



Emerging Data Sources for Public Health Emergencies and Disasters

NASSEM Workshop Series: Data and Situational Awareness for Medical and Public Health Preparedness and Response

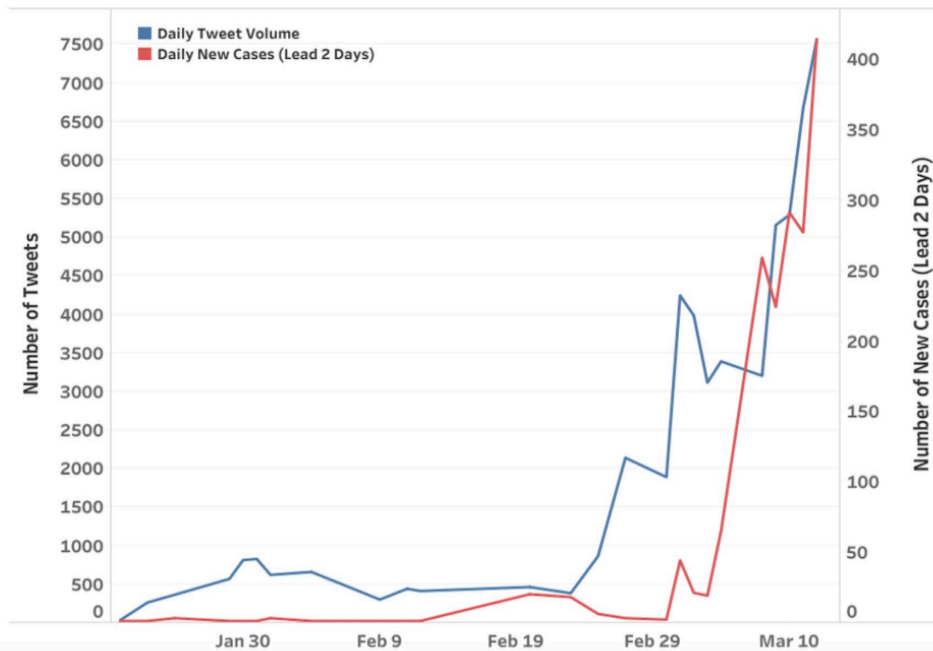
Charles Curran • 7/21/26

My personal views for informational purposes only, not legal advice.

