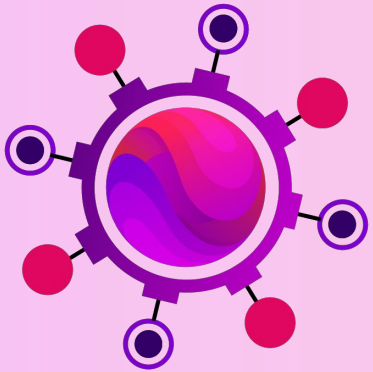


wePool

‘It’s Like Groundhog Day’: Coronavirus Testing Labs Again Lack Key Supplies

– The New York Times

New testing shortages hit California's vulnerable hardest amid record Covid-19 infections

– The Guardian

COVID-19 test shortages are a serious threat.

Maryland governor warns that testing shortages could make Covid-19 situation even worse

– CNN

Covid Testing Shortages Not Going Away, Public Lab Leader Warns

– Bloomberg

Current COVID-19 testing strategies are insufficient

5.51M US cases, with **30-60k new cases per day.** Experts predict we could surpass 200k nationwide deaths by mid September.

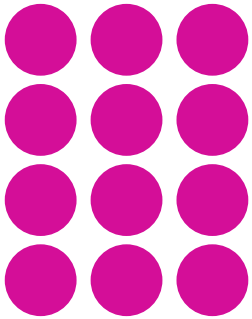
US needs to perform **30M tests per week** (costing up to 100B) for nationwide screening, but is currently only doing <5M

Leaders are **acting on biased or incomplete data** due to limited testing, prompting premature partial reopenings

From: https://www.cdc.gov/coronavirus/2019-ncov/covid-data/forecasting-us.html
https://www.cnbc.com/2020/04/21/coronavirus-tests-rockefeller-plan-would-screen-millions-for-covid-19.html

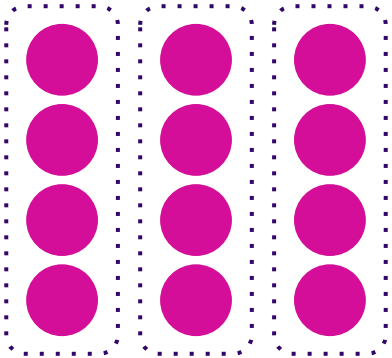
How can pooled testing improve efficiency?

12 samples



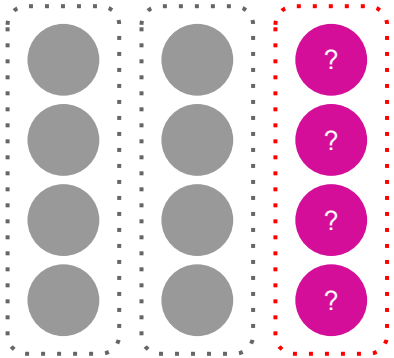
Individual samples arrive at the lab facility samples to be tested for COVID-19

3 groups of 4 samples



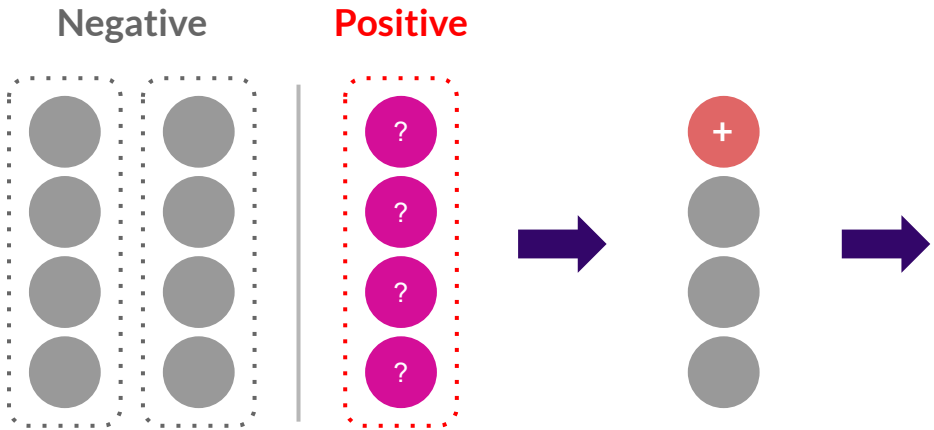
Create 3 groups, or pools, of 4 samples, so each pool can be tested with a single kit

Negative **Positive**



If the pool tests negative, all samples are cleared. If the pool tests positive, further testing is needed for its samples

How can pooled testing improve efficiency?



