**Supplement: Singapore Stroke SD Model Inputs & Results**

**Abbreviations**

|  |  |
| --- | --- |
| Abbreviation | Definition |
| ADL | Activities of Daily Living |
| ASUCASU | Acute Stroke UnitComprehensive Acute Stroke Unit |
| CT | Computed Tomography |
| ECASS-III | European Cooperative Acute Stroke Study III |
| EVTGMW | Endovascular TherapyGeneral Medical Ward |
| IADL | Instrumental Activities of Daily Living |
| LTC | Long-term Care |
| MR CLEAN | The Multicenter Randomized Clinical Trial of Endovascular Treatment for Acute Ischemic Stroke in the Netherlands |
| mRS | Modified Rankin Scale |
| NINDS | National Institute of Neurological Disorders and Stroke |
| S3 | The Singapore Stroke Study |
| SSI | The Stroke Services Improvement Initiative |
| tPA | Tissue Plasminogen Activator |

**Model Inputs**

**Estimates of Efficacy**

Table A1. Estimates of Efficacy of tPA on Functional Outcomes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | ECASS-III Control | ECASS-III Intervention | Model Parameters | Squared Error |
| mRS0-1 | 0.2660 | 0.4263 | 0.3786 | 0.0023 |
| mRS2-3 | 0.2628 | 0.2051 | 0.2354 | 0.0009 |
| mRS4 | 0.1987 | 0.1346 | 0.1136 | 0.0004 |
| mRS5 | 0.2724 | 0.2340 | 0.2724 | 0.0015 |
| Efficacy | 0.4282 |  |

Table A2. Estimates of Efficacy of EVT on Functional Outcomes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | MR CLEAN Control | MR CLEAN Intervention | Model Parameters | Squared Error |
| mRS0-1 | 0.0779 | 0.1519 | 0.1510 | 7.98×10-07 |
| mRS2-3 | 0.3745 | 0.4937 | 0.4928 | 7.98×10-07 |
| mRS4 | 0.3896 | 0.2785 | 0.2748 | 1.38×10-05 |
| mRS5 | 0.1558 | 0.0759 | 0.0793 | 2.65×10-05 |
| Efficacy for mRS4 and mRS5  | 0.4913 |  |
| Efficacy for mRS2-3 | 0.1952 |  |

Table A3. Estimates of Efficacy of Rehabilitation on Functional Outcomes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | S3 Control | S3 Intervention | Model Parameters | Squared Error |
| mRS0-1 | 0.41 | 0.51 | 0.5125 | 6.25×10-06 |
| mRS2-3 | 0.35 | 0.29 | 0.2959 | 3.53×10-05 |
| mRS4 | 0.19 | 0.15 | 0.1503 | 8.31×10-08 |
| mRS5 | 0.04 | 0.04 | 0.0313 | 7.62×10-05 |
| Efficacy | 0.2182 |  |

**Model Results**

**Stroke Epidemiology**

Table B1. Number of First Stroke Episodes Each Year

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
| Status Quo | 5596 | 5817 | 6048 | 6282 | 6552 | 6809 | 7051 | 7309 | 7565 | 7841 | 8096 | 8353 | 8637 | 8916 | 9195 | 9446 |
| tPA Only | 5596 | 5817 | 6048 | 6282 | 6552 | 6809 | 7051 | 7309 | 7565 | 7841 | 8096 | 8353 | 8637 | 8916 | 9195 | 9446 |
| Campaign & tPA | 5596 | 5817 | 6048 | 6282 | 6552 | 6809 | 7051 | 7309 | 7565 | 7841 | 8096 | 8353 | 8637 | 8916 | 9195 | 9446 |
| EVT Only | 5596 | 5817 | 6048 | 6282 | 6552 | 6809 | 7051 | 7309 | 7565 | 7841 | 8096 | 8353 | 8637 | 8916 | 9195 | 9446 |
| tPA & EVT | 5596 | 5817 | 6048 | 6282 | 6552 | 6809 | 7051 | 7309 | 7565 | 7841 | 8096 | 8353 | 8637 | 8916 | 9195 | 9446 |
| Campaign, tPA, & EVT | 5596 | 5817 | 6048 | 6282 | 6552 | 6809 | 7051 | 7309 | 7565 | 7841 | 8096 | 8353 | 8637 | 8916 | 9195 | 9446 |
| Rehab Only | 5596 | 5817 | 6048 | 6282 | 6552 | 6809 | 7051 | 7309 | 7565 | 7841 | 8096 | 8353 | 8637 | 8916 | 9195 | 9446 |
| Secondary Prevention Only | 5596 | 5817 | 6048 | 6282 | 6552 | 6809 | 7051 | 7309 | 7565 | 7841 | 8096 | 8353 | 8637 | 8916 | 9195 | 9446 |
| Comprehensive Acute Stroke Unit (CASU) | 5596 | 5817 | 6048 | 6282 | 6552 | 6809 | 7051 | 7309 | 7565 | 7841 | 8096 | 8353 | 8637 | 8916 | 9195 | 9446 |
| CASU & tPA | 5596 | 5817 | 6048 | 6282 | 6552 | 6809 | 7051 | 7309 | 7565 | 7841 | 8096 | 8353 | 8637 | 8916 | 9195 | 9446 |
| CASU, tPA & EVT | 5596 | 5817 | 6048 | 6282 | 6552 | 6809 | 7051 | 7309 | 7565 | 7841 | 8096 | 8353 | 8637 | 8916 | 9195 | 9446 |
| Everything Combined | 5596 | 5817 | 6048 | 6282 | 6552 | 6809 | 7051 | 7309 | 7565 | 7841 | 8096 | 8353 | 8637 | 8916 | 9195 | 9446 |

