

# AI-Enabled Early Detection and Remote Monitoring of Lung and Heart Disease



[vironix.ai](http://vironix.ai) Austin TX

Software Technology Hardware Community Artificial Intelligence

## Highlights

- 1 ❤️ Vironix Outperforms Standard-of-Care in Detecting/Triaging Heart Failure, COPD & Asthma Flare-ups
- 2 💰 \$150M Potential ARR from Current LOIs (not guaranteed)
- 3 📈 APIs Raise Wellness, Scale Globally, & Grow Revenue for Caregivers
- 4 💰 \$450K Raised in Pre-Seed/Seed capital to date; \$350K Invested Into R&D
- 5 🏆 World Class R&D Collaboration w/ Oxford University
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- 6 📄 Patent Pending on Early Detection Technology (USPTO: 63/316,078)
- 7 🎓 2021 Mass Challenge Accelerator Alum & 🏆 Certified Minority Controlled Enterprise

### LEAD INVESTOR



**Larry Yuhasz** Principal, LS Yuhasz Consulting, LLC

I am a big believer in Remote Patient Monitoring technology to extend the reach of clinicians, and also the application of AI to improve the capacity of monitoring and detection to improve prevention and treatment outcomes. Vironix has made significant strides in this area. Combined with their experienced leadership team and support from a variety of clinical advisors, I am confident in their ability to execute and grow value. They already have in place both research that supports their clinical efficacy and pilot sites that demonstrate real-world implementation. Additional funding will help to expand their functionality and further their capacity to tap both revenue streams they currently are pursuing, and additional ones they see on the horizon.

Invested \$1,001 this round & \$50,000 previously

## Our Team



**Sumanth Swaminathan, PhD** CoFounder & CEO

Over a decade of AI-healthcare product development & commercialization experience as a technology consultant, chief data scientist, and CEO: NSF SBIR winner, MassChallenge 2021 alum, >50 peer-reviewed & proceeding papers, Northwestern PhD, Oxford Postdoc.

Heart and lung disease deterioration events are leading causes of global death/morbidity with a price tag of \$100s of billions in hospitalization, treatment, lost productivity, and mental illness. It is well known that early intervention at home constitutes the best opportunity for real global prevention and increased quality-of-life.



**Sriram Ramanathan, MS** CoFounder & Chief Technology Officer

A technology executive with more than 25 years of cutting edge experience in the mobile, AI, cloud computing and telecommunications domains: CTO of Kony (acquired by Temenos for \$560M) ; SVP at Oracle, Distinguished IBM Engineer (>150 patents)



**Christopher Landon M.D.** CoFounder & Medical Specialist:  
Pulmonology

Director of Pediatrics at Ventura County Medical Center ; Clinical Assistant Professor of Family Medicine at UCLA ; Clinical Associate Professor of Pediatrics at USC ; Directed large population studies and physician education on COPD, Asthma, & CF



**Botros Toro, PhD** CoFounder & Product Architect

After escaping the 2011 Syrian crisis, Dr. Toro completed a PhD in Biology from U. Albany, graduated the eminent Data Incubator NYC (2% acceptance rate), & Cofounded Vironix Health: Mass Challenge 2021 alum and decorated machine-learning scientist.



**Mahesh Visvanathan, MBA** Chief Business Development Officer

A customer focused executive with over 25 years of experience managing operations and transformations for healthcare technology-based services: SVP at Truven (acquired by IBM for \$2.B); VP at Anthem, SVP at IBM, U. Mich MBA.



**Nicholas Wysham M.D.** CoFounder & Medical Specialist:  
Pulmonology

A practicing pulmonologist, partner, and board member of The Vancouver Clinic in Vancouver, WA ; Clinical Associate Professor of Medicine at WSU ; Pulmonary Critical Care Fellowship at Duke.



**Emani Kelley** Clinical Research Specialist

Project coordinator for studies spanning clinical drug trials to innovative devices and new breakthrough methodologies: 2019 Fulbright Scholar ; B.A. in Psychology with minors in Spanish and Latin American Studies from College of Wooster, OH.