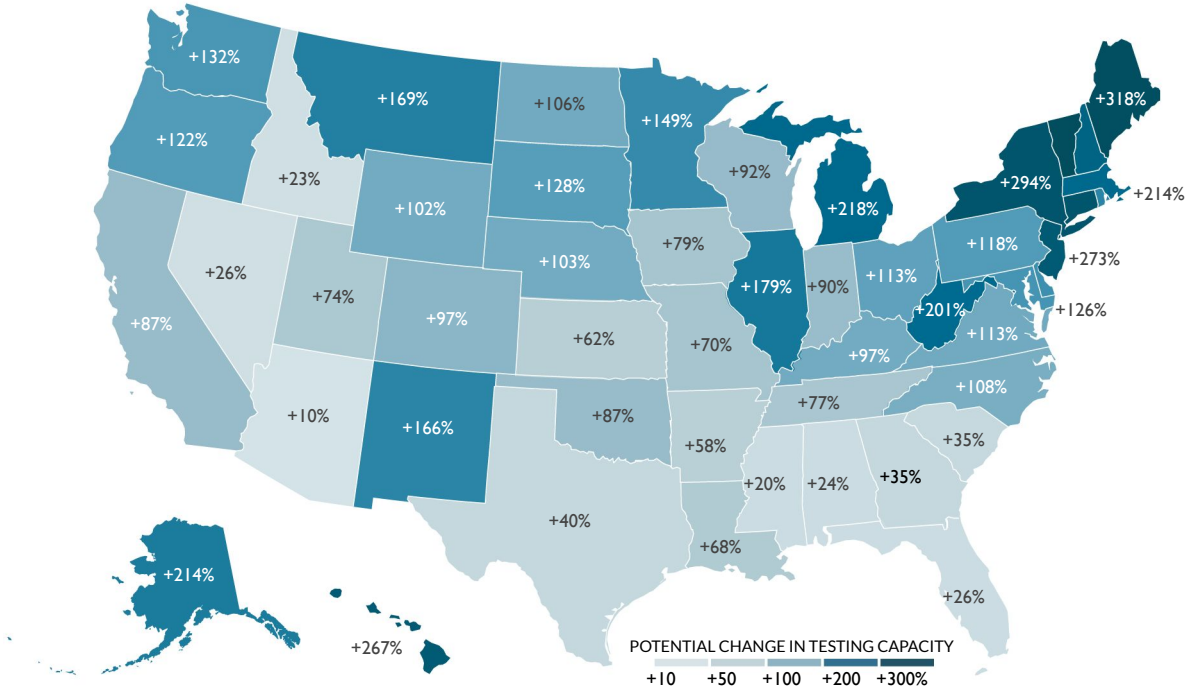
Standard Testing	Pooled Testing
12 individual tests	3 pooled tests + 4 individual tests
= 12 total tests	= 7 total tests

For the positive pool, individual retesting is needed to locate positive sample(s)

Positive and negative samples are identified

In this micro-example, pooling helped **save 42% of tests** needed to manage this population

Pooling's enormous potential test capacity increase



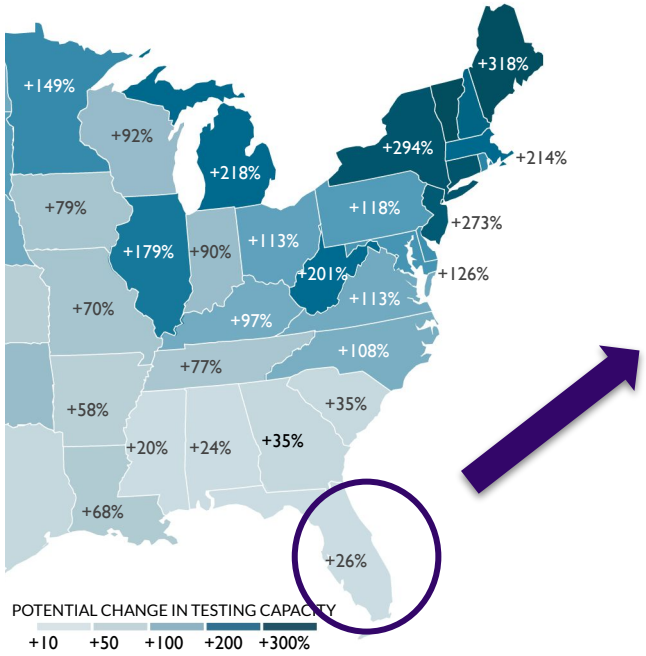
From: New York Times. Notes: Calculations assume a maximum pool size of five tests.
Source: Christopher Bilder and Brianna Hitt, Covidexitstrategy.org

