



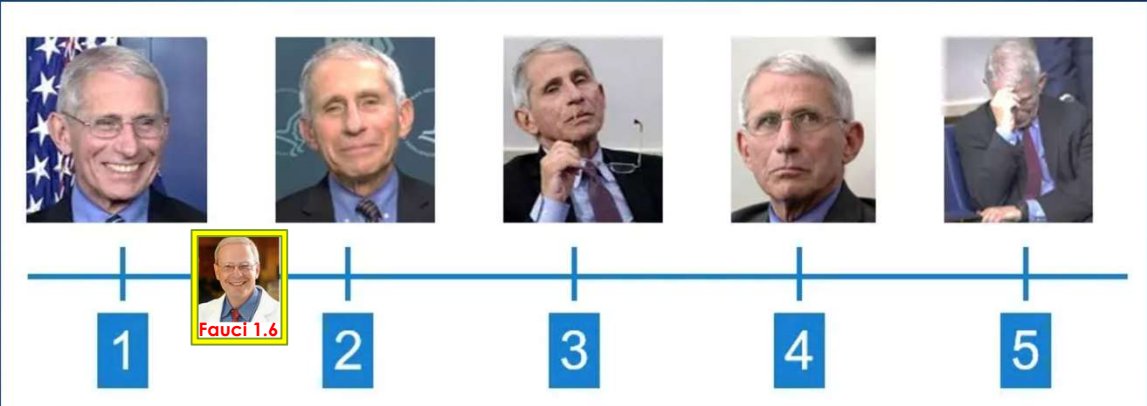

Covid-19 & the Transformation of Healthcare: Managing the Challenges, Capitalizing on the Opportunities

Robert M. Wachter, MD
Professor and Chair, Dept. of Medicine
Univ. of California, San Francisco
@bob_wachter
robert.wachter@ucsf.edu




1

Before we start, let's check in to be sure everybody is feeling OK...

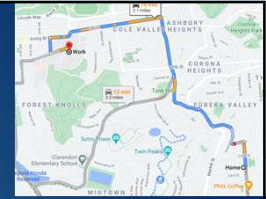


The timeline consists of five numbered blue boxes (1-5) along a horizontal line. Above each box is a portrait of Anthony Fauci. The first box (1) has a yellow-bordered portrait of Fauci with the text 'Fauci 1.6' below it. The other four boxes (2-5) have standard portraits of Fauci in various poses.

2

Talk Roadmap

- ▶ A few thoughts on how we've managed the pandemic and the problems it has exposed in our politics and society
- ▶ A few tech innovations that were accelerated by Covid
 - ▶ Telemedicine, dashboards
 - ▶ Plus a few that might have hit the tipping point, but didn't
 - ▶ Entering the post-EHR era: why and what that means
- ▶ A couple of areas in which everyone is saying the right things, but I worry about follow-through



3

The Dominant Challenge in Preparing for a Pandemic

“Everything we do before a pandemic will seem alarmist. Everything we do after will seem inadequate.”

