Appendix C. Sensitivity Analysis

We conducted a series of two-way sensitivity analyses to assess the impact of alternative model assumptions. More specifically, we varied specific parameters to account for methodological uncertainty associated with assumptions made in the reference case.

Table C1. Sensitivity analysis

| Variable | Δ Cost | Δ QALYs |
|--|------------------|---------|
| Base case | -\$956,461,149 | 74,023 |
| Time horizon: 20 years | | |
| 1 year | \$35,189,686 | 1,908 |
| 2 years | -\$28,057,314 | 4,300 |
| 3 years | -\$62,139,552 | 6,409 |
| 5 years | -\$175,198,580 | 12,644 |
| 10 years | -\$451,525,151 | 33,529 |
| 81 years (Lifetime) | -\$1,673,555,844 | 193,918 |
| Discount (Cost & Effect): 1.5% | | |
| Cost and Effect: 0% | -\$1,082,186,439 | 85,793 |
| Cost and Effect: 5% | -\$669,156,924 | 53,446 |
| Risk ratio of full remission: 1.46 | | |
| Lower bound: 1.02 | \$29,241,501 | 4,457 |
| Upper bound: 2.08 | -\$1,730,606,589 | 128,558 |
| Risk Ratio of partial remission: 1.2 | | |
| Lower bound: 0.96 | -\$953,579,627 | 73,826 |
| Upper bound: 1.51 | -\$961,612,619 | 75,531 |
| Risk Ratio of total discontinuation: 0.89 | | |
| Lower bound: 0.78 | -\$885,602,410 | 72,041 |
| Upper bound: 1.01 | -\$1,022,082,271 | 75,439 |
| Risk Ratio of discontinuation due to adverse | | |
| effect: 0.43 | | |
| Lower bound: 0.16 | -\$1,009,941,161 | 74,708 |
| Upper bound: 1.17 | -\$793,716,025 | 71,441 |
| Cost of PGx testing ^a : \$738 | | |
| Least expensive PGx testing ^{1,b} : \$305 | -\$1,002,250,709 | |
| Most expensive PGx testing ^{1,b} : \$2338 | -\$693,415,396 | |
| Cost of treating patients with refractory | | |
| MDD per year ^a : \$5286 | | |
| 50% Decrease: \$2643 | -\$138,909,139 | |
| 50% Increase: \$7929 | -\$1,726,844,871 | |
| Weekly cost of other medical conditions ^a : | | |
| \$20 | _ | |
| 50% Decrease: \$10 | -\$962,208,348 | |
| 50% Increase: \$30 | -\$931,869,676 | |

