

COVID-19: The Unlikely Architect of Public Health's Future

How we can create lasting, scalable, and
effective solutions to lift humanity's health

We can predict with **high probability** that there will be **another COVID-like event** in the near future...

But, the probability of **any one scenario** is in general **quite low**

Pandemics are not Rare Events

The number of zoonotic spillover events and reported deaths **increased at an exponential rate** from 1963 to 2019.¹

Annually, there are approximately²:

- 100 significant outbreaks
(triggering WHO Disease Outbreak News reports)
- 5 new emerging infectious diseases

~25% probability of a pandemic \geq COVID-19
during 10-year period:

- Metabiota **22%-28%**
- Airfinity **27.5%**



Source:

1. BMJ Global Health, Nov 2023 2. WHO

Pandemics Can Arise from Many Sources



The Archetype Health Security Strategy

1. Distinguish & prioritize threats

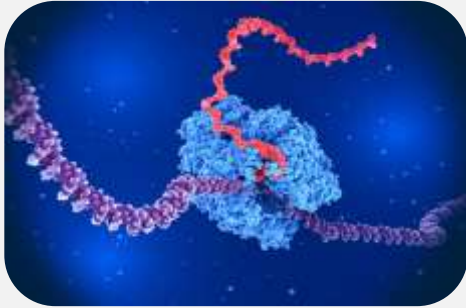
2. Develop countermeasures specific to each threat

3. Make them readily deployable & accessible

4. Design & document each threat scenario response

But what about Disease X?