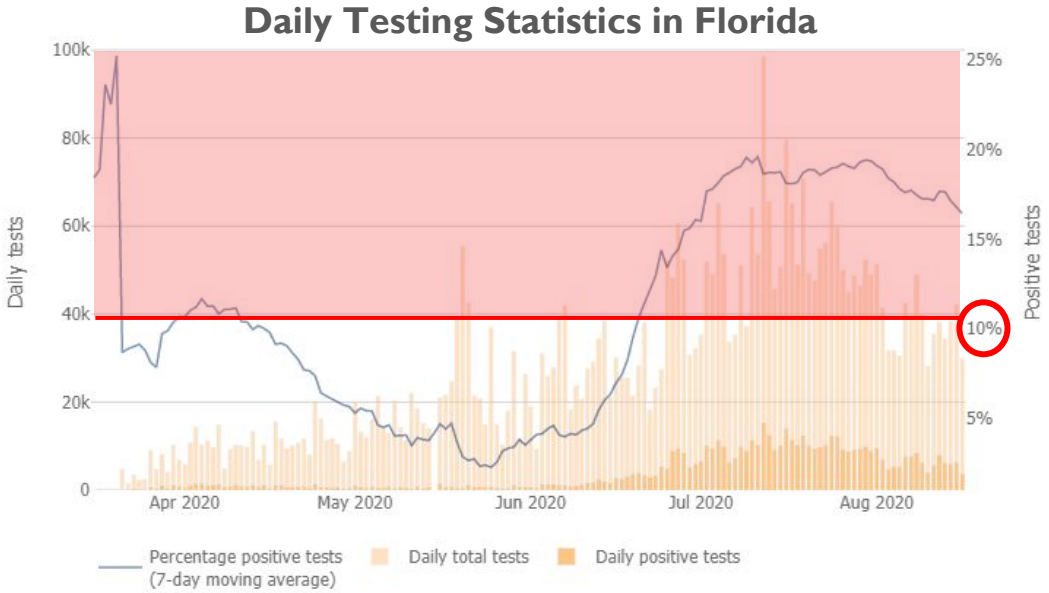
Pooling's fatal flaw: high disease prevalence

*"The savings in time and expense thin out when the **number of infected people rises above 10%.** Because so many pools then are likely to yield positive results, labs wind up testing huge numbers of individual samples."*

— The New York Times

Traditional pooling becomes ineffective quickly





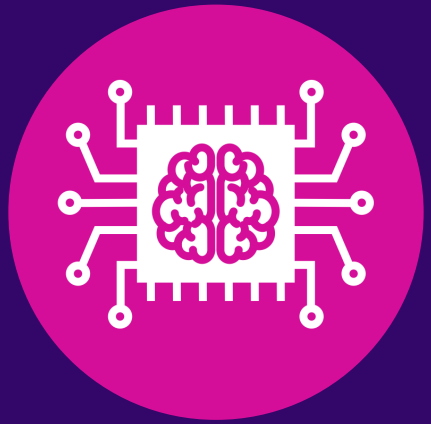
Lab: COVID too prevalent in Florida for new 'pool testing' technique

— CBS NEWS

Data Source: Testing data from The COVID Tracking Project.

The missing link: intelligent pooling

Leverage **subject-specific data** to recognize patterns across negative and positive samples



Use **predictive analytics** to identify samples which are most likely to test negative

Pool predictably negative samples to minimize retesting and maximize efficiency

wePool solves this

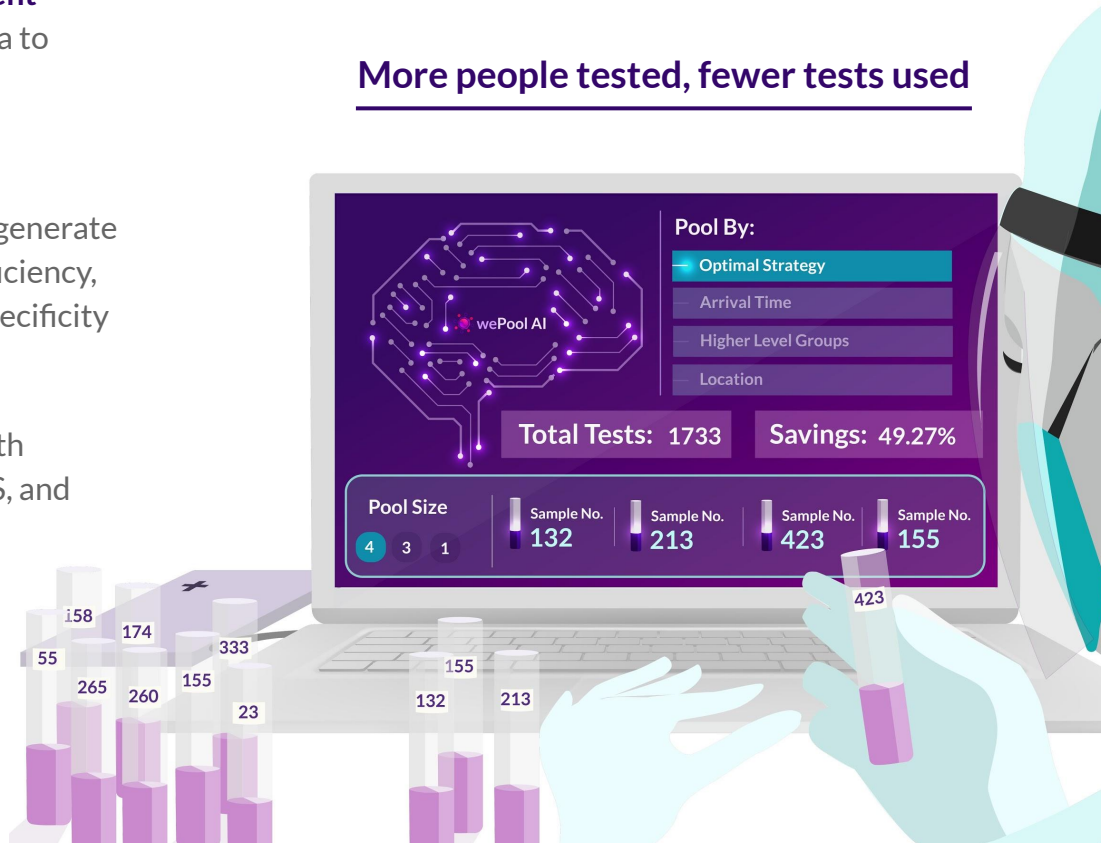
Clinically-backed prevalence assessment using sociodemographic and health data to predict an individual sample's pre-test probability for COVID-19

