

 HaystackAnalytics

Reimagining Genomics

CORE TEAM: Diverse Expertise to Solve A Real Problem



Dr. Anirvan Chatterjee
Co-founder and CEO



Prof. Kiran Kondabagil
Co-founder and CSM



Gaurav Srivastava
Co-founder and COO



Priyanku Konar
CTO



30+ Years of Cumulative Research Experience from Ivy League and Top World Universities
100+ High Impact Research Publications
2000+ Research Citations



15+ Years of Infectious Genomics, AMR
and Virus Discovery Experience as a
researcher

25+ Years in Evolutionary Biology,
Protein Interactions & Genomics

Ex-COO in a Unicorn
20+ cities operations
500+ team managed
\$20M+ fund raised
\$100 M + fund managed



15+ years in Finance, Technology &
0 to 1 growth journeys as an
entrepreneur

30+ Keystone enterprise projects
across Travel, healthcare & BFSI
Mentored & built agile teams



15+ years of experience in Software
Design and Architecture

CAHO :: Haystack

Modernising Clinical Microbiology

Enabling Genomic Screening for Pathogens in Every Hospital

Global Network of Pathogen Genomes

Leading Antimicrobial Stewardship Program

Saving Lives, Saving Life Saving Drugs



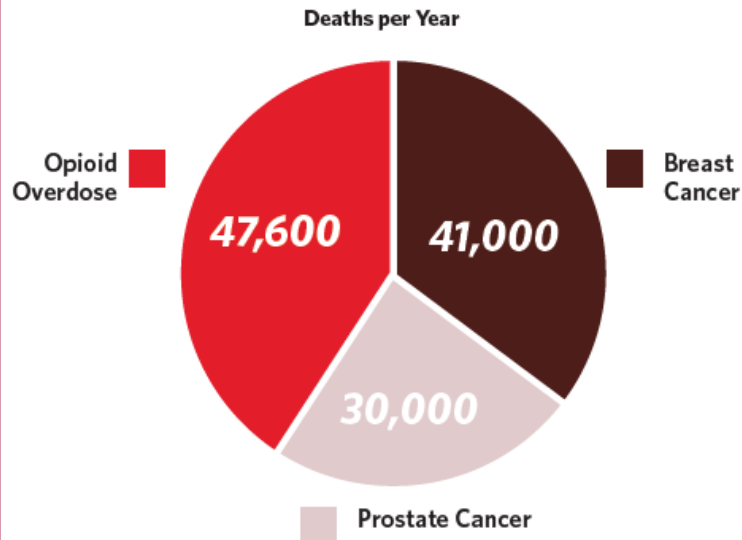
Infections: The Greatest Threat To Human Health

SEPSIS: 270,000 Deaths per Year

(Source: Sepsis Alliance. Numbers are approximate, as of Sept. 2019.)

The Leading Cause of Death in the U.S.

Each year in the United States, sepsis causes more deaths than opioids, breast cancer, and prostate cancer combined. Learn the signs and symptoms – it could save a life.



