

Agile Approaches for Governing Emerging Technologies

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An aerial photograph of a mountainous landscape. A winding asphalt road with white lane markings snakes across a steep, rocky slope covered in patches of green grass. A red cable car is visible in the middle of the slope. In the background, more mountain ridges and a valley with power lines are visible under a clear sky.

Governing Emerging Technologies: 101

- **Scan the horizon**
- **Assess existing policy landscape**
- **Establish promote and protect frameworks**
- **Continuously monitor and reassess**
- **Understand technology maturation/readiness**

OCTOBER 30, 2023

Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence



▶ BRIEFING ROOM

▶ PRESIDENTIAL ACTIONS

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered as follows:

CASE STUDY 1

Section 1. Purpose. Artificial intelligence (AI) holds extraordinary potential for both promise and peril. Responsible AI use has the potential



(2) Assess Existing Policy Landscape

NIH's policy framework is designed to responsibly guide and govern advancing science and emerging technologies, including development and use of AI technologies in research.

- Research Participant Protections
- Data Management and Sharing
- Health Information Privacy
- Licensing, Intellectual Property
- Biosecurity and Biosafety

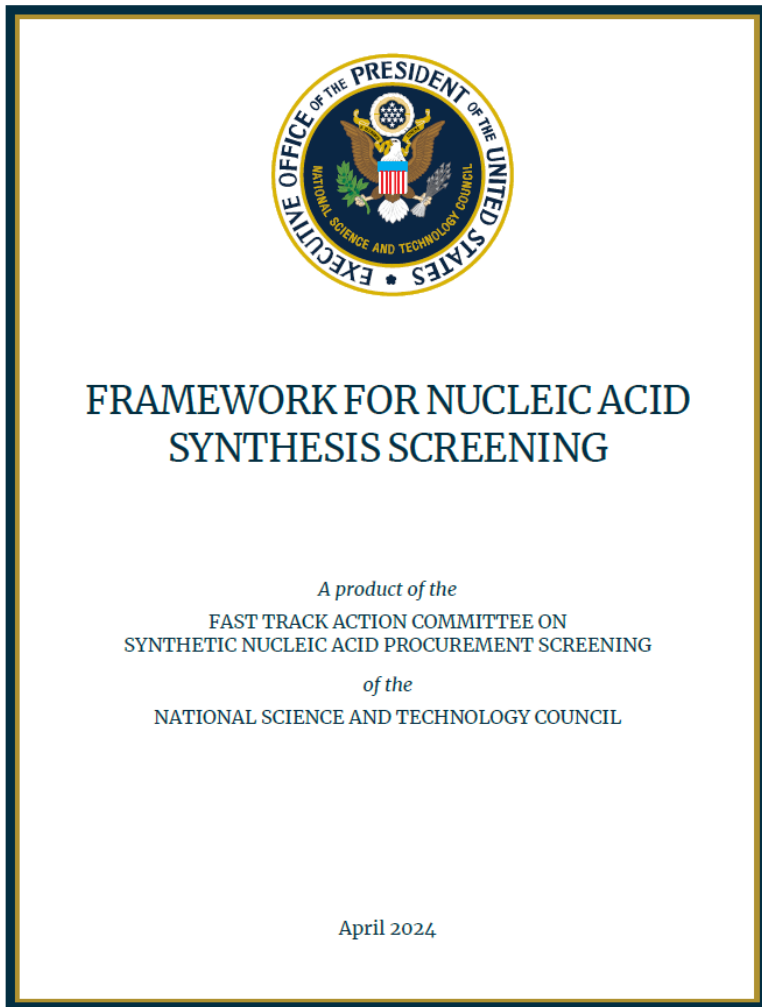
<https://osp.od.nih.gov/policies/artificial-intelligence/>



Not A Blank Space: Policy Considerations for AI in Research



(3) Establish Promote and Protect Frameworks



- Nucleic acid synthesis screening is an effective, targeted measure to **mitigate the potential for misuse** of AI-enabled biotechnologies.
- Providers of synthetic nucleic acids encouraged to **implement comprehensive, scalable, and verifiable procurement screening**.
- NIH and other funders **will require awardees** to only procure synthetic nucleic acids from providers or manufacturers that attest to adherence.
- US National Institute on Standards and Technology is engaging industry to **support development of technical standards**.