Cutting-edge Artificial Intelligence to generate pooling segmentation optimized for efficiency, without sacrificing test sensitivity or specificity

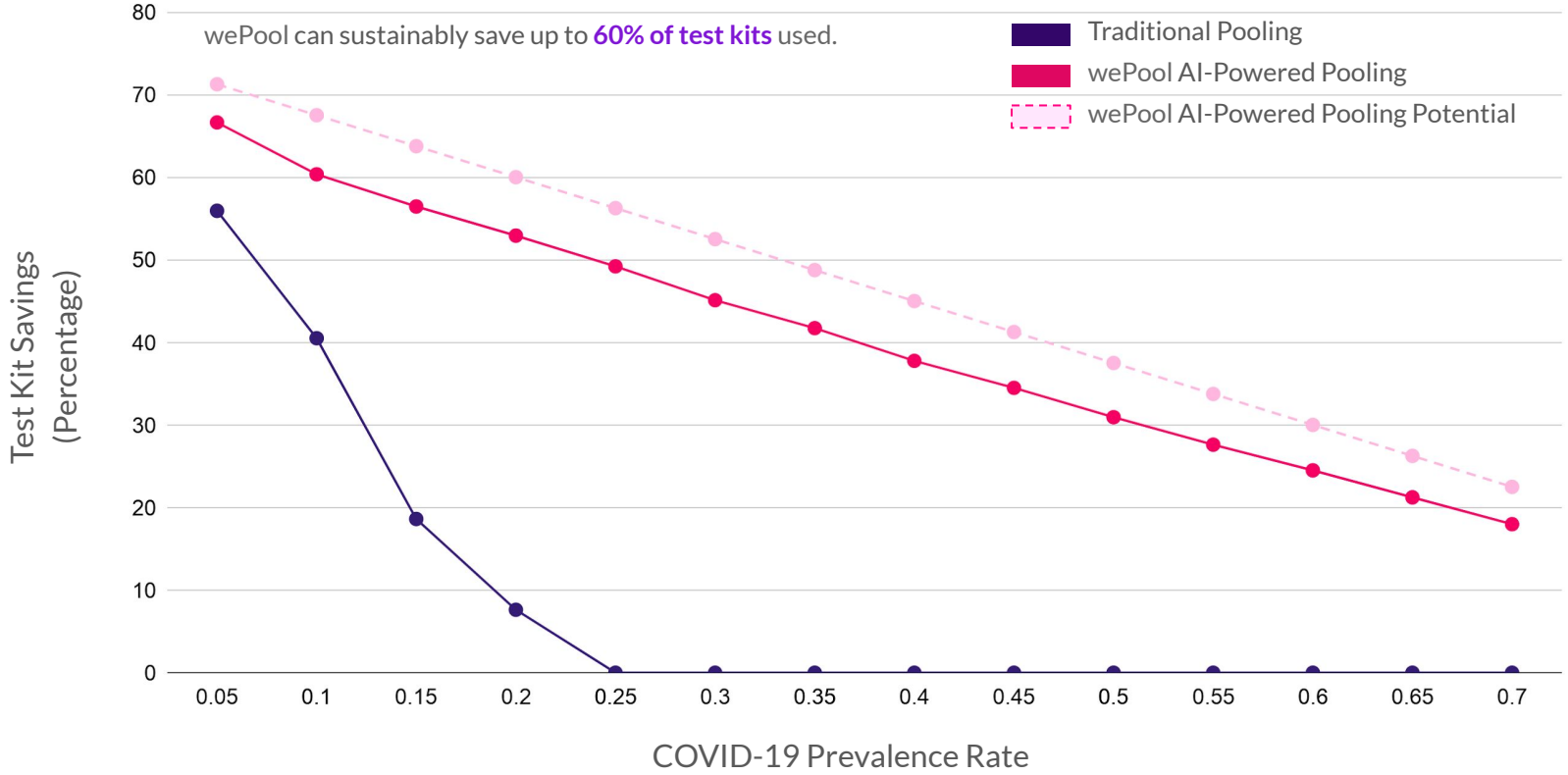
Test-type agnostic for compatibility with COVID-19 PCR, antigen, antibody, NGS, and other diagnostic assays

