Dear Sir:

The first pass effect (FPE) is an independent predictor of good functional outcomes (modified Rankin Scale [mRS] 0–2) and is associated with reduced 90-day mortality. However, the economic impact of FPE has not been evaluated in the Asia-Pacific (APAC) region. This analysis assessed the procedural/hospitalization-related and long-term care economic impact of achieving FPE in patients with acute ischemic stroke in Australia, India, Japan, South Korea, Singapore, and Taiwan.

A detailed description of the methods can be found in Supplementary methods. Briefly, post hoc analyses were conducted using patient-level data from the 227 patients in the Analysis of Revascularization in Ischemic Stroke With EmboTrap (ARISE) II study, a prospective single-arm international multi-center clinical trial investigating the efficacy and safety of the EmboTrap device (Cerenovus, Irvine, CA, USA). FPE was defined as restoring complete or near complete reperfusion (modified Thrombolysis in Cerebral Infarction [mTICI] 2c–3) in a single pass with the EmboTrap device. The target population comprised patients who achieved mTICI 2c–3 (n=172), stratified into two groups: FPE (mTICI 2c–3 after the first pass) and non-FPE (mTICI 2c–3 after multiple passes). Primary analyses were conducted in two steps. First, clinical and healthcare resource use data from the ARISE II study were evaluated for the FPE and non-FPE groups. Second, cost data from peer-reviewed literature or market research (Supplementary Table 1) were applied to healthcare resource use data from the ARISE II study to assess cost consequences in each group using two time-horizons to accommodate two different perspectives: (1) procedural/hospitalization-related (i.e., length of stay [LOS], standard bed days, intensive care unit [ICU] days, and procedural devices used) assessing costs from the healthcare provider perspective; and (2) long-term care costs based on 90-day mRS (per annum for Australia, Japan, and South Korea; 6 months for India) assessing costs from the payer perspective. All costs were reported as 2020 currencies or 2020 United States dollar (USD) except Singapore (2019 currencies) and were inflated using country-specific inflation indices. Sensitivity analyses, varying key input parameters (i.e., alternative definitions for FPE ["FPE, mTICI 3" and "FPE, mTICI 2b–3"], LOS, healthcare resource costs, and inclusion of costs for mRS 6), were conducted to test the robustness of the results.

Complete or near-complete reperfusion (mTICI 2c–3) was observed in 76% of the patients (n=172) in the ARISE II study. Among patients that achieved mTICI 2c–3, 53% (n=91) achieved FPE. Baseline characteristics were balanced between the FPE and non-FPE groups (Supplementary Table 2). Patients in the FPE group had better clinical outcomes (Supplementary Table 3). Furthermore, patients who achieved FPE required a
single EmboTrap device whereas 35% of patients in the non-FPE group required additional devices such as other stent retrievers and/or aspiration catheters. Patients in the FPE group had a significantly shorter mean LOS (6.10 days [interquartile range (IQR), 3.00 to 8.00] vs. 9.48 days [IQR, 3.00 to 11.00], \( P < 0.01 \)) and spent significantly fewer mean number of days in a standard bed (3.05 [IQR, 0.00 to 5.00] vs. 6.13 [IQR, 1.00 to 8.00], \( P < 0.01 \)). The mean number of days spent in the ICU (3.39

| Country      | Difference, LOS (original currencies) | Difference, devices/methods (original currencies) | Difference, total (original currencies) | Difference, total (2020 USD)* | Percent cost savings for the FPE group |
|--------------|--------------------------------------|---------------------------------------------------|----------------------------------------|--------------------------------|--------------------------------------|
| Australia    | -AUD 5,987                           | -AUD 2,634                                        | -AUD 8,621                             | -$5,951                        | 32%                                  |
| India        | -INR 11,404                          | -INR 56,314                                       | -INR 67,718                           | -$894                          | 27%                                  |
| Japan        | -¥118,695                            | -¥120,797                                         | -¥239,493                             | -$2,241                        | 30%                                  |
| South Korea  | -₩1,274,291                          | -₩729,856                                         | -₩2,004,146                           | -$1,655                        | 31%                                  |
| Singapore    | -SGD 3,367                           | -SGD 2,177                                        | -SGD 5,544                            | -$3,981                        | 31%                                  |
| Taiwan       | -TWD 17,299                          | -TWD 24,612                                       | -TWD 41,911                           | -$1,416                        | 29%                                  |