30 New Infectious Agents Have Emerged In The Last 35 Years

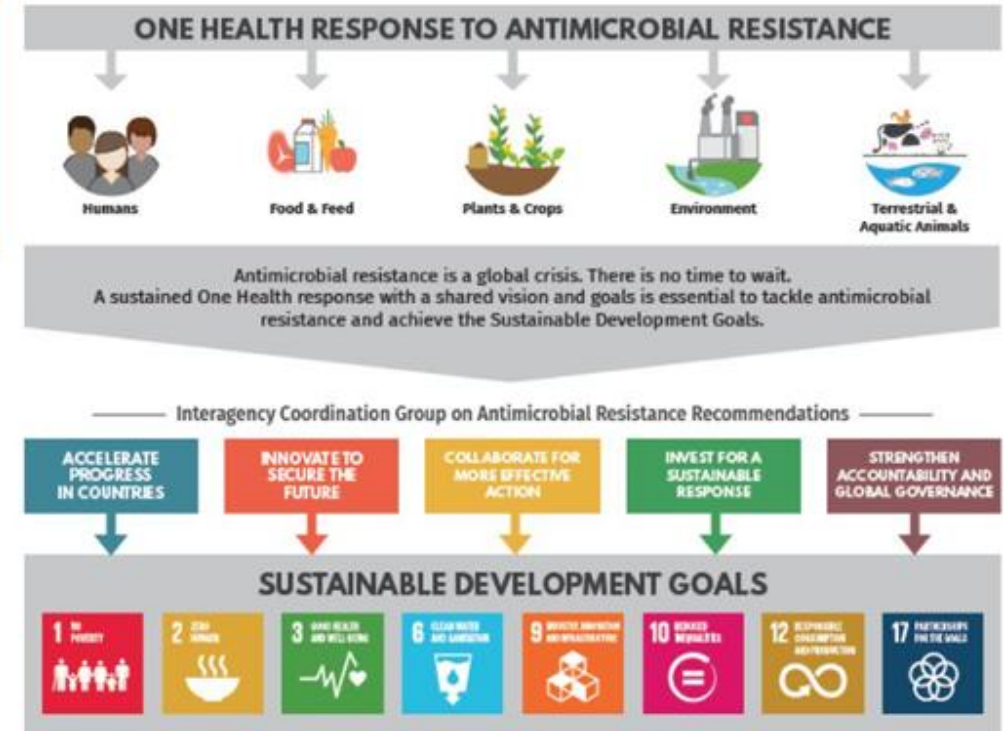
**NO TIME TO WAIT:
SECURING THE FUTURE FROM
DRUG-RESISTANT INFECTIONS**

REPORT TO THE SECRETARY-GENERAL
OF THE UNITED NATIONS
APRIL 2019



By 2050,
50 million deaths due to AMR
USD 100 trillion: Cost of AMR

*AMR: antimicrobial resistance



COVID-19 Exposed A Global Health System Ill-Prepared for Handling Infectious Disease

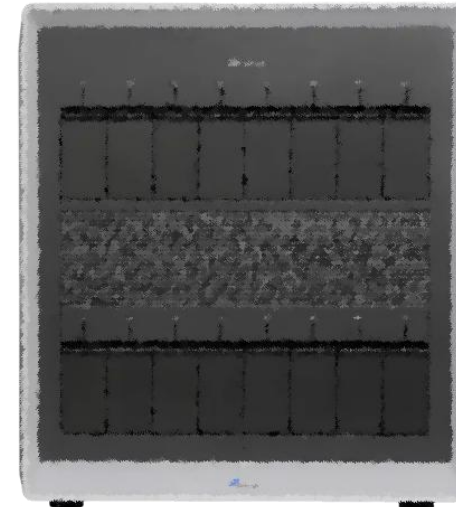
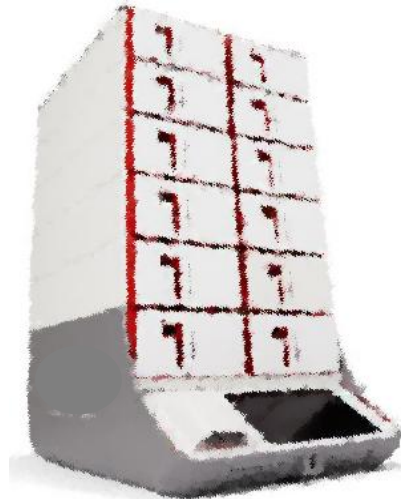
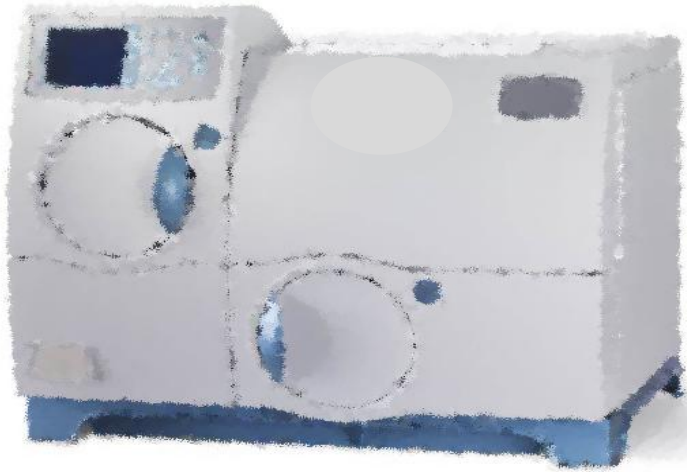
Even Pre-COVID-19, It Was Known That Only 37% of Sepsis Cases Were Rightly Diagnosed In The First 4 Days Of Entering The Healthcare System