User-centric design and seamless integration with existing testing facility frameworks and protocols

More people tested, fewer tests used

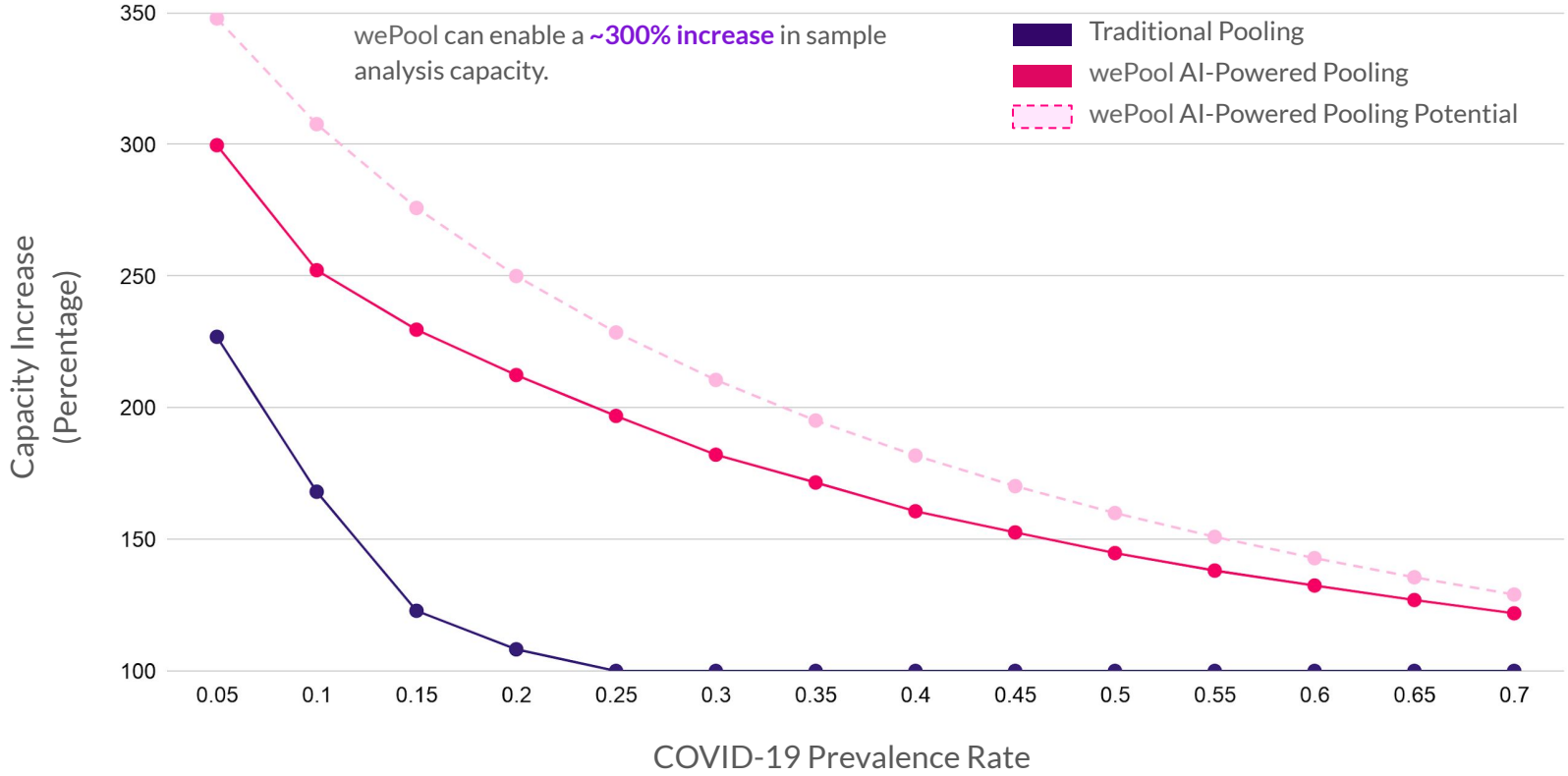


wePool enables drastic savings, even at high prevalence



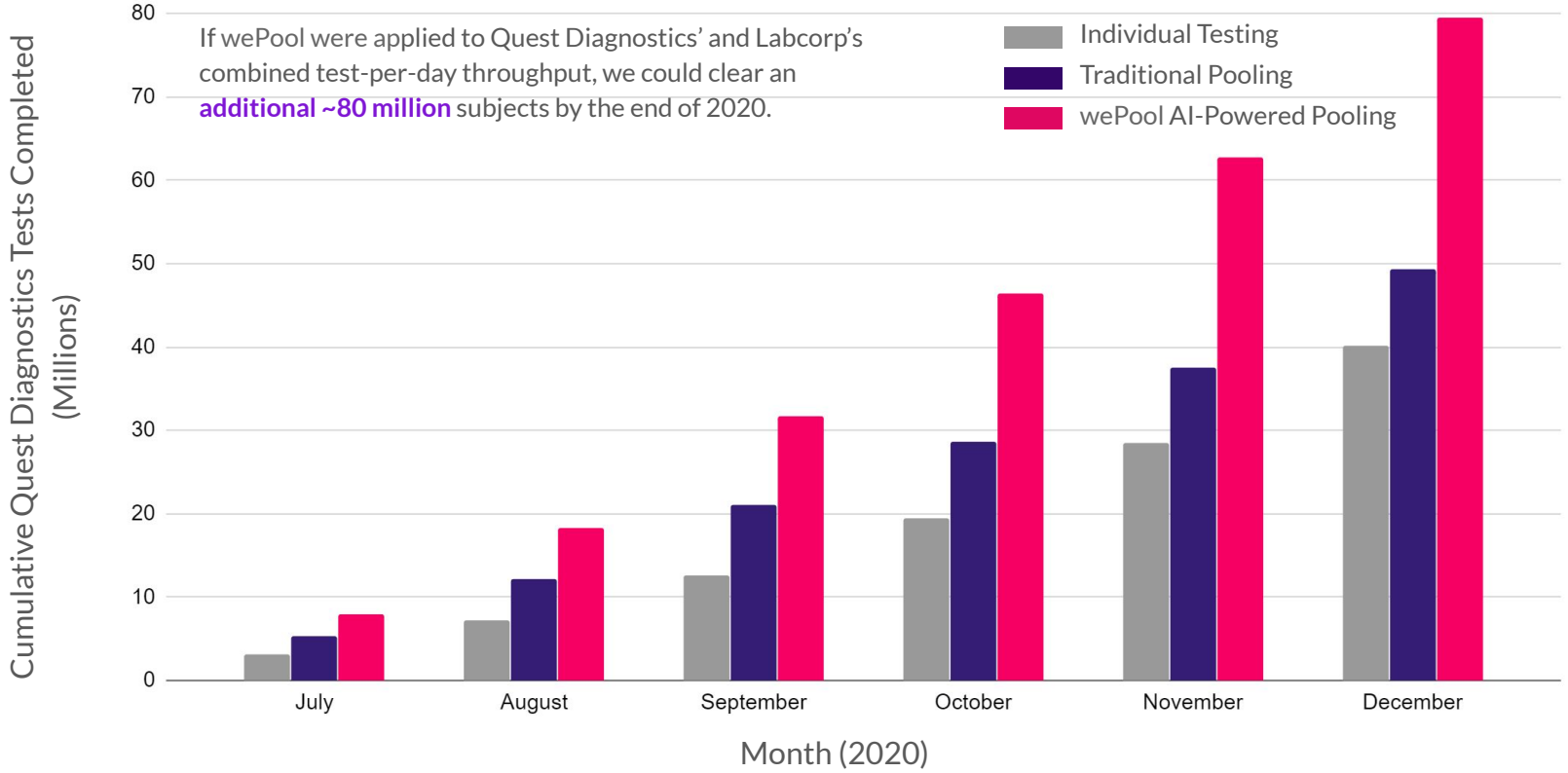
Tested with synthetic precisionFDA datasets.

wePool delivers a game-changing capacity increase



