

Maryland Long COVID Mitigation ROI Model

State of Maryland | Analysis Period: 3 Years | Population: 6,200,000

25.1:1 Benefit-Cost Ratio	\$2.17B Net Present Value	\$96M 3-Year Program Cost	\$15.49 Cost Per Capita (3-Year)	285,200 MD Residents Affected	18.8:1 Conservative BCR
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WHAT THIS MODEL IS

Scope	State of Maryland. All population figures, program costs, benefit calculations, and economic parameters are specific to Maryland.
Purpose	Quantifies the economic return on a three-year, \$96,031,822 investment in Long COVID mitigation programs for Maryland's affected population of 285,200 residents (4.6% of 6.2 million, CDC Household Pulse Survey 2024).
Approach	Benefit-cost analysis using peer-reviewed literature for all inputs. Conservative estimates throughout. Benefits are quantifiable economic returns only — no social welfare values or non-market benefits are included.
Discount Rate	3.0 percent, applied to calculate the net present value of future benefits.
Key Inputs	Maryland median annual wage \$65,321 (BLS OEWS May 2024). Annual healthcare cost per Long COVID case \$9,000 (Bansal 2025; Bartsch et al. 2025 range \$5,084 to \$11,646). Disability rate 15 percent, midpoint between CDC 10% floor and NASEM 2024 22% ceiling. SSDI benefit value \$18,000 per year, 2.4% below actual 2024 SSA average.

3-YEAR PROGRAM COSTS (\$96,031,822 TOTAL)

Cost Category	Year 1	Year 3	3-Year Total
Clean Air Infrastructure	\$9,300,000	\$10,057,950	\$29,122,950
Testing & Surveillance	\$4,960,000	\$5,624,640	\$15,941,440
Clinical Care & Support	\$7,440,000	\$8,838,720	\$24,462,720
Education & Outreach	\$1,860,000	\$1,954,116	\$5,729,916
Workforce Support	\$3,100,000	\$3,417,440	\$9,803,440
Research & Evaluation	\$1,240,000	\$1,328,288	\$3,857,888
Administrative Overhead (8%)	\$2,232,000	\$2,497,692	\$7,113,468

3-YEAR QUANTIFIABLE BENEFITS (\$2,410,011,134 TOTAL)

Benefit Category	3-Year Total
Workforce Productivity Gains	\$873,848,008
Reduced Workplace Absenteeism	\$507,916,029
Healthcare Cost Savings	\$449,190,000
Reduced Disability Claims	\$239,390,035
Educational Outcome Improvements	\$225,519,048
Early Cancer Detection Savings	\$76,446,000
Reduced Emergency Department Visits	\$37,702,014

The model was tested across four scenarios. The BCR remains positive in all of them. **Conservative (30% transmission reduction): 18.8:1. Base Case (40%): 25.1:1. Moderate (50%): 31.4:1. Optimistic (60%): 37.6:1.**