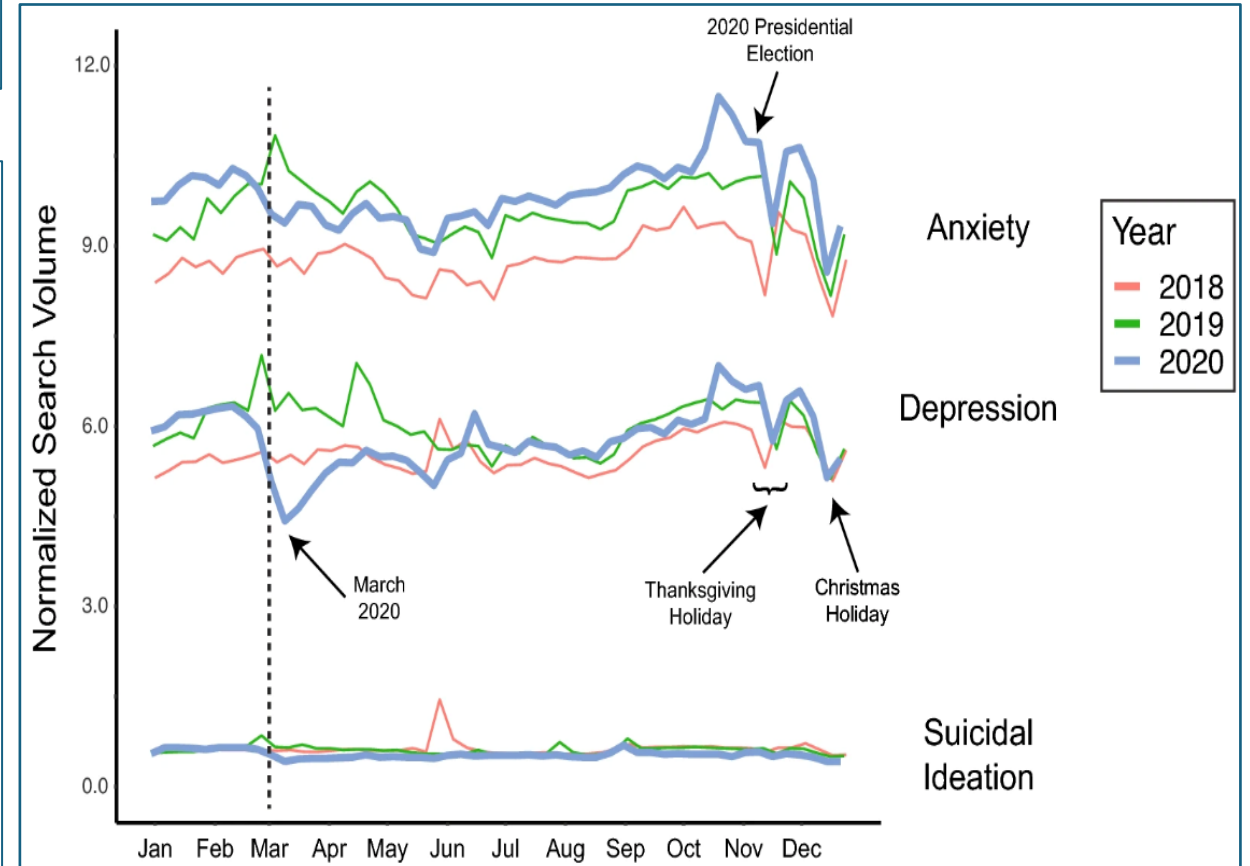
Population-level data: online platforms

Figure 6.: The number of COVID-19 Cases and Location Conversation

(a) United States: Lead = 2 Days

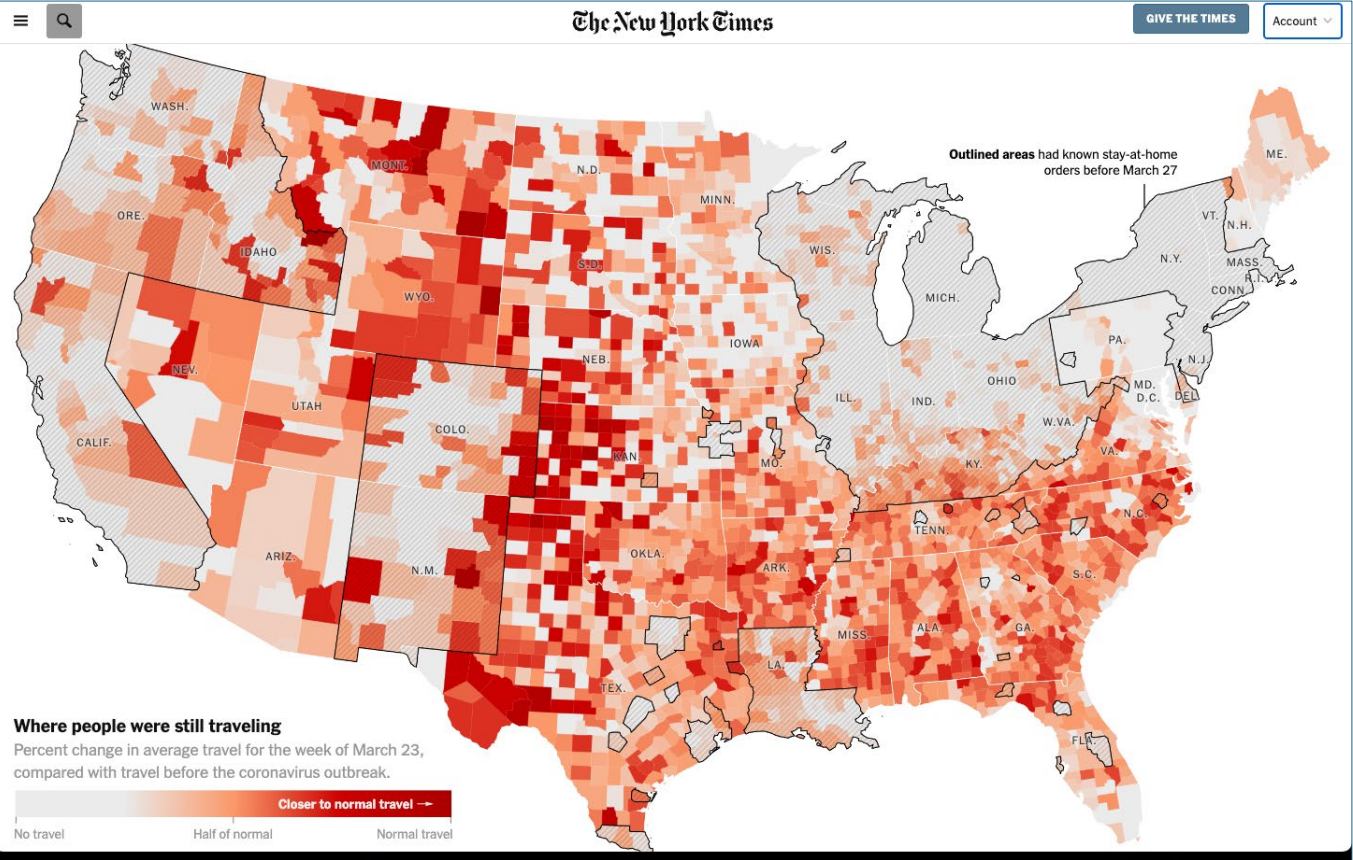


