

Toward World Class Data and Analytics

Chesley Richards, MD, MPH, FACP

**Deputy Director, Public Health Science and Surveillance
Centers for Disease Control and Prevention**





“ We cannot solve our problems with the same thinking we used when we created them. ”

Albert Einstein

The New World of Public Health Data

Timely, Accurate, Accessible...

CDC is developing world-class data and analytics to transform today's reality and meet new opportunities for lifesaving prevention and response.

THE REALITY

REACTING

Always behind when an epidemic occurs



COUNTING DATA

Collecting data without the ability to rapidly analyze it



STORING IN SILOS

120 silos that restrict data sharing between systems



LOOKING BACK

Using data to see what has already happened



MOVING SLOWLY

Outdated, paper based-systems with multiple points of data transfer



USING RESOURCES INEFFICIENTLY

New resources always required to do new data collection



THE OPPORTUNITY

ANTICIPATING

Getting ahead of an epidemic **to stop it**



UNDERSTANDING DATA

Faster analysis to **gain real-time insights**



SHARING ON PLATFORMS

Interoperable, accessible data **for action**



LOOKING FORWARD

Using data to **predict and prevent threats**



MOVING FAST

Creating a true digital highway to **transfer data in real time**



CONNECTING RESOURCES

Leveraging existing resources and making common **investments for the future**



Data & IT Modernization

Current Difficulties



States

- Underfunded
- Under staff/lack of skills
- Outdated IT
- Many CDC data requests
- Direct relationship with health care
- Security concerns

*Data Sharing
slow, hard*



CDC

- Too many siloed systems
- Lack of enterprise approach
- Inconsistent use of standards
- Lagging in data analytics
- Core infrastructure can't handle demand
- Workforce doesn't have skills
- Too much time processing data
- Security concerns

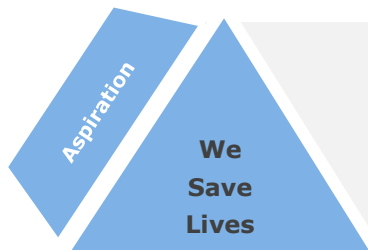


“ As public health leaders, we must be prepared to handle the challenges of today and, at the same time, to make real the potential of the new innovation of tomorrow. ”

Robert R. Redfield, MD
Director, CDC, and Administrator, ATSDR

CDC

Using Science and Innovation to Prevent, Detect and Respond



We Save Lives

Aspiration: We save American lives by ending epidemics, eliminating disease, ensuring domestic preparedness, and securing global health.



Secure Global Health and America's Preparedness

Pandemic contagions | Bioterrorism threats | Vector-borne

Eliminate Disease

HIV/AIDS | Vaccine-preventable | Hepatitis

End Epidemics

Opioids | Influenza | Antibiotic resistance | Diabetes

Strategic Priorities: Our priorities reaffirm our leadership and commitment to confront and respond to health threats wherever they occur. We will focus our scientific expertise on bringing an end to the devastation of epidemics, finally eliminating certain diseases, and providing a new level of domestic health preparedness and global health security against current and emerging threats.



Accelerate Priorities through:

World class data, analytics, and laboratories

Elite public health workforce

Strategic communication

Outbreak response

Priority Accelerators: Protecting America's health requires continuous improvement in our most vital assets: our data, laboratories, and people.



Enable strategic achievement through:

State and local partnerships

Global capacity

Operational excellence

Stakeholder engagement

Enabling Capabilities: Our strategic priorities are enabled by unique expertise and interdependent capabilities.

CDC Public Health Data Strategy



- **Why?** Data are the foundation of our nation’s public health network. We must have the capacity to generate and use timely, accurate, and accessible data to meet the health challenges of today and tomorrow.