**Jatin Rajput, MBA** Senior Strategic Advisor: Bus Dev & Fundraising

Over 20 years of experience investing, managing and growing financial services and technology businesses in both developed and emerging markets: Partner at Union Park Ventures ; Founder at Ad-in-Ventures, MBA from Insead, Blockchain Bus Cert from MIT



**Mahesh Tirupattur** Senior Strategic Advisor: Sales & Bus Dev

Over 25 years of entrepreneurship and executive experience in sales, marketing and business development: CoFounder & COO/EVP at Analog Bits ; CoFounder & VP Sales at Virtual Silicon



**Jeffrey Hanson, M.P.H., M.Ed., B.S.** Senior Global Healthcare Advisor

A healthcare executive with a thirty-five year career working in the healthcare consulting, digital information technology, analytics, and services industry: President of Maine, New England, and National Rural Health Associations ; VP IBM Watson health



**Krish Kumar** Senior Strategic Advisor

25+ years experience as an IT and Business Executive, Krish builds Customer relationships, accelerates revenue with profitable growth, enables operational efficiency, regulatory compliance by leveraging digital and business transformations.



**MARAT FUDIM, M.D** Medical Advisor - Heart Failure Specialist

Practicing cardiologist and Heart Failure specialist with over ten years of patient care, and research experience. Director of Duke University Remote Monitoring Clinic. MD at U. Dusseldorf. Residency at Vanderbilt. Fellowship at Duke University.



**Andrew P Ambrosy M.D.** Medical Advisor - Heart Failure Specialist

Practicing cardiologist and clinician-investigator at Kaiser Permanente in San Francisco Medical Center. Regional Director at KP Northern California Division of Research. MD at Northwestern. Residency at Stanford. Fellowship at Duke.



**Shadin Hilton, MS, MBA, RNC, NE-BC, PMP** Senior Global Healthcare Advisor

Over 23 years of experience in hospital administration, operations, program mgmt, & consulting. Director: Patient Care Services, Baylor Medical Center ; Healthcare Consultant: John Hopkins Med Intl ; Senior Consultant: IBM Watson Health



**Christopher Chew** Growth & Fundraising Advisor

An engineer, investor, and awarded innovator. Early product development work at NASA and Gore-Tex. Start-up building experience, including companies like Bloomscape and Modern Meadow.



**Viji Swaminathan Ph.D.** Research Grants Specialist

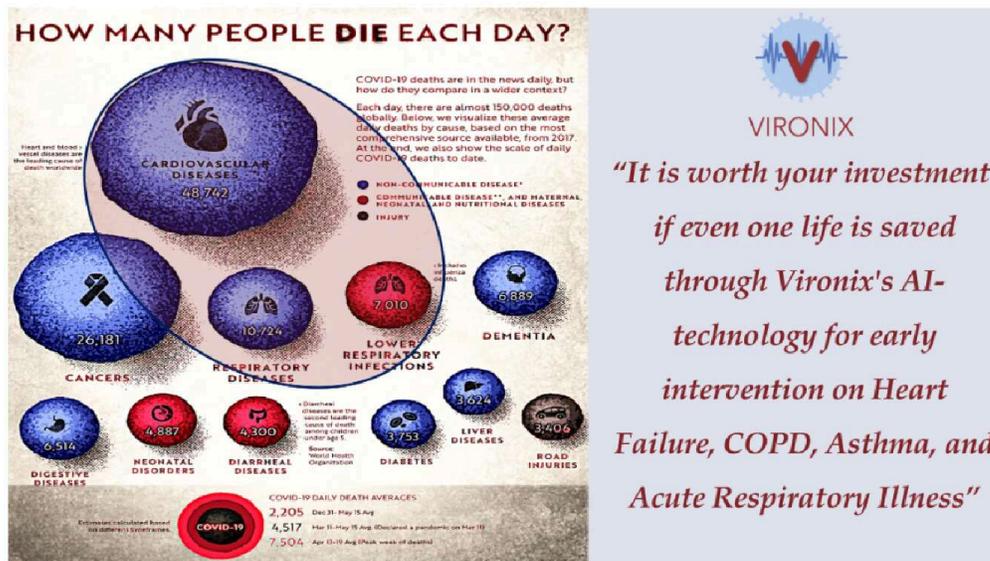
Research scientist & technologist with a background in physics, biochemistry, and computer science. Ph.D. in Physics from University of Madras, India. MS in Computer Science from West Chester University.



**Govind Shantharam** Medical & Strategic Business Advisor

Resident physician at the Icahn School of Medicine at Mt. Sinai. MD at Brown University. BA at UC Berkeley in Health Economics & Policy, and Philosophy.