Social media data: [A first look at COVID-19 information and misinformation sharing on Twitter \(2020\)](#)



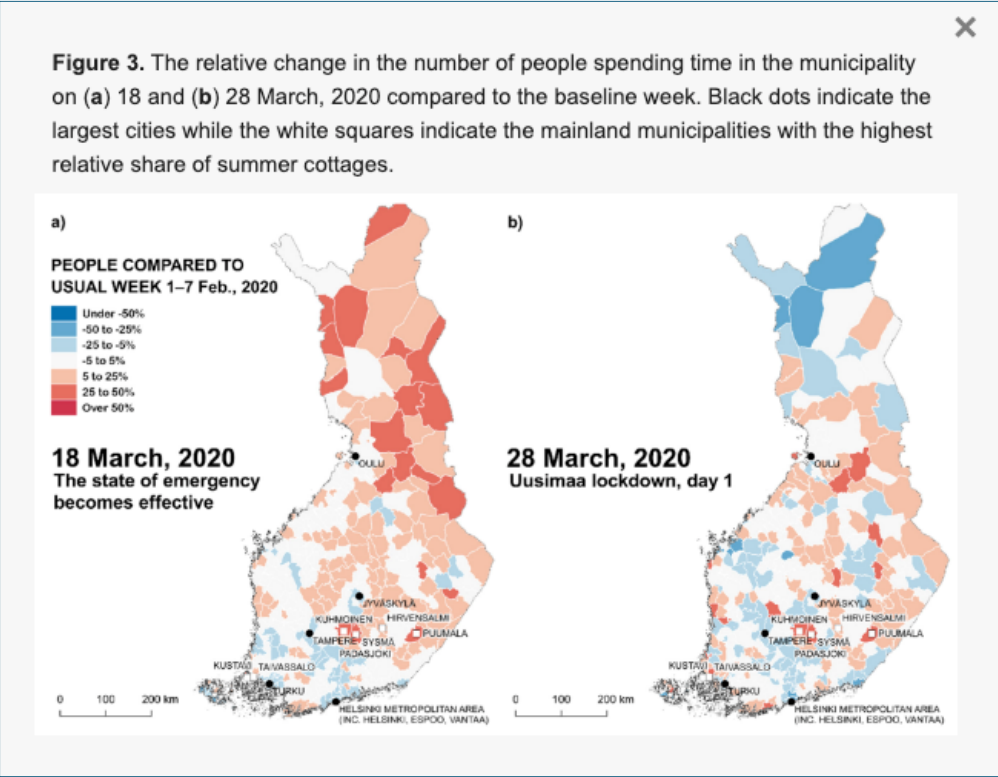
Search trends: [An evaluation of Internet searches as a marker of trends in population mental health in the US \(2022\)](#)

