

Cost-Benefit Return on Investment (ROI) Projections

Revised Fiscal Note for HB 027-SB 0392

By Cheryl Lohman, MD, PMP

HB 0027- SB 0392 COST-BENEFIT (ROI) PROJECTIONS				
	Cost to TEDCO	Payment Mechanism	State Net Result	ROI to state
Scenario 1 \$10 M donation covers admin costs	Less than \$100k	Saves MD \$150 annually Cuts red tape Ref. 1	\$10 M influx to state \$ 50k state savings	\$0.5 Billion over 10 years
Scenario 2 \$1 M donation covers admin costs	Less than \$100k	Saves MD \$150 annually Cuts red tape Ref. 1	\$1 M influx to state \$50k state savings annually	\$57 M over 3-4 years
Scenario 3 Pass HB 0027 as-is No appropriation	\$0 Ref. 2	None needed	\$0	\$0 Puts framework in place
Scenario 4 Funds TEDCO set up only	\$330 k Ref. 3	State Funds set up TEDCO per the fiscal note	\$330 k cost as per TEDCO	\$0 Puts framework in place
Scenario 5 Produce AI apps for LC	\$330k x 3 Ref. 3	State funds only Would need additional bill for appropriation	\$1 M cost	None reported in fiscal note but \$57 M viable
Scenario 6 Worst Case Per Fiscal note	\$330k x 10 Ref. 3	State Funds only Would need additional bill for appropriation	\$10 M x 5 years in costs	None reported in fiscal note but \$0.5 B viable

Note: My expertise as a Project Management Professional (PMP) for a Small Business Innovation Research (SBIR) Grant for the National Science Foundation (NSF), along with detailed knowledge of NIH, NIST, ARPA-H, MIPS, YC, Tech Stars, and TEDCO grants and funding mechanisms inform this document. I used standard tech industry assumptions for exponential growth curves in startup companies. I also drew on my med tech industry knowledge gained from developing a medical device under the TEDCO RUBRIC grant for assumptions and projections.

HB 0027-SB 0392 The TEDCO Long COVID R&D Initiative Grant and Loan Program

The intent of this bill is to grow Maryland's economy by developing diagnostics, treatments, and cures for Long COVID. This is a staggering unmet need. According to testimony to the Senate Finance Committee, there are almost one million ill patients in Maryland alone. The language of the bill allows for action at all funding levels.

HB 0027 – SB 0392 is modeled after the TEDCO Maryland Stem Cell Research Initiative can use a similar structure to it at funding levels in the \$10M range. This would require additional legislative action. At funding levels at the \$1M range, also requiring additional legislative action, the return on investment is extremely high and fast if TEDCO chooses to develop an ecosystem that creates Long COVID health apps using AI agents. This program should cost the state nothing if it is not funded. See Reference 2.

This program fits into Governor Wes Moore's lighthouse sectors. Stem cells are being used in the treatment of long Covid. StemCyte, a company based in San Francisco. received FDA emergency use authorization from the FDA in January of 2026.

Other advanced technologies can be used to develop diagnostics, treatments, and cures for Long COVID. This includes applying HIV research techniques to the study of viral persistence in long Covid, cancer techniques to probe immune system dysregulation, as well as applying emerging quantum sensing technologies for advanced diagnostics of long Covid.

HB 0027- SB 0392 is an enormous economic growth opportunity for the State of Maryland. It fits within the scope of Governor Moore's lighthouse vision.

Detailed Scenario 1

This scenario assumes a \$10 million philanthropic donation. The donation would fund both the establishment of a framework within the state of Maryland to receive the donation, as well as providing funding for the program. 57x Return on Investment (ROI) over 10 years is assumed.

The real world data used to generate these 57x Return on Investment (ROI) assumptions comes from Solve ME. With \$1.6 million input Solve ME leveraged \$92 million of follow-on funding. Please see Reference 4 for the email detailing this number. The Solve ME email was presented by Cheryl Lohman, MD as oral testimony at the Senate Finance Committee hearing on Thursday, February 12 for SB 0392. Please see Reference 4 for this email.

This program would fund emerging research, which could include quantum technologies for development of diagnostics for Long COVID (LC). It could also fund research into the

pathophysiology of Long COVID at the quantum level. This is hypothesized to occur in the mitochondrial electron transport chain, for example. It could also be used to support development of stem cell treatments and other established technologies such as those used in cancer research. The return on investment would come from follow-on R&D investing.

