

# **The State of U.S. Preparedness and Public Health as Revealed by the Pandemic**

## **The U.S. Public Health System Response**

**President's Council of Advisors on Science & Technology  
September 29, 2021**

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Executive Director**



# My Objectives Today

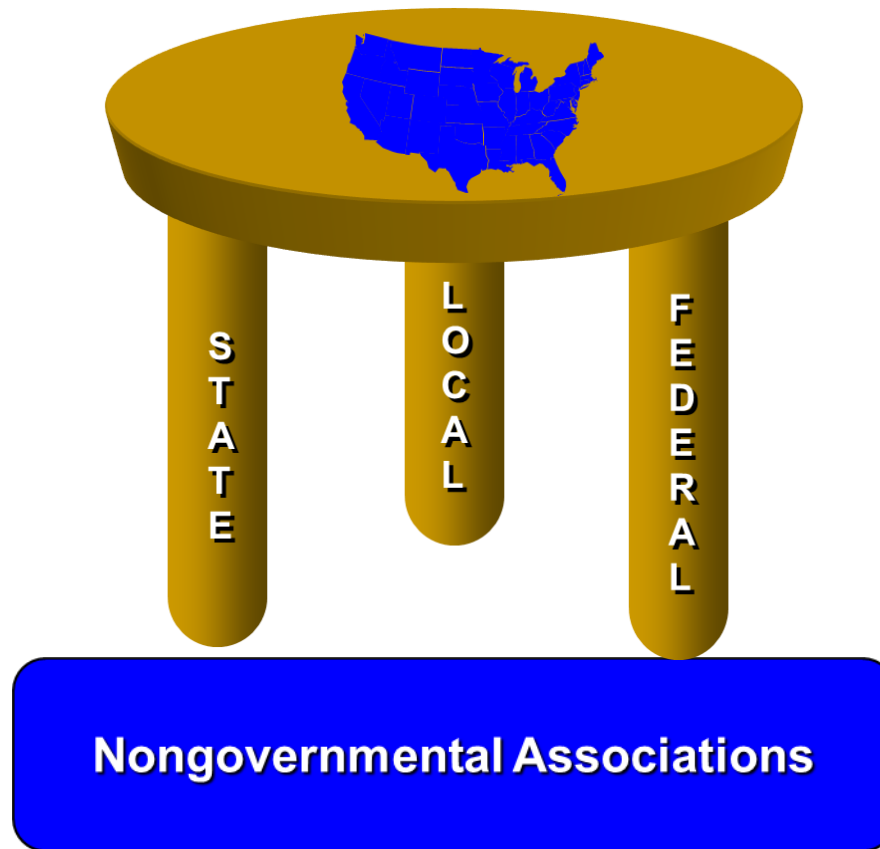
1. Describe the U.S public health system
2. Discuss some major challenges in the response
3. Present recommendations for PCAST

# Public Health System Emergency Preparedness

The capability of the public health and health care systems, communities, and individuals, to prevent, protect against, quickly respond to, and recover from health emergencies, particularly those whose scale, timing, or unpredictability threatens to overwhelm routine capabilities\*

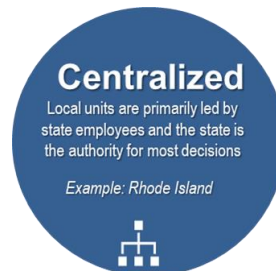
\* Christopher Nelson, Nicole Lurie, Jeffrey Wasserman, and Sarah Zakowski,, Conceptualizing and Defining Public Health Emergency Preparedness American Journal of Public Health 97, S9\_S11, 2007