Table B2. Number of Fatalities from First Stroke Episodes Each Year

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
| Status Quo | 714 | 746 | 779 | 811 | 850 | 888 | 923 | 960 | 998 | 1040 | 1081 | 1122 | 1167 | 1213 | 1258 | 1300 |
| tPA Only | 714 | 746 | 779 | 811 | 850 | 888 | 923 | 960 | 998 | 1040 | 1081 | 1122 | 1167 | 1213 | 1258 | 1300 |
| Campaign & tPA | 714 | 746 | 779 | 811 | 850 | 888 | 923 | 960 | 998 | 1040 | 1081 | 1122 | 1167 | 1213 | 1258 | 1300 |
| EVT Only | 714 | 746 | 779 | 811 | 850 | 888 | 923 | 960 | 998 | 1040 | 1081 | 1122 | 1167 | 1213 | 1258 | 1300 |
| tPA & EVT | 714 | 746 | 779 | 811 | 850 | 888 | 923 | 960 | 998 | 1040 | 1081 | 1122 | 1167 | 1213 | 1258 | 1300 |
| Campaign, tPA, & EVT | 714 | 746 | 779 | 811 | 850 | 888 | 923 | 960 | 998 | 1040 | 1081 | 1122 | 1167 | 1213 | 1258 | 1300 |
| Rehab Only | 714 | 746 | 779 | 811 | 850 | 888 | 923 | 960 | 998 | 1040 | 1081 | 1122 | 1167 | 1213 | 1258 | 1300 |
| Secondary Prevention Only | 714 | 746 | 779 | 811 | 850 | 888 | 923 | 960 | 998 | 1040 | 1081 | 1122 | 1167 | 1213 | 1258 | 1300 |
| Comprehensive Acute Stroke Unit (CASU) | 714 | 733 | 750 | 783 | 819 | 856 | 890 | 926 | 962 | 1003 | 1042 | 1082 | 1125 | 1170 | 1213 | 1254 |
| CASU & tPA | 714 | 733 | 750 | 783 | 819 | 856 | 890 | 926 | 962 | 1003 | 1042 | 1082 | 1125 | 1170 | 1213 | 1254 |
| CASU, tPA & EVT | 714 | 733 | 750 | 783 | 819 | 856 | 890 | 926 | 962 | 1003 | 1042 | 1082 | 1125 | 1170 | 1213 | 1254 |
| Everything Combined | 714 | 733 | 750 | 783 | 819 | 856 | 890 | 926 | 962 | 1003 | 1042 | 1082 | 1125 | 1170 | 1213 | 1254 |

Table B3. Number of Recurrent Stroke Episodes Each Year

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
| Status Quo | 1760 | 1840 | 1923 | 2009 | 2096 | 2187 | 2278 | 2373 | 2473 | 2572 | 2669 | 2769 | 2870 | 2971 | 3075 | 3181 |
| tPA Only | 1760 | 1840 | 1923 | 2009 | 2096 | 2187 | 2278 | 2373 | 2473 | 2572 | 2669 | 2769 | 2870 | 2971 | 3075 | 3181 |
| Campaign & tPA | 1760 | 1840 | 1923 | 2009 | 2096 | 2187 | 2278 | 2373 | 2473 | 2572 | 2669 | 2769 | 2870 | 2971 | 3075 | 3181 |
| EVT Only | 1760 | 1840 | 1923 | 2009 | 2096 | 2187 | 2278 | 2373 | 2473 | 2572 | 2669 | 2769 | 2870 | 2971 | 3075 | 3181 |
| tPA & EVT | 1760 | 1840 | 1923 | 2009 | 2096 | 2187 | 2278 | 2373 | 2473 | 2572 | 2669 | 2769 | 2870 | 2971 | 3075 | 3181 |
| Campaign, tPA, & EVT | 1760 | 1840 | 1923 | 2009 | 2096 | 2187 | 2278 | 2373 | 2473 | 2572 | 2669 | 2769 | 2870 | 2971 | 3075 | 3181 |
| Rehab Only | 1760 | 1840 | 1923 | 2009 | 2096 | 2187 | 2278 | 2373 | 2473 | 2572 | 2669 | 2769 | 2870 | 2971 | 3075 | 3181 |
| Secondary Prevention Only | 1760 | 1589 | 1399 | 1461 | 1525 | 1590 | 1657 | 1726 | 1798 | 1871 | 1941 | 2014 | 2087 | 2161 | 2236 | 2314 |
| Comprehensive Acute Stroke Unit (CASU) | 1760 | 1589 | 1399 | 1461 | 1525 | 1590 | 1657 | 1726 | 1798 | 1871 | 1941 | 2014 | 2087 | 2161 | 2236 | 2314 |
| CASU & tPA | 1760 | 1589 | 1399 | 1461 | 1525 | 1590 | 1657 | 1726 | 1798 | 1871 | 1941 | 2014 | 2087 | 2161 | 2236 | 2314 |
| CASU, tPA & EVT | 1760 | 1589 | 1399 | 1461 | 1525 | 1590 | 1657 | 1726 | 1798 | 1871 | 1941 | 2014 | 2087 | 2161 | 2236 | 2314 |
| Everything Combined | 1760 | 1589 | 1399 | 1461 | 1525 | 1590 | 1657 | 1726 | 1798 | 1871 | 1941 | 2014 | 2087 | 2161 | 2236 | 2314 |

Table B4. Number of Fatalities from Recurrent Stroke Episodes Each Year

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
| Status Quo | 261 | 273 | 286 | 299 | 312 | 326 | 340 | 355 | 370 | 386 | 402 | 418 | 434 | 450 | 467 | 484 |
| tPA Only | 261 | 273 | 286 | 299 | 312 | 326 | 340 | 355 | 370 | 386 | 402 | 418 | 434 | 450 | 467 | 484 |
| Campaign & tPA | 261 | 273 | 286 | 299 | 312 | 326 | 340 | 355 | 370 | 386 | 402 | 418 | 434 | 450 | 467 | 484 |
| EVT Only | 261 | 273 | 286 | 299 | 312 | 326 | 340 | 355 | 370 | 386 | 402 | 418 | 434 | 450 | 467 | 484 |
| tPA & EVT | 261 | 273 | 286 | 299 | 312 | 326 | 340 | 355 | 370 | 386 | 402 | 418 | 434 | 450 | 467 | 484 |
| Campaign, tPA, & EVT | 261 | 273 | 286 | 299 | 312 | 326 | 340 | 355 | 370 | 386 | 402 | 418 | 434 | 450 | 467 | 484 |
| Rehab Only | 261 | 273 | 286 | 299 | 312 | 326 | 340 | 355 | 370 | 386 | 402 | 418 | 434 | 450 | 467 | 484 |
| Secondary Prevention Only | 261 | 244 | 216 | 217 | 227 | 237 | 248 | 258 | 269 | 281 | 292 | 304 | 316 | 328 | 340 | 352 |
| Comprehensive Acute Stroke Unit (CASU) | 261 | 239 | 208 | 210 | 219 | 229 | 239 | 249 | 260 | 271 | 282 | 293 | 304 | 316 | 328 | 340 |
| CASU & tPA | 261 | 239 | 208 | 210 | 219 | 229 | 239 | 249 | 260 | 271 | 282 | 293 | 304 | 316 | 328 | 340 |
| CASU, tPA & EVT | 261 | 239 | 208 | 210 | 219 | 229 | 239 | 249 | 260 | 271 | 282 | 293 | 304 | 316 | 328 | 340 |
| Everything Combined | 261 | 239 | 208 | 210 | 219 | 229 | 239 | 249 | 260 | 271 | 282 | 293 | 304 | 316 | 328 | 340 |