Population-level data: mobility

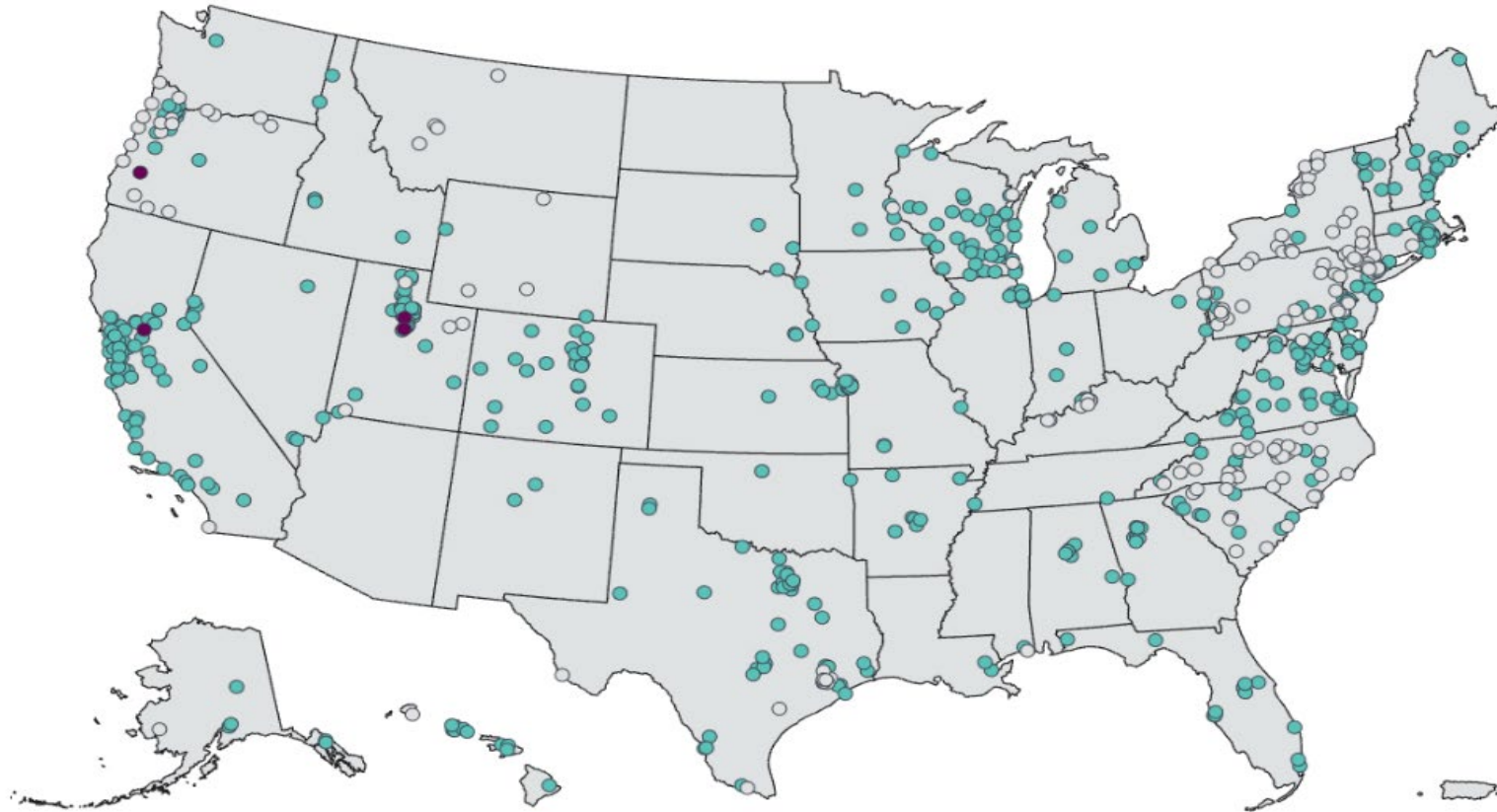


App/device-derived: [Where America Didn't Stay Home Even as the Virus Spread \(2020\)](#)

Network operator-derived: [Escaping from Cities During the COVID-19 Crisis \(2020\)](#)



Population-level data: wastewater



Measles Detection Status

Select a detection type below to add or remove it from the map.

