Supplementary Table S3 Sensitivity analysis assuming lower work-up costs. Overview of harms and benefits per attendance level

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Attendance level | Scenariod | Additional costs compared to no screeningb | QALYs gained compared to no screeningb | LYG compared to no screening | ICERc | ACER | Mammograms | BC deaths avertedcompared to no screening | % BC mortality reduction | False positives | DCIS OD | IBC OD | % OD DCIS and IBC |
| 10% | t\_50\_64 | 2,918,209 | 294 | 944 | 9,918 | 9,918 | 44,075 | 46 | 1.0% | 1,716 | 39 | 3 | 13.4% |
| hsw50\_45\_64 | 6,788,353 | 648 | 1,998 | 10,929 | 10,470 | 102,758 | 94 | 2.0% | 4,024 | 85 | 6 | 14.7% |
| a\_45\_64 | 10,957,508 | 1,000 | 3,166 | 11,855 | 10,957 | 165,904 | 153 | 3.2% | 6,485 | 137 | 10 | 14.8% |
| a\_40\_64 | 12,461,420 | 1,097 | 3,425 | 15,506 | 11,360 | 186,060 | 161 | 3.4% | 7,299 | 147 | 10 | 15.3% |
| a\_40\_69 | 15,978,295 | 1,268 | 4,171 | 20,538 | 12,599 | 236,805 | 216 | 4.6% | 9,230 | 212 | 23 | 15.5% |
| a\_40\_74 | 19,729,799 | 1,396 | 4,839 | 29,349 | 14,132 | 287,030 | 276 | 5.8% | 11,101 | 299 | 47 | 16.7% |
| a\_40\_79 | 23,368,268 | 1,462 | 5,322 | 55,326 | 15,986 | 334,370 | 333 | 7.0% | 12,819 | 400 | 86 | 18.0% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30% | t\_50\_64 | 8,853,373 | 868 | 2,799 | 10,197 | 10,197 | 132,136 | 139 | 2.9% | 5,149 | 115 | 9 | 13.9% |
| b\_45\_64 | 16,373,458 | 1,512 | 4,763 | 11,681 | 10,829 | 245,205 | 228 | 4.8% | 9,597 | 203 | 13 | 15.2% |
| hsw50\_45\_64 | 19,947,867 | 1,780 | 5,536 | 13,352 | 11,208 | 307,904 | 260 | 5.5% | 12,075 | 245 | 16 | 15.7% |
| a\_45\_64 | 31,372,685 | 2,617 | 8,215 | 13,649 | 11,989 | 496,532 | 390 | 8.2% | 19,456 | 376 | 23 | 16.6% |
| a\_40\_64 | 35,623,909 | 2,899 | 8,964 | 15,045 | 12,287 | 556,864 | 412 | 8.7% | 21,901 | 404 | 23 | 17.0% |
| a\_40\_69 | 45,105,322 | 3,342 | 10,854 | 21,409 | 13,496 | 708,293 | 550 | 11.6% | 27,692 | 582 | 53 | 17.5% |
| a\_40\_74 | 54,579,908 | 3,674 | 12,492 | 28,582 | 14,857 | 857,943 | 696 | 14.7% | 33,307 | 816 | 104 | 18.8% |
| a\_40\_79 | 63,586,967 | 3,871 | 13,754 | 45,654 | 16,427 | 998,585 | 840 | 17.7% | 38,456 | 1,088 | 188 | 20.2% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 50% | t\_50\_64 | 14,720,137 | 1,430 | 4,596 | 10,292 | 10,292 | 220,074 | 227 | 4.8% | 8,582 | 191 | 14 | 14.4% |
| b\_45\_64 | 26,388,870 | 2,384 | 7,460 | 12,233 | 11,069 | 408,209 | 354 | 7.5% | 15,996 | 328 | 20 | 16.0% |
| b\_40\_64 | 30,772,716 | 2,712 | 8,422 | 13,384 | 11,348 | 480,661 | 393 | 8.3% | 18,882 | 380 | 24 | 16.4% |
| a\_40\_64 | 57,832,086 | 4,241 | 13,044 | 17,690 | 13,635 | 926,421 | 592 | 12.5% | 36,507 | 619 | 31 | 18.5% |
| a\_40\_69 | 72,613,094 | 4,905 | 15,816 | 22,281 | 14,805 | 1,177,699 | 790 | 16.7% | 46,157 | 887 | 70 | 19.1% |
| a\_40\_74 | 86,957,666 | 5,405 | 18,182 | 28,692 | 16,089 | 1,425,760 | 998 | 21.0% | 55,514 | 1,242 | 135 | 20.6% |
| a\_40\_79 | 100,338,566 | 5,713 | 20,023 | 43,452 | 17,564 | 1,658,476 | 1,204 | 25.4% | 64,092 | 1,652 | 245 | 22.1% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 70% | t\_50\_64 | 20,290,842 | 1,975 | 6,327 | 10,275 | 10,275 | 307,877 | 310 | 6.5% | 12,013 | 264 | 18 | 14.8% |