Figure 1. Estimated per-patient procedural and hospitalization-related healthcare use cost savings for the first pass effect (FPE) and non-FPE groups. Negative values represent cost savings for patients in the FPE group as compared with the non-FPE group. Numbers may not sum due to rounding. AUD, Australian dollar; INR, Indian rupee; SGD, Singapore dollar; TWD, Taiwan dollar; LOS, length of stay; USD, United States dollar. *Reported as charges; †Reported as 2019 USD for Singapore. Exchange rates reported for June 22, 2020 16:00 Coordinated Universal Time (UTC) were used for all countries. The exchange rates were as follows: 1.00 AUD=0.69 USD; 1.00 INR=0.01 USD; 1.00 JPY=0.01 USD; 1.00 ¥=0.001 USD; 1.00 SGD=0.72 USD; and 1.00 TWD=0.03 USD.
### Table 1. Average Long-term Care Costs/mRS Score by Country

| % Achieving mRS score | Average long-term care costs/mRS score by country |
|-----------------------|--------------------------------------------------|
|                       | FPE (n=91) | Non-FPE (n=81) | Australia (annual) (2020 AUD) | India (6-mo) (2020 INR) | Japan (annual) (2020 ¥) | South Korea (annual) (2020 ₩) |
| mRS                   |           |                |                             |                           |                          |                                    |
| 0                     | 41.38%    | 19.48%         | AUD 11,846                   | INR 74,030               | ¥775,354                 | W14,416,468                        |
| 1                     | 21.84%    | 27.27%         | AUD 14,927                   | INR 85,482               | ¥1,661,827               | W16,928,191                        |
| 2                     | 17.24%    | 14.29%         | AUD 17,988                   | INR 115,907              | ¥3,292,456               | W28,055,626                        |
| 3                     | 9.20%     | 7.79%          | AUD 19,790                   | INR 105,956              | ¥4,011,676               | W48,953,557                        |
| 4                     | 2.30%     | 11.69%         | AUD 23,436                   | INR 119,387              | ¥4,339,415               | W78,744,490                        |
| 5                     | 2.30%     | 5.19%          | AUD 27,269                   | INR 184,308              | ¥4,831,394               | W86,834,243                        |
| 6                     | 5.75%     | 14.29%         | AUD 0                       | INR 0*                   | ¥0                       | W0*                                 |

### Figure 2. Estimated per-patient long-time care cost savings, based on 90-day modified Rankin Scale (mRS), for the first pass effect (FPE) and non-FPE groups. Negative values represent cost savings for patients in the FPE group as compared with the non-FPE group. Numbers may not sum due to rounding. AUD, Australian dollar; INR, Indian rupee; USD, United States dollar. *Reported for India and South Korea but not used for analyses to ensure consistency with other countries that did not report a cost for death (i.e., mRS 6); †Exchange rates reported for June 22, 2020 16:00 Coordinated Universal Time (UTC) were used for all countries. The exchange rates were as follows: 1.00 AUD=0.69 USD; 1.00 INR=0.01 USD; 1.00 JPY=0.01 USD; and 1.00 W=0.001 USD.
[IQR, 2.00 to 4.00] vs. 3.58 [IQR, 2.00 to 4.00], P=0.70) was similar between groups. Achieving FPE led to estimated per-patient procedural/hospitalization-related cost savings in every country studied (8,621 Australian dollar [AUD] or $5,951 USD for Australia, 67,718 Indian rupee [INR] or $894 USD for India, ¥239,493 or $2,241 USD for Japan, ¥2,004,146 or $1,655 USD for South Korea, 5,544 Singapore dollar [SGD] or $3,981 USD for Singapore, and 41,911 Taiwan dollar [TWD] or $1,416 USD for Taiwan) (Figure 1). Similarly, achieving FPE led to estimated per-patient long-term care cost savings in every country studied (398 AUD or $275 USD for Australia, 68 INR or $1 USD for India, ¥314,262 or $2,941 USD for Japan, and ¥6,155,006 or $5,084 USD for South Korea) (Figure 2). Results from the sensitivity analyses were consistent with the primary analyses; notably, inclusion of costs for mRS 6 resulted in long-term care cost savings of 13,353 INR for India and ¥8,359,695 for South Korea (Supplementary Table 4).