## Why Vironix?



**VIRONIX**

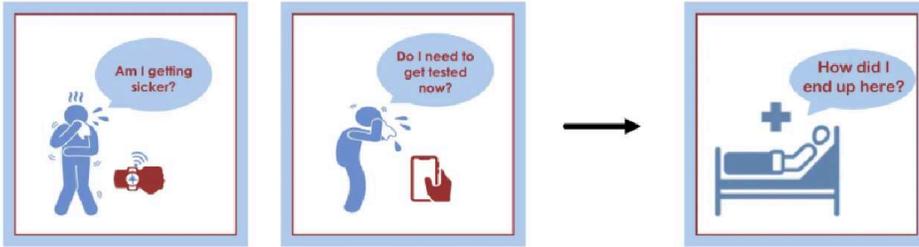
*"It is worth your investment if even one life is saved through Vironix's AI-technology for early intervention on Heart Failure, COPD, Asthma, and Acute Respiratory Illness"*

Cardiovascular diseases are the leading cause of death globally, taking an estimated 17.9 million lives each year and amounting to one death every 56 seconds. Either you or someone you know has been impacted by heart disease.

Chronic lung disease (COPD & Asthma) is the third leading cause of death around the globe with a price tag of a whopping \$130B in direct spending!

## THE PROBLEM

**Lung & heart disease patients experience traumatic and recurrent flare-ups that are avoidable if caught and addressed early.**



People diagnosed with or at-risk of Heart Failure, COPD, Asthma, & Acute Respiratory Illness face constant risk of death, hospitalization, massive healthcare expenditures, and persistent anxiety driven by singular health deterioration episodes (exacerbations & infections) that, if detected and managed early, are readily addressed at home with diet, medication, and rest.

## THE COST OF PREVENTABLE HEART/LUNG FLARE-UPS



**The Employer**  
~\$300B in

Office Closures, Lost Productivity, Absenteeism, Workers Comp, Liability, and Direct Spending

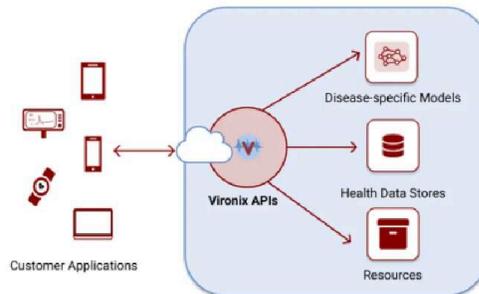


**The Health Insurer**  
~\$100B in

Avoidable Hospitalization/ Healthcare Utilization and Member Churn

## THE SOLUTION: VIRONIX THERAPEUTIC MONITORING APIs

- Early Detection
- Early Intervention
- Long-Term Monitoring



### VIRONIX'S UNIQUE ADVANTAGES

- ✔ High Adoption
- ✔ Low-Cost
- ✔ Personalized
- ✔ Scalable
- ✔ Outperforms Standard-of-Care
- ✔ Patent Pending: 63/316,078

Vironix makes AI-enabled therapeutic monitoring software that helps people to catch and intervene early on dangerous health deterioration episodes.

## VIRONIX COLLABORATORS & CLIENTS



## Our key differentiation is that we simultaneously:

- 1) *outperform standard-of-care in identifying and triaging flare-ups*
- 2) *seamlessly integrate into existing physician/patient software/hardware*
- 3) *reduce patient symptom severity and increase quality-of-life*
- 4) *provide AI-personalized and gamified software for maximum patient adoption*
- 5) *help care givers to generate up to \$300 per patient per month in health insurance reimbursement through established remote monitoring and chronic care CPT codes.*

Consequently, patient safety and health goes up, provider revenue goes up, and global mortality/morbidity goes way down.