| Comparison Com | Deletive wish of montelity | | |
|---|--|----------------|---------------------------------------|
| Lower bound: 1.31 | Relative risk of mortality | | |
| Upper bound: 1.89 | | ФО (2 022 222 | 70.061 |
| Relative risk of mortality (Refractory MDD vs. episodic MDD): 1.29 Lower bound: 1.22 -\$959,298,537 73,046 Upper bound: 1.38 -\$923,454,035 75,315 Spontaneous remission of untreateda: 0.16 Lower bound: 0.12 77,255 Upper bound: 0.2 70,576 Utility after remissiona: 0.7 Lower bound: 0.67 66,677 Upper bound: 0.73 74,226 Utility of patients with refractory MDDa: 0.57 87,630 Upper bound: 0.52 87,630 Upper bound: 0.6 64,551 Utility of patients in well health statea: 0.8 Lower bound: 0.7 48,184 Upper bound: 0.9 98,492 Utility of patients with mild MDDa: 0.57 74,999 Lower bound: 0.54 70,972 Utility of patients with moderate MDDa: 0.52 70,972 Lower bound: 0.49 73,743 Upper bound: 0.56 72,405 Utility of patients with severe MDDa: 0.39 72,815 | | | |
| Vs. episodic MDD): 1.29 Lower bound: 1.22 -\$959,298,537 73,046 Upper bound: 1.38 -\$923,454,035 75,315 Spontaneous remission of untreateda: 0.16 T7,255 Upper bound: 0.12 T7,255 Upper bound: 0.2 T0,576 Utility after remissiona: 0.7 Comparison of the properties of the | | -\$940,383,630 | 75,449 |
| Lower bound: 1.22 | | | |
| Upper bound: 1.38 -\$923,454,035 75,315 Spontaneous remission of untreateda: 0.16 Lower bound: 0.12 77,255 Upper bound: 0.2 70,576 Utility after remissiona: 0.7 Lower bound: 0.67 66,677 Upper bound: 0.73 74,226 Utility of patients with refractory MDDa: 0.57 Lower bound: 0.52 87,630 Upper bound: 0.6 64,551 Utility of patients in well health statea: 0.8 Lower bound: 0.7 48,184 Upper bound: 0.9 98,492 Utility of patients with mild MDDa: 0.57 Lower bound: 0.54 74,999 Upper bound: 0.61 70,972 Utility of patients with moderate MDDa: 0.52 Lower bound: 0.49 Upper bound: 0.56 72,405 Utility of patients with severe MDDa: 0.39 Lower bound: 0.35 72,815 | | | |
| Spontaneous remission of untreateda: 0.16 | | -\$959,298,537 | 73,046 |
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| Upper bound: 0.2 70,576 Utility after remissiona: 0.7 66,677 Lower bound: 0.67 74,226 Utility of patients with refractory MDDa: 0.57 87,630 Lower bound: 0.52 87,630 Upper bound: 0.6 64,551 Utility of patients in well health statea: 0.8 48,184 Lower bound: 0.7 98,492 Utility of patients with mild MDDa: 0.57 74,999 Lower bound: 0.54 74,999 Upper bound: 0.61 70,972 Utility of patients with moderate MDDa: 0.52 73,743 Lower bound: 0.49 73,743 Upper bound: 0.56 72,405 Utility of patients with severe MDDa: 0.39 72,815 | | | |
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| Lower bound: 0.67 Upper bound: 0.73 Utility of patients with refractory MDDa: 0.57 Lower bound: 0.52 Upper bound: 0.6 Utility of patients in well health statea: 0.8 Lower bound: 0.7 Upper bound: 0.9 Utility of patients with mild MDDa: 0.57 Lower bound: 0.54 Upper bound: 0.61 Utility of patients with moderate MDDa: 0.52 Lower bound: 0.49 Upper bound: 0.56 Utility of patients with severe MDDa: 0.39 Lower bound: 0.35 T2,815 | Upper bound: 0.2 | | 70,576 |
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| 0.57 87,630 Upper bound: 0.6 64,551 Utility of patients in well health state ^a : 0.8 Lower bound: 0.7 48,184 Upper bound: 0.9 98,492 Utility of patients with mild MDDa: 0.57 74,999 Lower bound: 0.54 74,999 Upper bound: 0.61 70,972 Utility of patients with moderate MDDa: 0.52 73,743 Upper bound: 0.49 73,743 Upper bound: 0.56 72,405 Utility of patients with severe MDDa: 0.39 72,815 | | | |
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| Utility of patients in well health state ^a : 0.8 Lower bound: 0.7 48,184 Upper bound: 0.9 98,492 Utility of patients with mild MDD ^a : 0.57 Lower bound: 0.54 74,999 Upper bound: 0.61 70,972 Utility of patients with moderate MDD ^a : 0.52 Lower bound: 0.49 73,743 Upper bound: 0.56 72,405 Utility of patients with severe MDD ^a : 0.39 Lower bound: 0.35 72,815 | Upper bound: 0.6 | | 64,551 |
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| Upper bound: 0.56 72,405 Utility of patients with severe MDD ^a : 0.39 Lower bound: 0.35 72,815 | | | 73,743 |
| Utility of patients with severe MDD ^a : 0.39 Lower bound: 0.35 72,815 | Upper bound: 0.56 | | , |
| Lower bound: 0.35 72,815 | | | , |
| , | | | 72,815 |
| Upper pound: 0.45 | Upper bound: 0.43 | | 77,248 |

^a Sensitivity analyses were done around the cost [and health utility] values in the model, which only impact variations in incremental costs [and QALYs], and so only these results are reported.

^bCost of PGx testing includes the cost of one regular appointment with a physician for a test request and one counseling appointment with a GP to review the results and assess the treatment plan.

References

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