Life in the Time of COVID-19

Adrian Hernandez, MD
Susanna Naggie, MD
Eric Perakslis, PhD

Disclosure

- This is a rapidly moving area and what we say in the *next hour* may not be true for the *following hour*.

3 Key Questions

What can we do as a community to address COVID-19?

What should we do with the ongoing research that millions of people are participating in currently?

How can we learn from this crisis to be better the next time (e.g. learning health system)?

Agenda

- Current Status of COVID-19
- Impact on Current Trials and Approach
- COVID-19 Key Questions
  - Acute
  - Long-term
- Current Considerations & Potential Solutions

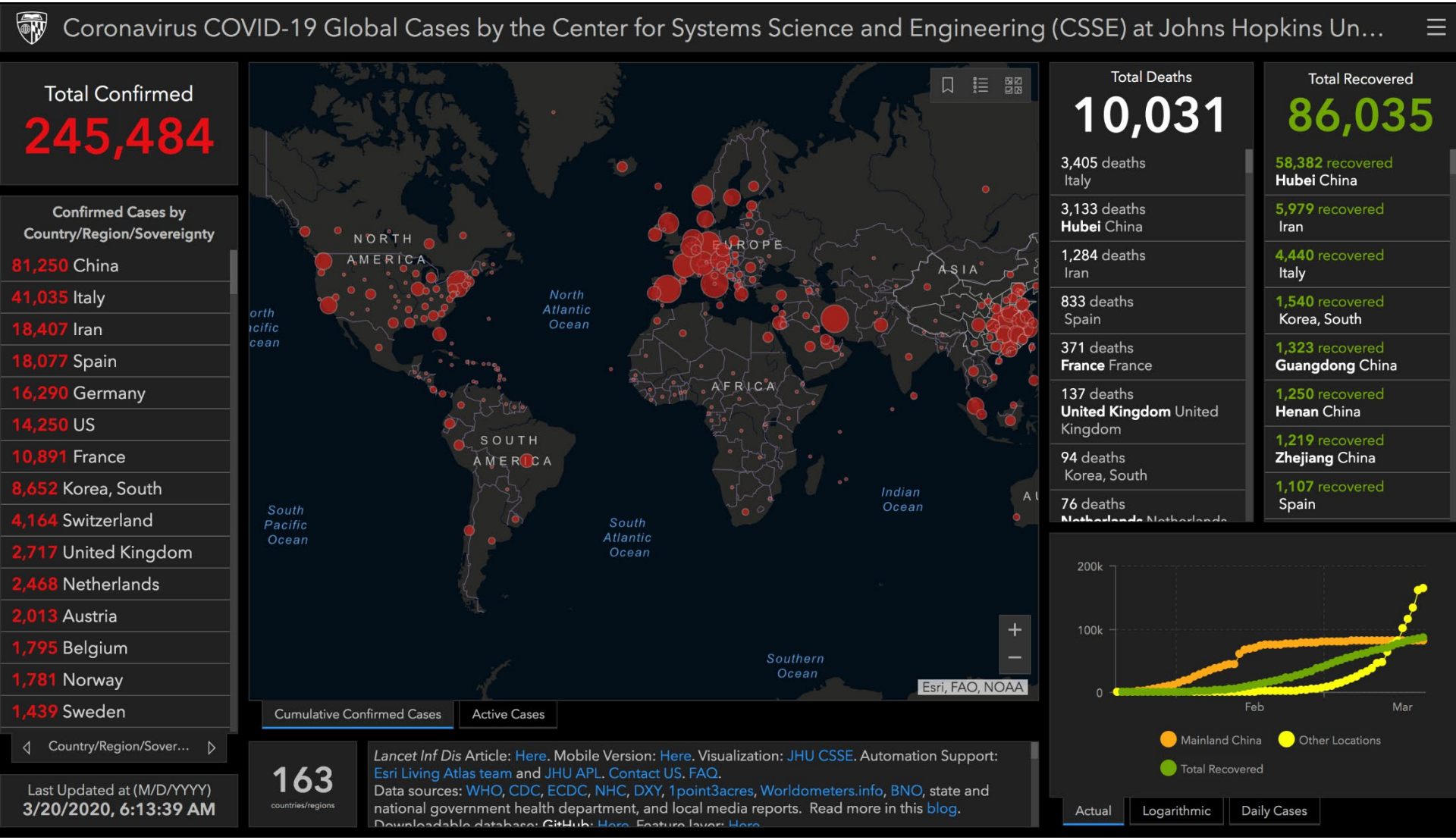
Current Status of COVID-19

Susanna Naggie, MD

Perspective

Provider in San Francisco

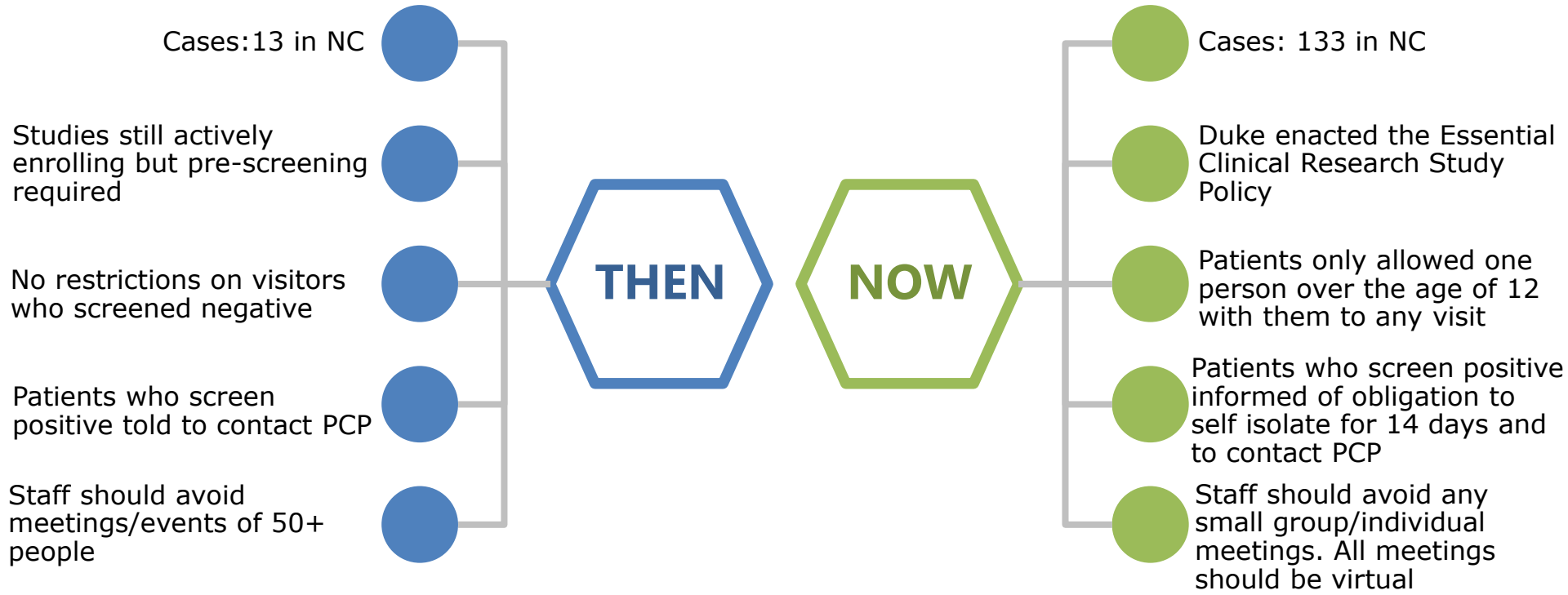
"*What made perfect sense an hour ago now seems completely ludicrous….Things are moving so fast I am finding the need to have more agile approaches to things, and not getting to wed to any decisions we make because new information in the next hour could make them irrelevant.*"



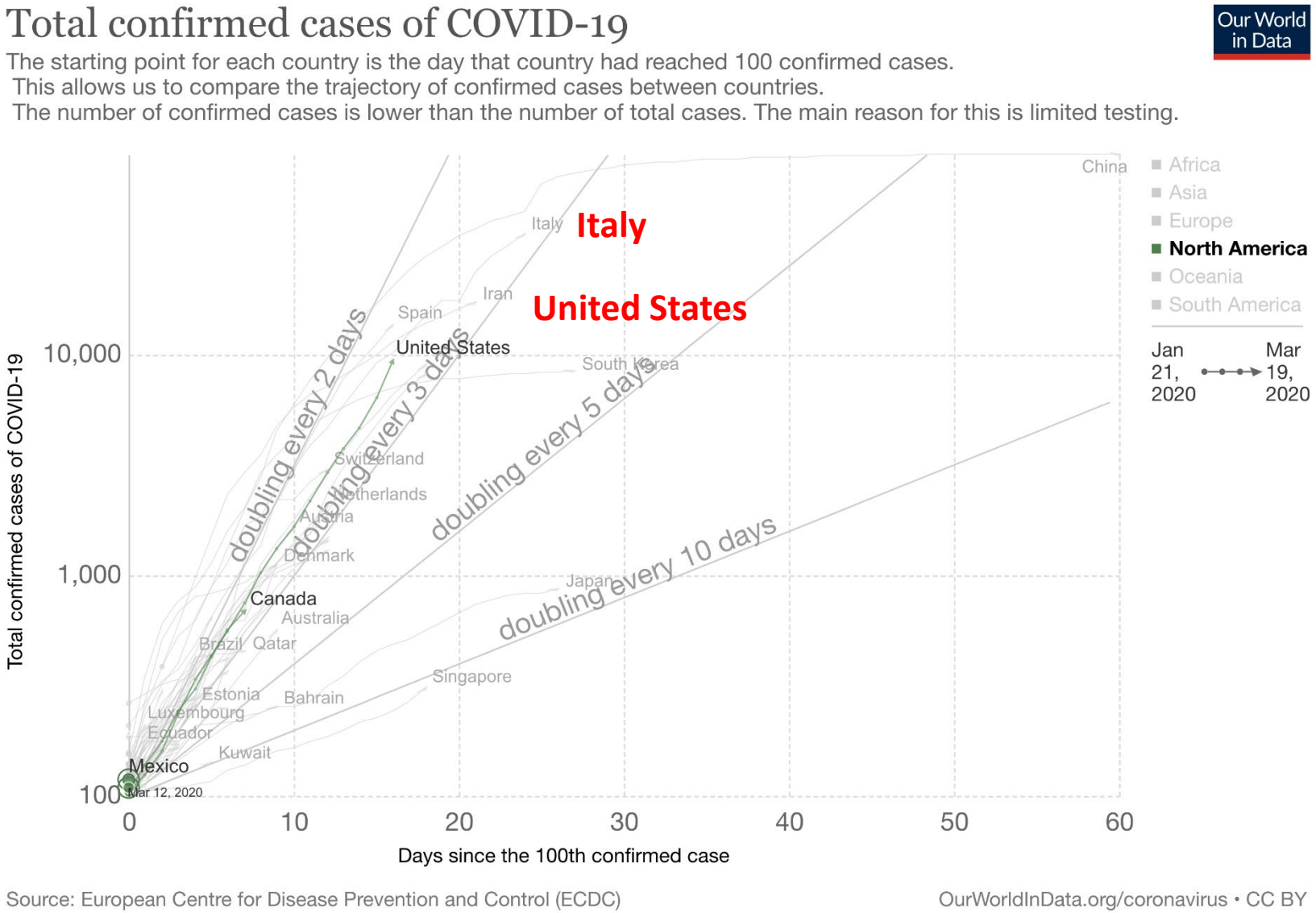
https://www.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6