This study demonstrated that achieving FPE led to potential per-patient procedural/hospitalization-related cost savings, which is especially meaningful for healthcare systems that pay hospitals on the basis of diagnosis-related groups or related payment models. These potential cost savings were largely driven by improvements in clinical outcomes; research has shown that increases in mean LOS are directly correlated with mRS evaluated 90 days after a stroke. The potential long-term care cost savings from improvements in functional outcomes are linked to reduced healthcare resource use and decreased costs for patients surviving stroke. Our findings are aligned with a cost-effectiveness analysis that showed that achieving expanded Thrombolysis in Cerebral Infarction (eTICI) 3 resulted in more quality-adjusted life years, as well as healthcare and societal cost savings compared with achieving eTICI 2b among patients with large vessel occlusions.

There are several factors related to the treating physician (e.g., training), setting (e.g., available equipment), and patient (e.g., clot composition) that may impact the ability to achieve FPE; however, techniques involving the combined use of stent retrievers and other devices (e.g., intermediate catheters) may improve recanalization rates and the rate of FPE. As such, it may be beneficial to use techniques involving multiple devices immediately rather than beginning with a single device approach and gradually combining additional devices to achieve reperfusion after initial failure.

This study had some limitations. First, healthcare resource use collected from clinical trials may not reflect the real-world setting. It is plausible that costs calculated from ARISE II resource utilization may be different in Asia due to variations in clinical practice or population-specific factors. Although sensitivity analyses assessing differences by ethnic groups/regions were considered, such analyses were not feasible due to small sample sizes. Second, the ARISE II study did not report cost data; as such, costs were obtained from peer-reviewed literature or market research, limiting validity. However, this study used the best available estimates, which were validated by clinical experts in interviews.

In conclusion, achieving FPE led to potential procedural/hospitalization-related and long-term care cost savings in the APAC region in addition to clinical benefits. As such, achieving reperfusion with a single pass is a relevant goal for endovascular treatment of acute ischemic stroke with holistic benefits.

Supplementary materials

Supplementary materials related to this article can be found online at https://doi.org/10.5853/jos.2020.05043.

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Supplementary methods

Primary data source
Post hoc analyses were conducted using patient-level data from the 227 patients in the Analysis of Revascularization in Ischemic Stroke With EmboTrap (ARISE) II study, a prospective single-arm international multi-center clinical trial investigating the efficacy and safety of the EmboTrap device (Cerenovus, Irvine, CA, USA).1

Target population
In accordance with the ARISE II study,1 first pass effect (FPE) was defined as complete or near complete reperfusion (modified Thrombolysis in Cerebral Infarction [mTICI] 2c–3) after the first pass of the EmboTrap device; alternative definitions for FPE were explored in sensitivity analyses. The target population comprised of patients who achieved mTICI 2c–3 (n=172) and patients who did not achieve mTICI 2c–3 (n=55) were excluded from the primary analyses to avoid potential biases. The target population was then stratified into two groups: FPE group (achieved mTICI 2c–3 after the first pass) and non-FPE group (achieved mTICI 2c–3 after multiple passes). The two groups were defined based on the mTICI score measured after the first pass and the subsequent total number of passes after the first pass did not impact categorization.

Primary analyses
Primary analyses were conducted in two steps. First, clinical and healthcare resource use data from the ARISE II study (i.e., baseline characteristics, clinical outcomes, and healthcare resource used) were evaluated for the FPE and non-FPE groups. Second, cost data from peer-reviewed literature or market research were applied to data from the ARISE II study to assess cost consequences among the two groups.