# Federal, State & Local Partnership



# Governance & Management

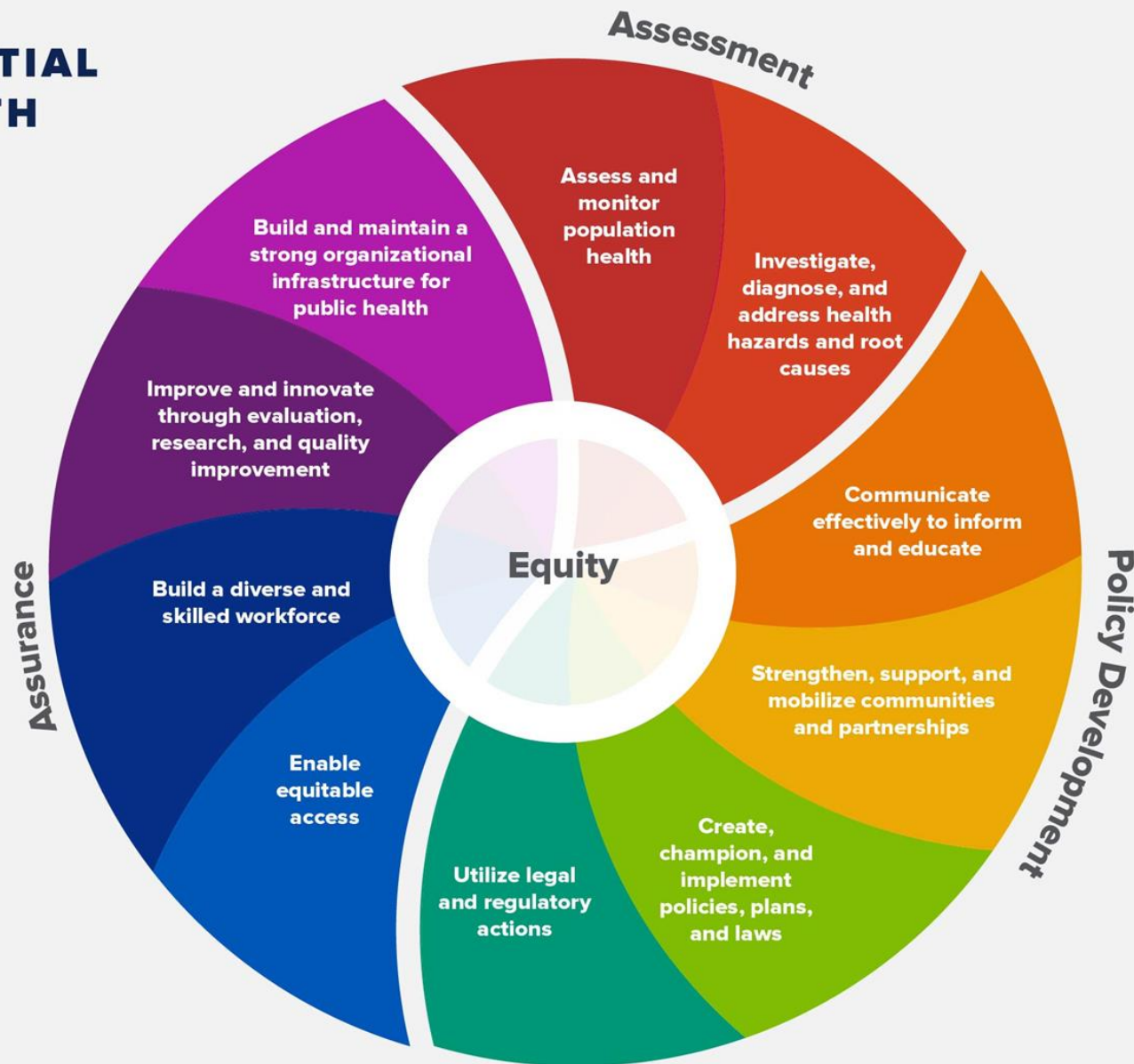
- Governmental public health - Has the legal responsibility for the health of the community
- Governed locally & managed as a partnership
- Relies on some nonprofit organizations to expand its operational & early warning capacities:
  - ASTHO
  - NACCHO
  - APHL
  - CSTE
  - CDC Foundation