High Consequence, Low Probability Events



AI-enabled Biothreats

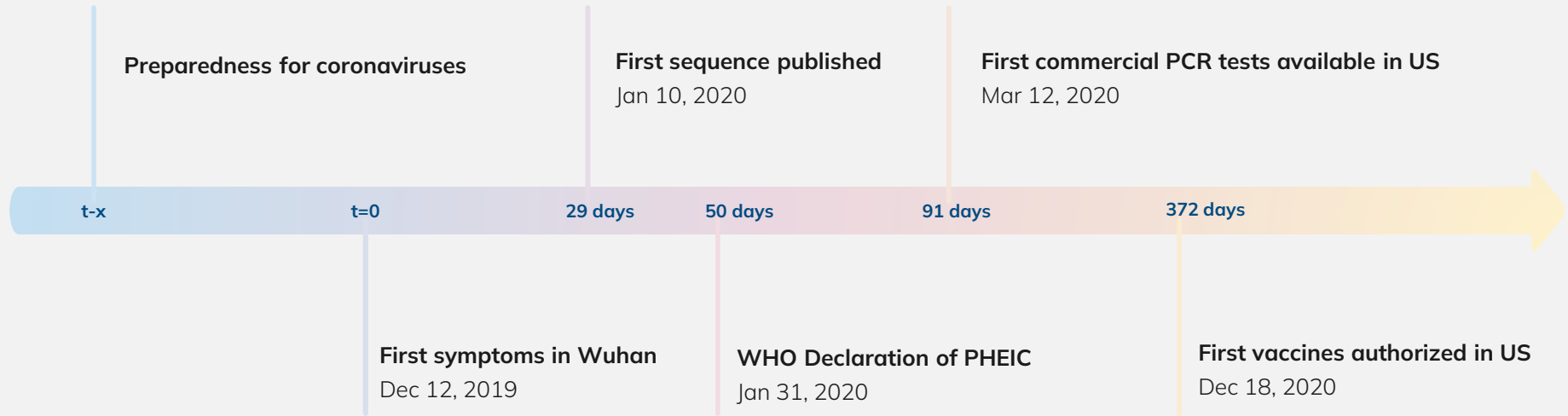


Spillover of Novel Pathogens



Fungal Pathogenesis

COVID-19 Timeline



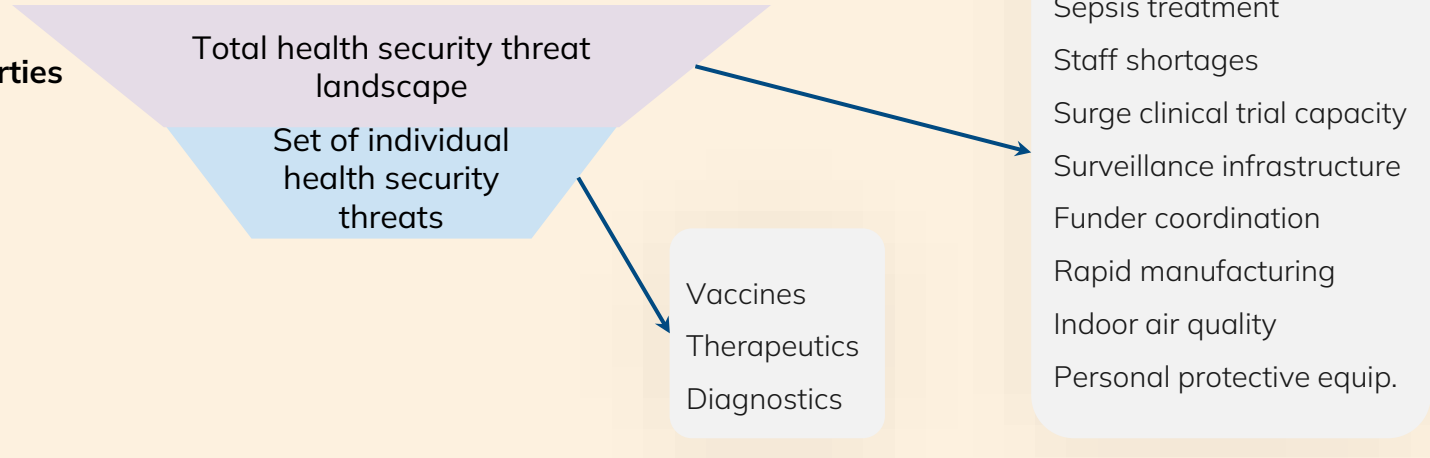
>80% of COVID-19 infections in the US went undetected in March 2020

The Common Factor Strategy for Pandemic Preparedness

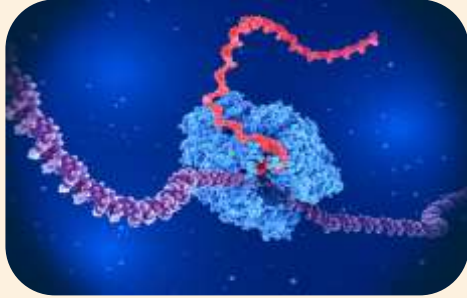
Strategy for Complex, Unpredictable Threat Landscape

What remains true no matter the specific pandemic?