It Is Getting Challenging To Treat Infections

- A 60+ year old patient, battling lung cancer for 5 years
- Under heavy chemotherapy, patient is severely immunocompromised
- Admitted to one of India's most famous hospitals
- Despite several therapies, admitted to ICU
- >5days in ICU, not responding to selected therapy, and fighting a losing battle

- Otherwise healthy 40 year old complaining of recurring fever
- Empirical therapy failing
- After few weeks of treatment admitted to one of India most recognizable hospital brands
- Not responding to selected therapy, and fighting a losing battle

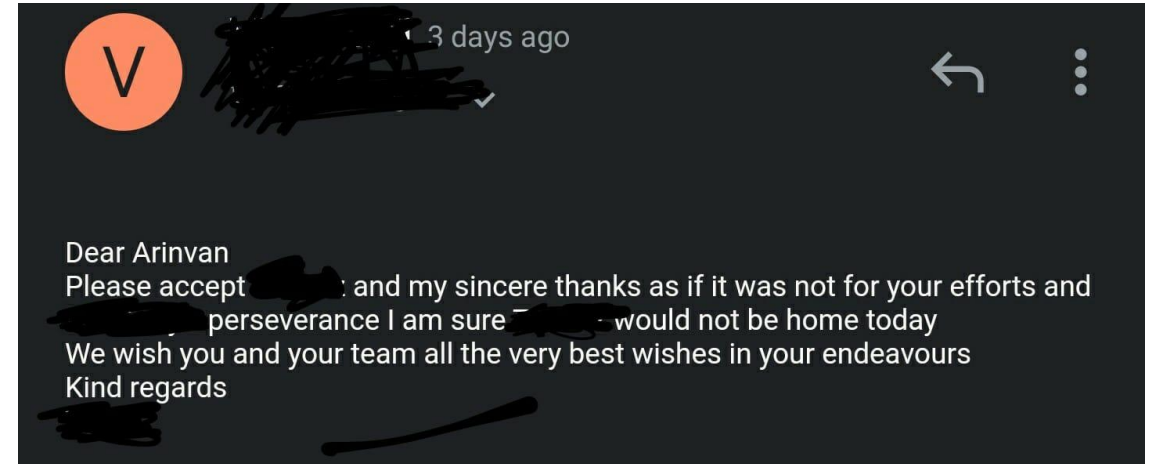
Poor Diagnostics
Incorrect Therapy
Poor Outcome