**Care volumes**

Table B5. Number of Stroke Episodes Receiving tPA Only Each Year

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | Cumulative |
| Status Quo | 463 | 482 | 502 | 522 | 545 | 567 | 588 | 610 | 632 | 656 | 678 | 701 | 725 | 749 | 773 | 796 | 9989 |
| tPA Only | 463 | 731 | 1020 | 1061 | 1106 | 1151 | 1193 | 1239 | 1284 | 1332 | 1377 | 1423 | 1472 | 1521 | 1570 | 1616 | 19558 |
| Campaign & tPA | 463 | 751 | 1076 | 1138 | 1207 | 1277 | 1346 | 1420 | 1472 | 1527 | 1579 | 1631 | 1687 | 1743 | 1799 | 1852 | 21969 |
| EVT Only | 463 | 471 | 479 | 498 | 519 | 540 | 560 | 581 | 603 | 625 | 647 | 668 | 691 | 714 | 737 | 759 | 9555 |
| tPA & EVT | 463 | 714 | 972 | 1011 | 1054 | 1097 | 1138 | 1181 | 1224 | 1270 | 1313 | 1357 | 1404 | 1450 | 1497 | 1541 | 18684 |
| Campaign, tPA, & EVT | 463 | 733 | 1025 | 1085 | 1151 | 1217 | 1283 | 1353 | 1403 | 1456 | 1505 | 1555 | 1609 | 1662 | 1716 | 1766 | 20982 |
| Rehab Only | 463 | 482 | 502 | 522 | 545 | 567 | 588 | 610 | 632 | 656 | 678 | 701 | 725 | 749 | 773 | 796 | 9989 |
| Secondary Prevention Only | 463 | 466 | 469 | 487 | 508 | 529 | 548 | 569 | 589 | 611 | 632 | 652 | 675 | 697 | 720 | 740 | 9356 |
| Comprehensive Acute Stroke Unit (CASU) | 463 | 466 | 469 | 487 | 508 | 529 | 548 | 569 | 589 | 611 | 632 | 652 | 675 | 697 | 720 | 740 | 9356 |
| CASU & tPA | 463 | 707 | 952 | 990 | 1032 | 1073 | 1113 | 1155 | 1197 | 1241 | 1283 | 1325 | 1371 | 1416 | 1461 | 1503 | 18281 |
| CASU, tPA & EVT | 463 | 690 | 904 | 940 | 981 | 1020 | 1058 | 1097 | 1137 | 1180 | 1219 | 1259 | 1303 | 1346 | 1389 | 1429 | 17416 |
| Everything Combined | 463 | 708 | 954 | 1009 | 1071 | 1132 | 1193 | 1258 | 1304 | 1352 | 1398 | 1444 | 1493 | 1543 | 1592 | 1638 | 19552 |

Table B6. Number of Stroke Episodes Receiving EVT Only Each Year

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | Cumulative |
| Status Quo | 41 | 42 | 44 | 46 | 48 | 50 | 51 | 53 | 55 | 57 | 59 | 61 | 63 | 65 | 67 | 69 | 871 |
| tPA Only | 41 | 38 | 35 | 36 | 38 | 39 | 41 | 42 | 44 | 45 | 47 | 48 | 50 | 51 | 53 | 55 | 702 |
| Campaign & tPA | 41 | 40 | 38 | 40 | 42 | 44 | 47 | 49 | 51 | 52 | 54 | 56 | 58 | 60 | 62 | 63 | 796 |
| EVT Only | 41 | 98 | 160 | 167 | 174 | 181 | 187 | 194 | 201 | 208 | 215 | 222 | 230 | 237 | 244 | 251 | 3010 |
| tPA & EVT | 41 | 88 | 127 | 132 | 138 | 143 | 148 | 154 | 159 | 165 | 170 | 176 | 182 | 188 | 193 | 199 | 2400 |
| Campaign, tPA, & EVT | 41 | 92 | 138 | 145 | 154 | 162 | 170 | 178 | 184 | 191 | 197 | 204 | 211 | 217 | 224 | 231 | 2739 |
| Rehab Only | 41 | 42 | 44 | 46 | 48 | 50 | 51 | 53 | 55 | 57 | 59 | 61 | 63 | 65 | 67 | 69 | 871 |
| Secondary Prevention Only | 41 | 42 | 43 | 45 | 47 | 49 | 50 | 52 | 54 | 56 | 58 | 60 | 62 | 64 | 66 | 68 | 857 |
| Comprehensive Acute Stroke Unit (CASU) | 41 | 42 | 43 | 45 | 47 | 49 | 50 | 52 | 54 | 56 | 58 | 60 | 62 | 64 | 66 | 68 | 857 |
| CASU & tPA | 41 | 38 | 34 | 36 | 37 | 39 | 40 | 41 | 43 | 44 | 46 | 47 | 49 | 51 | 52 | 54 | 691 |
| CASU, tPA & EVT | 41 | 87 | 125 | 130 | 136 | 141 | 146 | 152 | 157 | 163 | 168 | 173 | 179 | 185 | 191 | 196 | 2371 |
| Everything Combined | 41 | 91 | 136 | 144 | 152 | 160 | 168 | 176 | 182 | 189 | 195 | 201 | 208 | 215 | 221 | 228 | 2705 |

Table B7. Number of Stroke Episodes Receiving tPA and EVT Each Year

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2015 | 2016 | 2017 | 2018 |  | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | Cumulative |
| Status Quo | 8 | 9 | 9 | 9 |  | 10 | 10 | 10 | 11 | 11 | 12 | 12 | 12 | 13 | 13 | 14 | 14 | 176 |
| tPA Only | 8 | 13 | 18 | 19 |  | 20 | 20 | 21 | 22 | 23 | 24 | 24 | 25 | 26 | 27 | 28 | 28 | 345 |
| Campaign & tPA | 8 | 13 | 19 | 20 |  | 21 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 388 |
| EVT Only | 8 | 20 | 32 | 34 |  | 35 | 37 | 38 | 39 | 41 | 42 | 44 | 45 | 47 | 48 | 50 | 51 | 610 |
| tPA & EVT | 8 | 30 | 66 | 69 |  | 72 | 74 | 77 | 80 | 83 | 86 | 88 | 91 | 94 | 98 | 101 | 103 | 1220 |
| Campaign, tPA, & EVT | 8 | 31 | 70 | 74 |  | 78 | 82 | 87 | 92 | 95 | 98 | 101 | 105 | 108 | 112 | 115 | 118 | 1374 |
| Rehab Only | 8 | 9 | 9 | 9 |  | 10 | 10 | 10 | 11 | 11 | 12 | 12 | 12 | 13 | 13 | 14 | 14 | 176 |
| Secondary Prevention Only | 8 | 8 | 9 | 9 |  | 9 | 10 | 10 | 11 | 11 | 11 | 12 | 12 | 13 | 13 | 13 | 14 | 174 |
| Comprehensive Acute Stroke Unit (CASU) | 8 | 8 | 9 | 9 |  | 9 | 10 | 10 | 11 | 11 | 11 | 12 | 12 | 13 | 13 | 13 | 14 | 174 |
| CASU & tPA | 8 | 13 | 18 | 18 |  | 19 | 20 | 21 | 22 | 22 | 23 | 24 | 25 | 25 | 26 | 27 | 28 | 340 |
| CASU, tPA & EVT | 8 | 30 | 65 | 68 |  | 71 | 73 | 76 | 79 | 82 | 85 | 87 | 90 | 93 | 96 | 99 | 102 | 1204 |
| Everything Combined | 8 | 31 | 69 | 73 |  | 77 | 81 | 86 | 90 | 94 | 97 | 100 | 103 | 107 | 110 | 114 | 117 | 1357 |

