Center for Forecasting and Outbreak Analytics

Outbreak Analytics and Disease Modeling Network

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About the Network

CDC's Center for Forecasting and Outbreak Analytics has awarded funds to 13 primary awardees to establish the first national network for outbreak analytics and disease modeling. Many of these awardees are leading a consortium of collaborators to design, prototype, test, and scale up advances in data modeling tools and technology that can be used to support public health decision makers at all levels of government. This network of networks extends the geographic reach and technical diversity of performers focused on innovating, integrating, and implementing modeling and forecasting tools to improve outbreak response. The network's goal is to improve speed, accuracy, and use of data & analytics during health emergencies, which is an important step towards ensuring Americans have the information they need to keep themselves and their families safe during outbreaks.

Innovation   **Integration**   **Implementation**
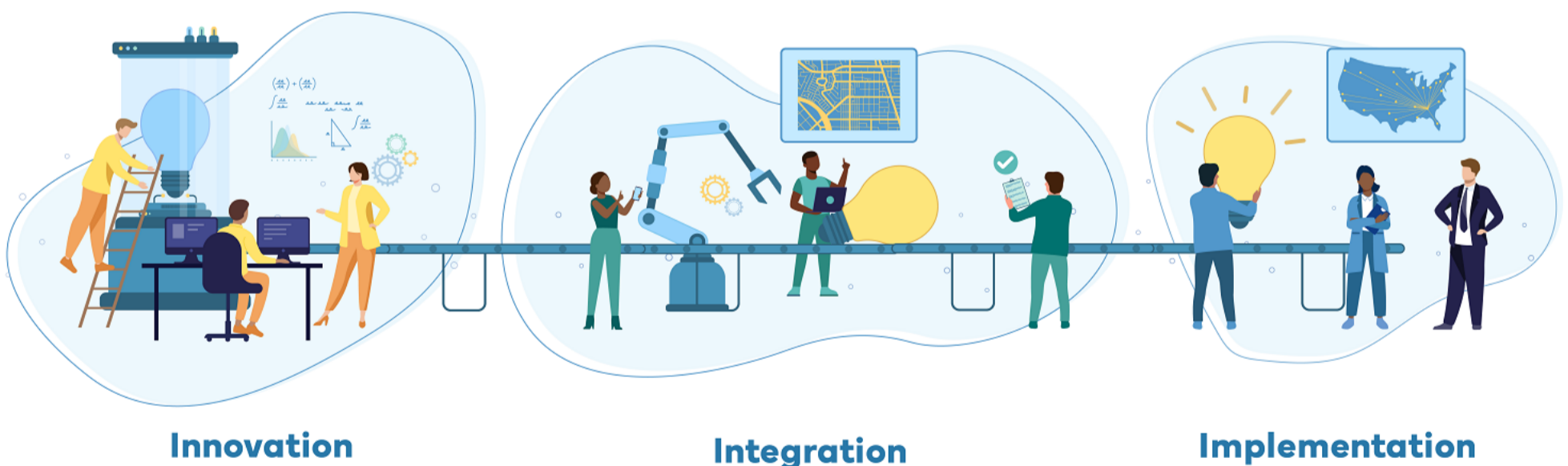
Innovators

Support the development of a pipeline of new analytical methods, tools, or platforms for modeling efforts and will ultimately be used to provide information to public health decision-makers.

Implementors

Scale and bring online those pilot projects that have shown to work. The goal is for local level jurisdictions to use new analytical tools that have been tested and proven to work.

