What have we done so far?

DMI Basics: The Why, What, and How of Data Modernization

PREVIOUS: 3 OF 8

NEXT: 5 OF 8

Because of data modernization, we are already at a very different place than we were before the pandemic.

Read our 2022 Snapshot to explore our progress

At the beginning of the pandemic, we had no national system for tracking both positive and negative laboratory test results, which is necessary to measure the spread of disease in communities.

CDC created a new pathway for laboratory data through COVID electronic laboratory reporting (CELR), capable of delivering more than a million test results per day.

When we began collecting data on COVID cases, only a handful of healthcare facilities were capable of sending electronic case reports (eCR), which automatically pull data from health records and deliver it to jurisdictions.

- Today, thousands of healthcare facilities are exchanging automated, near real-time critical patient data with

over 60 public health agencies for real-time tracking of COVID-19 and other public health threats (watch a video).

- This massive scale-up of eCR has allowed many healthcare facilities to turn off their fax machines and send data to state, tribal, local, and territorial (STLT) health departments more easily than ever before.

We have responded to the need for faster and more complete death data to inform the COVID-19 response.

- For the first time in 2021, CDC released COVID-19 preliminary mortality estimates on CDC WONDER, advancing near-real time surveillance while expanding access to death data that addresses critical public health needs.
- CDC also provided new data on excess deaths and expanded reporting of death data and life expectancy by race and Hispanic origin.

The pandemic also underscored the need for a comprehensive system to track and understand the impacts of vaccinations in adults.

- CDC built a new Immunization Data Lake (IZDL) capable of receiving and storing many types of data at any scale and increasing analytic capabilities for public health action.
- The data lake tracks and enables analysis of more types of data and expands vaccine effectiveness data through the use of electronic health records.
- This is one of the first applications of innovative privacy preserving record linkage at scale and has immensely improved the data quality

We are also collaborating with technology partners like ONC and HL7® on policies and standards to make data more interoperable across previously disconnected systems.

- We are focused on a number of initiatives that are happening within and beyond public health to develop maximally efficient and sustainable ways of accessing and sharing health data.

Inside CDC's doors, we responded to the increased volume and velocity of data by standing up a cloud-based platform that allows our scientists to catalog, analyze, and publish findings faster than previously possible.

- Within the first year of operation, CDC's Enterprise Data, Analytics, and Visualization tools saved more than $6.5M dollars in infrastructure investments that would have been made to build smaller versions of data silos.

Through DMI, we are seeing possibilities now that we could not have imagined just a few short years ago.

- Because of data modernization, we now have artificial intelligence detecting legionella dangers, more systems evaluating information on people's social and mental well-being, and complex data for millions of genomes being sequenced that help us monitor COVID virus variants.
- We continue to bridge the gap between the data we have now and the data we need to fully understand and address the drivers of health disparities.
- We have answered the public's needs for information by applying machine learning and natural language processing to problems such as identifying cases of multisystem inflammatory syndrome in children (MIS-C) and by creating the "Clara" COVID chatbot.

- And, to take our data even further into the future, in August 2021 CDC stood up a new National Center for Epidemic Forecasting and Outbreak Analytics that will enable public health to do more research, find better tools, and help CDC use data more efficiently, and translate and communicate what we learn more effectively.

Resources

- DMI Priorities: Learn more about the five key priorities that will strengthen and unify critical public health data across our nation
- DMI Technologies: Explore some of the technological solutions that are driving public health data forward.
- DMI and COVID-19: See how gains made during the pandemic are now building a bridge to a new kind of surveillance and better approaches to public health data.

PREVIOUS: 3 OF 8

NEXT: 5 OF 8

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