Table B8. Number of Stroke Episodes Treated in ASU Each Year

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | Cumulative |
| Status Quo | 3707 | 3860 | 4018 | 4178 | 4359 | 4534 | 4702 | 4880 | 5059 | 5248 | 5426 | 5606 | 5799 | 5991 | 6184 | 6364 | 79916 |
| tPA Only | 3707 | 3860 | 4018 | 4178 | 4359 | 4534 | 4702 | 4880 | 5059 | 5248 | 5426 | 5606 | 5799 | 5991 | 6184 | 6364 | 79916 |
| Campaign & tPA | 3707 | 3860 | 4018 | 4178 | 4359 | 4534 | 4702 | 4880 | 5059 | 5248 | 5426 | 5606 | 5799 | 5991 | 6184 | 6364 | 79916 |
| EVT Only | 3707 | 3860 | 4018 | 4178 | 4359 | 4534 | 4702 | 4880 | 5059 | 5248 | 5426 | 5606 | 5799 | 5991 | 6184 | 6364 | 79916 |
| tPA & EVT | 3707 | 3860 | 4018 | 4178 | 4359 | 4534 | 4702 | 4880 | 5059 | 5248 | 5426 | 5606 | 5799 | 5991 | 6184 | 6364 | 79916 |
| Campaign, tPA, & EVT | 3707 | 3860 | 4018 | 4178 | 4359 | 4534 | 4702 | 4880 | 5059 | 5248 | 5426 | 5606 | 5799 | 5991 | 6184 | 6364 | 79916 |
| Rehab Only | 3707 | 3860 | 4018 | 4178 | 4359 | 4534 | 4702 | 4880 | 5059 | 5248 | 5426 | 5606 | 5799 | 5991 | 6184 | 6364 | 79916 |
| Secondary Prevention Only | 3707 | 3733 | 3753 | 3902 | 4071 | 4233 | 4389 | 4554 | 4719 | 4895 | 5059 | 5225 | 5405 | 5583 | 5762 | 5927 | 74917 |
| Comprehensive Acute Stroke Unit (CASU) | 3707 | 4829 | 5958 | 6194 | 6462 | 6720 | 6967 | 7228 | 7491 | 7770 | 8030 | 8294 | 8579 | 8861 | 9145 | 9408 | 115642 |
| CASU & tPA | 3707 | 4829 | 5958 | 6194 | 6462 | 6720 | 6967 | 7228 | 7491 | 7770 | 8030 | 8294 | 8579 | 8861 | 9145 | 9408 | 115642 |
| CASU, tPA & EVT | 3707 | 4829 | 5958 | 6194 | 6462 | 6720 | 6967 | 7228 | 7491 | 7770 | 8030 | 8294 | 8579 | 8861 | 9145 | 9408 | 115642 |
| Everything Combined | 3707 | 4829 | 5958 | 6194 | 6462 | 6720 | 6967 | 7228 | 7491 | 7770 | 8030 | 8294 | 8579 | 8861 | 9145 | 9408 | 115642 |

Table B9. Number of Stroke Episodes Receiving Out-of-hospital Rehabilitation Each Year

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | Cumulative |
| Status Quo | 2209 | 2300 | 2395 | 2492 | 2600 | 2705 | 2806 | 2913 | 3021 | 3135 | 3241 | 3349 | 3466 | 3581 | 3697 | 3805 | 47716 |
| tPA Only | 2209 | 2296 | 2385 | 2481 | 2589 | 2693 | 2794 | 2900 | 3007 | 3120 | 3226 | 3334 | 3450 | 3564 | 3680 | 3788 | 47516 |
| Campaign & tPA | 2209 | 2295 | 2384 | 2480 | 2587 | 2691 | 2791 | 2896 | 3003 | 3116 | 3222 | 3329 | 3445 | 3559 | 3675 | 3783 | 47464 |
| EVT Only | 2209 | 2300 | 2394 | 2490 | 2598 | 2703 | 2804 | 2911 | 3019 | 3132 | 3239 | 3347 | 3463 | 3578 | 3694 | 3803 | 47684 |
| tPA & EVT | 2209 | 2295 | 2384 | 2480 | 2587 | 2691 | 2792 | 2898 | 3005 | 3118 | 3224 | 3332 | 3447 | 3562 | 3677 | 3785 | 47486 |
| Campaign, tPA, & EVT | 2209 | 2294 | 2383 | 2478 | 2585 | 2689 | 2788 | 2894 | 3001 | 3114 | 3220 | 3327 | 3442 | 3556 | 3672 | 3779 | 47430 |
| Rehab Only | 2209 | 2760 | 3353 | 3488 | 3639 | 3785 | 3926 | 4075 | 4226 | 4385 | 4534 | 4684 | 4847 | 5007 | 5170 | 5321 | 65409 |
| Secondary Prevention Only | 2209 | 2215 | 2218 | 2306 | 2405 | 2502 | 2594 | 2692 | 2790 | 2894 | 2992 | 3090 | 3197 | 3303 | 3409 | 3507 | 44323 |
| Comprehensive Acute Stroke Unit (CASU) | 2209 | 2658 | 3104 | 3228 | 3367 | 3501 | 3630 | 3767 | 3904 | 4050 | 4186 | 4323 | 4473 | 4620 | 4768 | 4906 | 60692 |
| CASU & tPA | 2209 | 2653 | 3091 | 3213 | 3352 | 3485 | 3614 | 3749 | 3886 | 4031 | 4166 | 4303 | 4452 | 4598 | 4746 | 4883 | 60431 |
| CASU, tPA & EVT | 2209 | 2652 | 3089 | 3211 | 3349 | 3483 | 3611 | 3747 | 3883 | 4028 | 4163 | 4300 | 4448 | 4595 | 4742 | 4879 | 60390 |
| Everything Combined | 2209 | 2651 | 3087 | 3209 | 3346 | 3479 | 3607 | 3741 | 3877 | 4022 | 4157 | 4294 | 4442 | 4588 | 4735 | 4872 | 60316 |

