CDC’s Data Modernization Initiative

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WHAT IS THE

Data Modernization Initiative?

CDC is at the heart of a national effort to create modern, integrated, and real-time public health data and surveillance that can protect us from any health threat.
Our Ultimate Goal

To move from siloed and brittle public health data systems to connected, resilient, adaptable, and sustainable ‘response-ready’ systems that can help us solve problems before they happen and reduce the harm caused by the problems that do happen.
DMI is a Unifying Foundation for Change

**VISION**
Unified goals and approaches to data, interoperability, and innovation

**HARMONIZATION**
Interconnected data across diseases, across systems, and at every level

**CONNECTION**
Unprecedented engagement with partners in public health, healthcare, academia, health IT, and industry

**ACTION**
Accelerated progress through shared policies and standards, unified governance, and robust evaluation

DMI is both resourced and comprehensive, and it unifies us in ways no other strategy has before.
Siloed information: Disconnected and/or proprietary disease systems driven by disease-specific budget lines keep us from seeing the complete picture.

Outdated skills: The public health workforce needs training to use today's technologies more effectively.

Point-to-point data transmission: Providers in healthcare and at health departments are burdened with sending data to many places in many different ways.

Outdated technologies:
- Older systems at health departments are not flexible, do not use cloud, and are not scalable.

Outdated technologies:
- Public health is not a part of the healthcare data ecosystem.
- Public health got left behind as federal incentives and regulations helped healthcare systems to be able to easily share data automatically in the Electronic Health Record.
Build the right foundation
Provide the new information infrastructure and automated data sources for pandemic-ready data sharing

Accelerate data into action
Create faster, more integrated use of data to have more real-time situational awareness and forecasts of health threats for greater prevention and response

Develop a state-of-the-art workforce
Identify, recruit, and retain experts in Health IT, Data Science, and Cybersecurity to generate meaningful public health insights

Support + extend partnerships
Engage with state, territorial, local, and tribal partners to address policy challenges and create new strategic partnerships to solve problems

Manage change + governance
Provide the necessary structure to support modernization and aid adoption of unified technology, data, and data products
Continuous monitoring of emergency room visits to detect potential outbreaks

Real-time, secure, automated reporting from electronic health records to public health

Reduced burden on states for reporting notifiable diseases to CDC

Automated reporting of laboratory test results as soon as they are available

Real-time reporting of death data from multiple sources
Many Data Sources Reveal the True Picture and Drive Public Health Action

- Case and death surveillance
  - Line level case reports
  - Aggregate counts
  - Vital records
- Syndromic surveillance
- Laboratory and genomic data
- Healthcare data
- Vaccination data
- Non-traditional sources
  - Mobility data
  - Social vulnerability data
Example: COVID-19 Led to an Explosion of Electronic Reporting

On January 20, 2020, 187 facilities were using eCR for 5 pilot conditions.

At the end of 2020, 6,500 facilities were using eCR for COVID-19.

As of August 5, 2021, over 9,400 facilities are using eCR for COVID-19.

Over 10.7 million COVID-19 reports have been sent from healthcare.
Building a New Foundation to Collect Novel and More Comprehensive Data

**CELR Laboratory Data Flow**

Streamlined lab data from state health departments to CDC

**COVID-19 Vaccination Data Flow**

Advanced pipelines to inform action

**Genomic Data Flows**

Tracking variants and spread of disease
Accelerating Data Into Action Through Forecasting and Outbreak Analytics

**Predict**
- Generate forecasts and analyses to support outbreak preparedness and response efforts
- Establish and maintain CFA data architecture
- Collaborate with Federal, State and local leaders on decision-making

**Inform**
- Communicate next-generation public health data with expert disease modelers, emergency responders to meet the needs of decision-makers
- Share timely, actionable information with the Federal government; STLT leaders, and the public
- Coordinate early warning efforts between CDC subject matter experts and USG interagency

**Innovate**
- Support research and development to improve outbreak forecasts and analyses
- Collaborate with and support academic, private sector, and interagency partners
- Create translational tools, products, enterprise enhancements to make analyses of pandemic data flexible, fast, and scalable for STLT authorities
DMI Accomplishments are Critical to Forecasting and Analytics

Longstanding Problems

Siloed Information
• Disconnected and/or proprietary disease systems

Outdated Skills
• Workforce needs training to utilize today’s technology

Point-to-Point Data Transmission
• Providers are burdened with sending data to many places in many ways

Outdated Technologies
• Antiquated systems at health departments
• Manual data entry
• Lack of cloud infrastructure

DMI Solutions

Integrative Data Solutions
• Syndromic Surveillance
  • Continuous monitoring of ER visits to detect outbreaks
• Vital Records
  • Real time reporting of death data from multiple sources

Creating a State-of-the-Art Workforce
• Implement data science upskilling program
• Enhance training available to employees

Enhanced Interoperability
• Allow data to be easily shared among public health and healthcare systems
• Reduced burden on states for reporting notifiable diseases

Expanded Data Sharing & Cloud Infrastructure
• Build and expand upon the foundational infrastructure for data to be shared
• Electronic Case and Laboratory Reporting
  • Real time, automated reporting from EHR to public health departments
  • Automated reporting of lab test results as soon as they are available
Modernization Supports Health Equity Through...

**Collecting better surveillance data**
- Connecting directly with EHRs to benefit from clinical and demographic data in the records
  - Massive eCR expansion
- Improving collection of race, ethnicity, and other demographic data across core surveillance systems
- Onboarding record numbers of facilities to make data more representative of all people

**Reducing biases in data analysis**
- Leveraging the Social Vulnerability Index (SVI) in CDC's COVID Data Tracker
  - Building a National Use Case for Social Determinants of Health
  - Using privacy enhancing technologies to democratize data on smaller population groups

**Making demographic data public**
- Making national de-identified data on COVID cases available for shared problem solving
  - Adding race and Hispanic origin data to provisional death data releases and life expectancy reports

**Building a diverse workforce**
- Supporting 108 state and local jurisdictions to build a public health workforce that represents the communities in which they work
What will be different because of DMI?

When the next emergency happens, we will have:

• A foundation for data sharing across all levels of public health for coordinated, scalable and timely case investigation, management, and reporting

• Shared analysis capabilities for rapid identification of trends within and across jurisdictions, including forecasting and SDOH

• A prepared data science workforce

• Decreased burden on data reporters and public health staff
Questions