Tested with synthetic precisionFDA datasets.

wePool could help clear millions at scale



Tested with synthetic precisionFDA datasets.

wePool delivers a game-changing capacity increase

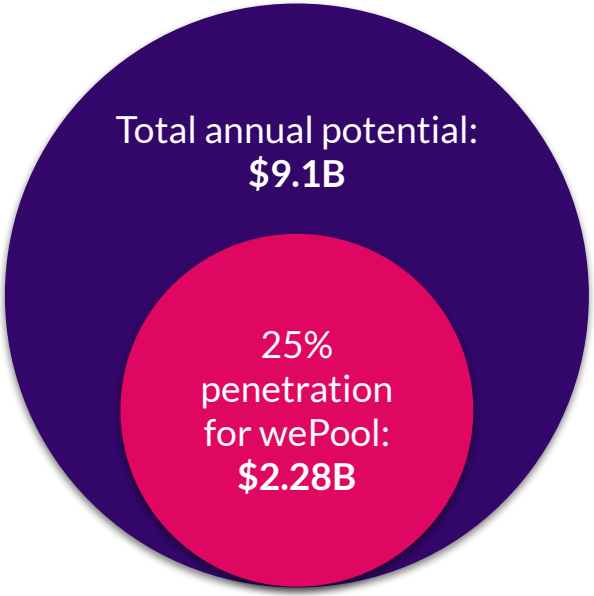
*“if we combine machine learning with test pooling, large populations can be tested weekly or even daily, for as low as **$3 to $5 per person per day.***