Table B10. Number of Stroke Survivors under Comprehensive Secondary Prevention Each Year

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
| Status Quo | 21176 | 22146 | 23137 | 24148 | 25188 | 26253 | 27334 | 28429 | 29539 | 30664 | 31798 | 32933 | 34076 | 35225 | 36375 | 37515 |
| tPA Only | 21176 | 22146 | 23137 | 24148 | 25188 | 26253 | 27334 | 28429 | 29539 | 30664 | 31798 | 32933 | 34076 | 35225 | 36375 | 37515 |
| Campaign & tPA | 21176 | 22146 | 23137 | 24148 | 25188 | 26253 | 27334 | 28429 | 29539 | 30664 | 31798 | 32933 | 34076 | 35225 | 36375 | 37515 |
| EVT Only | 21176 | 22146 | 23137 | 24148 | 25188 | 26253 | 27334 | 28429 | 29539 | 30664 | 31798 | 32933 | 34076 | 35225 | 36375 | 37515 |
| tPA & EVT | 21176 | 22146 | 23137 | 24148 | 25188 | 26253 | 27334 | 28429 | 29539 | 30664 | 31798 | 32933 | 34076 | 35225 | 36375 | 37515 |
| Campaign, tPA, & EVT | 21176 | 22146 | 23137 | 24148 | 25188 | 26253 | 27334 | 28429 | 29539 | 30664 | 31798 | 32933 | 34076 | 35225 | 36375 | 37515 |
| Rehab Only | 21176 | 22146 | 23137 | 24148 | 25188 | 26253 | 27334 | 28429 | 29539 | 30664 | 31798 | 32933 | 34076 | 35225 | 36375 | 37515 |
| Secondary Prevention Only | 21176 | 27662 | 34647 | 36154 | 37710 | 39304 | 40923 | 42563 | 44224 | 45908 | 47606 | 49306 | 51016 | 52736 | 54457 | 56165 |
| Comprehensive Acute Stroke Unit (CASU) | 21176 | 27664 | 34652 | 36160 | 37715 | 39310 | 40929 | 42569 | 44231 | 45915 | 47613 | 49313 | 51024 | 52744 | 54466 | 56173 |
| CASU & tPA | 21176 | 27664 | 34652 | 36160 | 37715 | 39310 | 40929 | 42569 | 44231 | 45915 | 47613 | 49313 | 51024 | 52744 | 54466 | 56173 |
| CASU, tPA & EVT | 21176 | 27664 | 34652 | 36160 | 37715 | 39310 | 40929 | 42569 | 44231 | 45915 | 47613 | 49313 | 51024 | 52744 | 54466 | 56173 |
| Everything Combined | 21176 | 27664 | 34652 | 36160 | 37715 | 39310 | 40929 | 42569 | 44231 | 45915 | 47613 | 49313 | 51024 | 52744 | 54466 | 56173 |

**Cumulative Costs**

Table B11. Cumulative Discounted Costs from 2016 (SGD Millions)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
| Status Quo | 433 | 874 | 1322 | 1776 | 2238 | 2705 | 3177 | 3655 | 4137 | 4623 | 5113 | 5606 | 6101 | 6598 | 7096 |
| tPA Only | 433 | 875 | 1324 | 1779 | 2241 | 2708 | 3181 | 3659 | 4140 | 4626 | 5116 | 5608 | 6102 | 6598 | 7096 |
| Campaign & tPA | 434 | 876 | 1325 | 1782 | 2245 | 2714 | 3188 | 3667 | 4151 | 4639 | 5130 | 5624 | 6121 | 6619 | 7119 |
| EVT Only | 434 | 877 | 1328 | 1785 | 2248 | 2717 | 3192 | 3671 | 4154 | 4642 | 5132 | 5626 | 6122 | 6619 | 7118 |
| tPA & EVT  | 434 | 875 | 1325 | 1781 | 2244 | 2712 | 3185 | 3663 | 4146 | 4632 | 5122 | 5614 | 6109 | 6606 | 7104 |
| Campaign, tPA, & EVT | 441 | 906 | 1384 | 1868 | 2356 | 2849 | 3346 | 3846 | 4350 | 4857 | 5367 | 5878 | 6392 | 6906 | 7421 |
| Rehab Only | 435 | 880 | 1334 | 1793 | 2259 | 2730 | 3205 | 3685 | 4169 | 4657 | 5148 | 5641 | 6137 | 6634 | 7132 |
| Secondary Prevention Only | 436 | 885 | 1343 | 1807 | 2277 | 2752 | 3232 | 3716 | 4204 | 4696 | 5190 | 5687 | 6187 | 6687 | 7189 |
| Comprehensive Acute Stroke Unit (CASU) | 441 | 903 | 1379 | 1860 | 2346 | 2837 | 3332 | 3831 | 4334 | 4840 | 5349 | 5859 | 6372 | 6886 | 7401 |
| CASU & tPA | 441 | 904 | 1381 | 1862 | 2349 | 2840 | 3335 | 3834 | 4336 | 4842 | 5350 | 5860 | 6372 | 6885 | 7399 |
| CASU, tPA & EVT | 434 | 877 | 1329 | 1787 | 2251 | 2722 | 3197 | 3677 | 4161 | 4650 | 5141 | 5635 | 6132 | 6630 | 7129 |
| Everything Combined | 441 | 907 | 1386 | 1870 | 2359 | 2853 | 3351 | 3852 | 4357 | 4865 | 5375 | 5887 | 6401 | 6916 | 7432 |