COVID-19 THEN AND NOW

How things change in a ~ 2 weeks

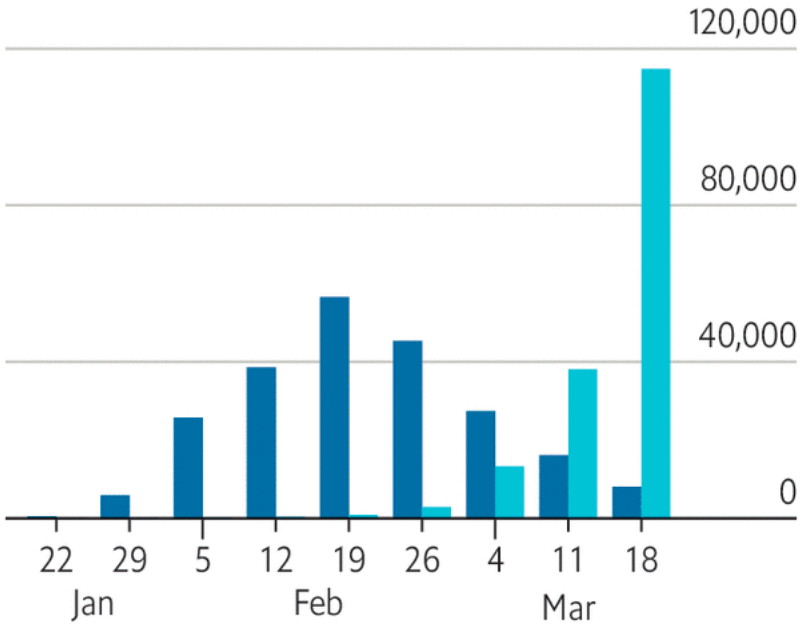


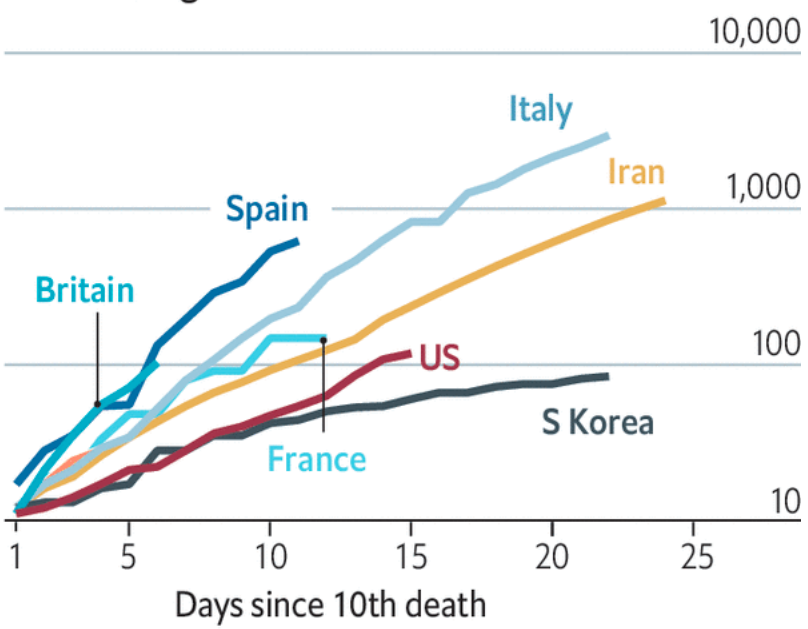
Doubling Time Matters…



Surge & Consequences

The coronavirus crisis
2020