# THE 10 ESSENTIAL PUBLIC HEALTH SERVICES

*To protect and promote the health of all people in all communities*

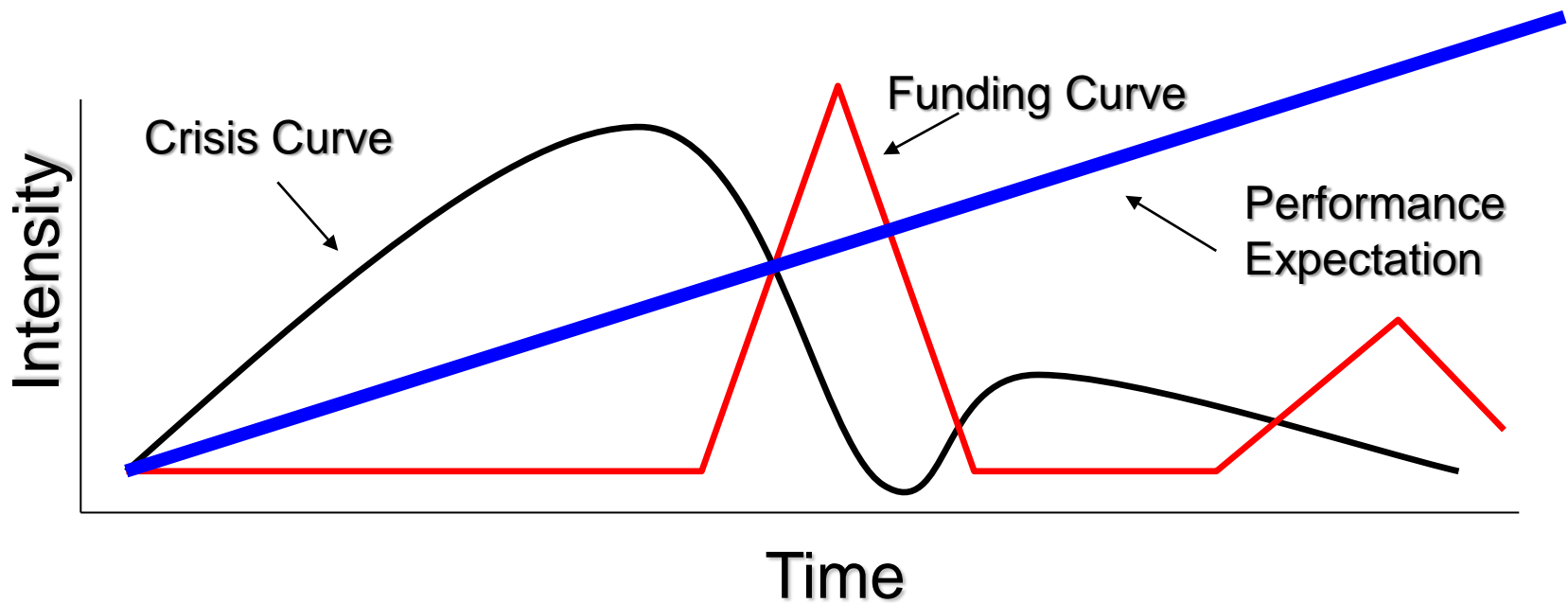
The 10 Essential Public Health Services provide a framework for public health to protect and promote the health of all people in all communities. To achieve optimal health for all, the Essential Public Health Services actively promote policies, systems, and services that enable good health and seek to remove obstacles and systemic and structural barriers, such as poverty, racism, gender discrimination, and other forms of oppression, that have resulted in health inequities. Everyone should have a fair and just opportunity to achieve good health and well-being.