**Cumulative QALYs**

Table B12. Cumulative Discounted QALYs from 2016

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
| Status Quo | 34208 | 68844 | 103888 | 139321 | 175133 | 211302 | 247798 | 284591 | 321650 | 358946 | 396439 | 434091 | 471869 | 509739 | 547662 |
| tPA Only | 34209 | 68857 | 103930 | 139410 | 175285 | 211533 | 248121 | 285018 | 322192 | 359613 | 397241 | 435035 | 472964 | 510990 | 549074 |
| Campaign & tPA | 34210 | 68858 | 103934 | 139420 | 175305 | 211566 | 248172 | 285091 | 322292 | 359744 | 397405 | 435237 | 473205 | 511274 | 549402 |
| EVT Only | 34208 | 68847 | 103898 | 139343 | 175171 | 211361 | 247880 | 284699 | 321787 | 359115 | 396642 | 434330 | 472146 | 510056 | 548019 |
| tPA & EVT | 34210 | 68860 | 103940 | 139431 | 175322 | 211589 | 248199 | 285120 | 322322 | 359774 | 397433 | 435262 | 473226 | 511289 | 549412 |
| Campaign, tPA, & EVT | 34210 | 68862 | 103945 | 139443 | 175345 | 211627 | 248256 | 285204 | 322436 | 359921 | 397619 | 435490 | 473499 | 511610 | 549783 |
| Rehab Only | 34212 | 68879 | 104000 | 139558 | 175539 | 211917 | 248658 | 285728 | 323094 | 360724 | 398575 | 436606 | 474783 | 513069 | 551422 |
| Secondary Prevention Only | 34206 | 68853 | 103950 | 139492 | 175464 | 211841 | 248586 | 285667 | 323049 | 360699 | 398575 | 436635 | 474844 | 513164 | 551555 |
| Comprehensive Acute Stroke Unit (CASU) | 34211 | 68889 | 104061 | 139721 | 175851 | 212422 | 249394 | 286732 | 324398 | 362356 | 400562 | 438973 | 477550 | 516255 | 555043 |
| CASU & tPA | 34213 | 68902 | 104102 | 139807 | 175997 | 212642 | 249702 | 287138 | 324914 | 362992 | 401327 | 439873 | 478593 | 517447 | 556390 |
| CASU, tPA & EVT | 34213 | 68905 | 104112 | 139827 | 176032 | 212696 | 249777 | 287238 | 325040 | 363148 | 401514 | 440093 | 478848 | 517738 | 556719 |
| Everything Combined | 34213 | 68907 | 104117 | 139839 | 176054 | 212732 | 249832 | 287317 | 325148 | 363288 | 401690 | 440310 | 479108 | 518044 | 557072 |

**Net Monetary Benefits**

Table B13. Cumulative Differences in Net Monetary Benefits between Intervention Scenario and Status Quo from 2016 (SGD Millions)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
| tPA Only | 0 | 0 | 1 | 3 | 7 | 13 | 19 | 26 | 35 | 44 | 54 | 64 | 76 | 87 | 100 |
| Campaign & tPA | 0 | -1 | 0 | 2 | 6 | 11 | 18 | 27 | 36 | 47 | 59 | 72 | 85 | 100 | 115 |
| EVT Only | 0 | -2 | -3 | -4 | -5 | -5 | -5 | -5 | -4 | -3 | -3 | -2 | 0 | 1 | 2 |
| tPA & EVT | -1 | -2 | -2 | -1 | 3 | 7 | 14 | 21 | 30 | 40 | 50 | 62 | 74 | 87 | 101 |
| Campaign, tPA, & EVT | -1 | -2 | -3 | -2 | 1 | 6 | 12 | 21 | 31 | 42 | 55 | 68 | 83 | 99 | 115 |
| Rehab Only | -1 | -4 | -4 | 0 | 7 | 18 | 32 | 49 | 69 | 91 | 115 | 140 | 168 | 197 | 227 |
| Secondary Prevention Only | -3 | -10 | -17 | -19 | -16 | -9 | 1 | 15 | 31 | 51 | 72 | 96 | 122 | 150 | 180 |
| Comprehensive Acute Stroke Unit (CASU) | -7 | -26 | -45 | -55 | -58 | -54 | -43 | -26 | -4 | 22 | 53 | 88 | 127 | 168 | 212 |
| CASU & tPA | -7 | -26 | -44 | -52 | -51 | -41 | -24 | -1 | 29 | 65 | 105 | 151 | 200 | 252 | 309 |
| CASU, tPA & EVT | -8 | -28 | -47 | -56 | -55 | -46 | -30 | -6 | 24 | 60 | 102 | 148 | 198 | 252 | 309 |
| Everything Combined | -8 | -28 | -48 | -57 | -57 | -48 | -31 | -6 | 25 | 62 | 106 | 154 | 206 | 263 | 323 |
| Net Monetary Benefits: [((QALYsIntervention - QALYsStatus Quo) x SGD 70,000) – (CostIntervention - CostStatus Quo)] |

**Net Health Benefits**

Table B14. Cumulative Differences in Net Health Benefits between Intervention Scenario and Status Quo from 2016

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
| tPA Only | -3 | -4 | 12 | 49 | 105 | 179 | 270 | 376 | 495 | 626 | 768 | 920 | 1080 | 1248 | 1422 |
| Campaign & tPA | -6 | -23 | -42 | -56 | -65 | -70 | -70 | -66 | -60 | -50 | -37 | -22 | -5 | 14 | 35 |
| EVT Only | -9 | -27 | -31 | -9 | 38 | 107 | 196 | 303 | 427 | 566 | 719 | 883 | 1058 | 1243 | 1436 |
| tPA & EVT | -3 | -9 | -1 | 31 | 86 | 163 | 261 | 379 | 516 | 670 | 839 | 1022 | 1217 | 1423 | 1638 |
| Campaign, tPA, & EVT | -112 | -399 | -671 | -798 | -792 | -663 | -424 | -84 | 348 | 863 | 1452 | 2109 | 2826 | 3596 | 4414 |
| Rehab Only | -19 | -56 | -60 | -5 | 103 | 260 | 462 | 704 | 983 | 1295 | 1637 | 2006 | 2399 | 2813 | 3245 |
| Secondary Prevention Only | -41 | -148 | -242 | -268 | -230 | -135 | 13 | 208 | 446 | 723 | 1035 | 1378 | 1750 | 2147 | 2566 |
| Comprehensive Acute Stroke Unit (CASU) | -103 | -372 | -641 | -789 | -828 | -766 | -612 | -375 | -63 | 318 | 761 | 1260 | 1807 | 2399 | 3030 |
| CASU & tPA | -106 | -375 | -628 | -740 | -724 | -590 | -349 | -10 | 418 | 925 | 1505 | 2150 | 2853 | 3607 | 4408 |
| CASU, tPA & EVT | -10 | -34 | -47 | -31 | 13 | 83 | 178 | 297 | 438 | 600 | 781 | 977 | 1189 | 1414 | 1650 |
| Everything Combined | -113 | -405 | -686 | -820 | -817 | -688 | -443 | -92 | 356 | 892 | 1509 | 2197 | 2948 | 3757 | 4616 |
| Net Health Benefits: Net Monetary Benefits / SGD 70,000 |