— Michael Leavitt, former HHS secretary

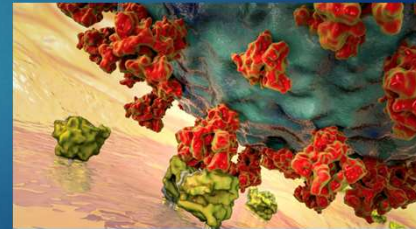


4

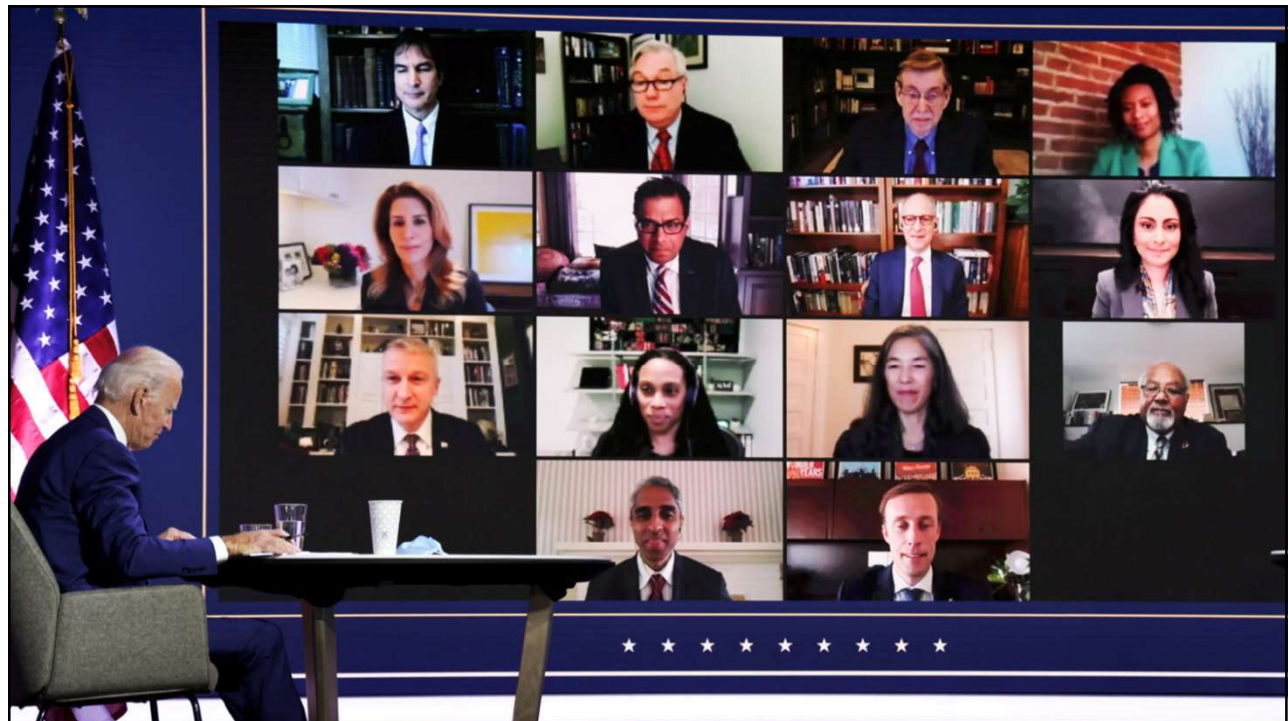
The American Response

“Aspects of America’s identity may need rethinking after COVID-19. Many of the country’s values have seemed to work against it during the pandemic. Its individualism, exceptionalism, and tendency to equate doing whatever you want with an act of resistance meant that when it came time to save lives and stay indoors, some people flocked to bars and clubs. Having internalized years of anti-terrorism messaging following 9/11, Americans resolved to not live in fear. But SARS-CoV-2 has no interest in their terror, only their cells.”

Ed Yong, *The Atlantic*, March 25, 2020



5



6

What Is 2021 Looking Like?

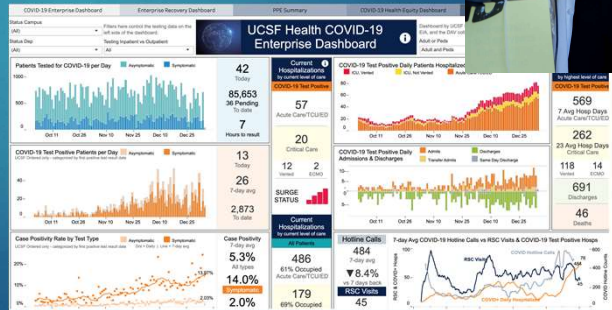


- ▶ A coherent and more aggressive plan from Washington, with competently led federal agencies, relatively free of political interference
 - ▶ Efforts to promote/de-partisan-ize non-pharma interventions, especially masks and testing
 - ▶ Business and school openings depend on regional specifics
- ▶ Surges tamped down by population immunity of ~50-60% (combination of prior infections plus vaccines)
 - ▶ But more infectious variants (though not yet vaccine resistant variants in the U.S.) and changes in behavior/state policies will lead to sporadic outbreaks
- ▶ Lower mortality rate via vaccination of highest risk populations and improved therapies
 - ▶ Though anxiety will be stoked by potential for “Long Covid” & long-term health threats
- ▶ Soon vaccine will be available to all: “shots looking for arms”
 - ▶ New hot button issue: whether and when to require vaccination/immunity “passports”
- ▶ “Back to normal”: impossible to predict when; probably in fall and not quite “normal”