Revealing Emergent Properties



Example BARDA DRIVE R&D Programs



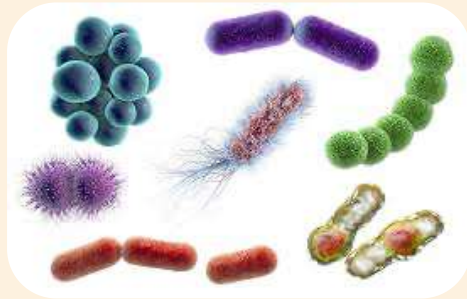
Host-directed Therapeutics



Needle-free Vaccine Delivery



Safe and Portable ECMO



Pathogen Agnostic Dx

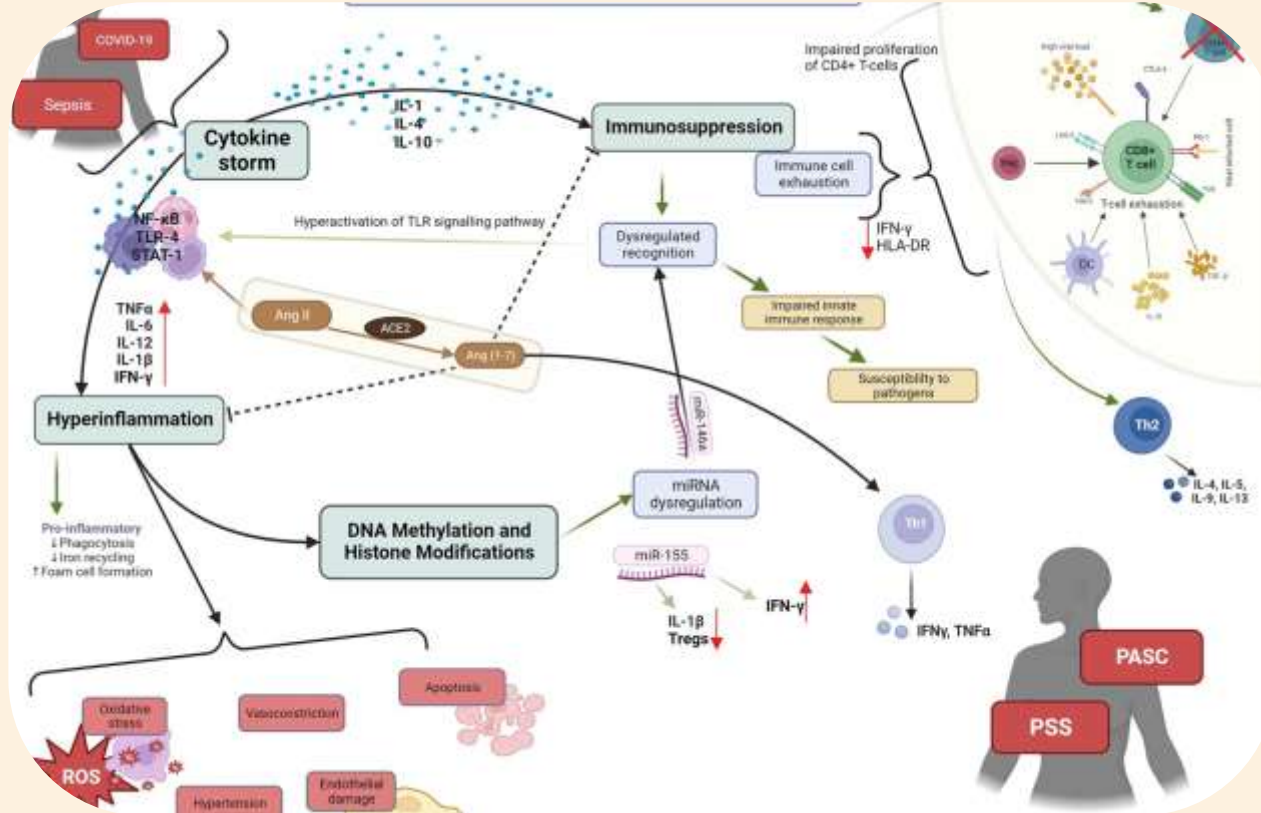


Distributed Vx Manufacturing



Lab at Home

Directly Treating Immune Dysregulation Following Infection



FDA-Cleared Sepsis Rapid Tests Supported by DRIVE



AgileMD

eCART Clinical Deterioration Suite

Cleared

[Learn More](#)



Ad Astra Diagnostics (AAD)

QScout System

Cleared

[Learn More](#)



Inflammatix, Inc.

TriVerity Test

Cleared

[Learn More](#)