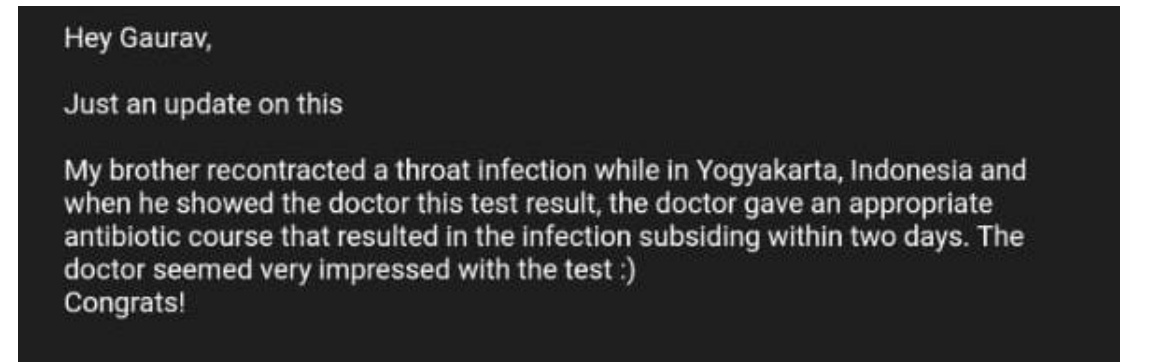
Changing The Paradigm

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- Empirical therapy failing
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"Your test identified the true cause of the infection, which we failed to identify with any of our tests. The patient has responded to the therapy and is being released from the ICU"
-HOD, Cardiology



Whole Genome Sequencing to diagnose TB

Public Health England has announced that Whole Genome Sequencing (WGS) is now being used to identify different strains of tuberculosis (TB).

Built with [nextstrain/ncov](#). Maintained by [HaystackAnalytics Pvt. Ltd.](#).

Showing 2654 of 2654 genomes sampled between Dec 2019 and Apr 2021.



doi:10.1038/nature16996

The dashboard displays the following data:

- Gender by Date of Entry:** A stacked bar chart showing the count of females (blue) and males (green) by month and year of entry to Google Sheet. The data shows a significant increase in total entries in January 2022.
- Vaccine Type Count:** A bar chart showing the count of vaccine types. Covishield has the highest count, followed by Covaxin, and then Unknown.
- Breakthrough Infection Count:** A bar chart showing the count of breakthrough infections. The 'Dose 2' group has the highest count, followed by 'Unvaccinated', and then 'Unknown'.
- Location Map:** A map of Mumbai showing various locations marked with pins. The map includes a search bar and a legend for symptom status.

But It Is Locked up



Two Companies In The World Are Making Infectious Genomics A Reality



2014

Started

2020

Launched Infectious
Genomic Solution

Central Lab Model.
Operations Heavy

U-ID IP + Early Access to US
Market

Operating Model

Key Moat



2019

2021

Distributed / Enabling Every Lab to
Start with Genomics. Tech Heavy

**U-ID IP + Distributed Genomics
Technology**

** U-ID = Universal Infectious Disease Test. A Single Test for identifying more than 1200 Pathogens*

Universal-ID Platform With Nanopore Sequencer: A \$4K Deployment, Upgrading PCR Labs To Genomics



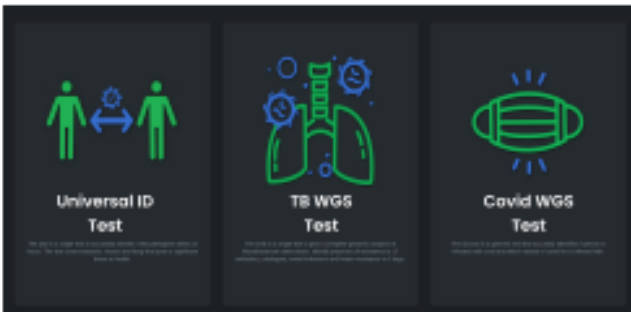
Nanopore & Haystack U-ID Platform Makes The Lab Genomics Ready

One Time CapEx: \$4k



Our Kit Makes Genomics Workflow Fit Into The Current Molecular (PCR) Workflow.