*In other words, for the price per test of a cup of coffee, governments can safely **reopen the economy** and **halt ongoing covid-19 transmission**—all without building new labs and without new drugs or vaccines.”*

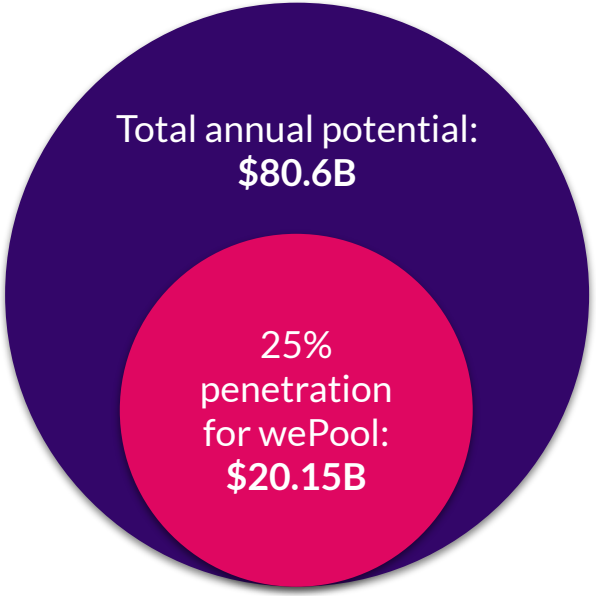
— MIT Technology Review

Immediate market for wePool in COVID-19 testing

Market opportunity via cost savings from **increased efficiency**



Market opportunity via revenue from **increased capacity**



Detailed projections in Appendix

2020 progress and next steps

Ideation: problem identification, development of product vision, and initial prototyping

Development: AI training and ongoing improvement using clinical data

Scaling: pilot programs and implementation

April | May - June | July - August | September - Onward

2-time winners in MIT COVID-19 Challenges, received initial $10k cash infusion

Partnerships: dialogue started with Boston VA, UCSF, VHA Innovation, Kaiser, Diax Labs, and many others

Incorporated and filed our first **provisional patent**

Clinical trials and publications on model efficacy

Raising seed capital

Management and Scientific Team

Guillermo Siman
Co-Founder & CEO
Ex-Deloitte, EY
MBA Candidate, MIT

Smrithi Sunil
Co-Founder & Advisor
PhD Candidate, BME
Boston University

Yash Patil
Co-Founder & CTO
Ops & Data Analytics
MS FL Inst. of Technology

Yusuf Henriques
Chief Strategy Officer
FDA, Epidemiology &
Biostatistics, MPH

Alexandra Löw-Baselli
Chief Medical Officer
Clinical/Medical Affairs
PhD, Vienna, Austria

Henry Peck
Head of Product
Johnson & Johnson
BS Carnegie Mellon

Sanjana Shah
Scientific Advisor
Bioinformatics, NIH
MS Georgetown

Aishwarya Venkatramani
Scientific Advisor
PhD Candidate, BioE
Stanford

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Immunology
PhD, LBS MBA

Ana Maria Saaibi
Quality & Regulatory,
Biomedical Engineering,
MS BME, MIT MBA

Laurent Gautier
Data Science, Bioinformatics,
Applied AI Architecture
PhD Denmark

Freddy Nguyen
Mt Sinai Pathology Resident,
MIT Postdoctoral Fellow
MD, PhD

Paul Cheek
Entrepreneur in Residence,
Martin Trust Center, MIT
Lecturer, MIT Sloan

Our team's background includes:

Get in touch

info@wepool.ai
https://wepool.ai

wePool

wePool Delaware C-Corp Based in Cambridge, MA*

We are an interdisciplinary group that came together during the **MIT COVID-19 CHALLENGE**.

The 48-hour hackathons selected 1,500 participants from over 9,000 applications and challenged us to tackle the most pressing health and socioeconomic issues related to COVID19.

Partnered with mentors and experts in the field, our team focused on **testing efficiency** in the face of test shortages around the globe.

A group of prominent healthcare and data science experts judged all presentations and selected a small subset winning teams, with $20,000 in prize money and invaluable ongoing mentorship provided to jumpstart winning initiatives.

We are one of these selected winners.