- **Why now?** Data is moving slower than disease. We are too slow –
 - Getting data
 - Analyzing data
 - Sharing data



- **Moving data modernization forward requires**
 - Leadership
 - Data Sharing
 - Funding and Resources
 - Capability to use Evolving Technologies

Data & IT Modernization

Future Opportunities



States

- Guidance and technical support from CDC
- Funding for
 - technology
 - people
 - Expertise

Data Sharing
fast, secure, automated



Bi-Directional Data Sharing

- Cloud hosted solutions
- Interoperability
- Analysis & data viz tools
- Decision Support



CDC

- Enterprise approach within CDC
- Common data portal
- Real-time mentality (tools, data)
- Modern analytical tools
- Augmented workforce
- Predictive

Implementation Priorities

Moving from Data Collection to Predictive Data



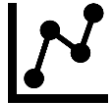
Governance

enterprise approach



Modern Technologies

cloud, common portal, analytical tools



Data

sharing, interoperability



Partnership

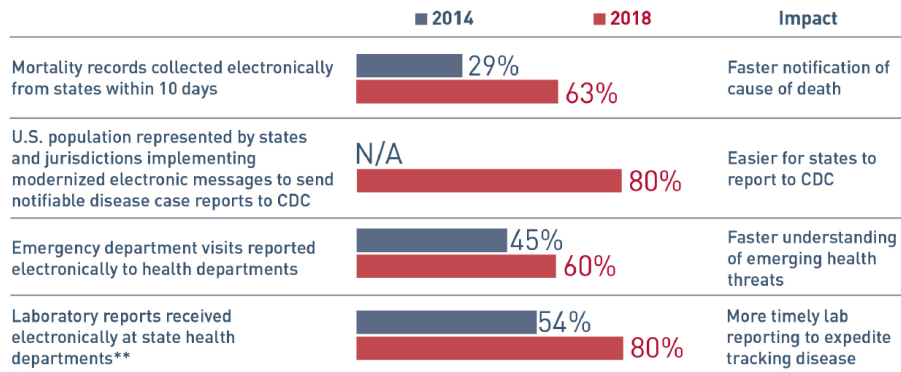
support state and local

Builds on Prior Strategies and Innovation

PROGRESS

Innovation

Pulse Check: Our Progress System Improvements in Public Health Surveillance*



* Percentage change furthered by CDC Surveillance Strategy (as of May 2018); provisional data represented

** Approximately 20 million laboratory reports are received annually at health departments



More timely data on death improves health

Exploring and using open source, web-based tools to modernize mortality data reporting provides newer, faster insights on what steps can be taken to prevent further lives lost.



App benefits stroke patients and healthcare workers

An electronic health records app developed for healthcare professionals can aid in gathering and sharing hard-to-track patient information that can reduce stroke readmissions.



Germ data dashboard informs health officials

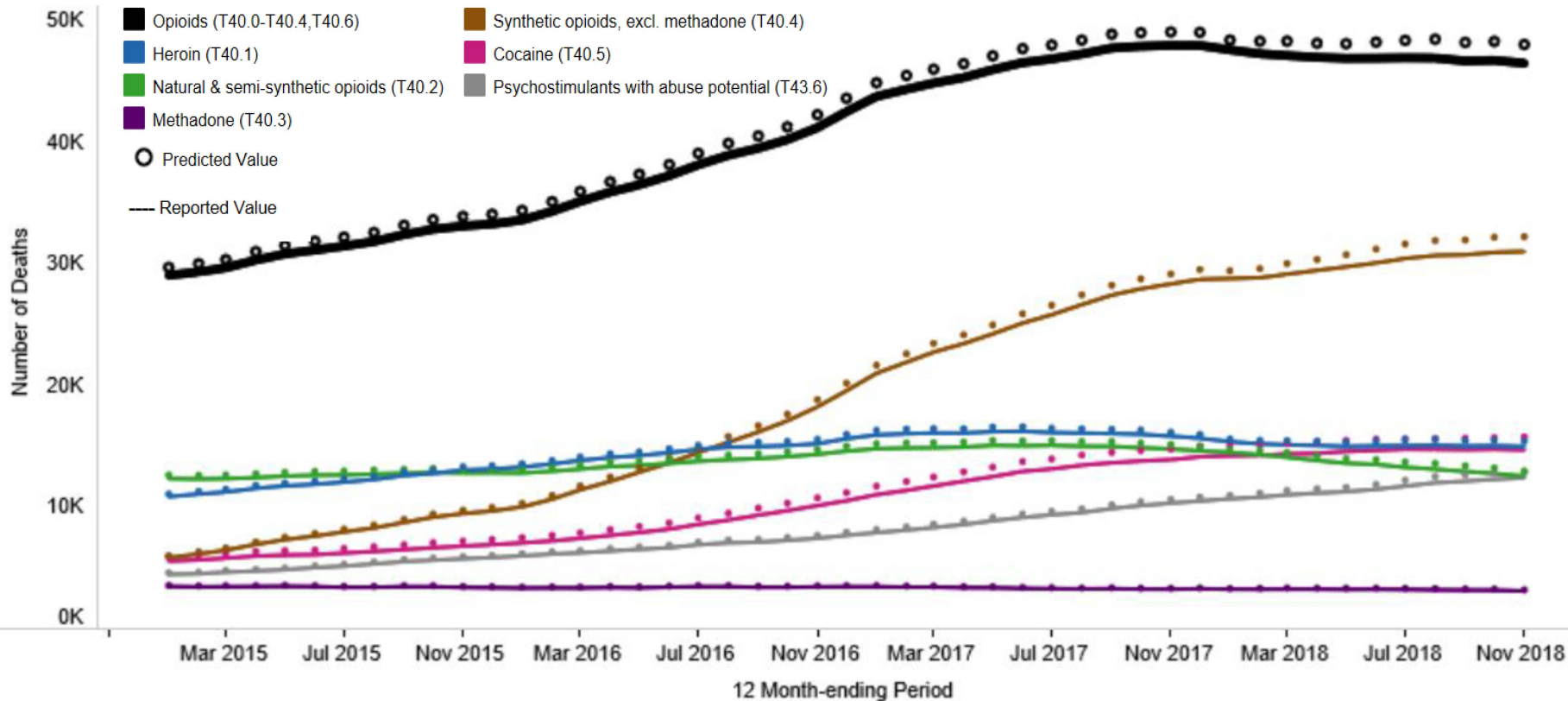
The NARMS Now: Human Data web dashboard, an interactive tool from CDC, makes it easier and quicker to find out how antibiotic resistance has changed over the past 20 years for 4 bacteria transmitted commonly through food.