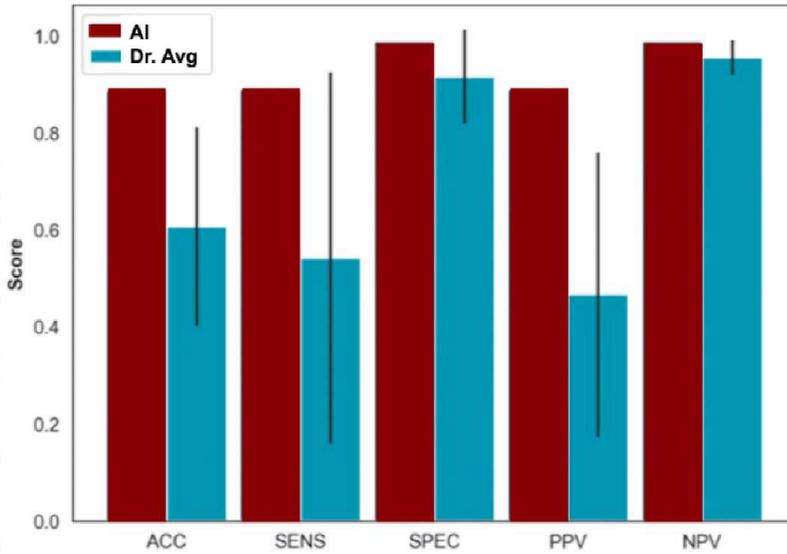
Vironix requires no upfront investment from patients or physicians ... we don't get paid until our customers get paid!

For more context check out our documentary feature on Viewpoint w/ actor Dennis Quaid:



## ✓ Accuracy Exceeds Specialists

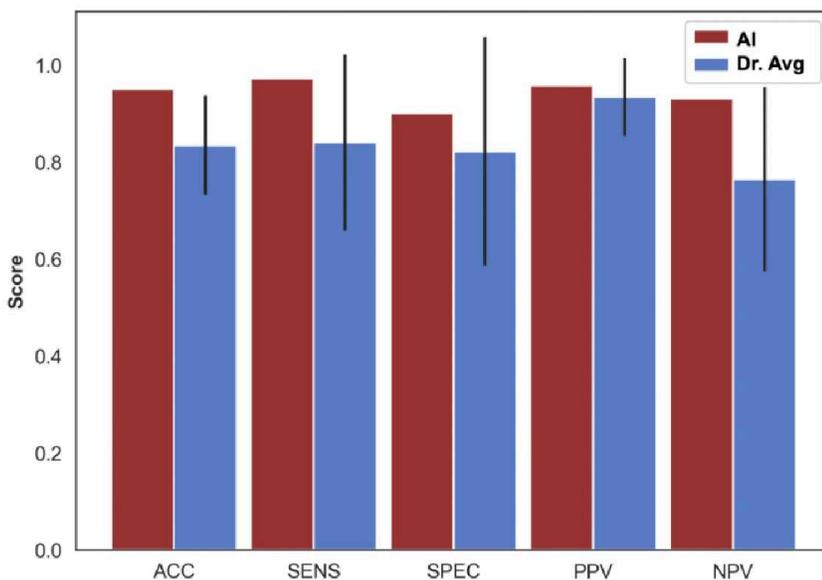
### HEART FAILURE TRIAGE ACCURACY VS STANDARD-OF-CARE



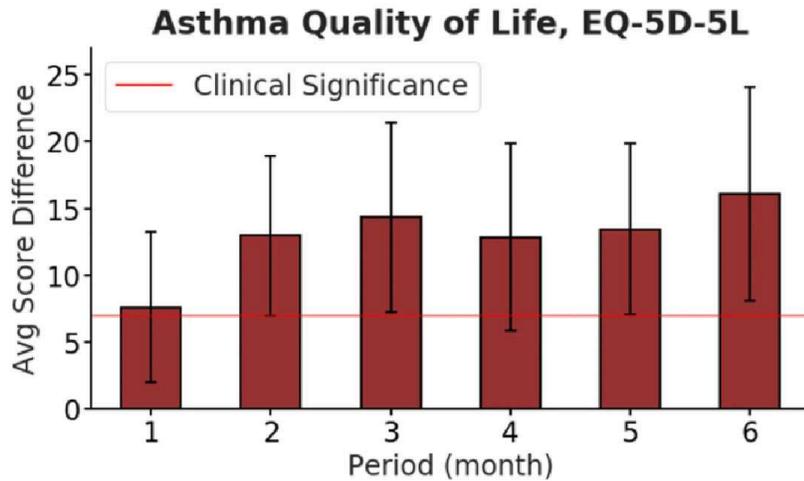
Morrill J, et al., J Cardiovasc Transl Res. doi: 10.1007/s12265-021-10151-7, 2021.