| t\_45\_64 | 26,073,355 | 2,424 | 7,610 | 12,872 | 10,756 | 398,627 | 364 | 7.7% | 15,612 | 335 | 22 | 15.6% |
| b\_45\_64 | 36,454,781 | 3,209 | 10,003 | 13,224 | 11,360 | 570,847 | 468 | 9.9% | 22,393 | 448 | 25 | 16.7% |
| b\_40\_64 | 42,452,978 | 3,621 | 11,214 | 14,544 | 11,723 | 672,133 | 520 | 11.0% | 26,435 | 516 | 30 | 17.1% |
| b\_40\_69 | 51,294,184 | 4,057 | 13,070 | 20,314 | 12,644 | 813,453 | 656 | 13.8% | 31,844 | 690 | 58 | 17.6% |
| a\_40\_64 | 79,574,153 | 5,321 | 16,262 | 22,370 | 14,955 | 1,294,852 | 728 | 15.4% | 51,109 | 800 | 37 | 19.8% |
| a\_40\_69 | 99,334,439 | 6,134 | 19,615 | 24,300 | 16,194 | 1,645,483 | 966 | 20.4% | 64,617 | 1,147 | 81 | 20.6% |
| a\_40\_74 | 118,143,014 | 6,769 | 22,538 | 29,634 | 17,454 | 1,991,265 | 1,220 | 25.7% | 77,716 | 1,603 | 155 | 22.1% |
| a\_40\_79 | 135,521,320 | 7,165 | 24,822 | 43,868 | 18,914 | 2,315,461 | 1,473 | 31.1% | 89,731 | 2,130 | 280 | 23.7% |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 100% | t\_50\_64 | 28,480,883 | 2,732 | 8,764 | 10,426 | 10,426 | 439,437 | 426 | 9.0% | 17,163 | 376 | 24 | 15.5% |
| t\_45\_64 | 36,694,470 | 3,381 | 10,583 | 12,658 | 10,855 | 568,890 | 500 | 10.5% | 22,302 | 471 | 29 | 16.2% |
| b\_45\_64 | 50,979,675 | 4,321 | 13,395 | 15,194 | 11,799 | 814,345 | 618 | 13.0% | 31,991 | 616 | 32 | 17.8% |
| b\_40\_64 | 59,584,829 | 4,884 | 15,049 | 15,271 | 12,199 | 958,783 | 688 | 14.5% | 37,766 | 709 | 38 | 18.2% |
| b\_40\_69 | 71,597,483 | 5,466 | 17,494 | 20,633 | 13,098 | 1,159,982 | 864 | 18.2% | 45,493 | 945 | 73 | 18.7% |
| b\_40\_74 | 89,102,364 | 6,143 | 20,678 | 25,860 | 14,504 | 1,457,403 | 1,143 | 24.1% | 56,714 | 1,417 | 158 | 20.5% |
| hsw50\_40\_74 | 106,074,099 | 6,705 | 22,148 | 30,202 | 15,819 | 1,721,070 | 1,187 | 25.0% | 67,353 | 1,494 | 157 | 20.9% |
| a\_40\_74 | 164,278,872 | 8,338 | 27,533 | 35,646 | 19,702 | 2,837,158 | 1,467 | 30.9% | 111,032 | 2,040 | 174 | 24.0% |
| a\_40\_79 | 187,333,310 | 8,836 | 30,307 | 46,340 | 21,202 | 3,297,316 | 1,772 | 37.4% | 128,194 | 2,710 | 313 | 25.6% |

Abbreviations: ACER= average cost effectiveness ratio; BC = breast cancer; DCIS = ductal carcinoma in situ; IBC = invasive breast cancer; ICER = incremental cost effectiveness ratio; LYG = life years gained; OD = overdiagnosis; QALY = quality adjusted life year

aAll results are per 100,000 women alive in 2002 and costs are expressed in 2002 Singaporean dollars

bDiscount rate 3%

cthe ICER for each scenario was compared to the previous scenario on the efficient frontier of the sensitivity analysis. Current screening policy with observed attendance has not been taken into account in the calculation of the ICER

dScenarios are abbreviated by screening interval, start age and stop age. Screening interval abbreviation a=annual screen, b=biennial screen, t= triennial screen, hsw50=hybrid screen with switching age 50 from annual to biennial screening, hsw45=hybrid screen with switching age 45 from annual to biennial screening