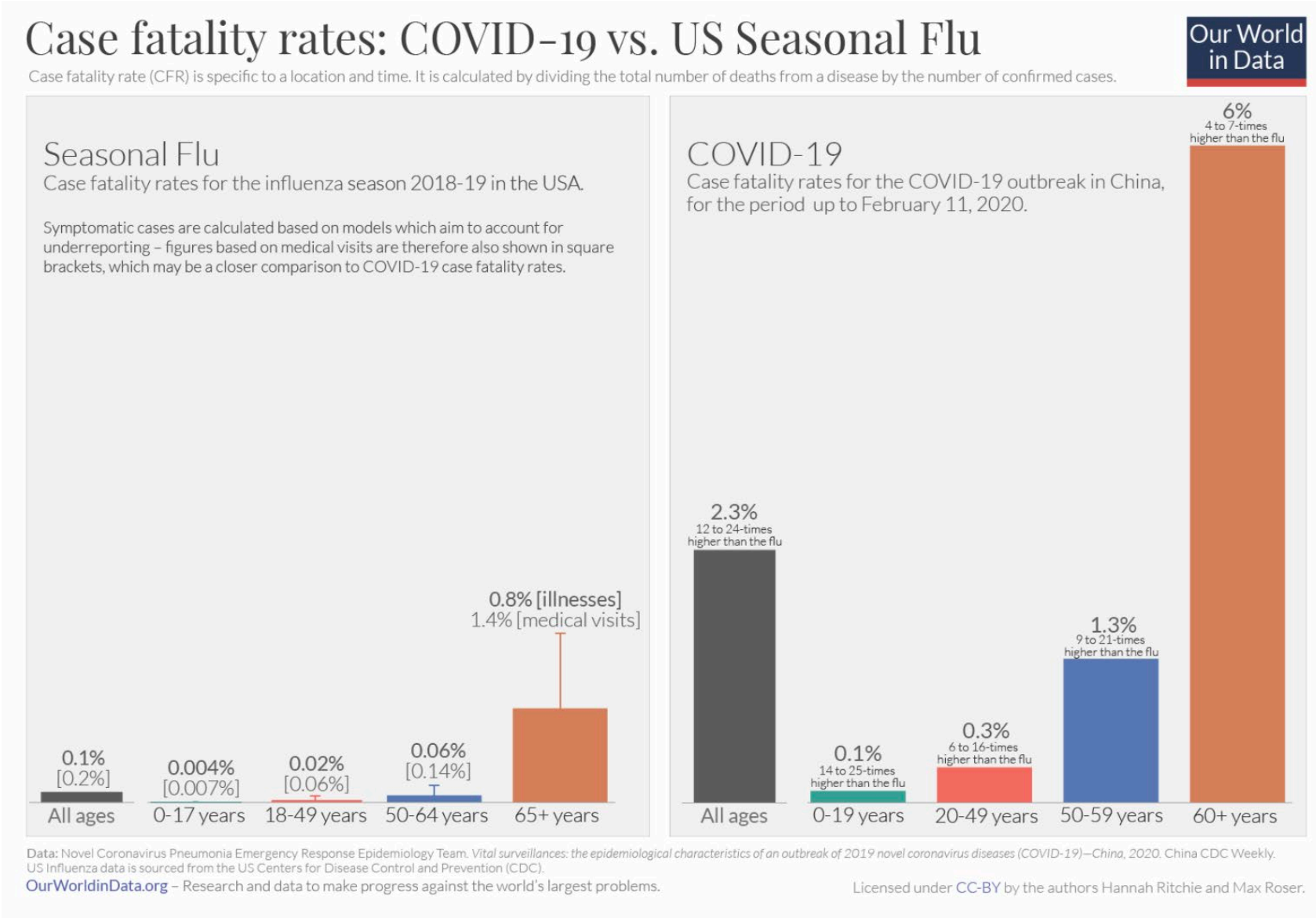


Sources: Johns Hopkins CSSE; NHS

*Confirmed cases minus recovered and dead †To March 18th 2020

The Economist

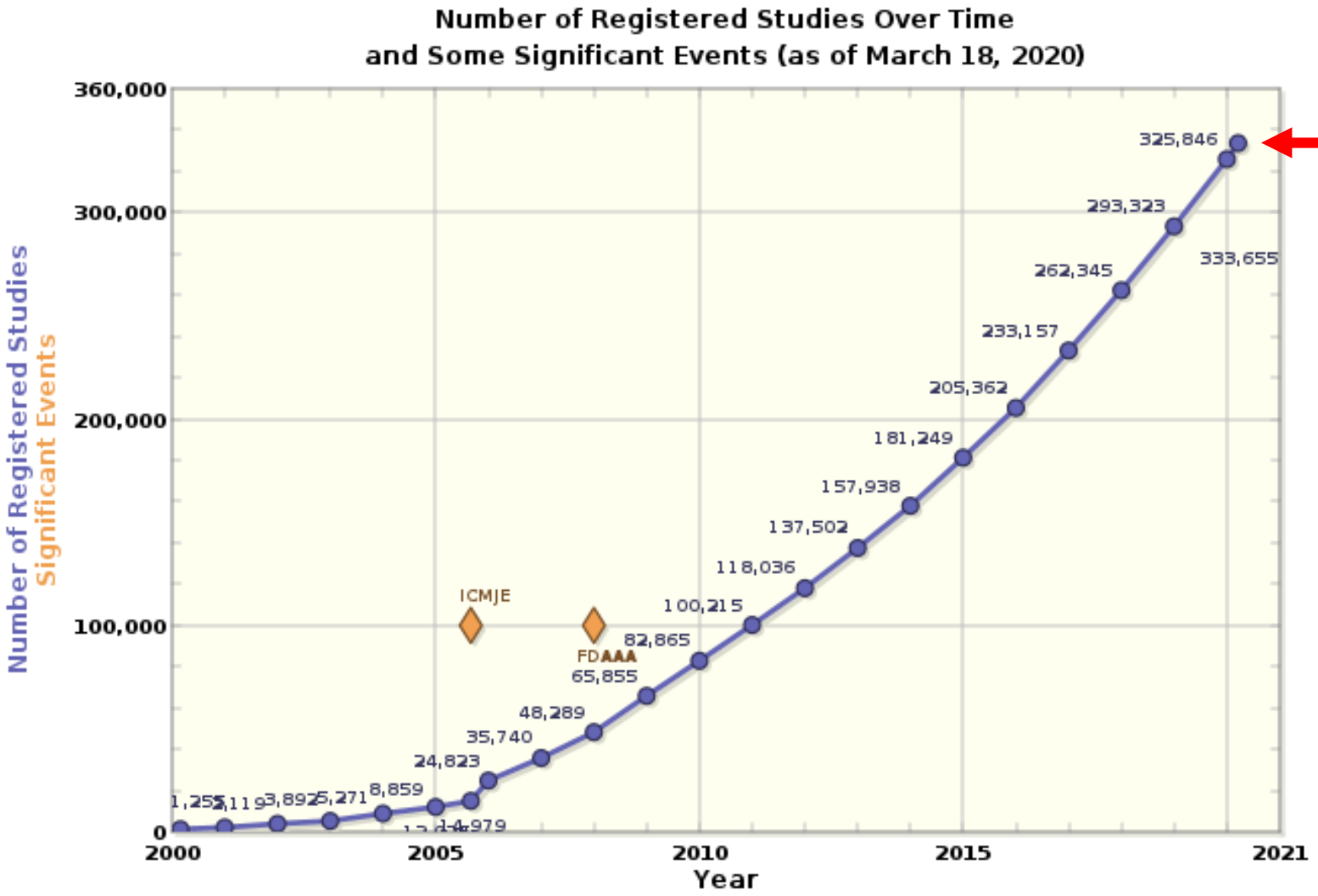
Why we need rapid answers?