Integrators

Take the most promising approaches from the innovation pipeline or an approach already in development and pilot test in an organization that has
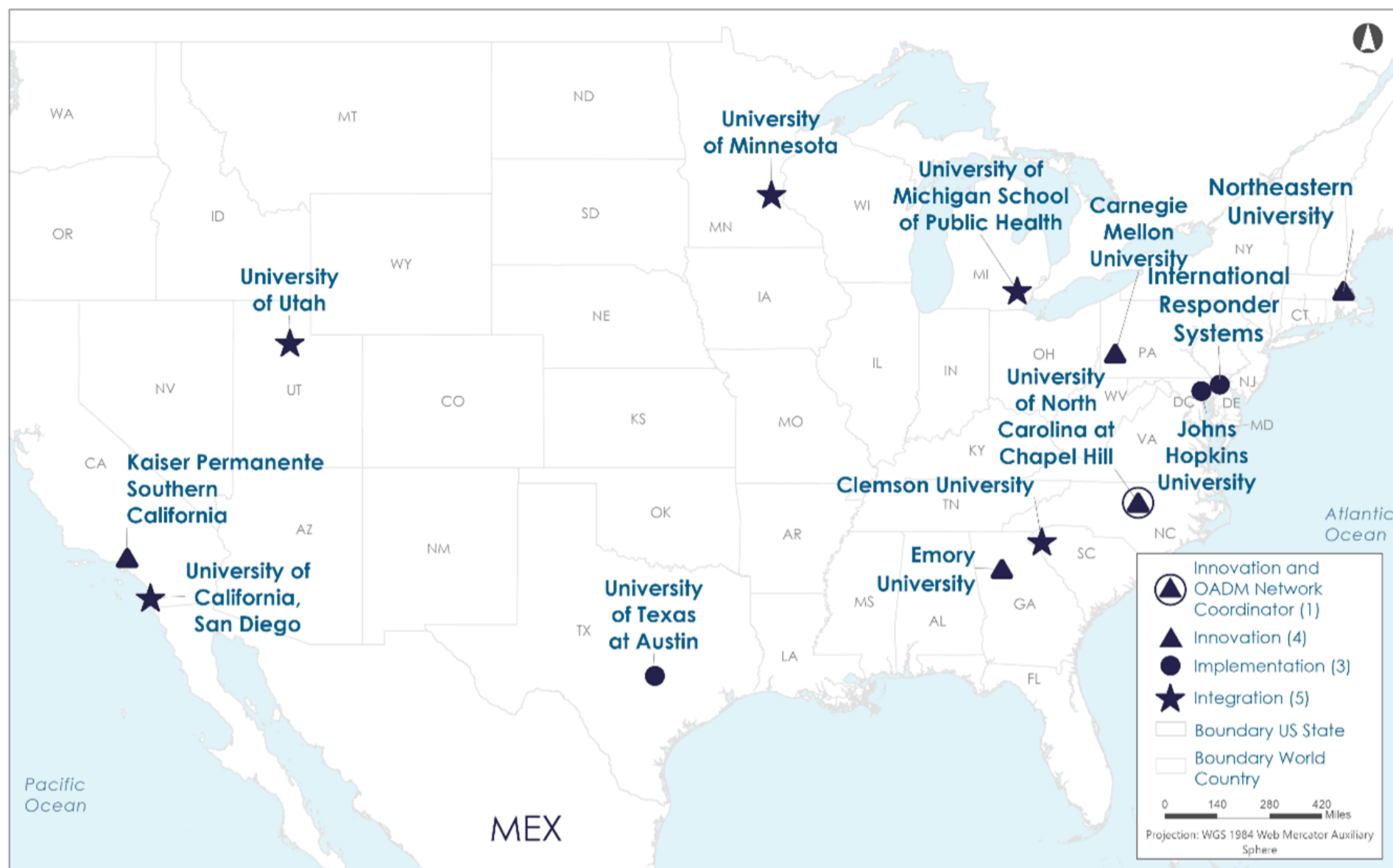
Coordinator

Leads the network by coordinating regular meetings, supporting the various awardees, ensuring communication activities, engaging with CDC and the

public health decision-makers who would benefit from the pilot output.

awardees, and promoting high-quality results through various initiatives.

Where are the awardees?

Map showing locations of awardees across the United States. Locations labeled include: University of Minnesota, University of Michigan School of Public Health, Carnegie Mellon University, Northeastern University, International Responder Systems, University of Utah, University of North Carolina at Chapel Hill, Johns Hopkins University, Kaiser Permanente Southern California, University of California, San Diego, University of Texas at Austin, Clemson University, Emory University.

Legend:
- Innovation and OADM Network Coordinator (1)
- Innovation (4)
- Implementation (3)
- Integration (5)
- Boundary US State
- Boundary World Country

0   140   280   420 Miles
Projection: WGS 1984 Web Mercator Auxiliary Sphere

CDC — Centers for Disease Control and Prevention
ATSDR — Agency for Toxic Substances and Disease Registry

G R A S P
Geospatial Research, Analysis, and Services Program

⤢ View Larger

Who are the awardees?

Innovators ⌃

Carnegie Mellon ⌃

Carnegie Mellon University will innovate new analytical methods and tools–including nowcasting and forecasting tools—that will ultimately be used to provide information to state and local public health decision makers. They be collaborating with several key partners for this project work, including: the University of California, Berkley; University of British Columbia; Optum; and Allegheny County Health Department.

Emory University ⌃

Emory University will be collaborating with Kaiser Permanente of Georgia, Emory Healthcare, Georgia Emerging Infections Program, Veterans Affairs Administration, Children's Healthcare of Atlanta, and Grady Memorial Hospital. As a partner in this project, Emory will work with collaborators to harness innovative analytic methods and data

streams and serve as a center for innovators to design, implement, and refine new and enhanced analytical tools.

Kaiser Permanente Southern California (KPSC) Department of Research and Evaluation ⌃

KPSC research scientists, in partnership with academic modeling teams based at University of California, Berkeley and University of California, San Francisco will build on prior successes that used KPSC's integrated healthcare delivery model with more than 4.7 million members as an ideal system to develop and test strategies to improve use of public health data.

Northeastern University ⌃

Northeastern will work with collaborators to capitalize on breakthroughs in machine learning, data access, and computational capacity and focus on advanced modeling to define a new generation of analytic tools and modeling platforms, ensuring comprehensive data integration from diverse sources such as wastewater, genomic data, and mobility data. They will be collaborating with Boston University, Fred Hutchinson, Gingko Bioworks, Indiana University, Los Alamos National Lab, Maine Health, Northern Light Health, University of California, San Diego, and University of Florida.