Baseline characteristics
Baseline characteristics (i.e., patient demographics, vascular risk factors, clinical presentation, occlusion location, and procedural factors) were compared between the FPE and non-FPE groups to examine potential bias.

Clinical outcomes
The clinical outcomes included mTICI score after each pass and the procedure, 90-day modified Rankin Scale (mRS; categorized into good [mRS 0–2] and excellent [mRS 0–1] functional outcomes), 90-day mortality, occurrence of symptomatic intracranial hemorrhage within 24 hours post-procedure based on the Heidelberg Bleeding Classification, and embolization into new territory assessed at 7-day post-procedure.

Healthcare resource use
Procedural/hospitalization-related healthcare resources, associated with the initial stroke event, included total length of stay (LOS), days in the intensive care unit, standard bed days, and procedural device use (stent retrievers and aspiration devices).

Economic outcomes
Cost analyses included comparison of cost consequences between the FPE and non-FPE groups from the perspective of six countries (Australia, India, Japan, South Korea, Singapore, and Taiwan) in the Asia-Pacific (APAC) region. These analyses used two time-horizons and perspectives: (1) procedural/hospitalization-related costs were compared from the healthcare provider perspective and (2) long-term care costs after the initial stroke event were compared from the payer perspective. All costs were reported as 2020 currencies or 2020 United States dollar (USD) except Singapore (reported as 2019 currencies) and were inflated using country specific inflation indices if required. Exchange rates were used to convert original currencies to USD for all countries.

The procedural/hospitalization-related economic impact was assessed in four steps. First, the procedural/hospitalization-related healthcare use (i.e., total LOS and procedural devices used) data were obtained for the FPE and non-FPE groups from the ARISE II study. Second, country-specific costs from a provider perspective were obtained from peer-reviewed literature or market research reports.2–9 The LOS costs were based on resources used during the hospitalization period (i.e., direct medical costs such as salaries and wages, medical supplies, pharmaceuticals, examinations, and imaging) (Supplementary Table 1). Third, the country-specific costs were applied to the procedural/hospitalization-related healthcare use data to obtain per-patient procedural/hospitalization-related costs for the FPE and non-FPE groups. Fourth, per-patient incremental differences between the FPE and non-FPE groups were calculated.

Long-term care economic impact, based on the 90-day mRS, was also calculated in four steps. First, the proportions of patients achieving each level of mRS score (i.e., mRS 0 to 8) at 90 days, stratified by FPE status, were obtained from the ARISE II study. Second, country-specific costs for long-term care from a payer perspective, based on 90-day mRS scores, were obtained from the published literature.5,10–12 The resources captured in the long-term care costs generally included direct medical costs (e.g., rehabilitation, aged/long-term care facilities, general practice visits, and special consultations); however, the long-
term care costs for India also included direct non-medical (e.g., relocation expenses, and costs of making changes to one’s diet, house, car, or related items) and indirect (e.g., production value lost to society due to absence from work) costs. Additionally, while the long-term care costs for Australia, Japan, and South Korea were on a per annum basis, the costs for India were for 6 months. Notably, in the base case, costs for mRS 6 were excluded from the analyses for India and South Korea to ensure consistency with other countries that did not report costs for death (i.e., mRS 6). Long-term care costs were not found for Singapore and Taiwan. Third, country-specific costs were applied to the proportions of patients achieving each level of mRS score to obtain per-patient long-term care costs for the FPE and non-FPE groups. Fourth, per-patient incremental differences between the FPE and non-FPE groups were calculated.