Our Initiative Was Featured Here:

https://mitsloan.mit.edu/press/mit-to-host-virtual-beat-pandemic-ii-hackathon-focus-predicting-preventing-and-preparing

&

https://mitsloan.mit.edu/press/mit-covid-19-challenge-hackathon-india-turning-tide-invites-broader-community-to-take-action-coronavirus-crisis-india

&

https://yourstory.com/2020/08/mit-covid-19-challenge-india-hackathon-open

Our Partners

This event was organized and sponsored by a broad coalition of industry and academic leaders. A cross-section is shown below.

As winners, we now have their support.

Provisional Patent Reference No.

July 16, 2020

U.S. Provisional Patent Application No.: 63/047,630

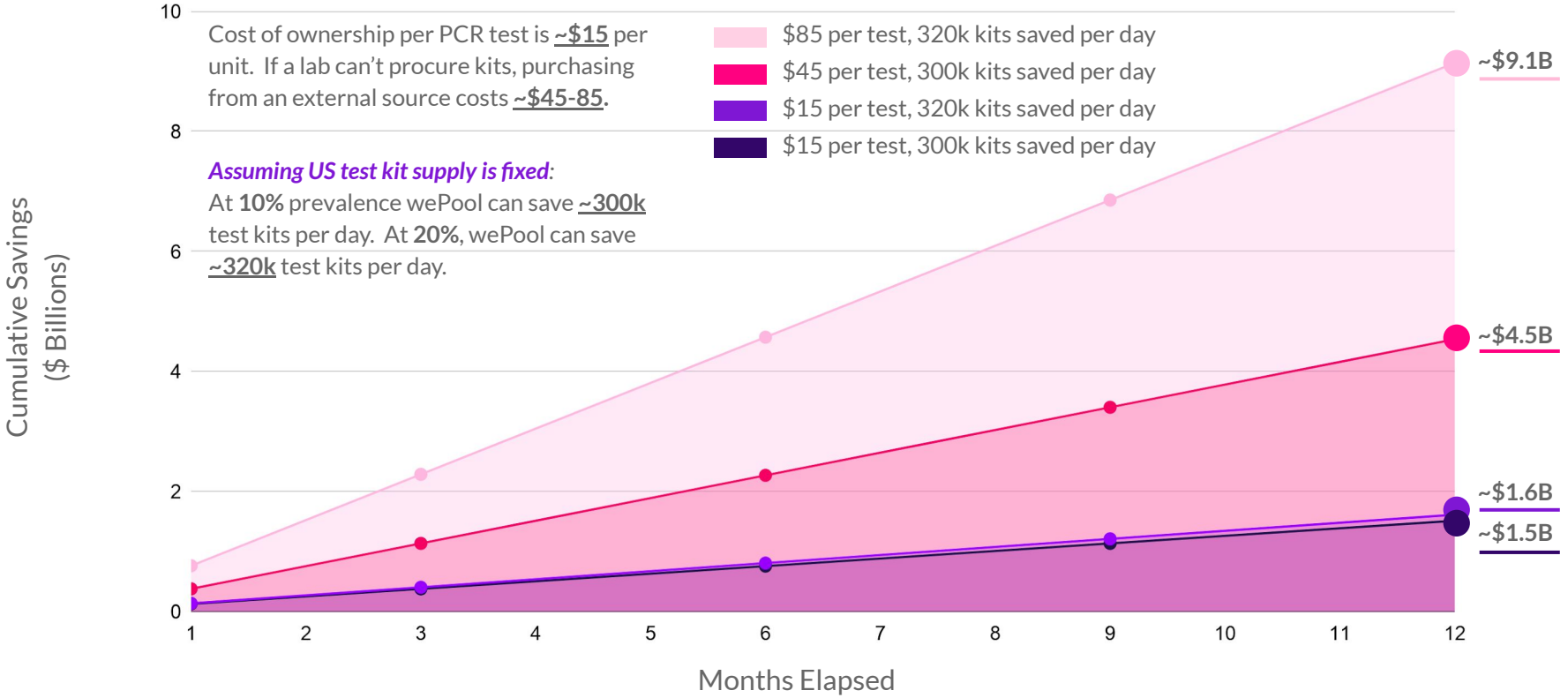
Entitled: **METHODS AND SYSTEMS FOR EFFICIENT SAMPLE POOLING FOR DIAGNOSTIC TESTING**

Inventors: Guillermo Jose SIMAN, *et al.*

Filed: July 2, 2020

Our Ref. No.: 59041-701.101

Savings up to $9.1B with our current test supply



Up to $80.6B in new revenue with added supply

The market value of a PCR test is **~$100-200** per unit. Note: cost to customer will not increase with pooling.

Assuming US test kit supply increases:
At **10%** prevalence wePool can help test **~600k** more kits per day. At **20%**, wePool can help test ~**1.2M** kits per day.