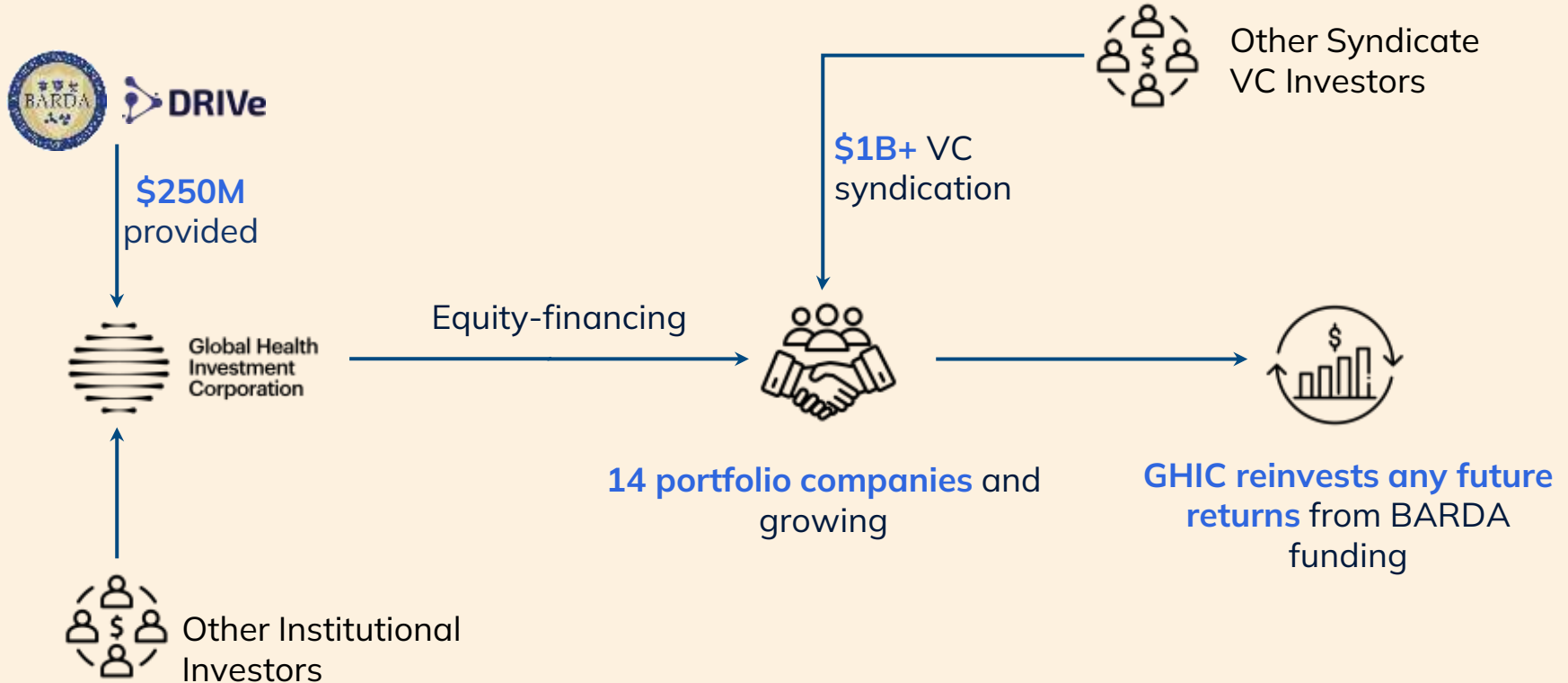
Cytovale Inc.

IntelliSep Test and Cytovale System

Cleared

[Learn More](#)

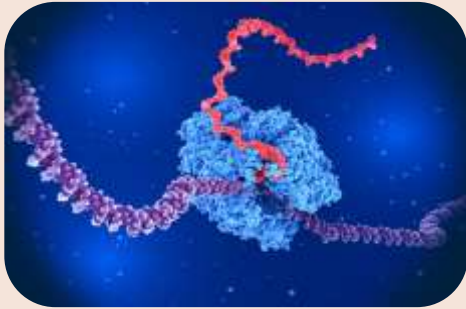
Sustainable Financing for Future Pandemics



Widening the Common Factor Lens Across Public Health

Spillover Effects of Pandemic Preparedness

Pandemic preparedness and response has catalyzed new capabilities that have already had significant impact into the broader health ecosystem



Programmable Vaccines



Home Pathogen Testing



Decentralized Clinical Trials

But...Negative Externalities Were Also Exposed

Pandemic response was limited by factors outside the immediate control of those responsible for response