Impact on Current Trials and Approach

Adrian Hernandez, MD

Number of Clinical Trials

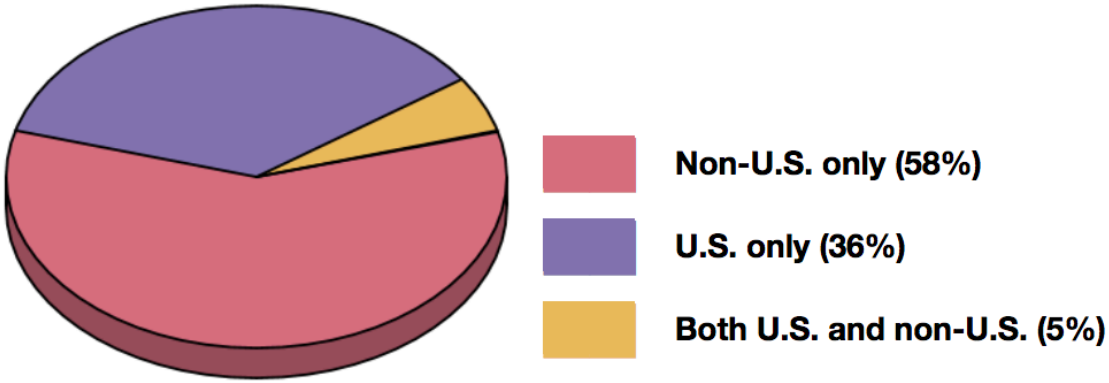


Source: https://ClinicalTrials.gov

Total Number of Trials

Percentage of Recruiting Studies by Location (as of March 18, 2020)

Total of 53,079 recruiting studies



Location	Number of Recruiting Studies and Percentage of Total (as of March 18, 2020)
Non-U.S. only	31,048 (58%)
U.S. only	19,118 (36%)
Both U.S. and non-U.S.	2,782 (5%)
Not provided	131 (0%)
Total	53,079 (100%)

Some issues…

- Should you keep enrolling?
- Should you keep follow-up?
- How should you modify protocols rapidly?
- What happens with data adversely effected by COVID19 disruptions?

NEW FDA guidance

For all trials that are impacted by the COVID-19 pandemic:

- Sponsors should describe in appropriate sections of the clinical study report (or in a separate study-specific document):
- 1. Contingency measures implemented to manage study conduct during disruption of the study as a result of COVID-19 control measures.
- 2. A listing of all participants affected by the COVID-19 related study disruption by unique subject number identifier and by investigational site, and a description of how the individual's participation was altered.
- 3. Analyses and corresponding discussions that address the impact of implemented contingency measures (e.g., trial participant discontinuation from investigational product and/or study, alternative procedures used to collect critical safety and/or efficacy data) on the safety and efficacy results reported for the study.

https://www.fda.gov/regulatory-information/search-fda-guidance-documents/fda-guidance-conduct-clinical-trials-medical-products-during-covid-19-pandemic

Benefits and Risks

- Providing access for patients to protocols when alternatives don’t exist
- Limiting risk
  - To potential participants
  - To research staff
  - Propagating community exposure

An Approach:

Tier 1 (Essential) – High Potential Direct Benefit to Research Participants

Tier 2 (Essential)- Moderate Potential Direct Benefit to Research Participants

Tier 3 (Non-essential)- Primarily observational, behavioral studies without potential direct benefit

An Approach:

Study Classification	Actions
Tier 1 (Essential) – High Potential Direct Benefit to Research Participants	• Enrollment allowed • Convert to virtual visits as much as possible
Tier 2 (Essential)- Moderate Potential Direct Benefit to Research Participants	• Suspend enrollment • Convert to virtual visits as much as possible with likely all visits virtual/tele
Tier 3 (Non-essential)- Primarily observational, behavioral studies without potential direct benefit	• Suspend enrollment • Convert all visits to virtual/tele

A time for new research models…

Direct to Participant

- Personalized
- Streamlined
- Valuable
- Safer…?

A couple of case examples

2019/2020 Influenza/RSV Program #1	2019/2020 Influenza Program #2
4 month 1-arm observational study of influenza and RSV	10 month 1-arm observational study of influenza and complications Part 11 compliant
• Daily 1-click (short survey) and follow up symptom surveys • Activity trackers • Self swab diagnostics kit • Real-time diagnostics test kit	• Daily 1-click (short survey) and follow up symptom surveys • Activity trackers • Follow-on on complications survey • Self swab diagnostics kit
• **Speed and Scale**: 100% enrollment hit: **5,200 individuals in 8 weeks**	• **Speed and Scale:** 100% enrollment hit: **10,000 individuals in 7 weeks**
• 86% wearable data compliance • 87% daily survey completion	• 89% Fitbit daily wear • 88% daily survey completion

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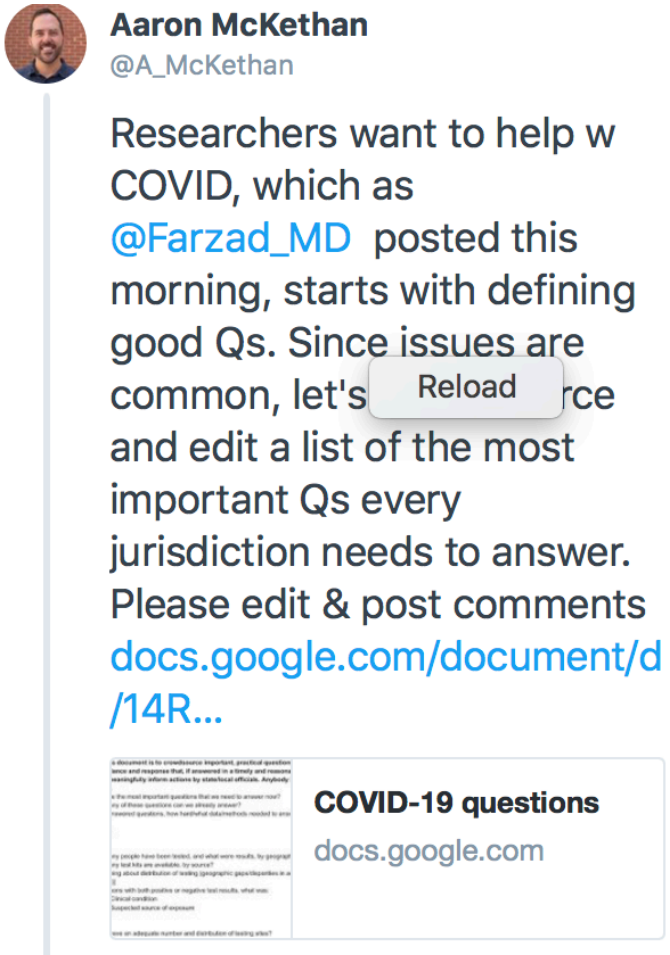
COVID-19 Key Questions
Acute
Long-term