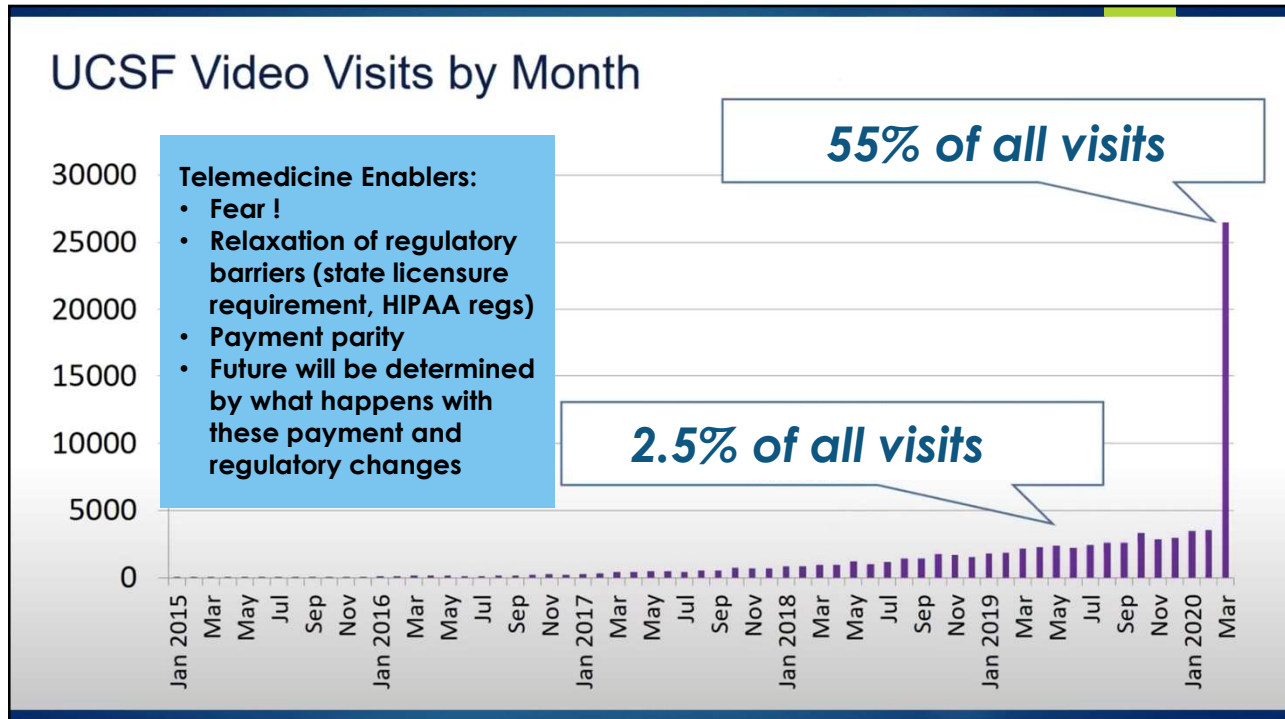
7



Technology-related Innovations: Which Ones Will Endure?



8



9

The Fundamental Question About Telemedicine/Virtual Visits

- ▶ Is it simply a visit replacement?
 - ▶ Fine if so: convenient for patients, maybe for providers
 - ▶ Opens up new non-geographically-determined care options
 - ▶ Potentially good for patients, but new competitive threats for health systems
- ▶ Or does it pave the way for true virtual care – the real game-changer
 - ▶ Patients no longer coming into office to get BP, weight, glucose checks, etc. means new dependence on digital data streams
 - ▶ Measures less episodic; more semi-continuous
 - ▶ The trillion-dollar question: how will we manage these new data flows?

