

Docket #: S20-477

Disease Management System

Technology Reference Nos.

CZ Biohub ref. no. CZB-192S-PC

Stanford ref.no. S20-477

Researchers at CZ Biohub SF and Stanford University have developed a new disease management system that enables efficient population-level tracking of disease incidence rates.

In recent years, the risk of pandemics has become much more visible to the public. As a result of ongoing international development and our ever-growing proximity to populations of wild animals, viral zoonotic jumps from animals to humans are becoming more and more common. As we continue to encroach on the natural habitats of many species, including those known to be reservoir species for zoonotic viruses including bats and pigs, pandemics caused by novel viral species are almost certainly inevitable. This widespread occurrence has huge global health implications, and therefore it is an urgent unmet medical need to develop plug-and-play pandemic readiness systems. It is impossible to predict what virus or family of viruses will jump from animals to humans next, but the need to be prepared for these events is more prescient than ever. Diagnostic testing is a key component of managing these outbreaks. However, testing every person in a population daily is unwieldy, expensive, and ultimately not feasible.

Stage of Development

Research - in vivo

Stage of Research

The inventors have developed a low-cost and efficient disease management system to allow entities to track disease incidences in a set population. This technique enables virtually any organization, from schools to employers to public health departments to track disease incidence and allows them to respond in real time to outbreaks. This program uses remote self-collection via nasopharyngeal swabs for convenience and efficient use. Participants are first screened for eligibility and asked

to take a survey about their background and initial health. Selected participants then have a home self-testing kit delivered to them with samples picked up for laboratory analysis. Participants also undergo ongoing symptom surveillance via daily surveys that alert and trigger repeat testing. Through this targeted and convenient testing strategy, this platform provides algorithms to test both asymptomatic and symptomatic individuals to allow for accurate population-level estimates of real time disease incidences. Participants receive the results of this testing directly on a private, secure website.

Applications

- Testing and evaluation of disease incidence rates in specific populations in real time
- Screening individuals for symptoms on a daily basis to limit the spread of disease

Advantages

- Testing strategies for both asymptomatic and symptomatic individuals
- Ongoing symptom surveillance throughout your population in order to ensure that those experiencing symptoms undergo testing as soon as possible, limiting the spread of disease
- Scalable on a population level

Patents

- Published Application: [WO2022261007](#)

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