Breakdown of Trust in Science



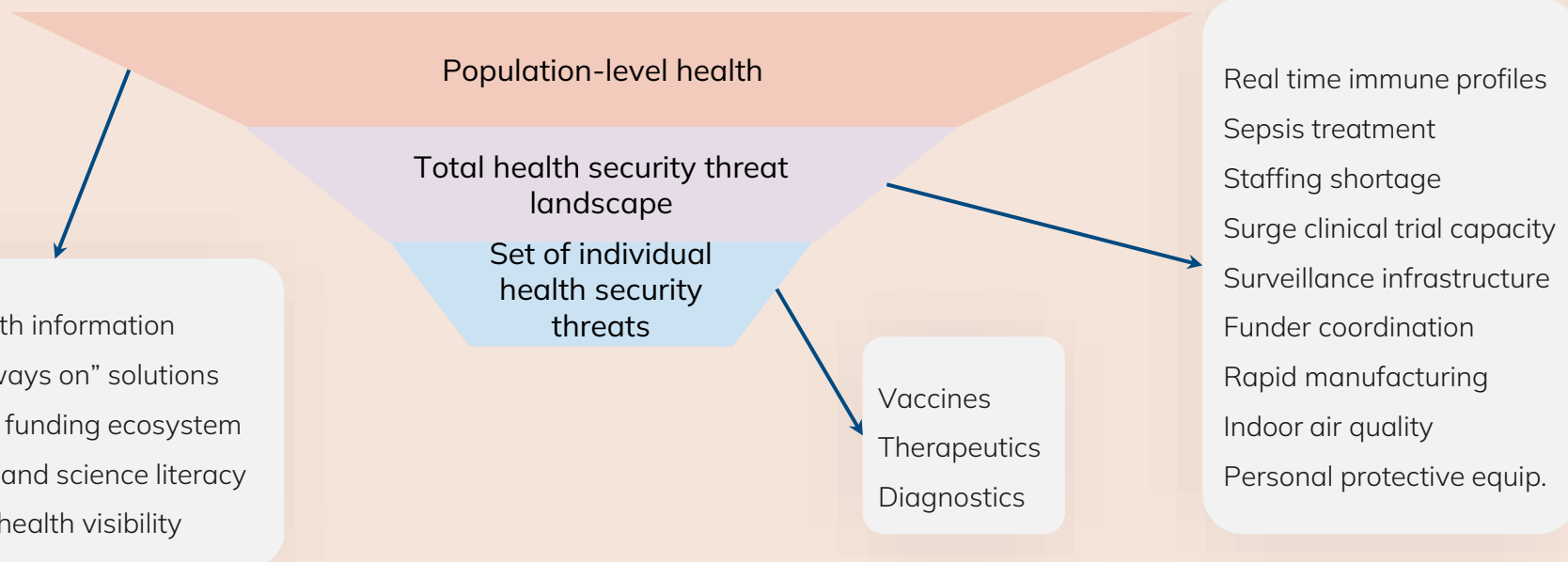
Fractured R&D Investment



Bias to Healthcare

How can we **Prevent** Health Security Threats?

Preventing health security threats necessitates solving for problems that can lift public health more broadly



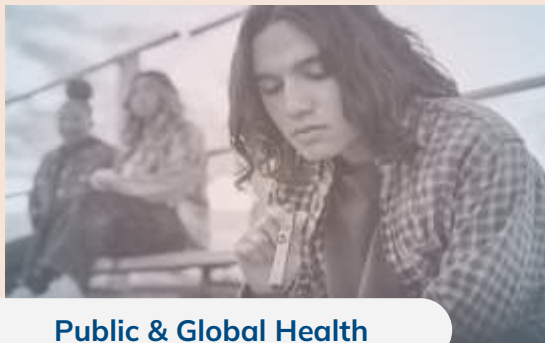
Traditional Approaches Have Fallen Short

Narrowly-defined interventions have failed to realize the returns to humanity's health