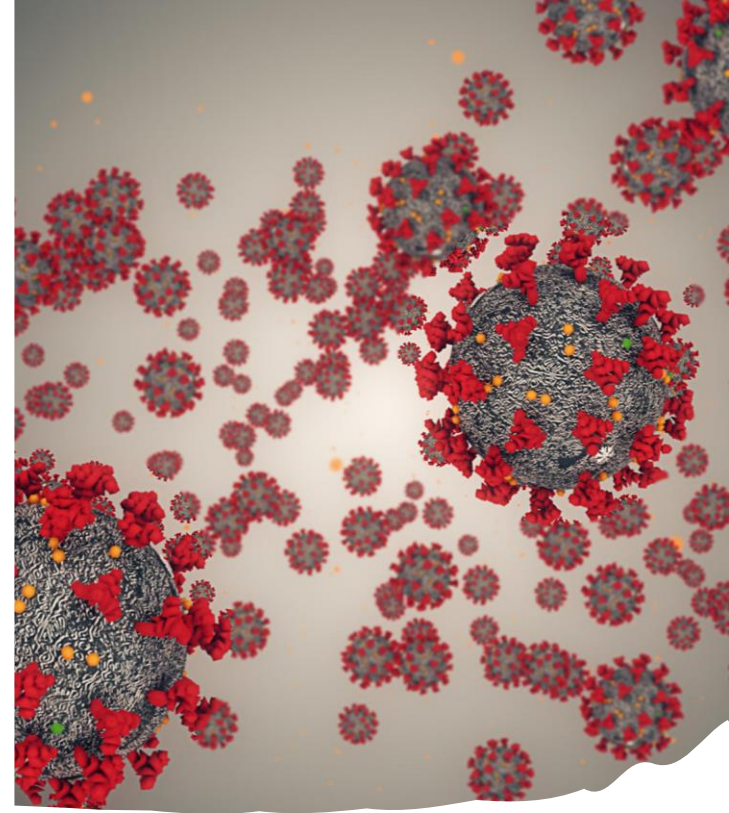
# The Public Health System Developed Over Time

- The overall system is not designed or resourced to meet strategic needs of the nation
- Patchwork of programs and funding streams to address health promotion, disease prevention and health protection
- Emergency preparedness capacities also developed over time through a series of episodic funding streams
  - Federal funding reduced by 50% for hospitals & 33% for public health since 2003

# Public Health Operates In An Incongruent Fiscal Environment







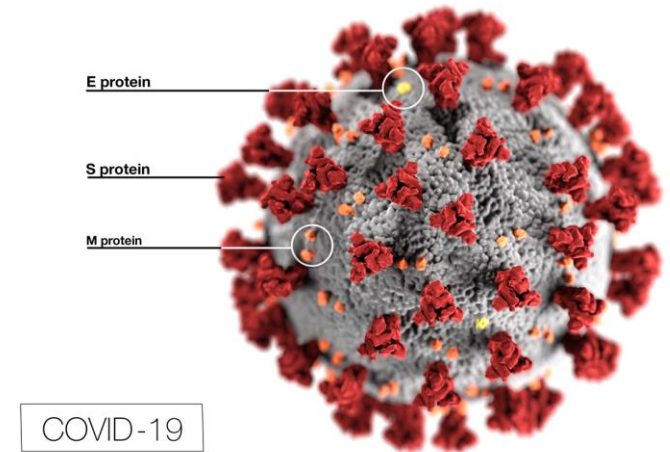
**December 2019: Cluster  
of Severe Pneumonia  
Wuhan China**

# Overall Systems Failures

- Pandemic preparedness not based on a universal pandemic model
- Much of what happened was predictable based on history, prior emergency experience and evaluations
- Not a failure of science and technological discovery
- Major failure of resources, capacity building, deployment of science and technology & the processes of readiness for preparedness and response
- Limited research capacity during emergencies
- Single points of failure – Testing, supply lines

# Five Examples

- Pathogenic disease surveillance & laboratory capacity
- Data & information capacity
- Science & risk communication
- Health inequities
- Vaccinations



# **Pathogenic Disease Surveillance Capacity Limited**

- Siloed disease reporting systems
- Advance molecular detection capacity limited
- Genome sequencing capacity & variants cataloging rudimentary
- Modelling capacity limited