University of North Carolina at Chapel Hill ⌃

The University of North Carolina at Chapel Hill will be collaborating with Johns Hopkins University (JHU), University of Florida, JHU Applied Physics Laboratory, University of Pittsburgh, North Carolina Department of Health and Human Services, Maryland Department of Health, California Department of Public Health, Baltimore City Health Department, and the Navajo Epidemiology Center. Together they will develop innovative modeling and analytic techniques with an emphasis on developing approaches for novel routes of transmission.

Integrators ⌃

Clemson University ⌃

Clemson will be collaborating with several key partners including the University of South Carolina, Medical University of South Carolina, Prisma Health, South Carolina Department of Health and Environmental Control, Clemson Rural Health, and South Carolina Center for Rural and Primary Heath Care at University of South Carolina. Clemson, along with collaborators, aims to save lives by enhancing health readiness and response for infectious disease threats by integrating forecasting, outbreak analytics, and decision-support tools that emphasize visual data and communication of analytic results.

University of California, San Diego ⌃

The University of California, San Diego (UCSD), along with their partners, will systematically connect and test the utility of data from novel interventions like wastewater and air surveillance, molecular epidemiology, and smartphone-based exposure notification, to help model and predict future events. UCSD will be collaborating with the University of California, Riverside, University of California, San Francisco, University of California, Los Angeles, University of Washington, County of San Diego Health and Human Services Agency, and Los Alamos National Lab.

University of Michigan ⌃

This project builds on a partnership originally established in 2016 between the University of Michigan School of Public Health and the Michigan Department of Health and Human Services and will develop modeling tools and data analytic pipelines, expanding work on a data visualization and analytic platform utilized by state and local public health officials to support their decision-making.

University of Minnesota ⌃

The University of Minnesota, along with its collaborators, will pilot two approaches to support decision-making including a mathematical modeling and decision analysis platform and an Electronic Health Record-Enhanced Public Health Response Toolkit for geospatial decision-analysis, machine learning, and natural language processing. They will be collaborating with the Minnesota Department of Health, Minnesota Electronic Health Records Consortium, M Health Fairview, Essentia Institute of Rural Health, CentraCare Health Systems, Health Partners, Hennepin Healthcare Research Institute, Mayo Clinic, Allina Health, Children's Minnesota, Sanford Health, and the Center for Veteran's Research & Education of the Minneapolis VA Health Care System.

University of Utah ⌃

The University of Utah, Washington State University (WSU), and Utah Department of Health and Human Services (Utah DHHS) will lead a collaborative effort with an extensive network of partners including Washington, Idaho, and Montana state health departments; local health districts in Utah and Washington; University of Utah Health and Intermountain Healthcare regional healthcare organizations; community hospitals in Washington and Idaho; and the federal Veterans Affairs healthcare system. The University of Utah, along with its collaborators, will implement a library of modeling and analytic approaches belonging to five toolsets: automated alerting, parameter estimation, scenario planning, forecasting and nowcasting, and economic impact analysis.

Implementors ⌃

International Responder Systems ⌃

International Responder Systems will focus on implementing proven approaches for use across jurisdictions with the goal of putting new, effective analytical tools and approaches in use at the state and local level where critical public health action takes place. They be collaborating with Primary Diagnostics and University of California, Los Angeles to deliver an enhanced outbreak analytics diagnostic system and a continuous education program to upskill our public health workforce.

Johns Hopkins University ⌃

Johns Hopkins University will integrate modeling and analytics into public health decision-making for elected officials, state public health departments, large employers, and the public with an emphasis on communication and resilient, scalable systems and processes. They will be collaborating with Emory University, Columbia University, Northeastern University, Carnegie Mellon University, Boston Children's Hospital, Alaska Department of Health and Social Services, North Carolina Department of Health and Human Services, and the Tennessee Department of Health.

University of Texas at Austin ⌃

The University of Texas at Austin will be collaborating with the University of Massachusetts, Northwestern University, University of Georgia, Yale University, Texas Advanced Computing Center, JMP/SAS, University of Texas at El Paso, London School of Hygiene & Tropical Medicine, Austin Emergency Medical Services, Austin Public Health, El Paso Public Health, Houston Public Health, Capital Area of Texas Regional Advisory Council, Texas Department of State Health Services, Massachusetts Department of Public Health, and the Council of State and Territorial Epidemiologists. This large group of experts will implement multi-scale outbreak decision-support tools to expand analytic capabilities and build strong institutional partnerships across state, tribal, local, or territorial (STLT) jurisdictions and bolster national readiness for future pathogen threats.

Coordinator ⌃

University of North Carolina at Chapel Hill ⌃

University of North Carolina at Chapel Hill will serve as the coordinator for this network. They will work closely with CFA to coordinate the broader outbreak analytics and disease modeling network. In addition, they will work with CFA and other grantees to support the development and implementation of new modeling and forecasting activities across the U.S.

Last Reviewed: September 19, 2023