10

Patient 42 has irregular HR and is SOB. Let's do a televisit ASAP
 Patient 13's weight is up and O2 sat is worse. I'll lock the salt shaker and the fridge
 Patient 112's sugar is high again: the algorithm bumped the insulin but let's get the coach involved

The Care Traffic Controllers

11

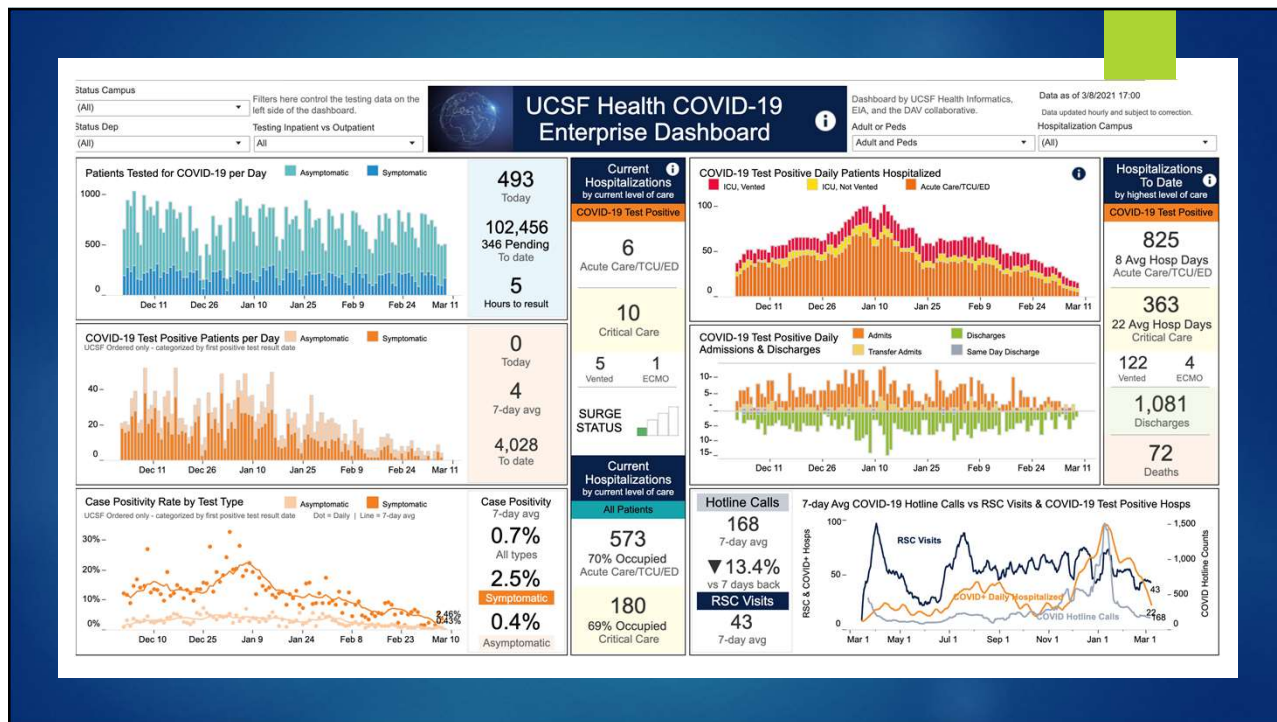
Dashboards

Finally taking all that data and delivering usable, real time information in visually attractive and actionable form to managers and clinicians