Acute Questions

2-3 weeks, 2-3 months

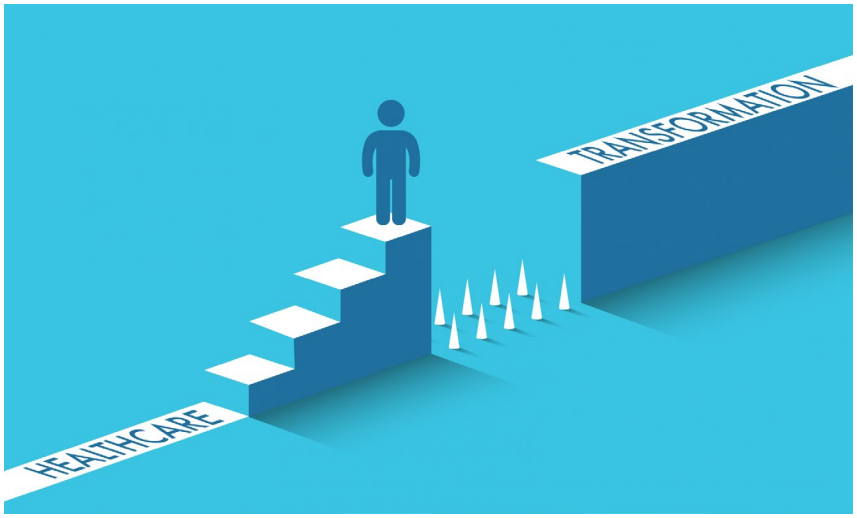


- Surveillance
- Predicted medical demand
- Current and predicted hospital demand
- Point of Care Diagnostics
- Co-morbidities, other drugs
  - ACE/ARB
  - NSAIDs
- Interventions
  - Treatment
  - Prophylaxis
  - High risk
  - Vulnerable populations
  - Pregnancy

- https://docs.google.com/document/d/14RFaKgRnf7CicazplpEaCpMX3_-AuVG7FwEBE9Lq9SQ/edit

Longer Term Questions

6-12 months and beyond



- Prevention
  - Vaccine
- Pandemic response system
- Healthcare transformation
- Healthcare disparities
- Post-COVID-19 management
  - Mental health
  - Recovery

Regulatory Considerations

Advancing Treatments to Save Lives and Reduce the Risk of COVID-19

March 19, 2020

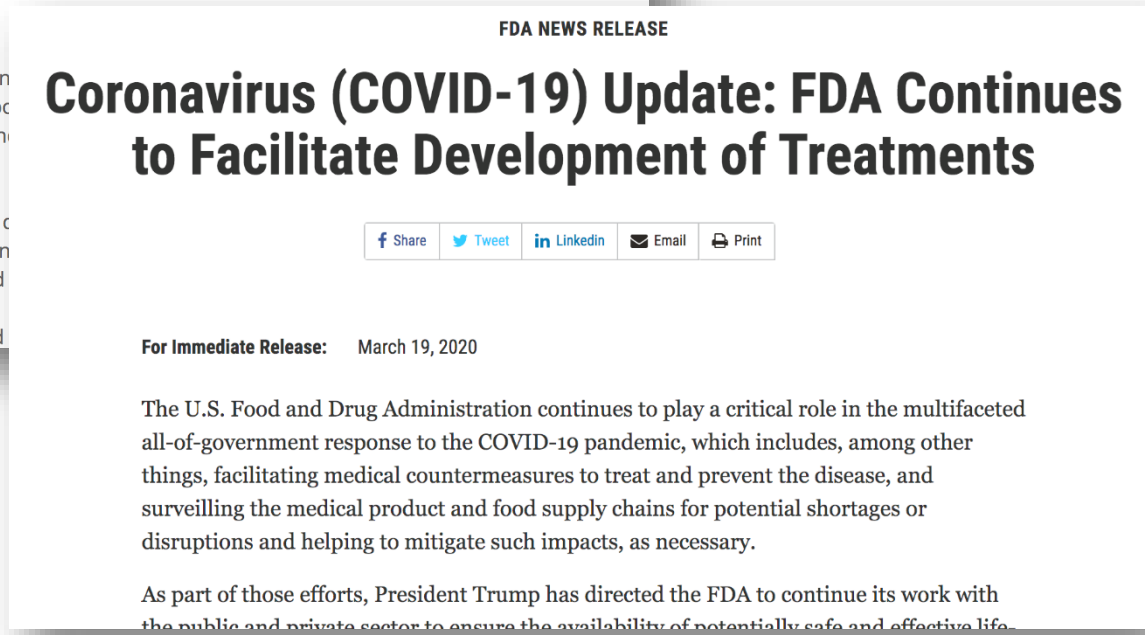
Duke-Margolis Paper Details Strategies to Treat COVID-19

Scott Gottlieb and Mark McClellan Co-Author

Durham, NC— Efficiently launching medical products to combat the curren
and Drug Administration's (FDA) work with manufacturers that have high pc
and prophylactics, stated former FDA Commissioners Scott Gottlieb, MD an
the Duke-Margolis Center for Health Policy.