Detailed Scenario 2

This scenario assumes a \$1 million philanthropic donation to the state of Maryland that would support the structure (501 c 3) for accepting the donation as well as funding of a programs.

A program that would create a high ROI would focus on the development of phone apps using AI agents. This has been used successfully by Y Combinator (YC) for the past two years and will be viable for the next year and a half. After that, the window of opportunity for creating AI agents will likely close as the technology matures. Industry experts expect this to happen in 18 months.

Apps have a compressed 3-4 year horizon for ROI due to the unprecedented development speed. Thus they can achieve the same ROI as for research, but much faster.

Johns Hopkins medical innovations already has startup companies that produced apps using AI agents to solve program problems that occur in Long COVID. However these same companies in Maryland are unaware of the greater than 20 million patient Long COVID total addressable market (TAM) in the U.S. for their product.

Here is a description of a prototypic app showcased at the Johns Hopkins Ward Infinity Accelerator pitch competition on Thursday, January 29 at the Bloomberg Center. A company called Vital Guardian™ took home the grand prize. Their app detects a decline in a patient's renal function earlier than most doctors. Renal decline is a problem in long COVID. Long COVID triggers lupus, and lupus causes renal nephritis. Untreated, this to end stage renal disease.

Johns Hopkins received a \$1 billion donation from Bloomberg to advance AI and medicine. HB 0027 SB 0392 could help expand the Maryland ecosystem for this AI work.

App development has a much shorter timeline to ROI than medical research. A profitable app can now be developed in a matter of hours, and deployed in days.

This AI agent savvy ecosystem could be used by Astra Zeneca to explore the use of drugs in their pipeline for Long COVID. Jak stat inhibitor drugs would be the beachhead.

The window for high ROI for AI app development will be influenced by forces external to Maryland, such as the half billion dollar of funding from Germany for long Covid diagnostics. This will accelerate biotech transfer into Long COVID. The ROI for money in is typically an exponential curve, often referred to as the J- Curve. The high ROIs of this early adoption will go to the earliest funders, namely Germany.

Detailed Scenario 3

Follows the TEDCO Nanobiotech Program which was legislated, but not funded. According to the TEDCO Annual Report, it used no TEDCO resources. See Ref. 2.

Detailed Scenario 4

Establishment of TEDCO infrastructure with \$100k. This adds staff to TEDCO without money for allocation to Maryland businesses to grow. This yields negative returns.

Detailed Scenario 5

The State contributes \$1M of first funding for the Long COVID Initiative. There would be no risk of the funding being appropriated without legislative awareness and support because HB 0027 SB 0392 - as currently written – has no funding requirements for the State of Maryland. Del. Dr. Terri Hill's requested a clarifying amendment to the bill, however the bill writers stand by their original language. They instead point to the rewrite of the fiscal note as a more appropriate clarification. Thus this document is written.

Apps have a compressed 3-4 year horizon for ROI due to the unprecedented development speed. The ROI could be \$57 Million at 3-4 years. This is the same as the \$1M philanthropic donation case if it occurs in 2026. The ROI gains will diminish in future years as described above.

Detailed Scenario 6

This scenario does not align with the language of the current bill, yet it is the case described in the fiscal note for HB 0027-SB 0392. The fiscal note should be rewritten but the fiscal writers cannot do so, per my conversations with them. As prepared, the current fiscal note makes an unstated assumption that an appropriation will occur. That incorrect assumption requires a state appropriation for the bill which is not included in the language of HB 0027- SB 0392. However if HB 0027 – SB 0027 were funded by an additional appropriations bill, the expected ROI exceeds 0.5 Billion at 10 years, the same as in the \$10M philanthropic donation case.

REFERENCES

Reference 1: Excerpts from email to Sen. Nancy King January

"I mentioned that there is a potential to streamline Maryland operations, resulting in cost savings that could be used for funding this bill.

Here are the two suggestions:

Eliminate The Healthcare Alternative Dispute Resolution Office (HCADR)

While the name of the office implies a good mission, they are currently irrelevant to the process of improving healthcare via the court system. I spoke with the director who gave me the following information. They have four functions:

1. Give rubber stamps to attorneys going forward with malpractice claims. This is a hoop all must jump through before proceeding to the court system with malpractice suits. This applies to all malpractice claims of \$25,000 or more, which is effectively all of them. 99% of attorneys elect to forego the arbitration process. Pro Se litigants have "never been able to successfully litigate malpractice" in Maryland in his memory and experience. This is corroborated by others. As a legislator, you could eliminate the hoop to "consider arbitration" (because none choose this route), thus streamlining the process.
2. Arbitration services. While the HCADR office used to provide arbitration services, they no longer do so.
3. Assure that there is a certified "medical merit" form filed for each case. This could easily be done with tracking software at a much lower cost.
4. Track malpractice claims against doctors. This is already being done at the Maryland Board of Physicians, so this is a duplicate service. It can also be effectively implemented with tracking software.

