events Total| Events Total| Random, 95% CI | Random, 95% CI |
| **Group = SB <10mm** |             |          |            |            |
| EBC MAIN          | 22.0 237    | 14.0 230 | 1.53 [0.80; 2.91] |           |
| NBBS IV           | 14.0 228    | 20.0 218 | 0.67 [0.35; 1.29] |           |
| POLBOS II         | 10.0 102    | 9.0 100  | 1.09 [0.46; 2.57] |           |
| SMART-STRATEGY    | 15.0 130    | 11.0 128 | 1.34 [0.64; 2.81] |           |
| TRYTON            | 17.0 355    | 11.0 349 | 1.52 [0.72; 3.20] |           |
| POLBOS I          | 14.0 120    | 9.0 123  | 1.59 [0.72; 3.54] |           |
| NBS               | 31.0 202    | 23.0 202 | 1.35 [0.82; 2.23] |           |
| CACTUS            | 13.0 177    | 11.0 173 | 1.16 [0.53; 2.51] |           |
| Colombo et al. (2004) | 6.0 63 | 1.0 22 | 2.10 [0.27; 16.45] |           |
| **Total (95% CI)** | **1614**    | **1545** | **1.25 [0.98; 1.59]** |           |

Heterogeneity: Tau² = 0; Chi² = 4.96, df = 8 (P = 0.76); I² = 0%

| Study or Subgroup | Experimental | Control | Risk Ratio | Risk Ratio |
|-------------------|--------------|---------|------------|------------|
|                   | Events Total| Events Total| Random, 95% CI | Random, 95% CI |
| **Group = SB ≥10mm** |             |          |            |            |
| DEFINITION II     | 8.0 328     | 18.0 325 | 0.44 [0.19; 1.00] |           |
| DKCRUSH-V         | 12.0 240    | 25.0 242 | 0.48 [0.25; 0.94] |           |
| DKCRUSH-II        | 16.0 183    | 30.0 183 | 0.53 [0.30; 0.94] |           |
| Zhang et al. (2016) | 4.0 52  | 1.0 52 | 4.00 [0.46; 34.59] |           |
| BBK I             | 16.0 101    | 16.0 101 | 1.00 [0.53; 1.89] |           |
| PERFECT           | 4.0 213     | 7.0 206  | 0.55 [0.16; 1.86] |           |
| Ye et al. (2012)  | 1.0 38      | 3.0 30   | 0.26 [0.03; 2.40] |           |
| Lin et al. (2010) | 4.0 54      | 17.0 54  | 0.24 [0.08; 0.65] |           |
| Ye et al. (2010)  | 0.0 25      | 1.0 26   | 0.35 [0.01; 8.12] |           |
| **Total (95% CI)** | **1235**    | **1220** | **0.55 [0.39; 0.78]** |           |

Heterogeneity: Tau² = 0.0487; Chi² = 10.23, df = 8 (P = 0.25); I² = 22%

Test for subgroup differences: Chi² = 14.40, df = 1 (P < 0.01)
Figure S14. Comparison of two-stent versus provisional stent stratified to lesion length of side branch on target vessel revascularization.

| Study or Subgroup | Experimental Events Total | Control Events Total | Risk Ratio Random, 95% CI | Risk Ratio Random, 95% CI |
|-------------------|---------------------------|----------------------|---------------------------|---------------------------|
| **Group = SB <10mm** |                          |                      |                           |                           |
| NBBS IV           | 15 228                    | 23 218               | 0.62 [0.33; 1.16]         |                           |
| POLBOS II         | 14 102                    | 12 100               | 1.14 [0.56; 2.35]         |                           |
| SMART-STRATEGY    | 21 130                    | 14 128               | 1.48 [0.79; 2.77]         |                           |
| TRYTON            | 19 355                    | 13 349               | 1.44 [0.72; 2.86]         |                           |
| POLBOS I          | 19 120                    | 12 123               | 1.62 [0.82; 3.20]         |                           |
| NBS               | 37 202                    | 27 202               | 1.37 [0.87; 2.16]         |                           |
| CACTUS            | 14 177                    | 13 173               | 1.05 [0.51; 2.17]         |                           |
| Colombo et al. (2004) | 7 63                      | 2 22                 | 1.22 [0.27; 5.45]         |                           |
| **Total (95% CI)** | **1377**                  | **1315**             | **1.21 [0.96; 1.53]**     |                           |