OpEx: \$50-60 per test



Our Software Makes Clinical Genomic Reporting A One Click Outcome

Universal ID

We Would be Scaling in 2022

1st deployment done @ Aster Hospital Calicut (10th June 22)

- > Enabling Screening for All Bacteria, Fungi & Parasite Within 12 Hours Making U-ID The Best Solution For Sepsis
- > AMR Reporting for Enabling Antibiotic Stewardship & Right Treatment

Final Cost to Patients (via Partners): <\$100 per Test

The Universal ID Test: A Genomic Solution

A direct-from-sample, single-test genomic solution for detecting pathogens and antimicrobial resistance

Direct-from-sample

TAT of 12 hrs

On-site

1200+ pathogens

**Antimicrobial
susceptibility**

Preventing every Avoidable Death

Antimicrobial Resistance Summary

Antibiotic Class	Antibiotics	Gene	Reads
Betalactamase	Penicillin Cephalosporin Monobactam Carbapenem	blaCTX-M	281

Pathogens Summary

Pathogen Detected	No of Reads	Proportion of Reads
Escherichia coli	1164	93.12

Sample Summary

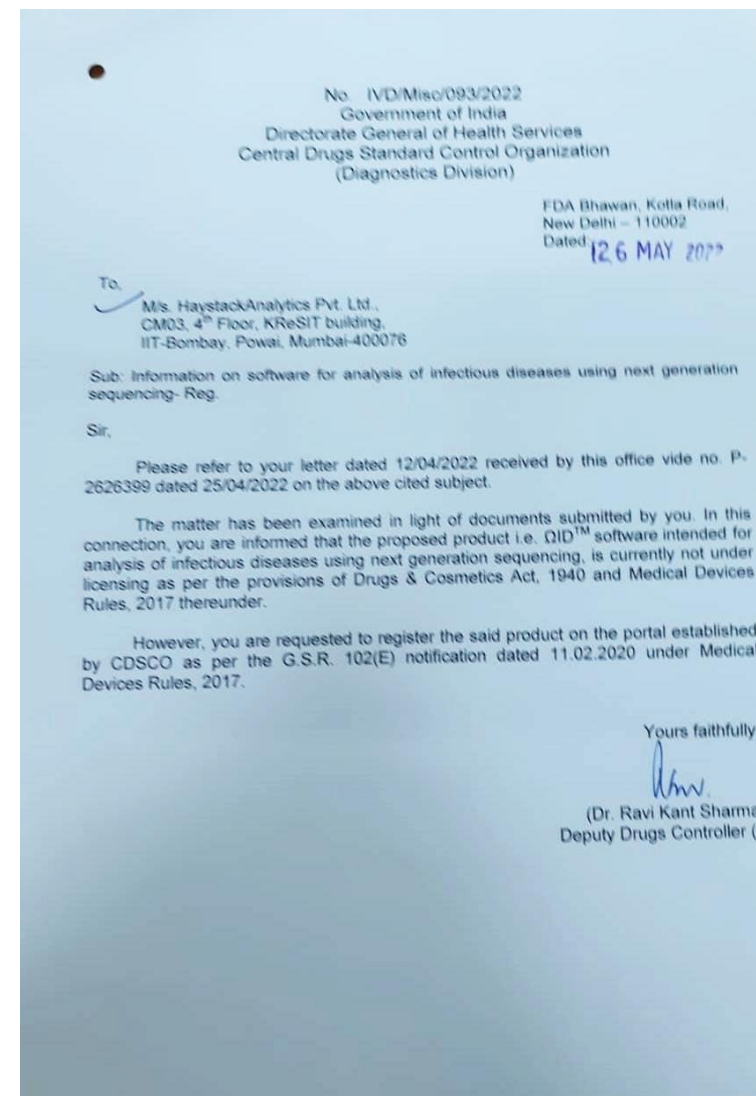
Sample ID	Sample Type	Client ID	Sample Source
Sample37	DNA	Haystack	Culture

Genome Sequence Summary

Sequencer	Run on	Device	FlowCell	Library Date	Library Kit
MinION	25-Jun-2022	MN35383	FAT53212	25-Jun-2022	SQK-LSK109