● Detection ● No Detection ● No Data



[CDC National Wastewater Surveillance \(NWWs\)](#)

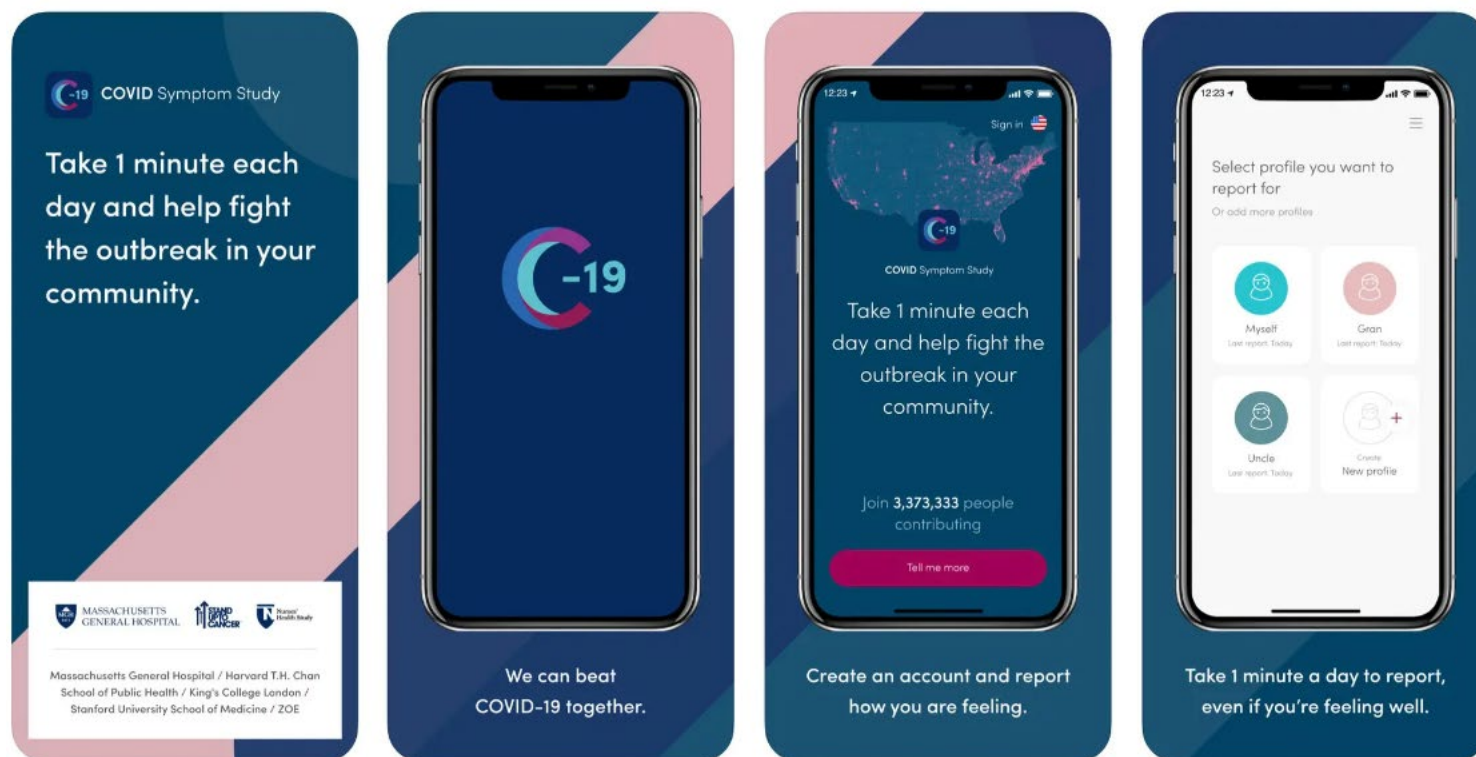
(currently including flu, avian flu, RSV, COVID-19, measles, mpox)