The co-authors call for FDA to establish two task forces: one focused rapid c
on rapid development of effective therapeutics and prophylaxis. In addition
nationwide COVID-19 surveillance partnership to support these efforts and

"We need these drugs and testing tools to help patients now. We also need



FDA NEWS RELEASE

Coronavirus (COVID-19) Update: FDA Continues to Facilitate Development of Treatments

Share | Tweet | Linkedin | Email | Print

For Immediate Release: March 19, 2020

The U.S. Food and Drug Administration continues to play a critical role in the multifaceted all-of-government response to the COVID-19 pandemic, which includes, among other things, facilitating medical countermeasures to treat and prevent the disease, and surveilling the medical product and food supply chains for potential shortages or disruptions and helping to mitigate such impacts, as necessary.

As part of those efforts, President Trump has directed the FDA to continue its work with the public and private sector to ensure the availability of potentially safe and effective life-

Key Areas:

- Point of care diagnostics
- Therapeutics and Prophylaxis
- Surveillance

https://healthpolicy.duke.edu/sites/default/files/atoms/files/covid-19_tx_working_paper.pdf

Current Considerations & Potential Solutions

Eric Perakslis, PhD

Essential Considerations

- Continuity – Airway (connectivity), Breathing (capability), Circulation (productivity of systems and processes)
- Care – best and safest care environment and outcomes
- Research – assurance of clin ops, supply chain, data and sample integrity etc

Digital Tools can Ensure Ethical Practices

BMC Part of Springer Nature Search

Conflict and Health

Home About Articles Collections Submission Guidelines

Review | Open Access | Published: 14 May 2018

Using digital health to enable ethical health research in conflict and other humanitarian settings

Eric D. Perakslis

Conflict and Health **12**, Article number: 23 (2018) | Cite this article

2757 Accesses | **4** Citations | **49** Altmetric | Metrics

Rule #1: Do not drop standards or obligations

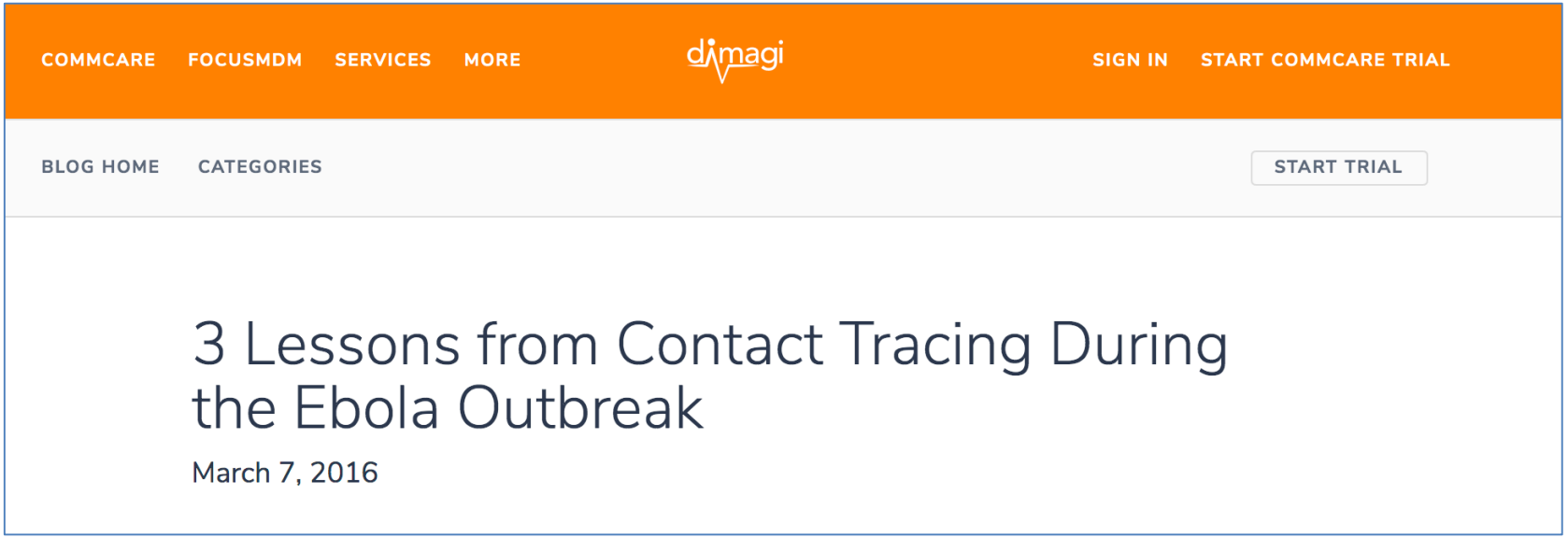
Priority Outbreak Informatics Use cases

What is contact tracing?

Contact tracing can stop an Ebola outbreak in its tracks

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Contact tracing is finding everyone who comes in direct contact with a sick Ebola patient. Contacts are watched for signs of illness for 21 days from the last day they came in contact with the Ebola patient. If the contact develops a fever or other Ebola symptoms, they are immediately isolated, tested, provided care, and the cycle starts again—all of the new patient's contacts are found and watched for 21 days. **Even one missed contact can keep the outbreak going.**

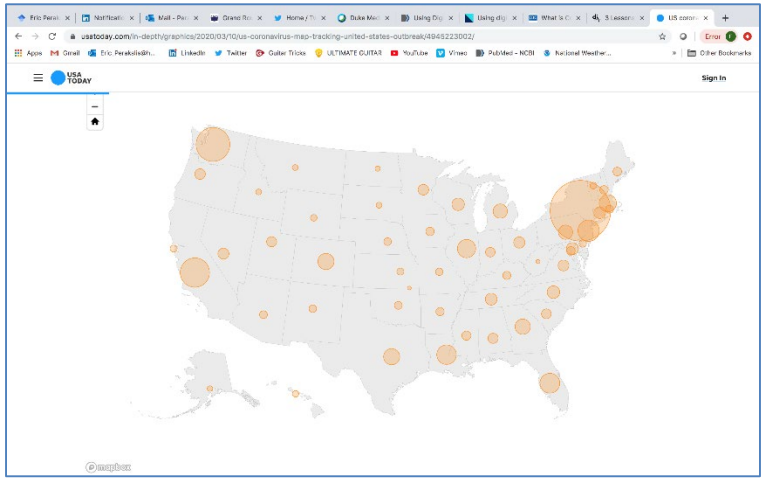


Enabling and Enhancing Telehealth

Real-time Telehealth Geospatial Dashboard During Sessions

Opportunity to use data from telehealth consults to provide a real-time geo-spatial map of telehealth consults and the resulting/associated covid-19 testing results.

