

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

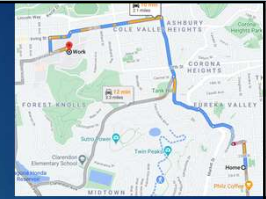
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1

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

2

Talk Roadmap



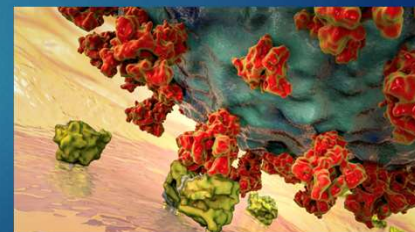
- ▶ A few thoughts on the current state of the pandemic and the problems it has exposed in our politics and society
- ▶ A few tech innovations that were accelerated by Covid
 - ▶ Telemedicine, dashboards
 - ▶ Plus a few that might have hit the tipping point, but didn't
- ▶ Entering the post-EHR era: why and what that means
- ▶ The future of healthcare's digital transformation

3

America's Unique 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 [and wearing masks & getting vaccinated], some people flocked to bars and clubs [and don't & didn't]. 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



4

Where Are We Now?



- ▶ Clear that Delta is a completely different virus – all prior assumptions about the virus/vaccines need to be reassessed
- ▶ Levels of immunity that we thought would be sufficient to create herd immunity are not enough to beat back Delta
- ▶ Boosters clearly needed in highest risk groups – others still debatable
- ▶ Society's tolerance of the unvaccinated has waned, to near-zero
 - ▶ Thus enthusiasm for mandates and other sharp-elbow tactics
- ▶ “Back to normal”: now impossible to predict given need to reach >85% immune for herd immunity, low vaccine rates, and waning immunity from vaccine and infection

5

What Will the End Game Be?



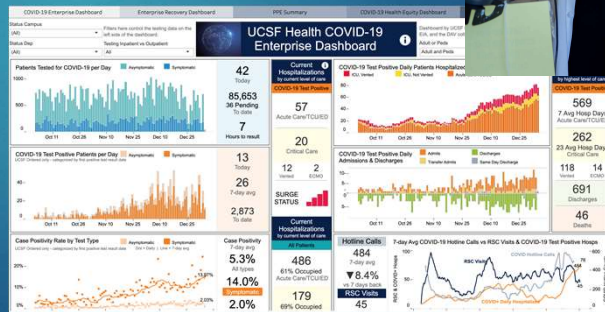
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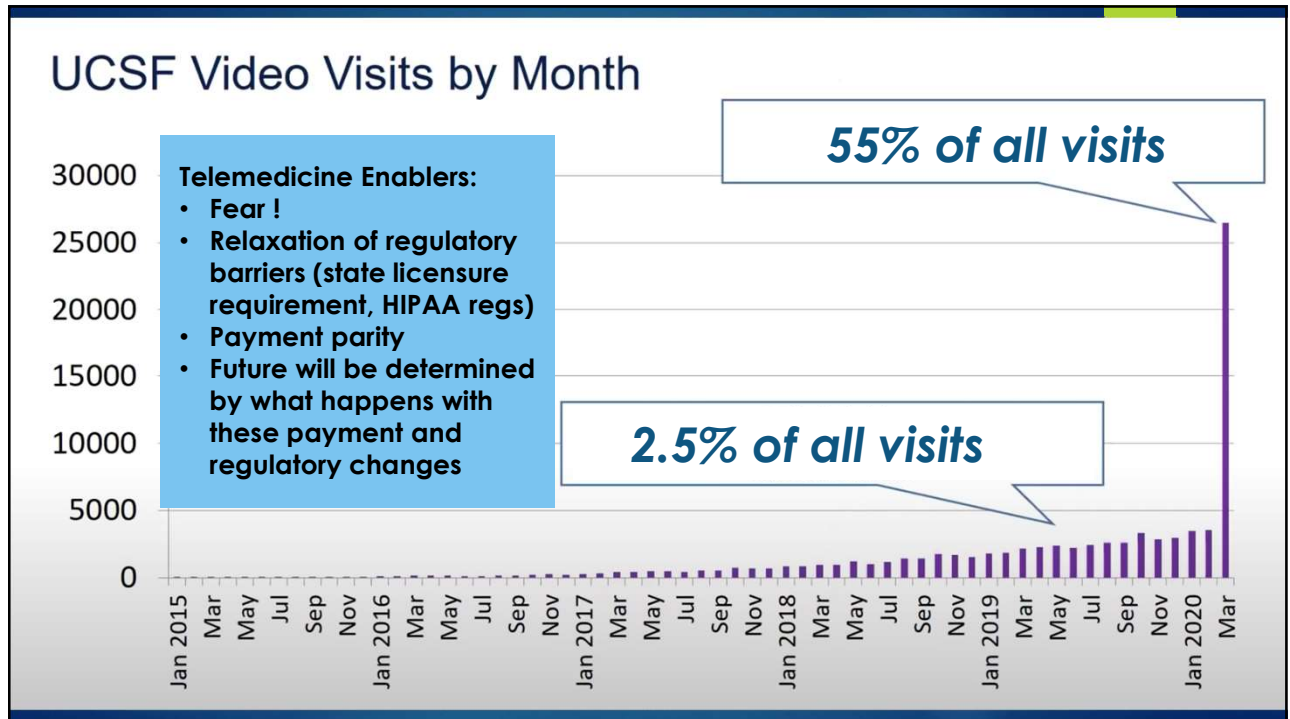
**The Governance Institute's Leadership Conference – Hybrid Event
October 11–12, 2021**