**Figure B1. Cumulative Net Health Benefits when QALY was valued at SGD 70,000**

**Sensitivity Analysis**

Table B15. List of Parameters for Sensitivity Analysis

|  |  |  |  |
| --- | --- | --- | --- |
|  | Model Value | Minimum Value | Maximum Value |
| Relative risk reduction in mortality due to ASU | 0.870 | 0.783 | 0.957 |
| Effectiveness of out-of-hospital rehabilitation to reduce functional loss | 0.220 | 0.198 | 0.242 |
| Effectiveness of public campaign on arrival to hospital within 300 minutes (2015-2017) | 0.030 | 0.027 | 0.033 |
| Effectiveness of public campaign on arrival to hospital within 300 minutes (2018-2030) | 0.010 | 0.009 | 0.011 |
| Effectiveness of tPA to reduce functional loss | 0.428 | 0.385 | 0.471 |
| Effectiveness of EVT to reduce functional loss (for mRS 4 and mRS 5) | 0.491 | 0.442 | 0.540 |
| Effectiveness of EVT to reduce functional loss (for mRS 2-3) | 0.195 | 0.176 | 0.215 |
| Relative risk reduction in recurrent stroke due to comprehensive secondary prevention | 0.250 | 0.225 | 0.275 |
| Ratio of ASU to GMW costs | 1.20 | 1.08 | 1.32 |
| Average cost of tPA administration (per episode) | 3,000.00 | 2,430.00 | 4,100.00 |
| Average cost of EVT administration (per episode) | 15,000.00 | 12,000.00 | 18,000.00 |
| Average cost of comprehensive secondary prevention (per patient) | 1,650.64 | 1,320.51 | 1,980.77 |
| Average cost of out-of-hospital rehabilitation (per episode) |  |  |  |
|  mRS 0-1 | 1,960.00 | 1,568.00 | 2,352.00 |
|  mRS 2-3 | 1,980.00 | 1,584.00 | 2,376.00 |
|  mRS 4 | 2,000.00 | 1,600.00 | 2,400.00 |
|  mRS 5 | 2,000.00 | 1,600.00 | 2,400.00 |
| Average cost of community hospital stay (per admission) |  |  |  |
|  mRS 0-1 | 7,056.00 | 5,644.80 | 8,467.20 |
|  mRS 2-3 | 10,584.00 | 8,467.20 | 12,700.80 |
|  mRS 4 | 14,112.00 | 11,289.60 | 16,934.40 |
|  mRS 5 | 14,112.00 | 11,289.60 | 16,934.40 |
| Average annual long-term care cost (per patient) |  |  |  |
|  mRS 0-1 | 1,797.46 | 1,437.97 | 2,156.95 |
|  mRS 2-3 | 7,708.89 | 6,167.11 | 9,250.67 |
|  mRS 4 | 9,910.85 | 7,928.68 | 11,893.02 |
|  mRS 5 | 23,612.10 | 18,889.68 | 28,334.52 |

*One-way Sensitivity Analysis*

Table B16. One-way Sensitivity Analysis Results (Mean and 95% Uncertainty Bounds): Stroke Epidemiology in 2030 (Intervention Scenario: Everything Combined in 2030)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Number of Recurrent Strokes | Number of stroke survivors in mRS 0-1 | Number of stroke survivors in mRS 2-3 | Number of stroke survivors in mRS 4 | Number of stroke survivors in mRS 5 | Number of Fatalities among First Strokes | Number of Fatalities among Recurrent Strokes |
| Relative risk reduction in mortality due to ASU | 2,314±0 | 47,220±0 | 23,852±0 | 15,005±0 | 4,037±0 | 1,254±5 | 340±1 |
| Effectiveness of out-of-hospital rehabilitation to reduce functional loss | 2,314±0 | 47,260±16 | 23,838±6 | 14,986±7 | 5,030±3 | 1,254±0 | 340±0 |
| Effectiveness of public campaign on arrival to hospital within 300 minutes (2015-2017) | 2,314±0 | 47,220±0 | 23,852±0 | 15,005±0 | 5,037±0 | 1,254±0 | 340±0 |
| Effectiveness of public campaign on arrival to hospital within 300 minutes (2018-2030) | 2,314±0 | 47,220±0 | 23,852±0 | 15,005±0 | 5,037±0 | 1,254±0 | 340±0 |
| Effectiveness of tPA to reduce functional loss | 2,314±0 | 47,222±5 | 23,851±2 | 15,003±3 | 5,037±0 | 1,254±0 | 340±0 |
| Effectiveness of EVT to reduce functional loss (for mRS 4 and mRS 5) | 2,314±0 | 47,220±0 | 23,852±0 | 15,005±0 | 5,037±0 | 1,254±0 | 340±0 |
| Effectiveness of EVT to reduce functional loss (for mRS 2-3) | 2,314±0 | 47,220±0 | 23,852±0 | 15,005±0 | 5,037±0 | 1,254±0 | 340±0 |
| Relative risk reduction in recurrent stroke due to comprehensive secondary prevention | 2,316±4 | 47,217±7 | 23,852±0 | 15,006±4 | 5,038±3 | 1,254±0 | 340±1 |
| Ratio of ASU to GMW costs | 2,314±0 | 47,220±0 | 23,852±0 | 15,005±0 | 5,037±0 | 1,254±0 | 340±0 |
| Average cost of tPA administration (per episode) | 2,314±0 | 47,220±0 | 23,852±0 | 15,005±0 | 5,037±0 | 1,254±0 | 340±0 |
| Average cost of EVT administration (per episode) | 2,314±0 | 47,220±0 | 23,852±0 | 15,005±0 | 5,037±0 | 1,254±0 | 340±0 |
| Average cost of comprehensive secondary prevention (per patient) | 2,314±0 | 47,220±0 | 23,852±0 | 15,005±0 | 5,037±0 | 1,254±0 | 340±0 |
| Average cost of out-of-hospital rehabilitation (per episode) | 2,314±0 | 47,220±0 | 23,852±0 | 15,005±0 | 5,037±0 | 1,254±0 | 340±0 |
| Average cost of community hospital stay (per admission) | 2,314±0 | 47,220±0 | 23,852±0 | 15,005±0 | 5,037±0 | 1,254±0 | 340±0 |
| Average annual long-term care cost (per patient) | 2,314±0 | 47,220±0 | 23,852±0 | 15,005±0 | 5,037±0 | 1,254±0 | 340±0 |