Heterogeneity: $\tau^2 = 0.0019; \chi^2 = 6.14, df = 7 (P = 0.52); \ I^2 = 0\%$

| **Group = SB ≥10mm** |                          |                      |                           |                           |
| DKCRUSH-II         | 23 183                    | 35 183               | 0.66 [0.40; 1.07]         |                           |
| EBC TWO            | 1 97                      | 3 103                | 0.35 [0.04; 3.35]         |                           |
| Zhang et al. (2016) | 4 52                      | 1 52                 | 4.00 [0.46; 34.59]        |                           |
| PERFECT            | 6 213                     | 7 206                | 0.83 [0.28; 2.43]         |                           |
| Ye et al. (2012)   | 1 38                      | 3 30                 | 0.26 [0.03; 2.40]         |                           |
| Lin et al. (2010)  | 4 54                      | 16 54                | 0.25 [0.09; 0.70]         |                           |
| **Total (95% CI)** | **637**                   | **628**              | **0.58 [0.36; 0.95]**     |                           |

Heterogeneity: $\tau^2 = 0.0655; \chi^2 = 6.98, df = 5 (P = 0.22); \ I^2 = 28\%$

Test for subgroup differences: $\chi^2 = 6.91, df = 1 (P < 0.01)$
Figure S15. Bar graph showing SUCRA scores of each bifurcation technique for every outcome.
Figure S16. Bayesian network meta-analysis.

**All-cause mortality**

| Compared with PS | Odds Ratio (95% Crl) | Compared with PS | Odds Ratio (95% Crl) | Compared with PS | Odds Ratio (95% Crl) |
|------------------|----------------------|------------------|----------------------|------------------|----------------------|
| Crush            | 1.5 (0.76, 2.8)      | Crush            | 1.5 (0.63, 3.7)      | Crush            | 1.3 (0.97, 1.8)      |
| Culotte          | 1.3 (0.67, 2.4)      | Culotte          | 1.3 (0.52, 3.3)      | Culotte          | 1.1 (0.80, 1.6)      |
| DBS              | 0.85 (0.31, 2.2)     | DBS              | 0.65 (0.18, 2.1)     | DBS              | 1.2 (0.73, 1.7)      |
| DK Crush         | 0.85 (0.41, 1.7)     | DK Crush         | 0.54 (0.30, 0.98)    | DK Crush         | 0.42 (0.30, 0.57)    |
| T/TAP            | 1.1 (0.40, 2.8)      | T/TAP            | 2.8 (0.52, 22.)      | T/TAP            | 1.7 (0.97, 3.1)      |

**Cardiac Death**

| Compared with PS | Odds Ratio (95% Crl) | Compared with PS | Odds Ratio (95% Crl) | Compared with PS | Odds Ratio (95% Crl) |
|------------------|----------------------|------------------|----------------------|------------------|----------------------|
| Crush            | 1.5 (0.63, 3.7)      | Crush            | 1.5 (0.63, 3.7)      | Crush            | 1.3 (0.97, 1.8)      |
| Culotte          | 1.3 (0.52, 3.3)      | Culotte          | 1.3 (0.52, 3.3)      | Culotte          | 1.1 (0.80, 1.6)      |
| DBS              | 0.65 (0.18, 2.1)     | DBS              | 0.65 (0.18, 2.1)     | DBS              | 1.2 (0.73, 1.7)      |
| DK Crush         | 0.54 (0.30, 0.98)    | DK Crush         | 0.54 (0.30, 0.98)    | DK Crush         | 0.42 (0.30, 0.57)    |
| T/TAP            | 2.8 (0.52, 22.)      | T/TAP            | 2.8 (0.52, 22.)      | T/TAP            | 1.7 (0.97, 3.1)      |

