

Accelerating the Use of Pathogen Genomics and Metagenomics in Public Health

A Workshop

Panel Session 4: Privacy, Ownership, and Democratization Considerations

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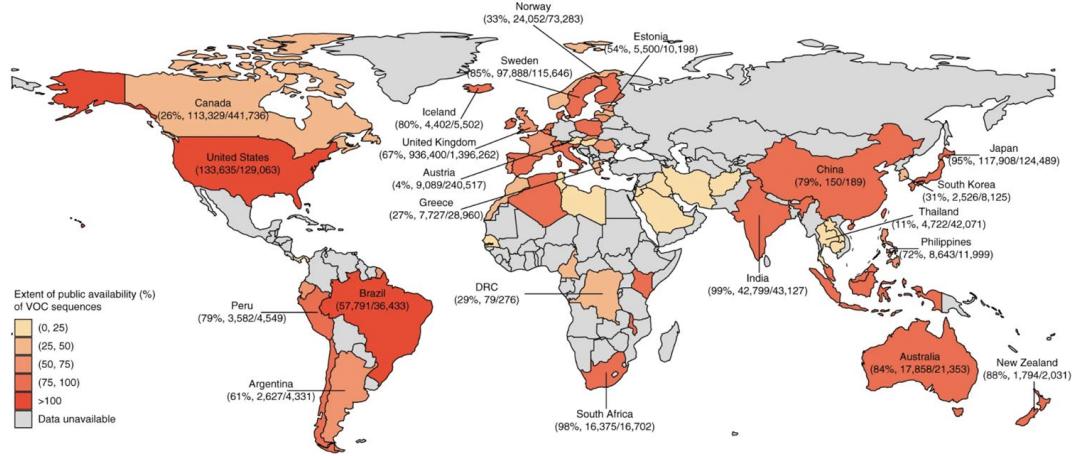
Democratization of pathogen genomics—a longstanding challenge

Common barriers

- Cost
- Perceived value
- Perceived risks
- Technical capacity, access
- Expertise siloes
- Ownership, contribution, attribution

Fig. 3: The extent of public availability of VOC sequences in public repositories.

From: [Global landscape of SARS-CoV-2 genomic surveillance and data sharing](#)



From: [Global landscape of SARS-CoV-2 genomic surveillance and data sharing](#),
Chen et al, Nature Genetics volume 54 (2022)

Public health–Academic partnerships

CDC Pathogen Genomic Centers of Excellence (PGCoE) network

The network also represents an unprecedented opportunity to *expand and deepen collaboration between U.S. public health agencies and academic institutions to form a national resource* to better prevent, control, and respond to microbial threats of public health importance.



- Provide new technology development and training, surge capacity
- Establish partnership agreements and regulatory documentation such as IRBs, MTAs, DUAs
- Develop trust, infrastructure to facilitate working efficiently and with mutual understanding across these sectors



Integrated workforce development

PGCoE National Education Program

Curriculum: Gaps & Priorities

Increase Awareness & Buy-In

for the value of genomics in epidemiology

Reduce Silos

by providing opportunities for cross training among workforce cadres

Instincts, Not Rules

empower the workforce to use foundational theory to make decisions

Teach Meaningful Data Interpretation

especially in the context of combining genomic and epidemiology data

*From E. Heppenheimer,
PGCoE Lead Education Program content lead*



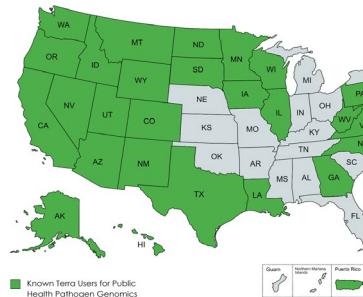
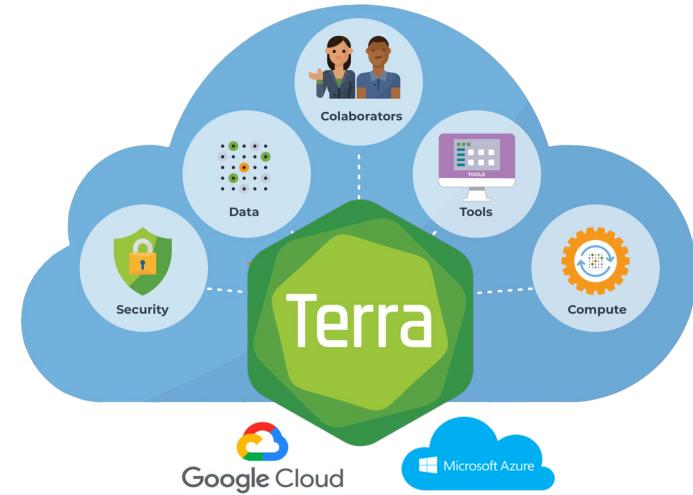
- De-siloing learning pathways
- Generalizing principles, inference, caveats
- Connecting genomic data to decision making



Data handling and analysis capacity

Terra Data Platform enables (genomic) data management analysis in the cloud

- Secure, scaleable owner-controlled data management, sharing, collaboration
- Accessible to low/no code users
- Using open source, containerized workflows based on vetted community standards
- Standardized, reproducible, interoperable, auditable bioinformatic analyses



Procurement of reagents and tech support in LMICs

nature index

COMMENT · 2 JULY 2024

Slow, difficult and expensive: How the lab supplies market is crippling African science

Higher prices and longer wait times for basic equipment are hampering research.

Here's how funders, governments, institutions and manufacturers can make a difference.

Allen Mukhwana, Oluwaseyi Shorinola, Deborah-Fay Ndlovu and Julius Osaso

- 3-6 mo wait for reagents in not uncommon, often at 2-10x cost
- Logistical challenges and delays, lack economies of scale, supply chain, importation and customs infrastructure
- Tech support often based in other countries, continents
- Use connections in the global north to obtain supplies and support, which shifts the balance of power and exacerbates the problem

Public engagement

BUSINESS
INSIDER

HOME > SCIENCE

You aren't legally allowed to know which variant gave you COVID-19 in the US, even if it's Delta

Aria Bendix Aug 23, 2021, 8:02 AM



- Most people with COVID-19 in the US are legally prevented from knowing which variant infected them.
- That's because sequencing tests have to be federally approved for results to be disclosed to doctors or patients, and most are not yet.
- Lab scientists say the process of validating the tests for approval is too costly and time-consuming.

Many thanks to the global pathogen genomic surveillance community, these invaluable data resources, and engaged funders



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