Technology-related Innovations: Which Ones Will Endure?



7



8

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?

9

Patient 42 has irregular HR and is short of breath. 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

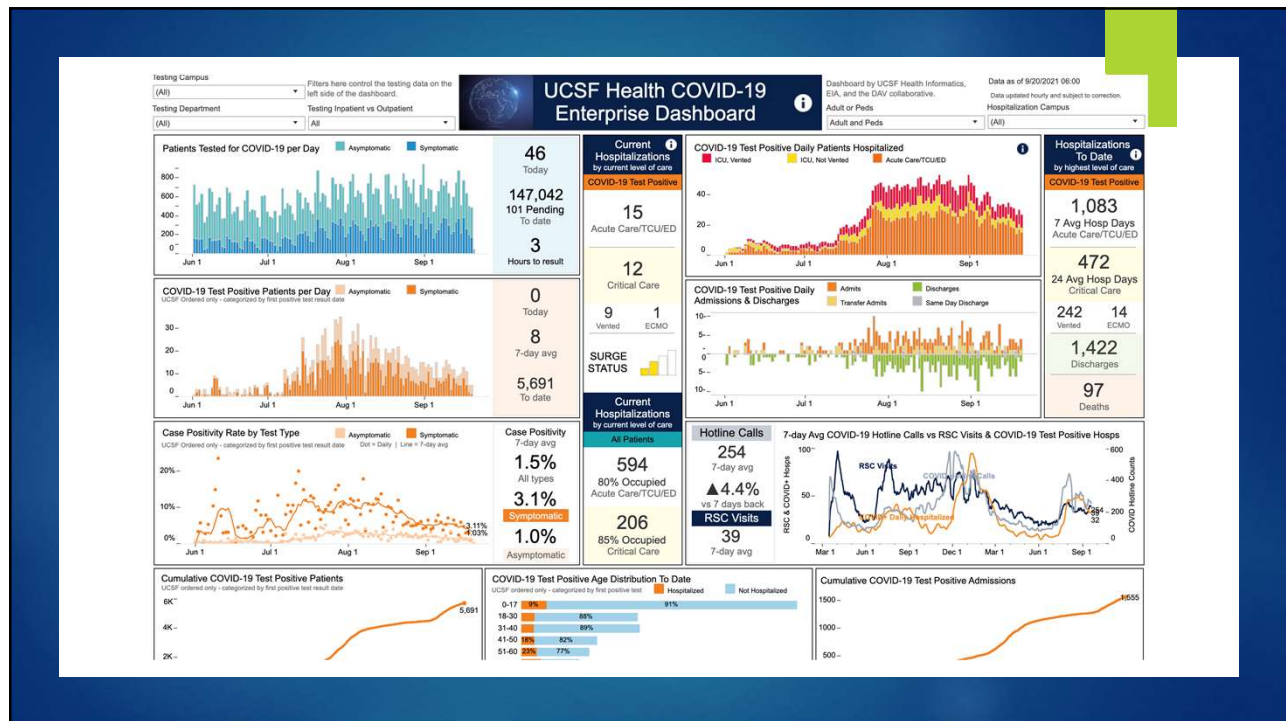
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Dashboards