Table B17. One-way Sensitivity Analysis Results (Mean and 95% Uncertainty Bounds): Care Volumes in 2030 (Intervention Scenario: Everything Combined in 2030)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Strokes receiving tPA only | Strokes receiving EVT only | Strokes receiving both tPA and EVT | Strokes treated in ASU | Strokes receiving out-of-hospital rehabilitation | Patients under comprehensive secondary prevention |
| Relative risk reduction in mortality due to ASU | 1,638±0 | 228±0 | 117±0 | 9,408±0 | 4,872±0 | 56,173±1 |
| Effectiveness of out-of-hospital rehabilitation to reduce functional loss | 1,638±0 | 228±0 | 117±0 | 9,408±0 | 4,872±0 | 56,173±0 |
| Effectiveness of public campaign on arrival to hospital within 300 minutes (2015-2017) | 1,638±0 | 228±0 | 117±0 | 9,408±0 | 4,872±0 | 56,173±0 |
| Effectiveness of public campaign on arrival to hospital within 300 minutes (2018-2030) | 1,638±0 | 228±0 | 117±0 | 9,408±0 | 4,872±0 | 56,173±0 |
| Effectiveness of tPA to reduce functional loss | 1,638±0 | 228±0 | 117±0 | 9,408±0 | 4,872±0 | 56,173±0 |
| Effectiveness of EVT to reduce functional loss (for mRS 4 and mRS 5) | 1,638±0 | 228±0 | 117±0 | 9,408±0 | 4,872±0 | 56,173±0 |
| Effectiveness of EVT to reduce functional loss (for mRS 2-3) | 1,638±0 | 228±0 | 117±0 | 9,408±0 | 4,872±0 | 56,173±0 |
| Relative risk reduction in recurrent stroke due to comprehensive secondary prevention | 1,638±1 | 228±0 | 117±0 | 9,410±3 | 4,873±2 | 56,174±1 |
| Ratio of ASU to GMW costs | 1,638±0 | 228±0 | 117±0 | 9,408±0 | 4,872±0 | 56,174±0 |
| Average cost of tPA administration (per episode) | 1,638±0 | 228±0 | 117±0 | 9,408±0 | 4,872±0 | 56,174±0 |
| Average cost of EVT administration (per episode) | 1,638±0 | 228±0 | 117±0 | 9,408±0 | 4,872±0 | 56,174±0 |
| Average cost of comprehensive secondary prevention (per patient) | 1,638±0 | 228±0 | 117±0 | 9,408±0 | 4,872±0 | 56,174±0 |
| Average cost of out-of-hospital rehabilitation (per episode) | 1,638±0 | 228±0 | 117±0 | 9,408±0 | 4,872±0 | 56,174±0 |
| Average cost of community hospital stay (per admission) | 1,638±0 | 228±0 | 117±0 | 9,408±0 | 4,872±0 | 56,174±0 |
| Average annual long-term care cost (per patient) | 1,638±0 | 228±0 | 117±0 | 9,408±0 | 4,872±0 | 56,174±0 |

Table B18. One-way Sensitivity Analysis Results (Mean and 95% Uncertainty Bounds): Economic Analysis in 2030 (Intervention Scenario: Everything Combined in 2030)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Cumulative Discounted Costs | Cumulative Discounted QALYs | Difference in Cumulative Costs: Status Quo vs. Model Scenario | Net Monetary Benefit |
| Relative risk reduction in mortality due to ASU | 7,431,980,420±7,912 | 557,073±5 | 335,618,820±4,352 | 323,093,956±65,954 |
| Effectiveness of out-of-hospital rehabilitation to reduce functional loss | 7,429,349,420±1,270,015 | 557,240±68 | 335,277,971±165,685 | 324,779,484±793,674 |
| Effectiveness of public campaign on arrival to hospital within 300 minutes (2015-2017) | 7,431,987,150±4,302 | 557,072±1 | 335,626,164±4,296 | 323,100,140±35,338 |
| Effectiveness of public campaign on arrival to hospital within 300 minutes (2018-2030) | 7,431,989,990±7,371 | 557,072±1 | 335,629,022±7,367 | 323,128,439±35,756 |
| Effectiveness of tPA to reduce functional loss | 7,432,112,490±211,981 | 557,079±13 | 335,676,399±94,532 | 322,864,902±478,058 |
| Effectiveness of EVT to reduce functional loss (for mRS 4 and mRS 5) | 7,431,975,700±16,904 | 557,071±1 | 335,615,536±10,881 | 323,160,923±41,067 |
| Effectiveness of EVT to reduce functional loss (for mRS 2-3) | 7,431,975,760±21,979 | 557,072±1 | 335,615,990±13,632 | 323,166,477±75,547 |
| Relative risk reduction in recurrent stroke due to comprehensive secondary prevention | 7,433,640,671±1,642,713 | 557,050±50 | 334,866,268±754,191 | 325,233,796±2,154,433 |
| Ratio of ASU to GMW costs | 7,432,064,200±1,754,275 | 557,072±0 | 335,646,393±545,468 | 323,088,588±545,468 |
| Average cost of tPA administration (per episode) | 7,436,181,520±464,300 | 557,072±0 | 337,779,690±238,762 | 320,955,283±238,762 |
| Average cost of EVT administration (per episode) | 7,431,991,750±324,918 | 557,072±0 | 335,626,328±239,450 | 323,108,654±239,451 |
| Average cost of comprehensive secondary prevention (per patient) | 7,430,875,420±6,129,121 | 557,072±0 | 335,268,704±1,949,306 | 323,466,272±1,949,306 |
| Average cost of out-of-hospital rehabilitation (per episode) | 7,430,947,655±284,857 | 557,072±0 | 335,403,065±60,031 | 323,331,920±60,031 |
| Average cost of community hospital stay (per admission) | 7,432,203,519±37,551 | 557,072±0 | 335,584,371±8,066 | 323,150,614±8,066 |
| Average annual long-term care cost (per patient) | 7,429,644,903±4,630,738 | 557,072±0 | 335,626,503±231,400 | 323,108,475±231,400 |

*Probabilistic Sensitivity Analysis*

Table B19. Probabilistic Sensitivity Analysis Results (Mean and 95% Uncertainty Bounds) (Intervention Scenario: Everything Combined in 2030)

|  |  |
| --- | --- |
| Number of recurrent strokes | 2,317 ± 67 |
| Number of stroke survivors in mRS 0-1 | 47,254 ± 298 |
| Number of stroke survivors in mRS2-3 | 23,838 ± 101 |
| Number of stroke survivors in mRS 4 | 14,989 ± 144 |
| Number of stroke survivors in mRS 5 | 5,032 ± 66 |
| Number of fatalities among first strokes | 1,255 ± 48 |
| Number of fatalities among recurrent strokes | 340 ± 16 |
| Number of strokes receiving tPA only | 1,638 ± 13 |
| Number of strokes receiving EVT only | 228 ± 1 |
| Number of strokes receiving both tPA and EVT | 117 ± 1 |
| Number of strokes treated in ASU | 9,410 ± 54 |
| Number of strokes receiving out-of-hospital rehabilitation | 4,873 ± 32 |
| Number of stroke patients under secondary prevention | 56,174 ± 12 |
| Cumulative discounted estimated costs (SGD) | 7,437,580,812 ± 318, 982, 164 |
| Number of cumulative discounted estimated QALYs | 557,200 ± 1, 411 |
| Difference in cumulative discounted estimated costs (compared to Status Quo) | 336,659,644 ± 39,668,875 |
| Net Monetary Benefits (SGD) | 324,355,934 ± 53,508,945 |