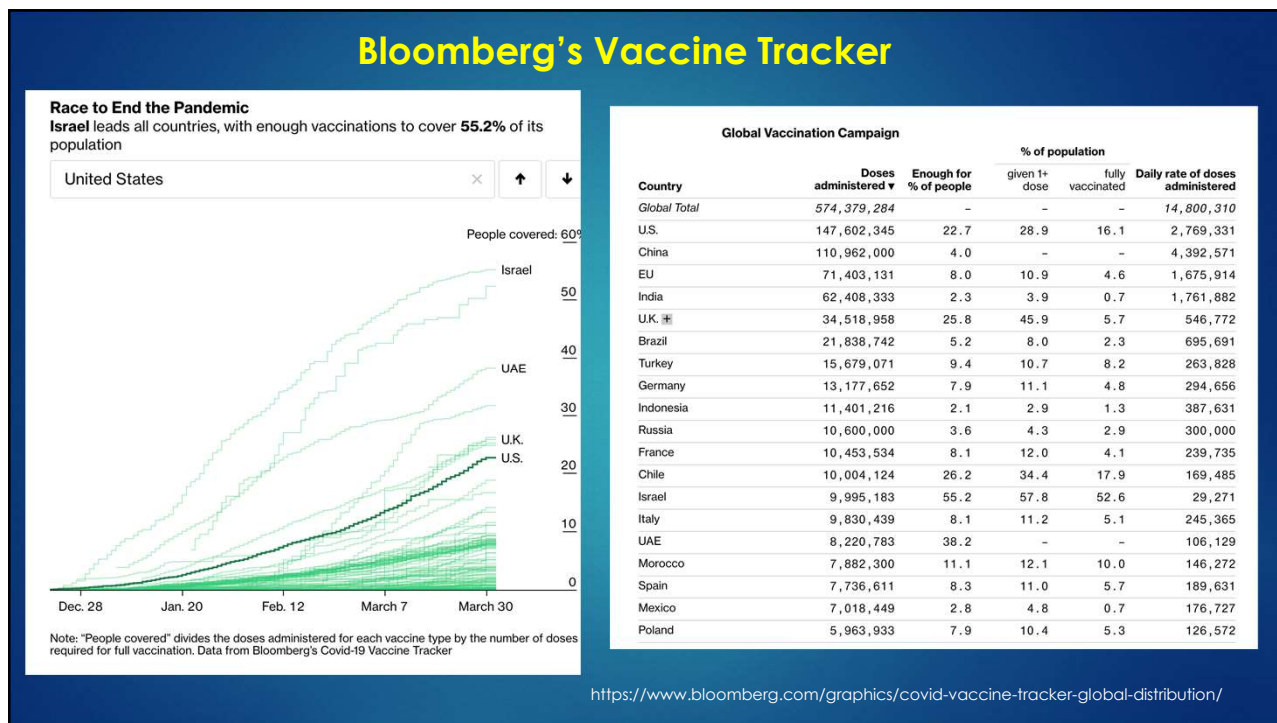
UCSF Health COVID-19 Enterprise Dashboard
 Dashboard by UCSF Health Informatics, EHR, and the Data Collaborative. Data as of 13/02/21 09:00. Data updated hourly and subject to correction. Hospitalization Campus: Adult and Peds.

Patients Tested for COVID-19 per Day 85,653 To date 36 Pending 7 Hours to result	Current Hospitalizations by current level of care COVID-19 Test Positive: 42 Acute Care/ICU/ED: 57 Critical Care: 20	Hospitalizations To Date by highest level of care 569 7 Avg Hosp Days Acute Care/ICU/ED: 262
COVID-19 Test Positive Patients per Day 13 Today 26 7-day avg 2,873 To date	COVID-19 Test Positive Daily Patients Hospitalized ICU, Verbed: 12 ICU, Not Verbed: 2 Acute Care/ICU/ED: 2	COVID-19 Test Positive Daily Admissions & Discharges Admits: 118 Discharges: 14 Transfer Admits: 691 Same Day Discharge: 46 Deaths: 46
Case Positivity Rate by Test Type 5.3% All types 61% Occupied	Current Hospitalizations by current level of care All Patients: 486	Hotline Calls 484 7-day avg: 484 RSC Visits: 8.4% COVID-19 Hotline Calls vs RSC Visits & COVID-19 Test Positive Hosp: 76