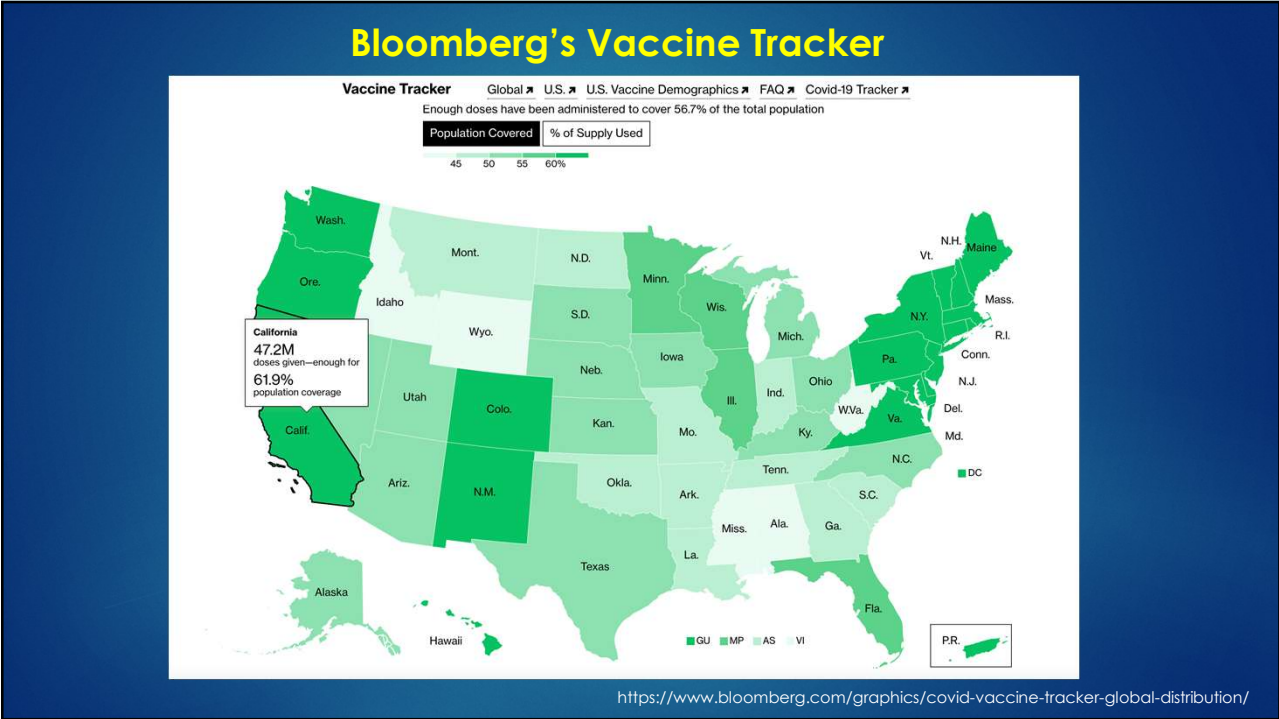
Finally (!)...
 taking all that
 data and
 delivering
 usable, real-time
 information in
 visually
 attractive and
 actionable form
 to managers
 and clinicians