1. Data, such as IP addresses, already exists within these systems
2. Privacy preserved via tokenization technologies
3. Could be done to the address, city-block or census block level (the last two most likely to be privacy-preserving)
4. Primary use cases are triage and risk determination
5. The value and utility would be greatly enhanced if executed in conjunction with the standardized, lightweight collection form



A Standardized Lightweight Case Collection Form

Collect questions - lots of tests done, still lots of unknowns, don't know about community spread, how to gain epidemiological value - creating the 5 questions – all states should have visibility. Generate and propose it. Great precedent from WHO during EVD outbreak in West Africa.

1. What are the most common questions?
   - ILI symptomology
   - Contact information
   - Background medical history (vulnerability)
   - Testing information
   - …

2. How to standardize collection and dissemination?
   - Mobile app
   - National Registry
   - Single protocol under change control @ CDC
   - Online training

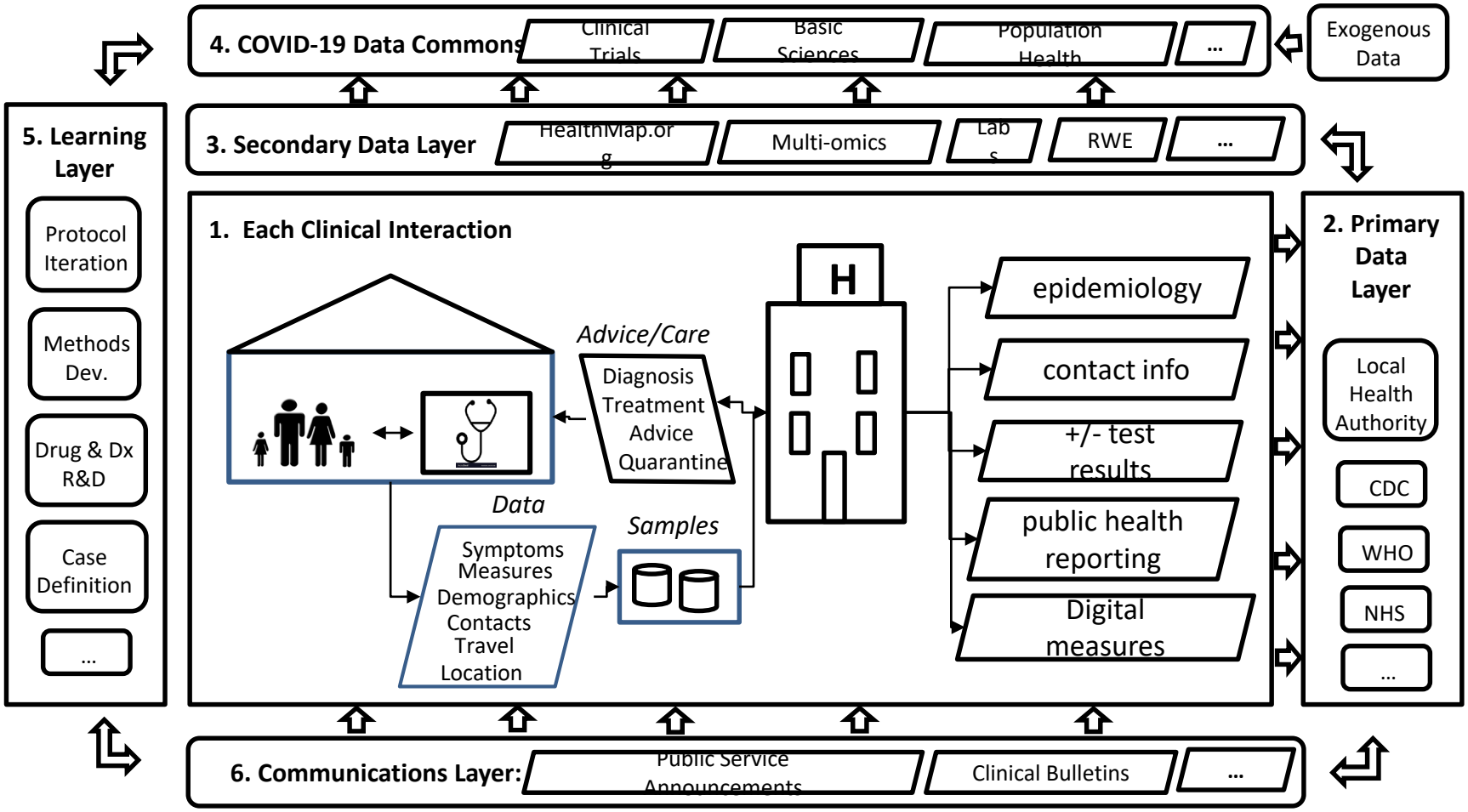
Other Outbreak Informatics Use cases

1. Did any pts. go to the ED with fever, cough, etc.? Un-filter ADT feeds, include Medicare feeds, **aggregate and push**

2. Syndromic surveillance – have the ER registration data – are the huge increases covid-related? Is there an increase in Influenza-like-illnesses (ILI) visits? Negative flu testing? Smart Search?

3. How to acquire certain specific data – supply chain. Verily search?

A Telehealth-based Outbreak Learning Health Unit



Discussion

What can we do as a community to address COVID-19?

What should we do with the ongoing research that millions of people are participating in currently?

How can we learn from this crisis to be better the next time (e.g. learning health system)?