I don't claim that I fully understand this process. However, it is clear that this merits consideration. We need cost savings while streamlining services to Marylanders.

This action would eliminate at least 2 salaried positions, conservatively estimated at \$150,000 annually. This cost savings could then fund the administration of the Long COVID R&D Initiative.

The Office of Health Care Quality (OHCQ) is another office to consider eliminating.

While they have an important mission, they are not fulfilling it. I have reached this conclusion via my own personal experience with the office. I can share details with both you and Delegate Lesley Lopez in person. My experience is corroborated by others. It is costly to maintain systems that do not work.

Reference 2: TEDCO 2020 Annual Report regarding the Nanobiotech Research Fund

Coordinating Emerging Nanobiotechnology Research in Maryland Fund
Chapter 446 of 2008 created the Coordinating Emerging Nanobiotechnology Research in Maryland Fund. This program has never received an appropriation, and as such there is no program activity to report.

Reference 3: Fiscal Summary from HB 0027.

https://mgaleg.maryland.gov/2026RS/fnotes/bil_0007/hb0027.pdf

Fiscal Summary

State Effect: General fund expenditures increase by \$10.0 million annually beginning in FY 2027 to capitalize the fund; special fund revenues and expenditures increase correspondingly. Higher education revenues and expenditures increase to the extent public four-year institutions of higher education receive and spend grants or loans (not shown below). Special fund revenues also increase to the extent any loans made are repaid.

(\$ in millions) FY 2027 FY 2028 FY 2029 FY 2030 FY 2031

SF Revenue \$10.0 \$10.0 \$10.0 \$10.0 \$10.0

GF Expenditure \$10.0 \$10.0 \$10.0 \$10.0 \$10.0

SF Expenditure \$10.0 \$10.0 \$10.0 \$10.0 \$10.0

Net Effect (\$10.0) (\$10.0) (\$10.0) (\$10.0) (\$10.0)

Note:() = decrease; GF = general funds; FF = federal funds; SF = special funds; - = indeterminate increase; (-) = indeterminate decrease

Local Effect: The bill does not affect local government operations or finances.

Small Business Effect: Potential meaningful.

State Fiscal Effect: General fund expenditures increase by \$10.0 million annually beginning in fiscal 2027 to implement a viable grant and loan program. As the bill allows this funding to cover costs of administering the “fund,” this analysis assumes that authorization encompasses other aspects of “program” administration. TEDCO advises it requires a program manager, a program coordinator, and, after the first round of awards, an award manager to administer the program. Combined, the initial annual salaries for these staff total approximately \$330,000; thus, after additional costs for the program, including fringe benefits, stipends for committee review, and standard overhead costs for TEDCO, the program could issue approximately 25 awards per year with an average funding amount of about \$350,000. (If fewer awards are made, average award amounts increase.) TEDCO employees are not State employees

Reference 4: Solve ME 57x ROI email

Solve ME numbers from email as presented for SB 0392 Senate Finance Committee February 12, 2026 during oral testimony by Dr. Cheryl Lohman

Dear Dr. Lohman,

I’m reaching out with more details on Solve’s follow-up funds, as requested.

Overall, the Solve boasts a 57-fold return on investment, on the basis of its initial \$1.6M investment and nearly \$92M in follow-up funding.

Several Ramsay Awardees have been particularly successful, including

- Dr. Carmen Scheibenbogen (Ramsay projects [Metabolic Changes in T Cells & Monocytes](#) and [Autoimmune Signature in ME/CFS](#)): winning almost \$12M in follow-up funds
- Dr. Eran Segal (Ramsay project [Gut Microbiome & Autoantigens](#)): winning \$7.5M in follow-up funds
- Dr. Aaron Ring (Ramsay project [Discovery of pathological autoantibodies in ME/CFS and post-acute sequelae of SARS-CoV-2 infection](#)): winning over \$6M in follow-up funds

The first cycle of Ramsay Awards was in 2016.