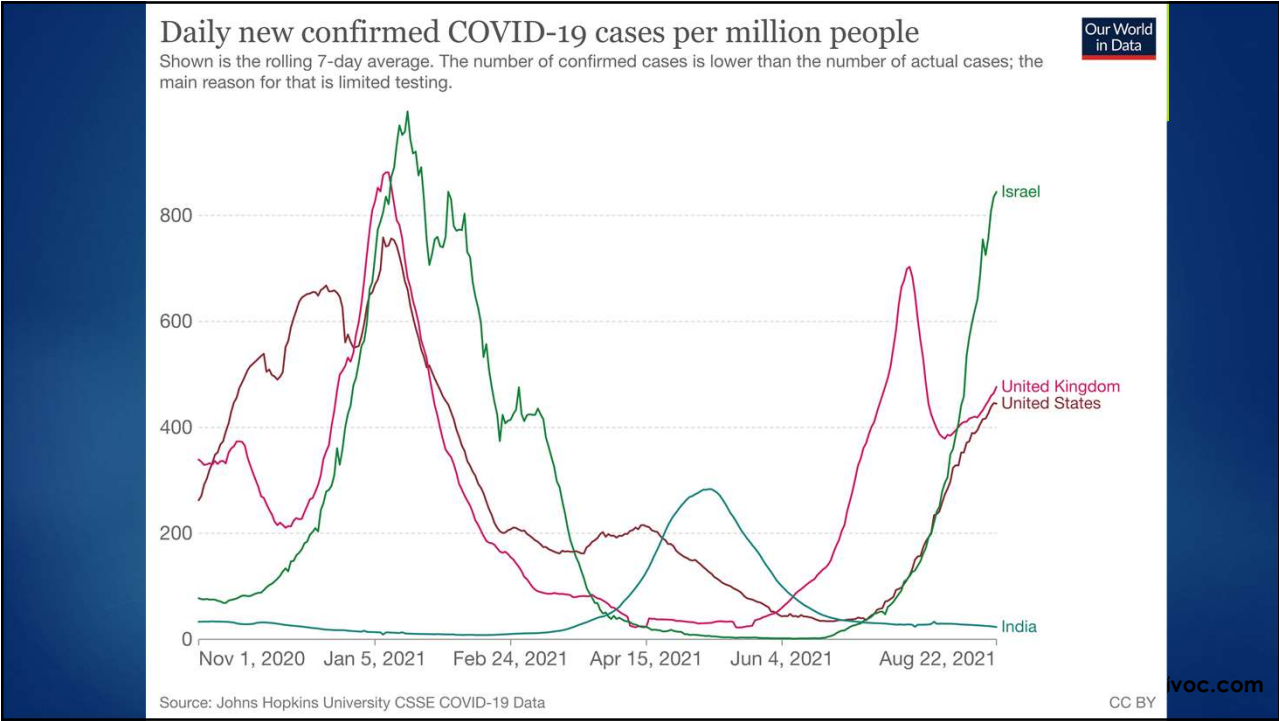
11



12



13



14

Calculate approximate risk of contracting COVID

Step 1: Enter your location

Country or US State:
California

County:
San Francisco

Override location-based data

Step 2: Describe the scenario

Grocery store for 60 minutes (few other shoppers)
A gathering, activity, or errand

Adjust the values below to match your situation and see how you can reduce risk (based on research!)

Your Vaccine: Which vaccine did you receive?

Pfizer BioNTech Moderna AstraZeneca Johnson & Johnson Sputnik V Unknown or other No vaccine

How many doses?

0 1 2
1x 0.76x 0.17x

If your last dose was <2 weeks ago, subtract one dose when answering--the last dose may not be protective yet.

Nearby people

People: How many people are usually within 15 feet (5 meters) of you, at any given time?

3

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

6+ feet / 2+ meters apart [1/2 the risk]


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

60

Low Risk
3% of your weekly risk budget
~5 microCOVIDs each time (probably between: 2 to 20)

Microcovid.org

15



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

16

90+ Healthcare AI Startups To Watch

Imaging & Diagnostics

ablacon, aidence, aidoc, Healthyo, PathAI, Qure.ai, OAILIS, enitic, Butterfly Network, Inc., ULTRONICS, IBEX, IDx, SIG, TUPLE, 推想科技, 视觉智能, sight, zebra

Drug Discovery

Accutar Biotech, BenevolentAI, FINCH THERAPEUTICS, Atomwise, BlackThorn, AMESON, Frontier, insitro, Exscientia, engine, JUVENESCENCE, Notable Labs, OWKIN, RECURSION, 药研社, Standigm, SPRING

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

Remote Monitoring

biofourmis, CU, ContinUse Biometrics, DENTAL MONITORING

Clinical Trials

deep, HEALTHSCALE, teckro.

Nutrition


NURTAS, WHOLE STORY

Mental Health

mindstrong

Created by You. Powered by **CBINSIGHTS**

17



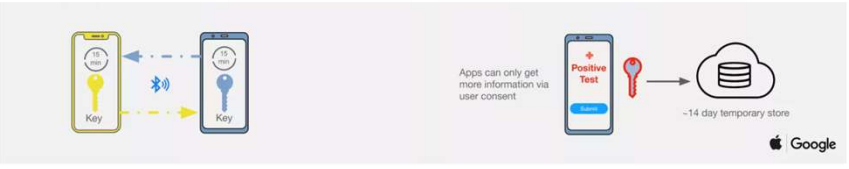
Alice and Bob meet each other for the first time and have a 10-minute conversation.