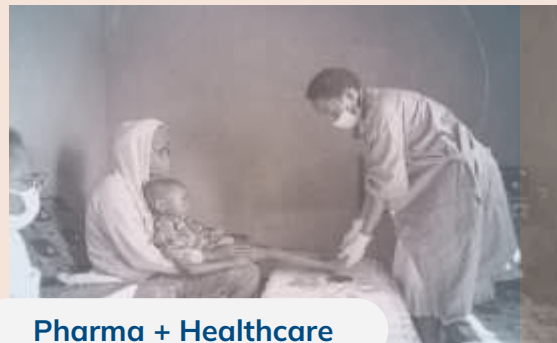
Traditional VC

- × Perceives public health as a gov't and non-profit space
- × Poorly-defined market opportunities and perception of below market returns



Public & Global Health

- × Typically limited to policy or service delivery solutions
- × Non-profit with grant funding is the default mindset
- × Hard to attract entrepreneurial talent
- × Does not embrace growth-mindset



Pharma + Healthcare

- × Bias to biotech and pharma with limited range of interventions
- × Healthcare remains anchored in tertiary hospital-based care
- × Innovations impacting health outside of healthcare are minimal

Lack of Ubiquitous, Trusted Health Information

Avg. U.S. adult spends 70 minutes per year in direct contact with a healthcare professional

Only a third of Americans trust the U.S. healthcare system (2022 Gallup Poll)

A third of Americans have "a great deal" of trust in COVID-19 information from their state and local health departments (2023 CDC)

61% of Americans are concerned about the products they put in, on and around their bodies. (2019 NSF survey)

34% say they rarely or never research product claims (2009 NSF survey)

The R&D Funding Ecosystem is Fragile

Total US
govt R&D in
2022: **\$190B**

Total US
philanthrop
y R&D in
2022:
\$119B

Total asset
value of US
Donor Advised
Funds: **\$252B**

Scientific R&D funding is **high-friction, low transparency, low-throughput**, discouraging high-risk, high-reward R&D needed for public health

- PIs spend **>30% of time fundraising** due to the lack of a common grant application
- Funders **don't share proposals or evaluations**, making it difficult for new donors to enter the market
- Review processes for govt funding are **flawed**, exhibit personal **bias** and **lack transparency**

We've Hidden Public Health Behind Healthcare



Private good (reduced mortality, severe disease, hospitalization)

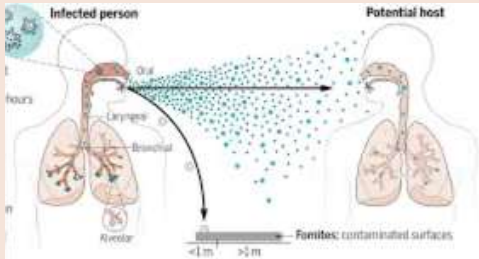
Public good (reduced viral transmission)

Why?

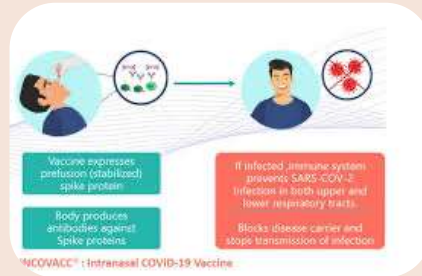
We do not currently measure nor financially reward the public good