**Major Adverse Cardiac Events**

| Compared with PS | Odds Ratio (95% Crl) | Compared with PS | Odds Ratio (95% Crl) |
|------------------|----------------------|------------------|----------------------|
| Crush            | 1.3 (0.97, 1.8)      | Crush            | 1.3 (0.97, 1.8)      |
| Culotte          | 1.1 (0.80, 1.6)      | Culotte          | 1.1 (0.80, 1.6)      |
| DBS              | 1.2 (0.73, 1.7)      | DBS              | 1.2 (0.73, 1.7)      |
| DK Crush         | 0.42 (0.30, 0.57)    | DK Crush         | 0.42 (0.30, 0.57)    |
| T/TAP            | 1.7 (0.97, 3.1)      | T/TAP            | 1.7 (0.97, 3.1)      |

**Myocardial infarction**

| Compared with PS | Odds Ratio (95% Crl) | Compared with PS | Odds Ratio (95% Crl) | Compared with PS | Odds Ratio (95% Crl) |
|------------------|----------------------|------------------|----------------------|------------------|----------------------|
| Crush            | 1.5 (0.95, 2.3)      | Crush            | 1.5 (0.95, 2.3)      | Crush            | 1.1 (0.75, 1.6)      |
| Culotte          | 1.1 (0.65, 1.7)      | Culotte          | 1.1 (0.65, 1.7)      | Culotte          | 1.1 (0.75, 1.6)      |
| DBS              | 1.1 (0.48, 2.0)      | DBS              | 1.6 (0.45, 5.3)      | DBS              | 1.3 (0.81, 2.2)      |
| DK Crush         | 0.56 (0.33, 0.93)    | DK Crush         | 0.48 (0.25, 0.90)    | DK Crush         | 0.39 (0.26, 0.55)    |
| T/TAP            | 1.0 (0.43, 2.5)      | T/TAP            | 2.2 (0.95, 5.3)      | T/TAP            | 1.5 (0.92, 2.5)      |

**Stent thrombosis**

| Compared with PS | Odds Ratio (95% Crl) | Compared with PS | Odds Ratio (95% Crl) |
|------------------|----------------------|------------------|----------------------|
| Crush            | 1.3 (0.68, 2.7)      | Crush            | 1.3 (0.68, 2.7)      |
| Culotte          | 1.5 (0.80, 2.9)      | Culotte          | 1.5 (0.80, 2.9)      |
| DBS              | 1.6 (0.45, 5.3)      | DBS              | 1.6 (0.45, 5.3)      |
| DK Crush         | 0.48 (0.25, 0.90)    | DK Crush         | 0.48 (0.25, 0.90)    |
| T/TAP            | 2.2 (0.95, 5.3)      | T/TAP            | 2.2 (0.95, 5.3)      |

**Target Lesion Revascularization**

| Compared with PS | Odds Ratio (95% Crl) | Compared with PS | Odds Ratio (95% Crl) |
|------------------|----------------------|------------------|----------------------|
| Crush            | 1.1 (0.75, 1.6)      | Crush            | 1.1 (0.75, 1.6)      |
| Culotte          | 1.1 (0.75, 1.6)      | Culotte          | 1.1 (0.75, 1.6)      |
| DBS              | 1.3 (0.81, 2.2)      | DBS              | 1.3 (0.81, 2.2)      |
| DK Crush         | 0.39 (0.26, 0.55)    | DK Crush         | 0.39 (0.26, 0.55)    |
| T/TAP            | 1.5 (0.92, 2.5)      | T/TAP            | 1.5 (0.92, 2.5)      |

**Target Vessel Revascularization**

| Compared with PS | Odds Ratio (95% Crl) | Compared with PS | Odds Ratio (95% Crl) |
|------------------|----------------------|------------------|----------------------|
| Crush            | 1.2 (0.80, 1.7)      | Crush            | 1.2 (0.80, 1.7)      |
| Culotte          | 0.98 (0.62, 1.5)     | Culotte          | 0.98 (0.62, 1.5)     |
| DBS              | 1.4 (0.62, 2.3)      | DBS              | 1.4 (0.62, 2.3)      |
| DK Crush         | 0.98 (0.62, 1.5)     | DK Crush         | 0.38 (0.24, 0.59)    |
| T/TAP            | 1.2 (0.62, 2.4)      | T/TAP            | 1.2 (0.62, 2.4)      |