(4) Continuously Monitor and Reassess

Upcoming NSABB Meeting on Biosecurity and Biotechnology Policy

Roadmap for Safeguarding *in silico* Research with Potential Dual Use Concerns

- Approaches for identifying and assessing risks/benefits of:
 - **developing and using** computational models with dual use potential
 - **conducting research** through computational strategies that make the design of a pathogen with enhanced pandemic potential, novel biological agent or toxin, etc. more accessible
- Guidance **for risk mitigation** that would strengthen safety and bolster trustworthiness of such research
- Methods to **responsibly communicate research products and educate the research community** on potential misuse risks and mitigation strategies

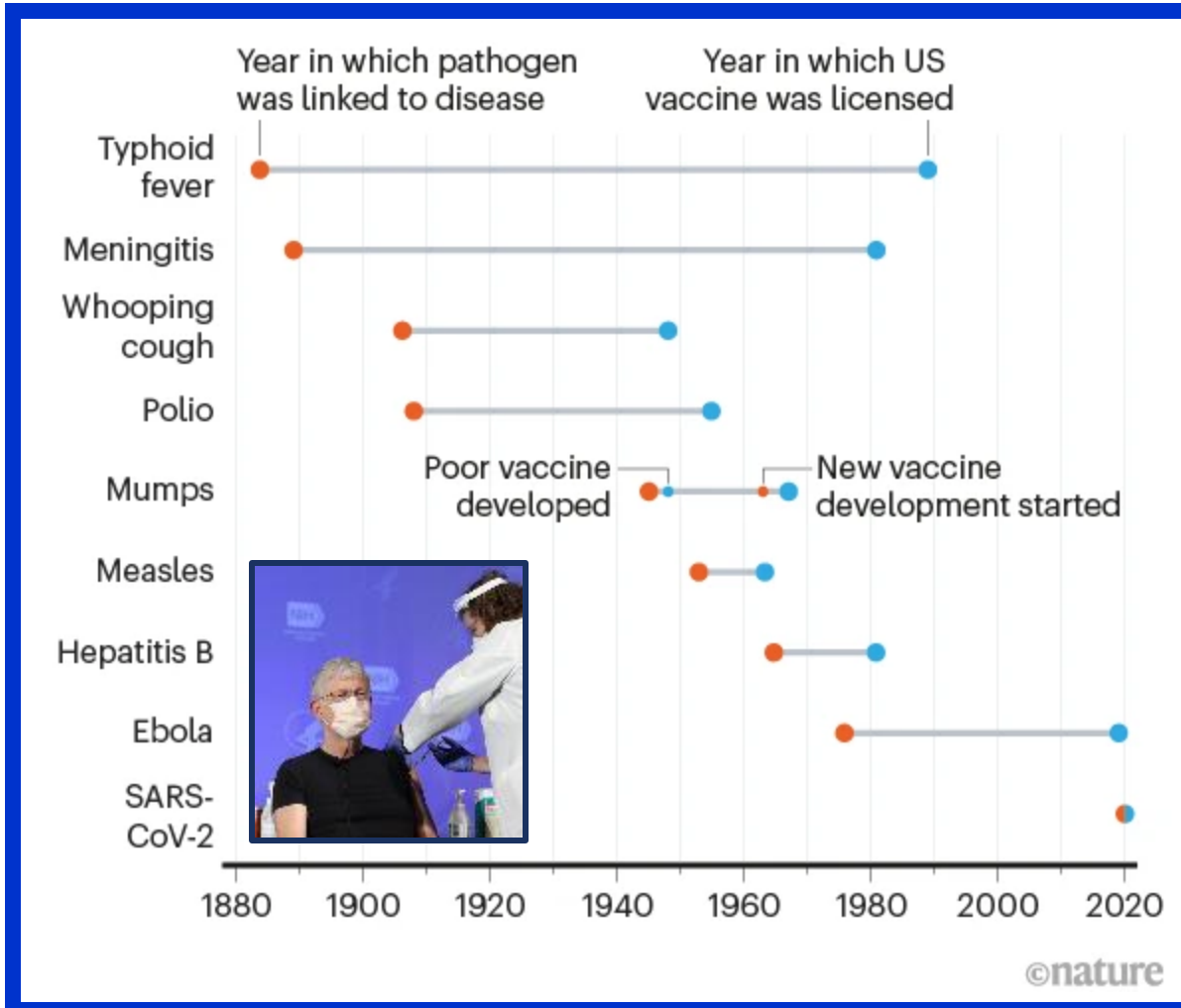
CASE STUDY 2

(5) Understand Technology Maturation/Readiness



An unparalleled achievement

Vaccine Development for Sars-Cov2



The Nobel Prize in Physiology or Medicine 2023



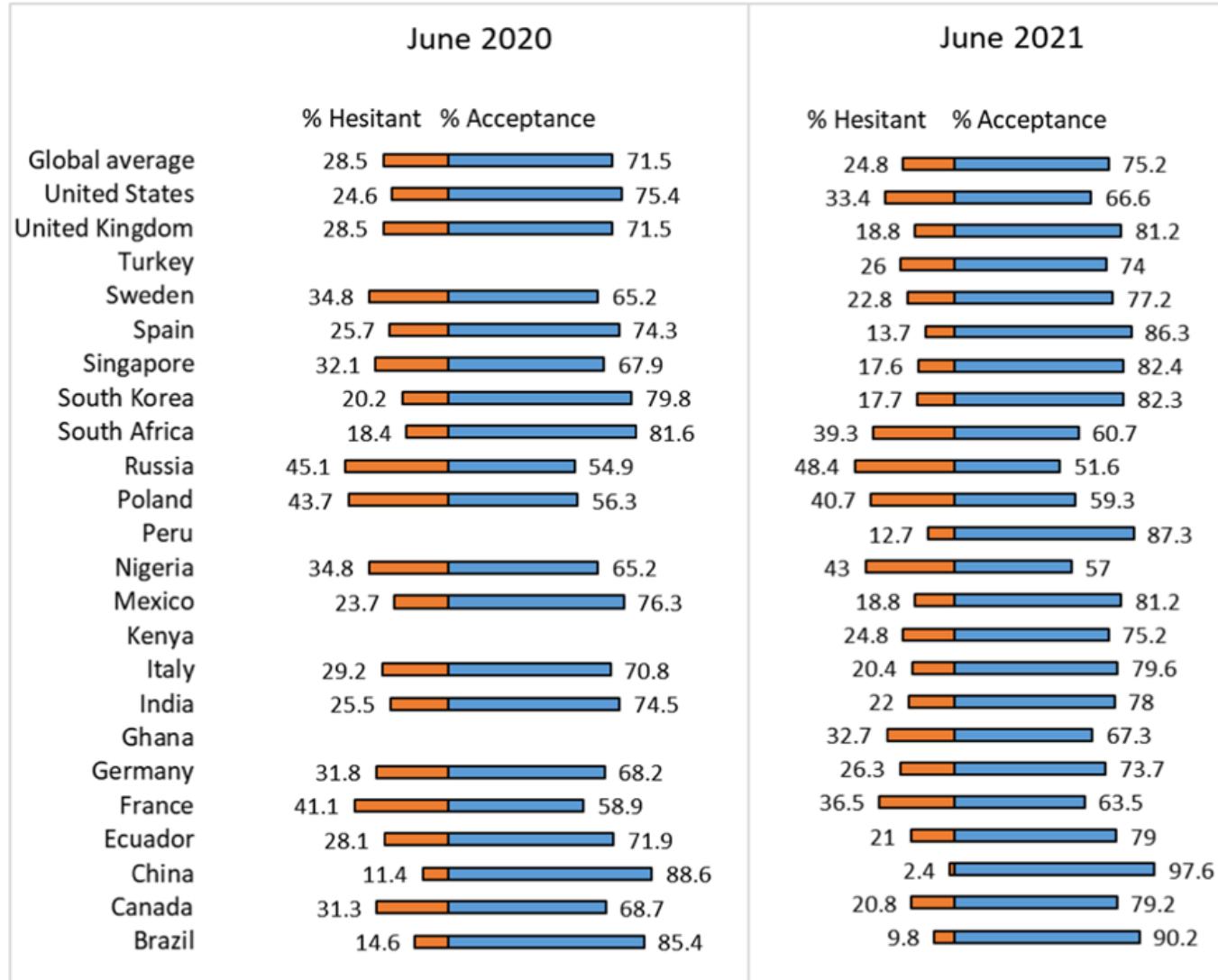
<https://www.nobelprize.org/prizes/medicine/2023/summary/>

Katalin Kariko

Drew Weissman

“For their discoveries concerning base modifications that enabled the development of effective mRNA vaccines against COVID-19”

“Across all countries, vaccine hesitancy is associated with a lack of trust in COVID-19 vaccine safety and science, and skepticism about its efficacy.”



- Increases in vaccine hesitancy:
 - South Africa (20.9%)
 - United States (US) (8.8%)
 - Nigeria (8.2%)
 - Russia (3.3%)
- Vaccine hesitancy most frequent:
 - Russia (48.4%)
 - Nigeria (43%)
 - Poland (40.7%)
- Vaccine hesitancy least frequent:
 - China (2.4%)
 - United Kingdom (UK) (18.8%)
 - Canada (20.8%)

NIH Community Engagement Alliance (CEAL): Trustworthy Partnerships, Community-Driven Outreach and Research

COMMUNITIES OF FOCUS

- Targeted underserved communities and racial and ethnic groups hardest hit by pandemic
- Community members that are trusted leaders
- >500 community partners across the U.S.