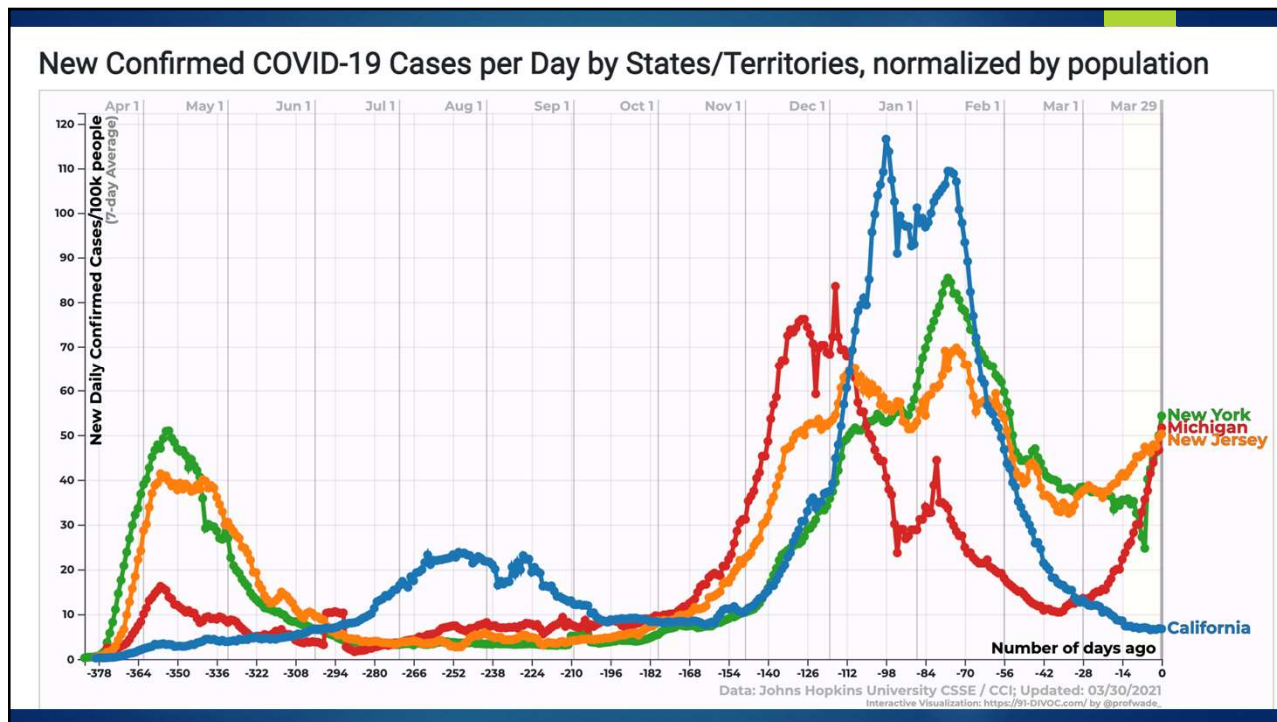
12



13



14



15

Step 1: Enter your location

California

San Francisco

Details

Reported prevalence: 0.23%
Adjusted prevalence: 0.68%

Reported cases in past week: 2,015
Total population: 881,549
Percent increase in cases from last week to this week: 11%
Percent of tests that come back positive: 3.7%
Data last updated: January 02, 2021

Copy location data for the spreadsheet

Prevalence data consolidated from [Johns Hopkins CSSE](#) (reported cases), [Covid Act Now](#) (US positive test rates), and [Our World in Data](#) (international positive test rates).

Step 2: Describe the activity or relationship

Is this a specific activity or an ongoing relationship?

One-time interaction or repeated activity [6% chance of transmission per hour]

Nearby people

People: How many people are usually near you during this activity?

4

Within 15 feet

Distance: How close are these nearby people, on average?

Normal socializing (~3 feet / ~1 meter apart) [baseline risk]

Duration: How long is the activity, in minutes? (For a repeated activity: min week?)

15

Risk Profile: What is their risk profile?

Lives alone and only grocery shops

Precautions

Environment: Is it indoor or outdoor? Is the space ventilated, or is the air filtered?

Indoor [baseline risk]

Your mask: What mask are YOU wearing?

Surgical mask or mask with PM2.5 filter insert [1/2 the risk]

Very Low Risk

0.2% of your weekly risk budget

~0.4 microCOVIDs each time (probably between: 0.1 to 1)

What is a microCOVID?

The calculator introduces a new concept, the microCOVID. One microCOVID is a one-in-a-million chance of getting COVID.

An activity that's 20,000 microCOVIDs is very unsafe, as you have a 2% risk of getting COVID every time you do it. An activity that's 20 microCOVIDs is relatively safe, as you could do it every week for a year and still have only about a 0.1% chance of getting COVID.

Microcovid.org

16



How About AI, Data-sharing Apps, and Interoperability?

17

90+ Healthcare AI Startups To Watch

Imaging & Diagnostics



Drug Discovery



While one might have anticipated the pandemic would be a moment for AI to shine, I can't identify a true game-changing AI application



Clinical Trials



Nutrition



Compliance

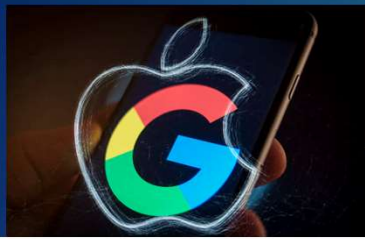


Mental Health



Created by You. Powered by CBINSIGHTS

18



Alice and Bob meet each other for the first time and have a 10-minute conversation.