Sensitivity analyses
Deterministic sensitivity analyses, varying key input parameters, were conducted to test the robustness of the results. These analyses included two alternative definitions for FPE: (1) “FPE (mTICI 3),” defined as achieving mTICI 3 after the first pass and (2) “FPE (mTICI 2b–3),” defined as achieving mTICI 2b–3 after the first pass. When these alternative definitions were assessed, the target population was modified accordingly (e.g., patients in whom mTICI 2b–3 was not achieved were excluded from the analyses when the definition of FPE was changed to FPE [mTICI 2b–3]). Additional sensitivity analyses included variations in total LOS around its interquartile range (IQR), variations in healthcare resource costs by 20% (i.e., increased and decreased by 20%), and inclusion of costs for mRS 6 in long-term care costs for India and South Korea (only countries that reported these costs). Other sensitivity analyses assessing differences by ethnic groups/regions and occlusion locations (i.e., anterior vs. posterior) were considered but were not feasible due to small sample sizes.

Statistical analyses
Categorical variables were described using the number of observations and relevant proportions, while continuous variables were described using the mean or median and standard deviation (SD) or IQR, respectively. Statistical differences between the FPE and non-FPE groups were determined using t-tests or Wilcoxon rank-sum (Mann-Whitney) tests for continuous data and chi-square or Fisher’s exact test for categorical data. Differences between groups were considered statistically significantly different when P-values were less than 0.05. All statistical analyses of the ARISE II data were performed using Stata version 15 (StataCorp., College Station, TX, USA).
## Supplementary Table 1. Sources used to obtain costs for analyses

| Study | Country | Currency | Components included in costs | Cost (original currency) | Cost (2020 currency) |
|-------|---------|----------|------------------------------|--------------------------|----------------------|
| Cadilhac et al. (2019) | Australia | 2010 AUD | Clinical costing data from hospitals (e.g., salaries and wages, medical supplies, pharmaceuticals, pathology equipment, imaging, hotel expenses, and indirect costs such as administration, research, and training) | AUD 1,192.15 | AUD 1,771.34 |
| Kwatra et al. (2013) | India | 2013 INR | Direct medical costs for inpatient care (hospitalization expenses including investigations) | INR 2,388.15 | INR 3,373.93 |
| Yoneda et al. (2005) | Japan | 2002 ¥ | Direct medical costs for beds, staffs, examinations, medications including surgical procedures, rehabilitation, and other minor miscellaneous expenses such as commissions | ¥33,075.00 | ¥35,116.98 |
| Jeong et al. (2017) | South Korea | 2017 W | Acute care costs for room, neurological/physical examination, medication/injection, bed-side rehabilitation, laboratory test, and imaging studies | W367,109.20 | W377,009.06 |
| Chow et al. (2010) | Singapore | 2007–2008 SGD | Direct costs incurred during each hospitalization, including cost of resources utilized and services received (i.e., ward charges, radiology investigations, laboratory investigations, expert medical care, cost of services rendered such as ward procedures, emergency services, implant fees and rehabilitation, medication cost, and miscellaneous) | SGD 769.00 | SGD 996.11 (2019 SGD) |
| Liu et al. (2016) | Taiwan | 2009 TWD | Direct medical cost of acute stroke care from the time of admission to discharge, including the expense for the personnel, imaging studies, laboratory examinations, medications, and any interventional management in the emergency department, intensive care unit, and neurology ward | TWD 4,661.52 | TWD 5,118.04 |

### Cost per mRS score(s)

| Study | Country | Currency | Components included in costs | Cost (original currency) | Cost (2020 currency) |
|-------|---------|----------|------------------------------|--------------------------|----------------------|
| Arora et al. (2018) | Australia | 2016 AUD | Range of costs, in particular further rehabilitation, aged-care facilities, general practice visits, and special consultations | mRS 0: AUD 10,499.00 | mRS 0: AUD 11,845.68 |
| Kwatra et al. (2013) | India | 2013 INR | Direct medical costs (i.e., hospitalization, laboratory, radiology and cardiology-related investigations, drugs, nursing charges, consultant fees, rehabilitation services, and interdepartmental consultations), direct nonmedical costs (i.e., transportation costs to healthcare providers, relocation expenses, and costs of making changes to one's diet, house, car, or related items), and indirect costs (i.e., production value lost to society due to absence from work, disability and death) | mRS 0: INR 52,400.00 | mRS 0: INR 74,029.58 |
| Hattori et al. (2012) | Japan | 2011 ¥ | Direct medical costs (i.e., admission to general hospitals, rehabilitation clinics, and long-term care institutions) | mRS 0: ¥738,432.00 | mRS 0: ¥775,353.60 |
| Kim et al. (2020) | South Korea | 2015 W | Four categories of costs: inpatient care, outpatient care, prescribed medication, and long-term care | mRS 0: W14,037,907 | mRS 0: W14,416,468 |