Population-level data: some key considerations

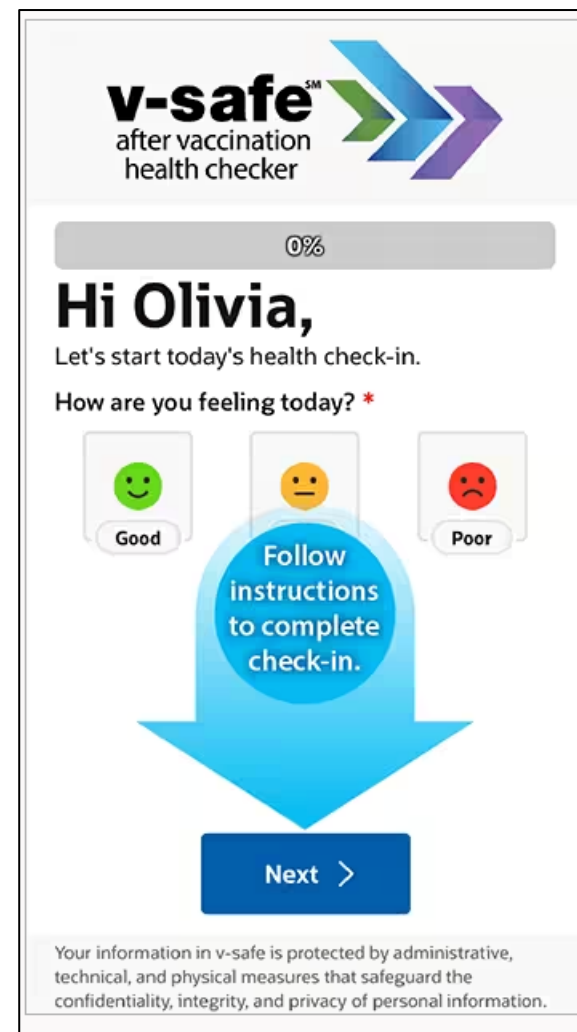
- Deidentification to the relevant legal standard for data collection/use
 - Potentially differing federal or state law requirements affecting government or private data collection
 - Data-specific assessment: limited research uses vs. full public release? Valid for small populations in all use contexts?
- Governance
 - What use purposes beyond public health or disaster response?
- Transparency & ethical stewardship

Crowd-sourced & individual data collection: Symptom reporting apps (private or government operated)

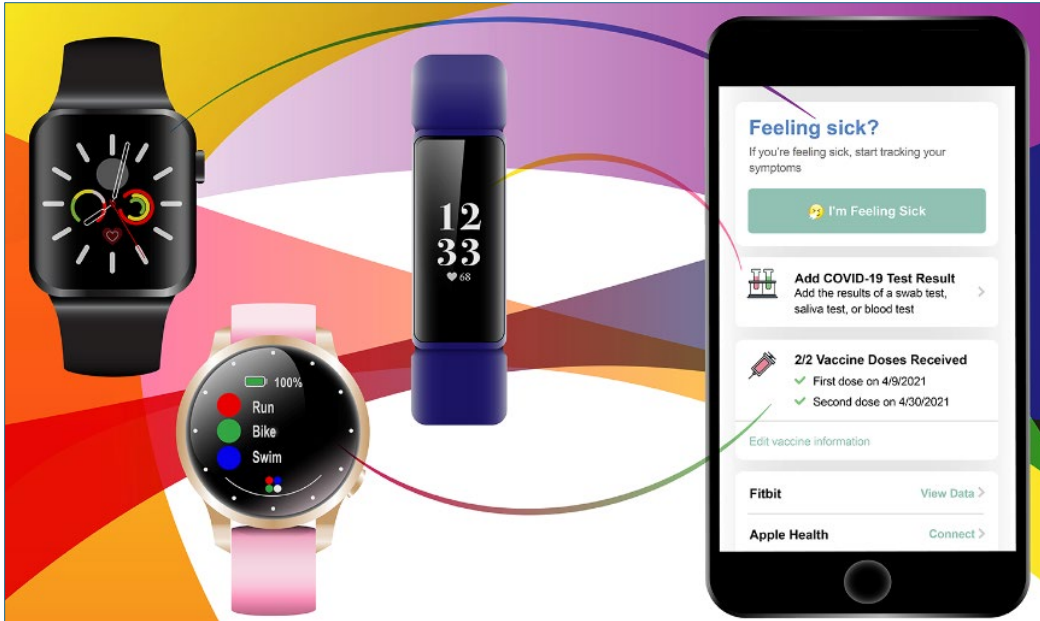
[v-safe \(CDC\)](#) (2020)



[COVID-19 Symptom Tracker](#) (Massachusetts General Hospital, ZOE, et al.)