## ✓ Outperforms Standard-of-Care

### COPD TRIAGE ACCURACY VS STANDARD-OF-CARE



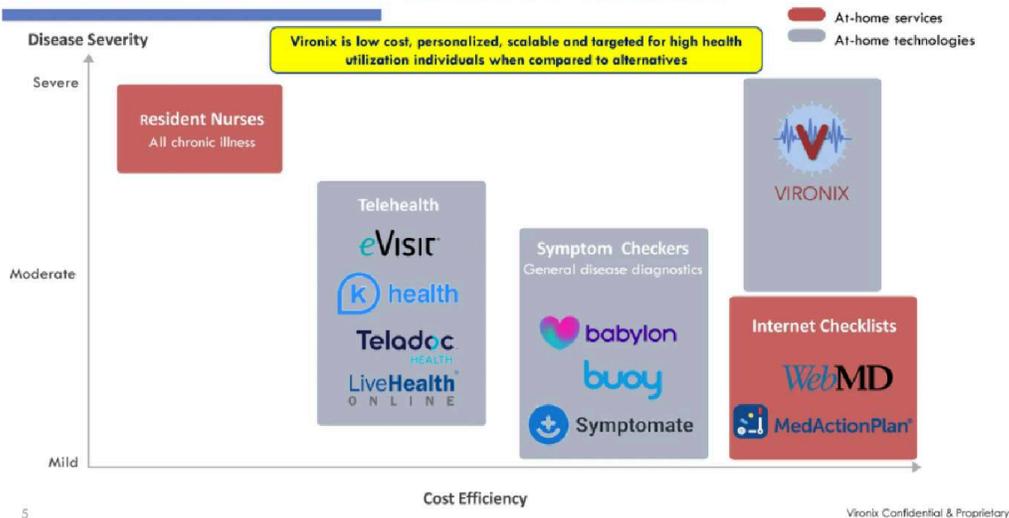
**✔ Raises Wellness & Quality-Of-Life**



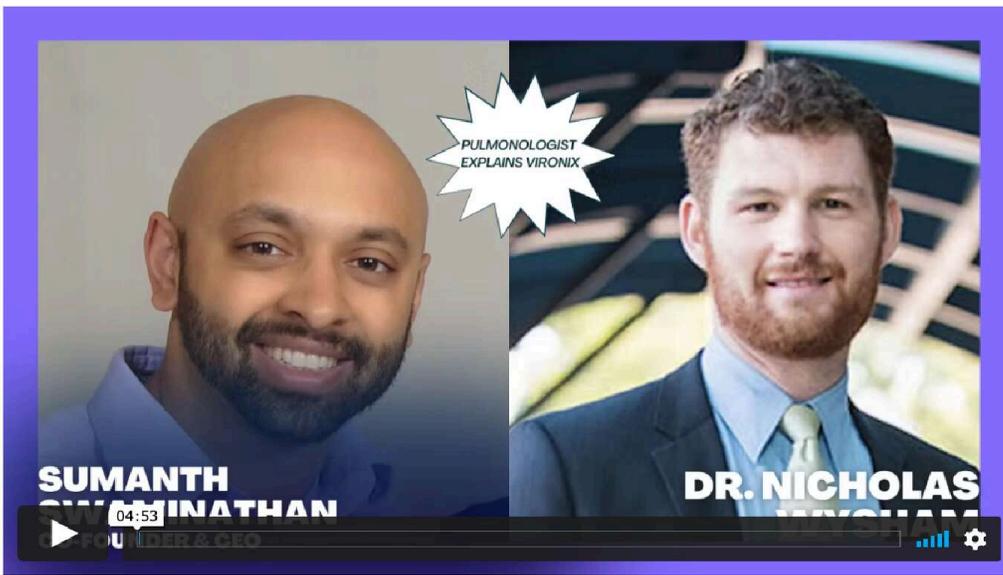
Swaminathan, S, et al., European Respiratory Journal, 54: PA2724; DOI: 10.1183/13993003 2019.