# Disease Surveillance & Laboratory Capacity

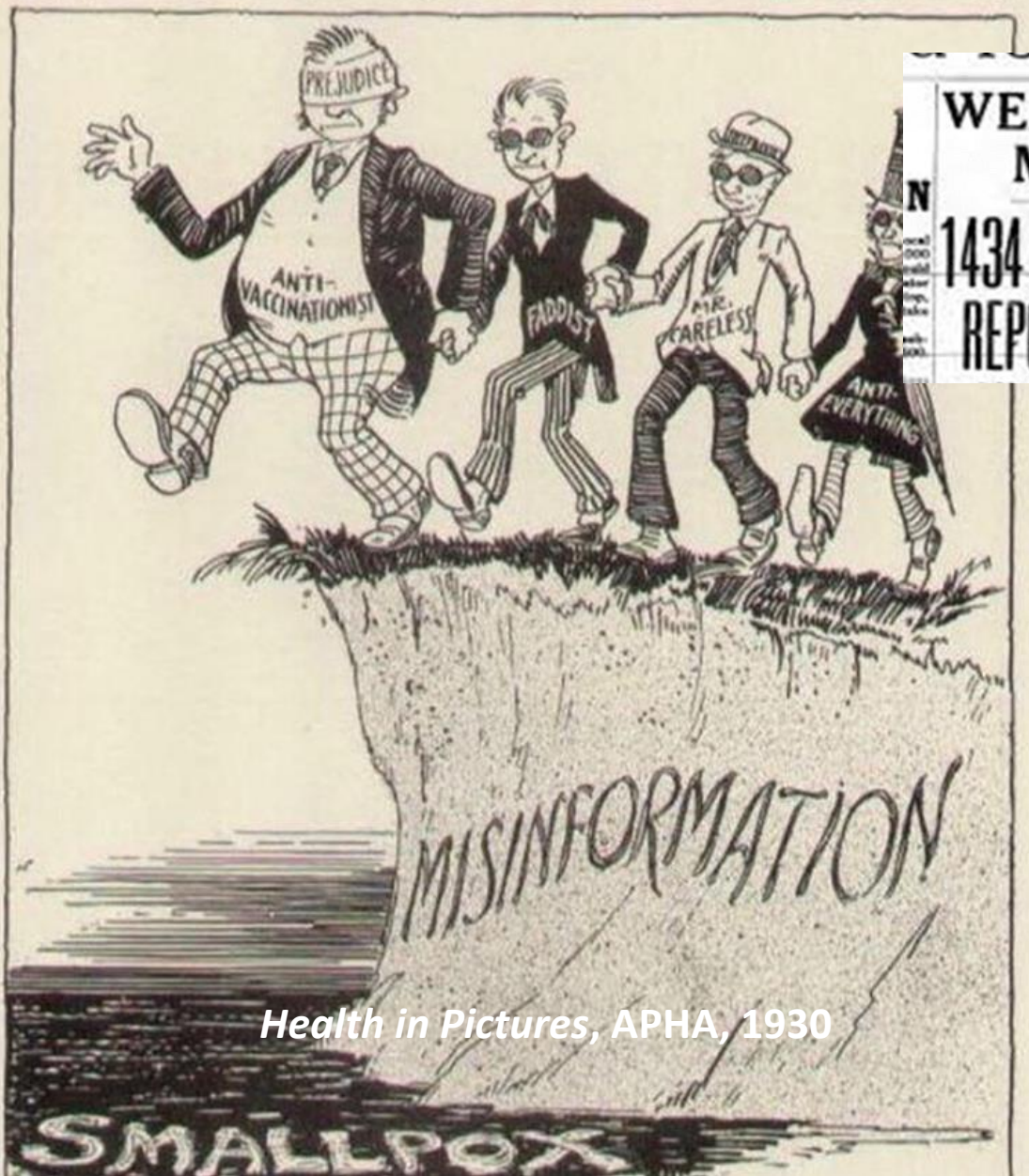


- Pre-analytic capacity - Supply chain fragile, federal stockpile inadequate, regulatory model for testing in emergencies problematic
- Analytic capacity - Had technical knowledge but inadequate access to best technology and limited capacity to scale up

# Data Sharing: A Major Problem



- **Old data systems**
- **Paper based systems**
- **Inadequate interoperability**
- **Demographic data (race & ethnicity) often incomplete**
- **Inadequate surveillance systems**



*Health in Pictures, APHA, 1930*

## WEARING 'FLU' MASK MANDATORY IN PROVO

1434 CASES  
REPORTED

### Face Covering for Barbers

With the epidemic of influenza and pneumonia, every barber shop, including the barber and hairdresser, has been equipped with immaculate hospital aprons and gauze face masks in a local barber shop. Health officials today ordered all barbers and hotel room attendants in California to wear masks during the epidemic under penalty of prosecution, according to press dispatches.