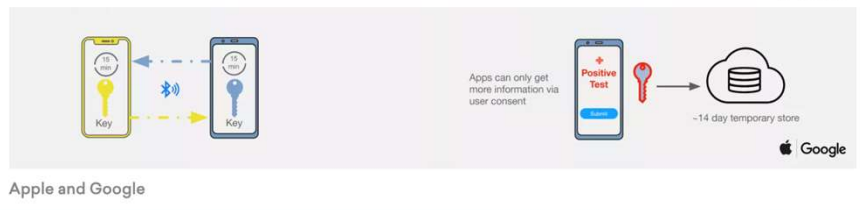
Bob is positively diagnosed for COVID-19 and enters the test result in an app from a public health authority.

Perhaps months too late, the Apple-Google Covid-19 contact tracing tool comes to America

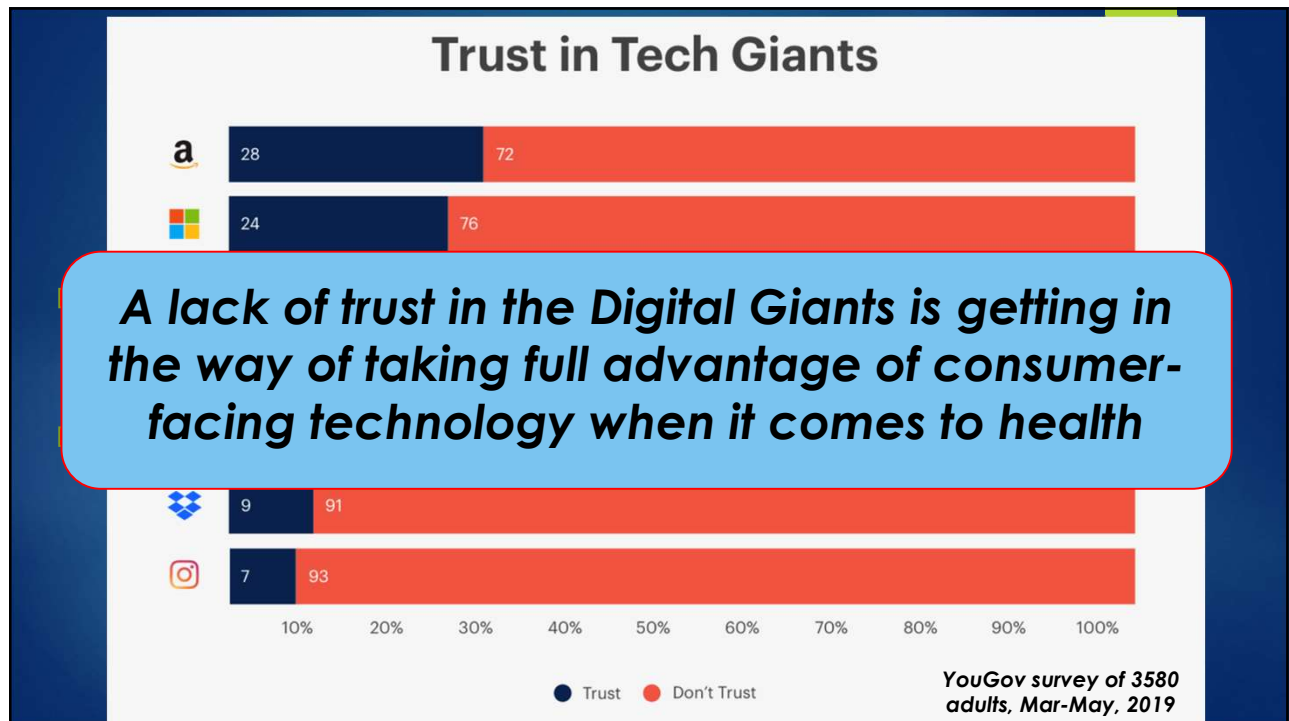
Virginia is the first US state to come out with an app that uses Bluetooth-based tech, nearly three months after its release.