\*\* Note that Vironix’s AI products evolve and improve everyday. The above figures include peer-reviewed algorithm performance and clinical efficacy data spanning 6 years of our research. Vironix’s current AI capabilities incorporate methods from the above studies, but our products implement a broader and more advanced set of prediction models and user workflows.\*\*

**WHAT ARE THE ALTERNATIVES TO VIRONIX?**



Check out our interview with Pulmonologist, Dr. Nicholas Wysham to hear his thoughts on Vironix Software

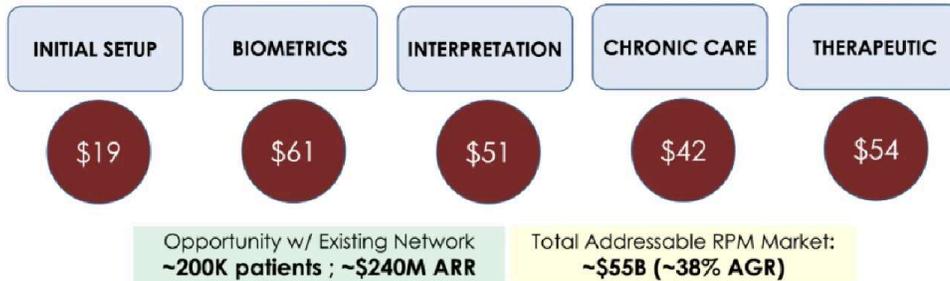


Our team comprises the top physicians, technologists, healthcare entrepreneurs, and data scientists in the world with numerous peer-reviewed publications to our name and R&D collaborations with Oxford, Duke, and Kaiser Permanente to name a few.

## HOW WILL VIRONIX MAKE MONEY?

### Remote Patient Monitoring (RPM) B2B End-To-End SaaS

- Sold to physicians
- Paid for by insurers under established CPT codes
- Generates up to \$300 per patient per month of revenue



Forward-looking projections cannot be guaranteed.

### Enterprise Wellness B2B / B2B2C API Subscription

- APIs & wearables bundled into partner enterprise offerings
- Sold to employers directly and through software stores (ServiceNow, Salesforce, etc)
- Per member per month subscription (~\$1-\$10 pmpm)

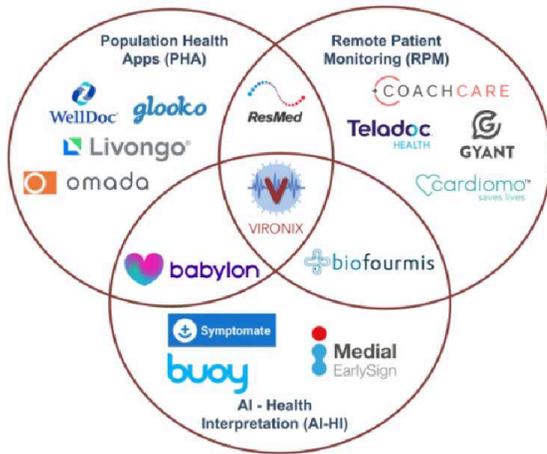


Opportunity w/ Existing Network  
**~10M Members ; ~\$1.2B ARR**

Total Addressable Employer Wellness Market:  
**~\$100B (~11% AGR)**

To date, Vironix has a paying beta customer, a completed POC with an \$8B ARR system integration partner, strong clinical efficacy data, and letters of intent for patient monitoring and employer wellness contracts representing ~\$1.8 billion in potential annual recurring revenue.

## DIGITAL HEALTH LANDSCAPE



	VIRONIX	RPM	PHA	AI-HI
Demonstrated Health Benefit	✓		✓	
AI-Based Personalization	✓			✓
Disease - Specific Viral & Chronic Lung Illnesses	✓			
Paid for by Health Insurers	✓	✓	✓	
API-Leading, Scales Across Software, Disease, and Geography	✓			

## REVENUE PROJECTIONS



- ✓ Strong customer adoption following successful commercial pilots
- ✓ Attractive ROI
- ✓ Exit potential via M&A/IPO

Forward looking projections cannot be guaranteed

Vironix is raising capital to fund pilot completion, product development, and go-to-market strategy to aggressively bring these invaluable healthcare products to patients, providers, and global institutions.

## Top 5 Reasons To invest in Vironix!

1) Products outperform standard-of-care in addressing the world's leading causes of preventable death, hospitalization, and morbidity.

- 2) A \$400B market opportunity, \$150B addressable market, and 38% annual growth rate (and climbing).
- 3) Team includes seasoned founders/executives with successful exits and the world's best minds in AI, clinical science, and scalable technology.
- 4) Patent pending, clinically tested technology scales globally with high adoption.
- 5) Existing pilot partner traction suggests a very attractive ROI with a clear exit path.



- ✓ Scalable
- ✓ Affordable
- ✓ Adopted
- ✓ Accurate
- ✓ Therapeutic
- ✓ Disease-Specific

Thank You!

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<https://vironix.ai>