The entire healthcare system is designed around individuals, not populations

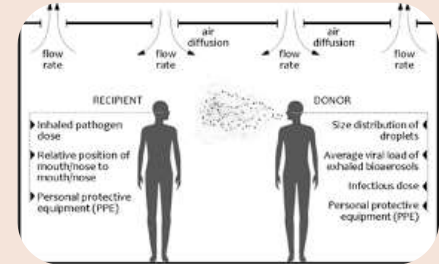
What We've Left off Table



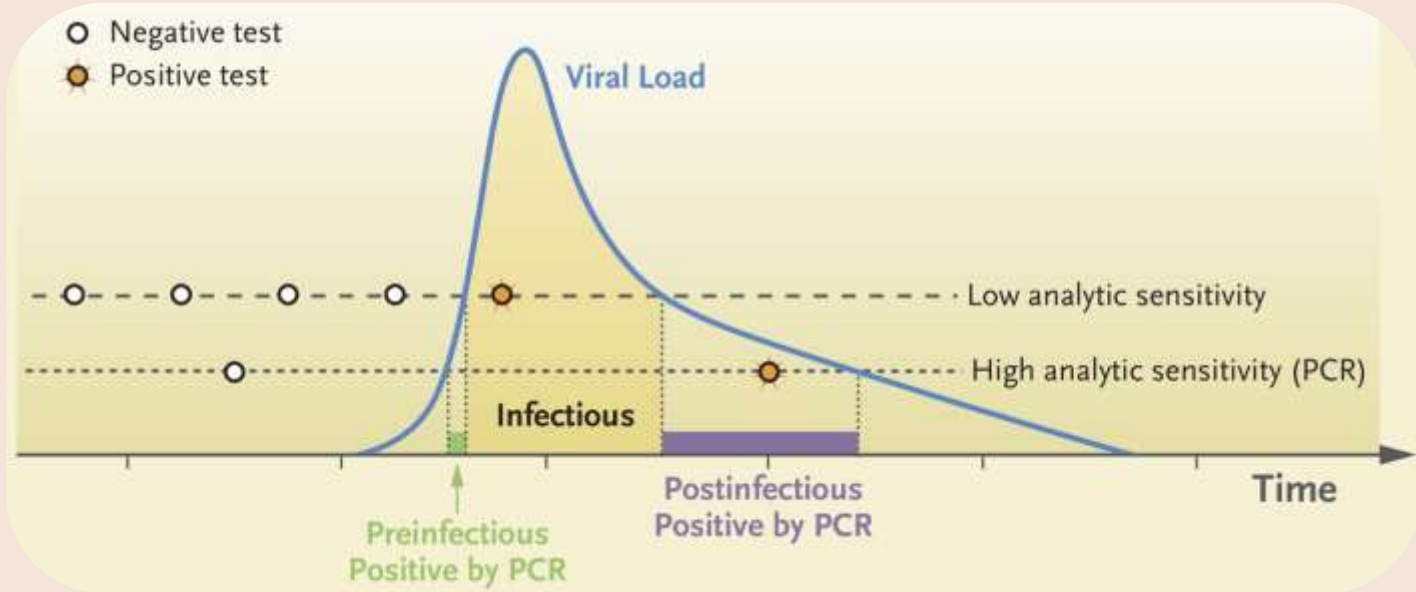
PPE/PEP/PREP



Transmission-blocking Vaccines



Rethinking Pathogen Diagnostic Sensitivity





HUMANITY
HEALTH VENTURES

Building a New Category of Public Health Companies

An investment and venture studio to create and finance a new class of scalable, durable public health companies



Several Companies Already in Development



Catalyze

A frictionless two-sided R&D funding marketplace

We can unlock billions in sidelined donor capital by curating a single marketplace. The platform can enable a wide variety of funders to access a large set of individual or portfolios of projects



Wild Health Media

A new public health media & entertainment company

A trusted source of “can’t look away” health information, integrated into everyday life like retail, streaming to raise the level of health understanding across the public



Home Wastewater Device

A direct-to-consumer device to immediately alert any viral shedding

A passive “check engine light” to provide actionable information to households about possible infection, to improve pathogen surveillance and block community transmission

The Team Powering the Vision



Sandeep Patel
BARDA DRiVe Director



David Bowen
Bill & Melinda Gates Fndn
U.S. Senate



Nour Sharara
Biobot
Dalberg



Thomas Goetz
Wired Magazine, GoodRx,
Robert Wood Johnson Fndn



Amit Gupta
Roviant Sciences, Gurnet
Point Capital, Launch Tx



Wendy Sue Swanson
Stanford, SpoonfulOne,
American Acad. of Pediatrics



Read Holman
Unite Us, White House OSTP,
HHS Idea Lab

A Blueprint for the Future of Public Health

Choosing to solve problems that affect multiple public health **priorities** can generate better returns to society

We can more effectively prevent pandemics with largely the **same set of tools** that can improve public health more broadly

To create durability, scalability, and sustainability in public health, we need **business model innovation**

To attract the talent needed, we need to **foster a culture of entrepreneurship** and **responsible capitalism** in public health

Thank you!