By Sara Morrison | Aug 6, 2020, 4:46pm EDT


Vox



19



20


 THE VICE PRESIDENT
 WASHINGTON
 March 29, 2020
 Dear Hospital Administrator:

The pandemic might have been an opportunity to promote interoperability, but we still find ourselves faxing spreadsheets

- i. Commercial laboratories: LabCorp, BioReference Laboratories, Quest Diagnostics, Mayo Clinic Laboratories, and ARUP Laboratories.
- b. Reporting Instructions: We request that all data for COVID-19 testing completed at “in-house” laboratories or a laboratory not listed above be **reported** using the attached spreadsheet.

21

Health IT Needs Its Golden Spike











22

Maybe the Stupidest Thing I Ever Said to a Mentee



“What will you do after we’ve implemented our EHR?”

23

Digital Health Investments Are Growing

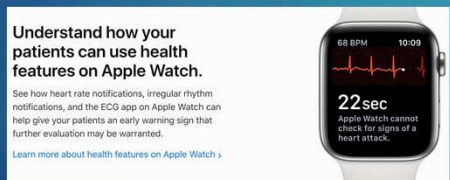
DIGITAL HEALTH FUNDING AND DEAL SIZE
2011-Q3 2020



Note: Only includes U.S. deals >\$2M; data through September 30, 2020
Source: Rock Health Funding Database

24

(Re) Enter the Digital Giants....



25

Why Health IT May Finally Be Entering a New (Post-EHR) Phase



- ▶ Winners in EHR derby: healthcare-specific companies, good at collecting data & moving it around
 - ▶ They were ready when healthcare went digital
 - ▶ Not expert in consumer-facing tools, user interface, learning from data, communication, visualization....
- ▶ Now entering the post-EHR era, facilitated by value pressure, population health needs, interoperability, cloud computing, AI, digital companies maturing... and the obvious limitations of what EHRs can offer

26

UCSF Health Digital Patient Experience

The Right Patient. The Right Provider. The Right Time. The Right Modality.

Together, we are creating a unified digital experience enabling UCSF Health patients and consumers easily and efficiently access and interact with care delivery in a personalized, digitalized, and modern.

The Digital Patient Experience (DPE) is an ambitious, multi-year effort to make UCSF Health the premier digitally enabled care provider. It represents collaboration across multiple skills, disciplines, and areas across UCSF.

Integration

Newsletter
Check out the latest DPE Insider.
SUBSCRIBE


27

I have three boxes on my desk: In, Out, and Too Hard.

— Warren Buffett —

Palpably Unmet Needs:

- Public Health/Preparedness
- Healthcare Disparities



AZ Quotes

28




Health Disparities Were Well Appreciated Before Covid

29

Preparing for the Next Pandemic

“The most promising way to deal with a possible recurrence is, to sum it up in a single word, *preparedness*. And now is the time to prepare.”

*Surgeon General Rupert Blue
October 1918*



30

“Obvious” Changes That May Go Into the “Too Hard” Box

- ▶ Everyone will profess to be committed to adequately resourcing public health. Beyond having an off-the-shelf plan for the next pandemic, this support will weaken once the Covid-19 pandemic is over
 - ▶ No powerful constituency
 - ▶ Hard to find resources for prevention when pitted against current needs
- ▶ Everyone will profess to be shocked by the disparities illustrated by Covid-19 (although they've been well appreciated for decades). Expect lots of lip service about addressing them, and then it too will recede
 - ▶ Most relate to social determinants of health, so they'll require investments in housing, jobs, justice system, and education, as well as significant income redistribution... all of which are politically challenging

31

Several Easy Predictions, and a Hard One



- ▶ Health IT *will*, ultimately, transform and disrupt health and healthcare
- ▶ The new system will be less institution-focused, less geographically determined, more patient-centric, and deliver higher quality, less expensive, and more equitable care
- ▶ The winners will be any one of these four parties:
 - ▶ Existing healthcare organizations that thoughtfully embrace transformation
 - ▶ EHR vendors that innovate and open their architecture
 - ▶ Digital giants that are able to maintain a focus on health
 - ▶ New companies that skillfully address important use-cases
- ▶ *The hard thing to predict: when?*

32

A Time for Optimism?



33