Postmaster: Please send no money orders or checks to this office. Use "P.O. Box 1000" for all correspondence.



**MarketWatch**

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## U.S. health officials say Americans shouldn't wear face masks to prevent coronavirus — here are 3 other reasons not to wear them

By Elisabeth Buchwald

Published: Mar 2, 2020 12:47 pm ET



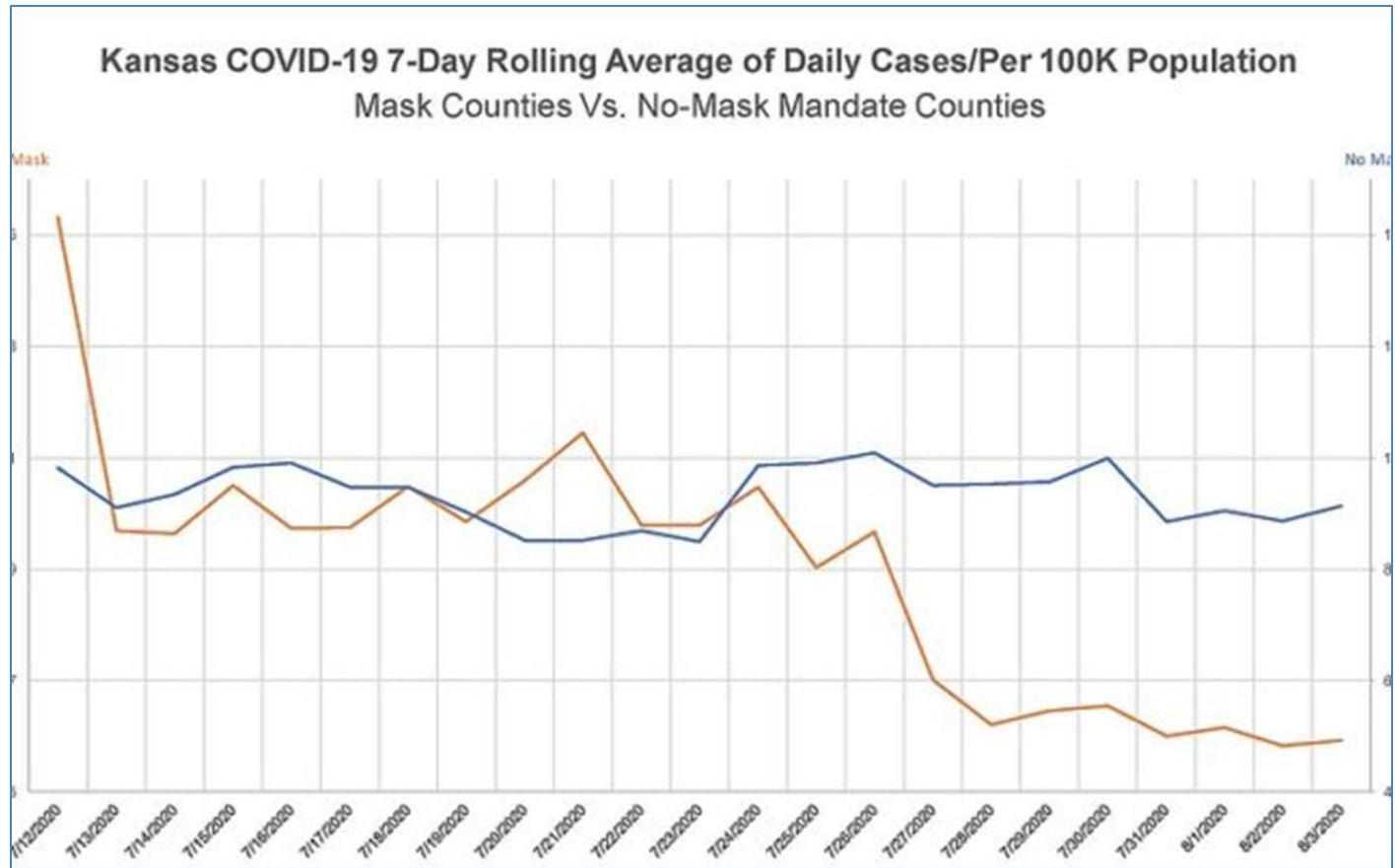
Most people don't use face masks correctly, a Johns Hopkins public health expert told MarketWatch