Cloud-based processing can help stop hepatitis infections

Harnessing the power of cloud computing can improve detection of hepatitis C outbreaks and assist health officials with coordinating a response.

Provisional Data for Timely Surveillance



National Syndromic Surveillance

Connecting Real-time Data

An early alert for many different health events:



Emerging infectious diseases and outbreaks



Mass gatherings and their situational needs



Chronic diseases and their complications



Environmental Conditions and their impact



Injury issues (drownings, overdoses)



Natural and manmade disaster response needs

Laying the Conditions for Broad Interoperability



Digital Bridge

Connecting Clinical Care and Public Health

Our Vision



The vision of the Digital Bridge is to ensure our nation's health through a bidirectional information flow between health care and public health.

Our Partners



Goal

To transform CDC and our partners from a culture of primarily historical data analytics to predictive data science supported by modern IT platforms and enterprise services that facilitate CDC's public health mission

Seven Imperatives for 2024

By 2024, CDC will be operating to a new normal, working across programs and agency initiatives & through emerging priorities



Cloud

CDC data will be in a cloud



Common Portal

Data reporting to CDC will be through a common portal



Interoperability

CDC data will be interoperable within and external to CDC



Data Sharing

CDC data will be shared and public, while protecting privacy and confidentiality



Enterprise Level

At the enterprise level, CDC data will be catalogued, have metadata and be labelled with appropriate access and privacy controls



Analytical Tools

CDC scientists will have efficient access to relevant data science tools and the capability and expectation to perform both historic and predictive analyses



State & Local Support

State and local health departments will be supported to accomplish complementary goals

Congressional Interest Authorizing Legislation

- **Leading Infrastructure for Tomorrow's America Act (LIFT America Act) (House)**
 - \$100,000,000 for each fiscal year 2020-2024
 - Under consideration by the House Energy & Commerce Committee
- **Saving Lives Through Better Data Act (House)**
 - \$100,000,000 for each fiscal year 2020-2024
 - Under consideration by the House Energy & Commerce Committee
- **Lower Health Care Costs Act (Senate)**
 - “there are authorize to be appropriated such sums as may be necessary for fiscal years 2020 through 2024”
 - Reported out of Health, Education, Labor, and Pensions (HELP) on 6/26/19

Discussion

For more information, contact CDC
1 800 CDC INFO (232 4636)
TTY: 1 888 232 6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.



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