Crowd-sourced individual data: Consumer wearables

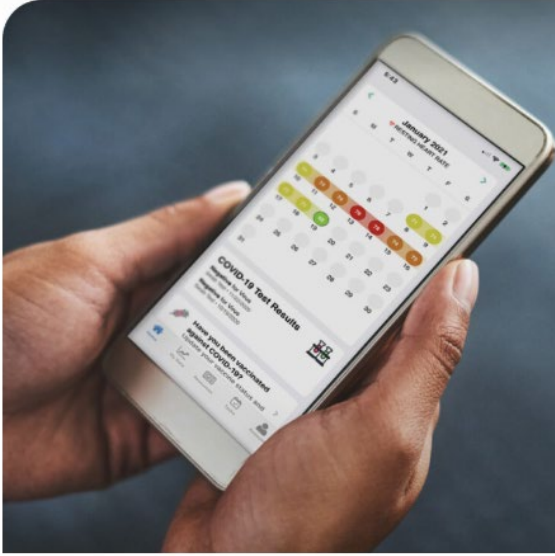


Wearables, clinical data and COVID-19

 DETECT

About

Español



Can a Wearable Detect
COVID-19 Before
Symptoms Appear?

Your smartwatch or activity tracker might be an early warning system for viral illness, such as COVID-19. Join our innovative health study, which is collecting important COVID-19-related health information through app-based surveys and wearable sensors. With the help of more than 39,000 study participants, we are gaining insights into what leads to early detection for this and other viral illnesses.





Download MyDataHelps™ available via Google Play and the App Store. Open MyDataHelps™, then enter the six-letter

Scripps Research DETECT project

Crowd-sourced data: disaster chatbots



BencanaBot sekarang ada di Whatsapp!
#BencanaBotdiWA

BencanaBot sekarang siap bantu kamu lapor bencana di WA! 🤖

Aakhirnya! 😊

Dalam situasi bencana laporan kamu bisa menyelamatkan nyawa!
Cek PetaBencana.id untuk tahu update real-time bencana!

Save nomor ini!
+62 8584 2362 262
atau
Bit.ly/BencanaBotWA

SCAN ME

USAID PetaBencana.id BNPB

MyEcoReporter: a prototype for artificial intelligence-facilitated pollution reporting:

AI-powered SMS chatbot developed by Texas A&M Superfund Research Ctr.; demo by NC Dept. of Environmental Quality (2025)

USER (15:37:18) I'd like to report a problem in my town

MyEcoReporter (15:37:18) Certainly! Thank you for bringing this to our attention. Can you please provide more details about the problem that you have noticed?

USER (15:38:06) It looks like a train derailed and there is stuff burning and smelling really bad

MyEcoReporter (15:38:07) Thank you for letting us know. Can you please tell me the location? What county and city/town are you in?

USER (15:38:35) I'm in Lexington

MyEcoReporter (15:38:36) Thank you. Can you please tell me your name? You can remain anonymous if you would prefer

USER (15:38:44) I'm John Smith

MyEcoReporter (15:38:45) Thank you, John. Can you provide the date and time when you noticed this incident?

USER (15:39:58) Maybe but I'm now sure

MyEcoReporter (15:40:00) Alright, that's okay. Thank you for your report, John. This information will be checked and forwarded to the appropriate department. Here is the report I'm about to submit, does everything look correct?

Name: John Smith
Details: A train derailed, things are burning and there is a smell
Location: Lexington, NC
DateTime: YEAR 14:30
DiscriminationStatus: No
Please confirm that this information is accurate

PetaBencana: flood reporting and mapping in Indonesia via Whatsapp chatbot (2017-present)

Crowd-sourced & individual data: some key considerations

- For potentially identifiable individual data, consent that meets the relevant legal standard for its collection and use
- Demographic and SDOH data capture expands compliance complexity
- Governance:
 - Limited use purposes & retention
 - Safeguards/security commensurate with data types
- Representativeness/digital divide