**Risk & science communication**





# Communicating Evolving Knowledge: Actually, Masks Work





# Societal Determinates Drove COVID-19 Inequities

- **Exposure**
  - Public facing occupations
  - Delayed sheltering in place
- **Susceptibility**
  - Prevalence of chronic disease
- **Social conditions**
  - Lack of paid sick leave
  - Poverty
  - Housing situation
  - Structural Racism



## COVID-19 Cases, Hospitalizations, and Deaths by Race/Ethnicity

| Rate ratios compared to White, Non-Hispanic persons | American Indian or Alaska Native, Non-Hispanic persons | Asian, Non-Hispanic persons | Black or African American, Non-Hispanic persons | Hispanic or Latino persons |
|---|--|-----------------------------|---|----------------------------|
| Cases <sup>1</sup>                                  | 1.9x   | 0.7x                        | 1.1x  | 1.3x                       |
| Hospitalization <sup>2</sup>                        | 3.7x   | 1.1x                        | 2.9x  | 3.2x                       |
| Death <sup>3</sup>                                  | 2.4x   | 1.0x                        | 1.9x  | 2.3x                       |

Race and ethnicity are risk markers for other underlying conditions that affect health, including socioeconomic status, access to health care, and exposure to the virus related to occupation, e.g., among frontline, essential, and critical infrastructure workers.

### How to Slow the Spread of COVID-19



Wear a mask



Stay 6 feet apart



Avoid crowds and poorly ventilated spaces



Wash your hands



[cdc.gov/coronavirus](https://cdc.gov/coronavirus)

CS319360-A 02/12/2021



# Operation Warp Speed Worked



**Sound strategic decision to  
accelerate vaccine discovery & access  
Built on 20 years of financial investments and  
partnerships in basic and clinical research**

# Research - Practice Divide

## Getting Shots Into Arms Did Not Get The Same Level Of Early Focus

- Initially, inadequate planning for shot delivery
- Risk communications science untimely use
- Public health systems research knowledge not used effectively for immunizations







**Global Cases Confirmed**  
**231,907,590**

**Global Deaths**  
**4,749,827**

**U.S. Confirmed**  
**42,932,211**

**U.S. Deaths**  
**688,041**

John Hopkins 9/27/21

**National COVID Commission**

# **Central Challenge For The Nation**

Structure and resource the nation's health and public health system to meet the strategic needs of the nation to perform its national security mission and build:

**A Next Generation Public Health System**

# Recommendations: To Build A Next Generation Public Health System

1. Radically transform and fully integrate U.S. public health & health care system data infrastructures
2. Build a comprehensive capacity to **rapidly** track & evaluate pathogenic organisms using **next generation** genetic tools
3. Develop a **robust system to forecast disease** as a tool for prevention and early intervention
4. Strengthen the all hazards, **emergency preparedness leadership** program for the U.S.
5. Restore public trust in science and government & improve public science literacy
6. Operationalize health equity in public health & healthcare



# Questions



# About APHA

The American Public Health Association champions the health of all people and all communities. We are the only organization that combines a nearly 150-year perspective, a broad-based member community and the ability to influence federal policy to improve the public's health. Learn more at [www.apha.org](http://www.apha.org).

- Founded – April 18, 1872
- 501C(3) & Nonpartisan
- Over 50,000 individual & affiliate members