Genome Analysis Summary

Analysis Date	Application Run By	Barcode ID	Filtered Reads	Test ID	Total Reads
04-Jul-2022	HAPL	barcode53	1259	OmegalDv1.0.0-master-76a7762	1700



Universal-ID Unlocks the Opportunity To Make Genomics Accessible To “Every Lab”

Market Reachouts
started in June 2021
with Our U-DST product for TB

Partnerships in 9 months



July 21 to June 22

Pilot of Universal ID started
from June 2022

And Now Expanding Out Of India



SEA
Middle East



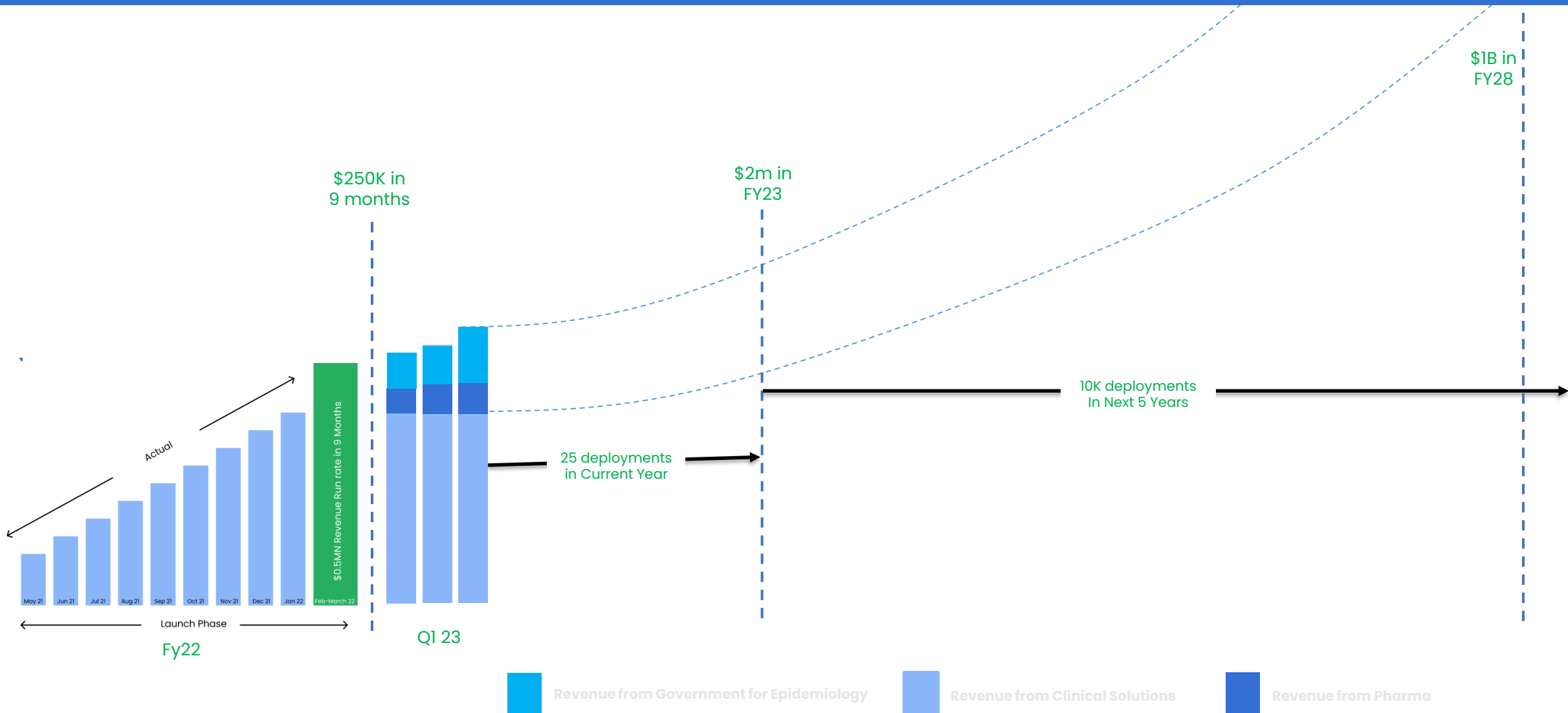
US & Europe

July 22 to June 23

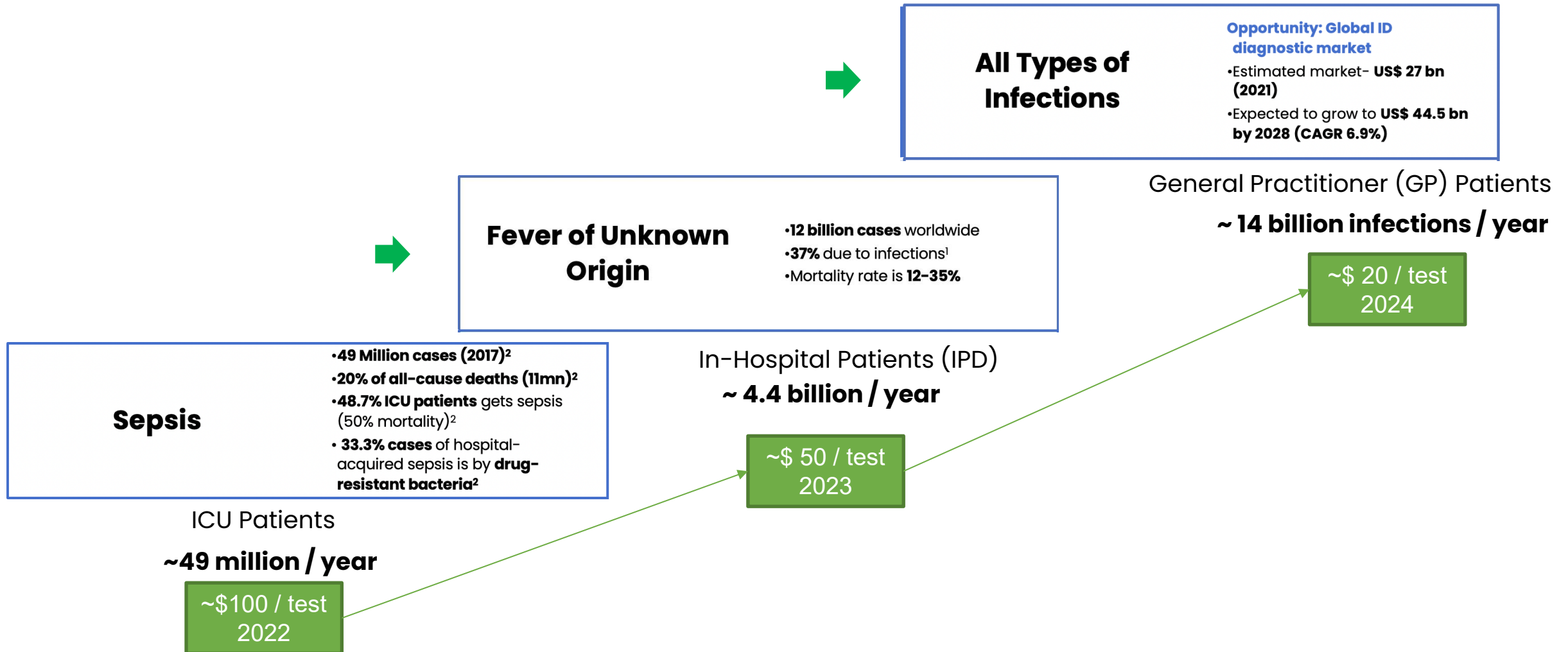
Scaling of Universal ID

Post July 23

Pilot Revenues: A 'POC' Of Monetizing All Stakeholders



Progressively Reduce Diagnostic Delays



Thank You