LOS, length of stay; AUD, Australian dollar; INR, Indian rupee; SGD, Singapore dollar; TWD, Taiwan dollar; mRS, modified Rankin Scale.
Supplementary Table 2. Baseline characteristics for the FPE and non-FPE groups

| Variable                      | FPE (n=91) | Non-FPE (n=81) | P*     |
|-------------------------------|------------|----------------|--------|
| **Demographic**               |            |                |        |
| Age                           | 68.4±11.9  | 67.7±14.3      | 0.70   |
| Male sex                      | 43 (47.3)  | 33 (40.7)      | 0.39   |
| **Vascular risk factors**     |            |                |        |
| Hypertension                  | 66 (72.5)  | 57 (70.4)      | 0.75   |
| Atrial fibrillation           | 32 (35.2)  | 38 (46.9)      | 0.12   |
| Diabetes mellitus             | 16 (17.6)  | 17 (21.0)      | 0.57   |
| Dyslipidemia                  | 38 (41.8)  | 37 (45.7)      | 0.61   |
| Smoking                       | 19 (20.9)  | 21 (25.9)      | 0.43   |
| Previous MI/CAD               | 23 (25.3)  | 11 (13.6)      | 0.06   |
| Previous stroke               | 16 (17.6)  | 13 (16.1)      | 0.79   |
| **Clinical presentation**     |            |                |        |
| Baseline NIHSS score          | 16 (11–19) | 16 (13–20)     | 0.40   |
| Baseline systolic BP (mm Hg)† | 144 (130–158) | 148 (134–158) | 0.31   |
| Baseline diastolic BP (mm Hg)†| 80 (70–91) | 81 (72–93)     | 0.29   |
| **Occlusion location**        |            |                |        |
| Internal carotid artery       | 14 (15.4)  | 13 (16.1)      | 0.90   |
| M1 middle cerebral artery     | 48 (52.8)  | 46 (56.8)      | 0.60   |
| M2 middle cerebral artery     | 22 (24.2)  | 20 (24.7)      | 0.94   |
| Posterior                     | 7 (7.7)    | 2 (2.5)        | 0.17   |
| **Procedural factors**        |            |                |        |
| Time from onset to puncture (min) | 214 (161–263) | 220 (153–270) | 0.54   |
| General anesthesia            | 33 (36.3)  | 25 (30.9)      | 0.46   |
| IV tPA use                    | 59 (64.8)  | 56 (69.1)      | 0.55   |
| Balloon guide catheter use    | 71 (78.0)  | 60 (74.1)      | 0.54   |
| Intermediate catheter use     | 20 (22.0)  | 41 (50.6)      | <0.01  |

Values are presented as mean±standard deviation, number (%), or median (interquartile range).
FPE, first pass effect; MI, myocardial infarction; CAD, coronary artery disease; NIHSS, National Institutes of Health Stroke Scale; BP, blood pressure; IV, intravenous; tPA, tissue plasminogen activator.

*P-values presented for t-test besides means, Wilcoxon rank sum (Mann-Whitney) test besides medians, and chi-square or Fisher's exact tests besides proportions; †Four patients missing data for systolic and diastolic BP.
### Supplementary Table 3. Clinical outcomes for the FPE and non-FPE groups

| Outcome | FPE (n=91) | Non-FPE (n=81) | P*  |
|---------|------------|----------------|-----|
| 90-Day mRS (categorized into good and excellent functional outcomes)<sup>†</sup> | | | |
| 90-Day mRS, good outcomes (mRS 0–2) | 70 (80.46) | 47 (61.04) | <0.01 |
| 90-Day mRS, excellent outcomes (mRS 0–1) | 55 (63.22) | 36 (46.75) | 0.03 |
| 90-Day mortality<sup>‡</sup> | 5 (5.68) | 11 (13.75) | 0.08 |
| sICH within 24 hours | 2 (2.20) | 4 (4.94) | 0.42 |
| ENT | 2 (2.20) | 9 (11.11) | 0.03 |