CEAL partnerships include:



Academic Partners



Community-Based Organizations



Healthcare Centers & Providers



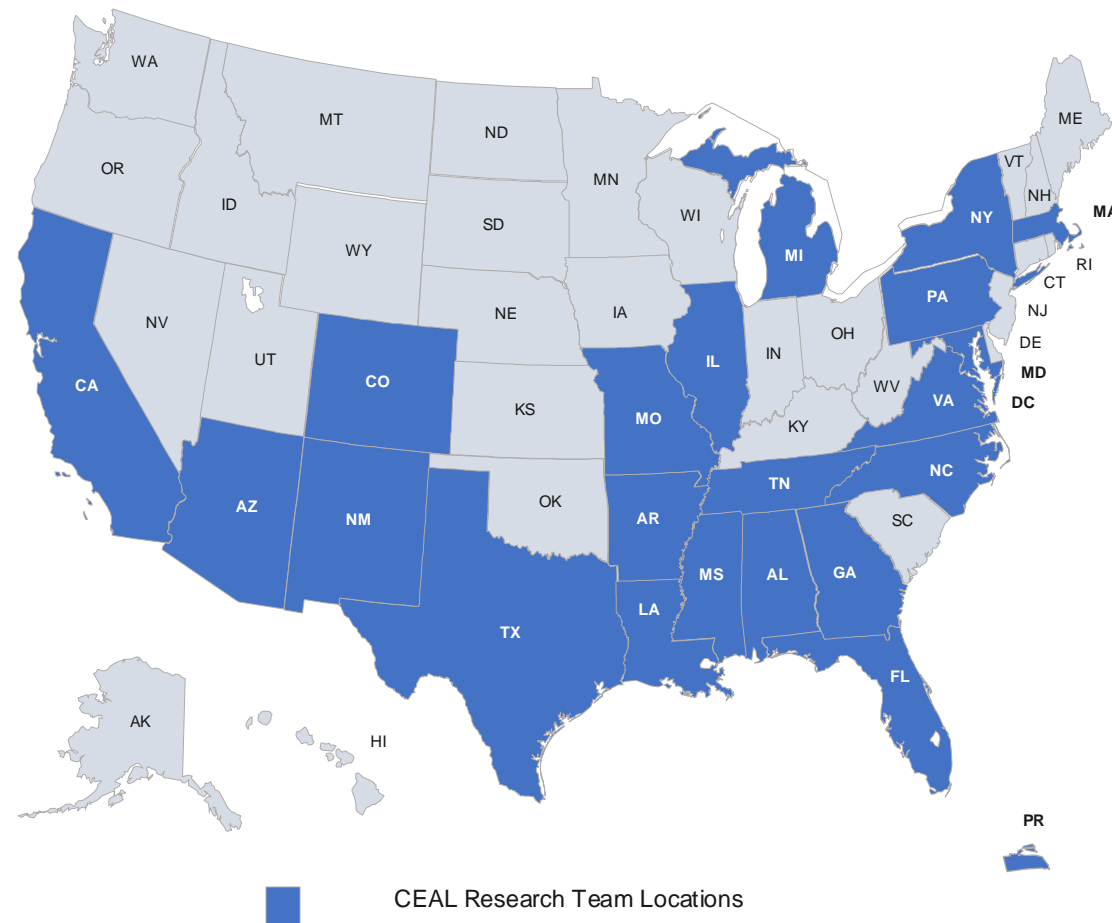
State & Local Government Agencies



Pharmacy Networks



Faith-Based Organizations



Vaccination Rates in CEAL Counties Compared to Non-CEAL Counties





Washington, DC
Oct 2, 2024

29 Attendees
Community of Hope



Chicago, IL
Oct 7, 2024

27 Attendees, en Español
Pilsen Arts & Community House



Idaho Falls, ID
Oct 30, 2024

22 Attendees
E. Idaho Community Action
Partnership



Bangor, ME
Nov 12, 2024

27 Attendees
Bangor Public Library

NIH POLICY OFFICE

CONTINUING COMMUNITY CONVERSATIONS: CLINICAL RESEARCH

Flint, MI
Dec 13, 2024



Baton Rouge, LA
Jan 9, 2025



Wichita, KS
TBD



Los Angeles, CA
TBD



Honolulu, HI
TBD



Houston, TX
TBD



Closing Thoughts
***Agile Approaches for Governing
Emerging Technology***



BUILD TRUST

- Science and technology advances quickly
- Ethical/societal norms continuously evolve
- Trust is earned in drops and lost in buckets
- Engagement of civil societies early, often, and along the way is crucial