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

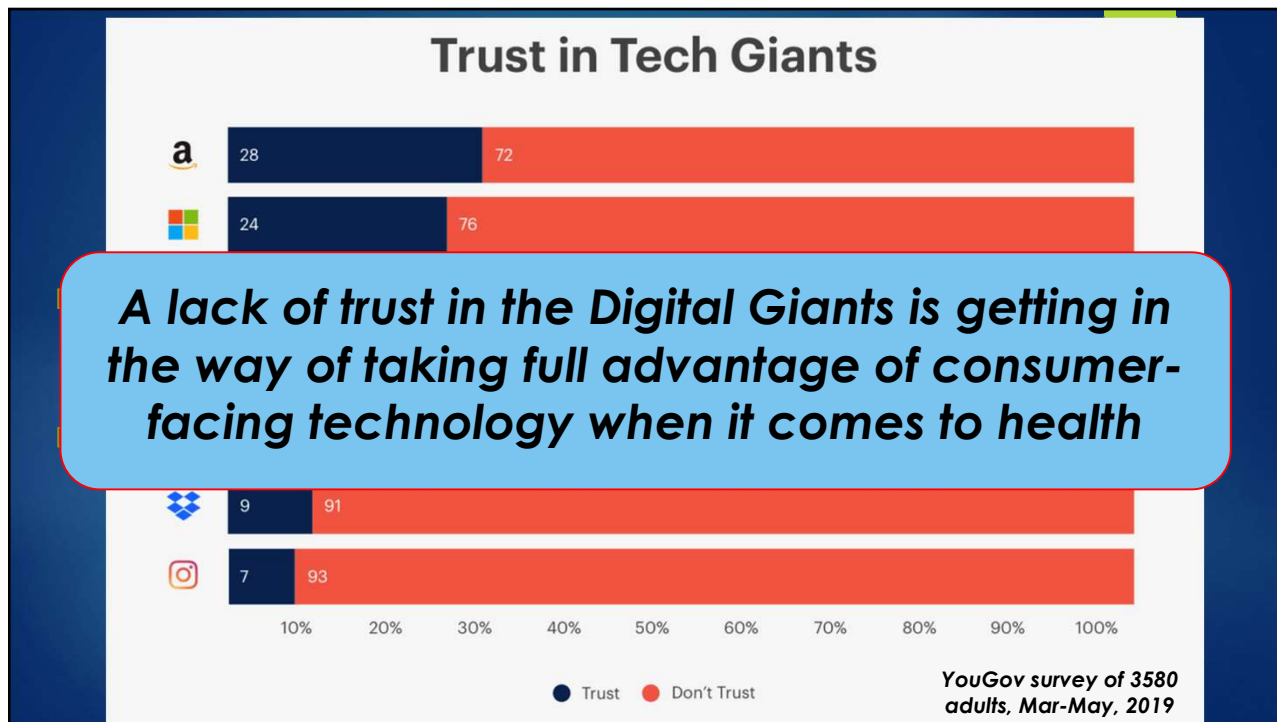


Apps can only get more information via user consent

Apple and Google

Vox

18



A lack of trust in the Digital Giants is getting in the way of taking full advantage of consumer-facing technology when it comes to health

19

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.

20

Health IT Needs Its Golden Spike



21

Maybe the Stupidest Thing I Ever Said to a Mentee



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

22

Digital Health Investments Are Growing



23

(Re) Enter the Digital Giants....

November 08, 2018 12:00 AM
August 20, 2021 04:59 PM

Google says health projects will continue—even if Google Health won't
JESSICA KIM COHEN

WSJ NEWS EXCLUSIVE | TECH

Apple Struggles in Push to Make Healthcare Its Greatest Legacy
Tech giant has envisioned hiring doctors to offer primary care, now focused on Watch

BRIEFING - ARTIFICIAL INTELLIGENCE

Here's How Microsoft Plans To Modernize Healthcare
By Erin Corbett February 7, 2019

For Sale

Sorry, We're
CLOSED
FOR EVER!

24

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, data visualization, learning from data, communication....
- ▶ Now entering the post-EHR era, facilitated by value pressure, more interoperability, cloud computing, AI, digital companies maturing... and the obvious limitations of what EHRs can offer
- ▶ Healthcare organizations are going to need to remake themselves to thrive in this era

25

Mar UCSF Health Digital Patient Experience

Health

Health

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The Medical In...
and provider...
created by phy...
decision sup...

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

Integration

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, 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.

Newsletter

Check out the latest DPE Insider.

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26

Several Easy Predictions, and a Hard One



- ▶ Health IT *will*, ultimately, transform and disrupt health and healthcare
 - ▶ Covid has shortened the timeline for this by several years
- ▶ 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 (lower probability)
 - ▶ New companies (start-ups) that skillfully address important use-cases
- ▶ ***The hard thing to predict: when?***

27

A Time for Optimism?



28