Values are presented as number (%). FPE, first pass effect; mRS, modified Rankin Scale; sICH, symptomatic intracranial hemorrhage; ENT, embolization into new territory. *P*-values presented for chi-square or Fisher’s exact tests; †Eight patients missing data for 90-day mRS; ‡Four patients missing data for 90-day mortality.

### Supplementary Table 4. Estimated cost differences from sensitivity analyses comparing average per-patient procedural/hospitalization-related and long-term care costs for the FPE and non-FPE groups

| Country | Australia (2020 AUD) | India (2020 INR) | Japan (2020 ¥) | South Korea (2020 W) | Singapore (2019 SGD)* | Taiwan (2020 TWD) |
|---------|----------------------|------------------|----------------|----------------------|----------------------|-------------------|
| **Procedural/hospitalization-related cost differences** | | | | | | |
| Base case | AUD 8,621 | INR 67,718 | ¥239,493 | ¥2,004,146 | SGD 5,544 | TWD 41,911 |
| FPE (mTICI 3) | AUD 8,824 | INR 73,091 | ¥248,278 | ¥2,055,116 | SGD 5,725 | TWD 44,203 |
| FPE (mTICI 2b–3) | AUD 7,229 | INR 51,509 | ¥192,473 | ¥1,657,149 | SGD 4,576 | TWD 33,430 |
| LOS (first quartile)<sup>†</sup> | AUD 2,634 | INR 56,314 | ¥120,797 | ¥729,856 | SGD 2,177 | TWD 24,612 |
| LOS (third quartile)<sup>‡</sup> | AUD 7,948 | INR 66,436 | ¥226,148 | ¥1,860,883 | SGD 5,165 | TWD 39,966 |
| Costs increased by 20% | AUD 10,345 | INR 81,262 | ¥287,391 | ¥2,404,976 | SGD 6,652 | TWD 50,293 |
| Costs decreased by 20% | AUD 6,897 | INR 54,174 | ¥191,594 | ¥1,603,317 | SGD 4,435 | TWD 33,529 |
| **Long-term care cost differences** | | | | | | |
| Base case | AUD 398 | INR 68 | ¥314,262 | ¥6,155,006 | NA<sup>§</sup> | NA<sup>§</sup> |
| FPE (mTICI 3) | AUD 361 | INR 500 | ¥196,260 | ¥5,277,829 | NA<sup>§</sup> | NA<sup>§</sup> |
| FPE (mTICI 2b–3) | AUD 651 | INR 1,725 | ¥400,368 | ¥8,620,940 | NA<sup>§</sup> | NA<sup>§</sup> |
| Costs increased by 20% | AUD 477 | INR 81 | ¥377,114 | ¥7,386,007 | NA<sup>§</sup> | NA<sup>§</sup> |
| Costs decreased by 20% | AUD 318 | INR 54 | ¥251,409 | ¥4,924,004 | NA<sup>§</sup> | NA<sup>§</sup> |
| Costs for mRS 6 included in analyses | NA<sup>‡</sup> | INR 13,353 | NA<sup>‡</sup> | ¥8,359,695 | NA<sup>‡</sup> | NA<sup>‡</sup> |

All values represent cost savings for patients in the FPE group as compared with the non-FPE group. FPE, first pass effect; AUD, Australian dollar; INR, Indian rupee; SGD, Singapore dollar; TWD, Taiwan dollar; NA, not applicable; mTICI, modified Thrombolysis in Cerebral Infarction; LOS, length of stay; mRS, modified Rankin Scale. *Reported as charges; †Variations in LOS did not impact long-term care cost differences; ‡Long-term care costs, based on 90-day mRS, were not found for Singapore and Taiwan; §Costs for 90-day mRS 6 not reported for Australia and Japan.
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