Modernizing the Mortality Data System --- Capturing Timely Opioid-related Death Data

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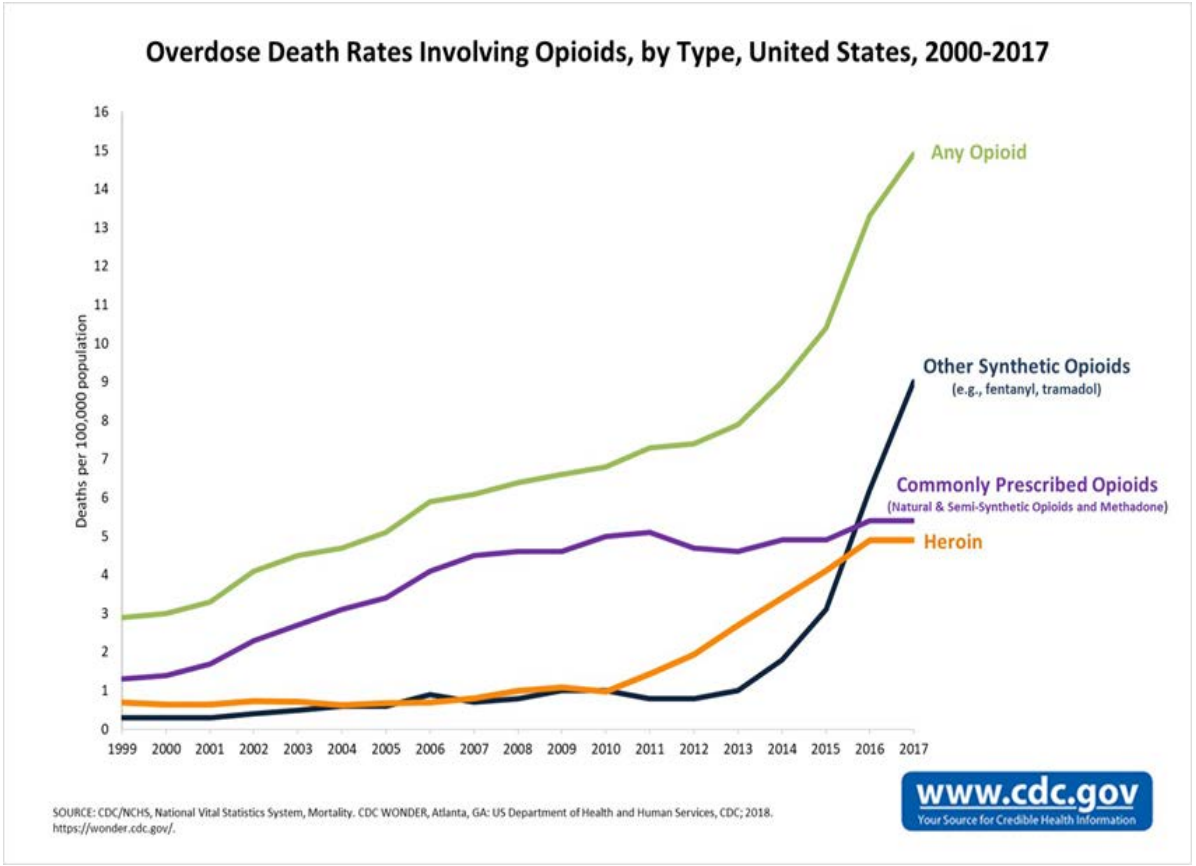
Rise in Opioid Overdose Deaths

- Opioid overdoses have risen significantly over the past decade, accounting for approximately 47,600 deaths by 2017 (six times higher than 1999)
- In 2017, the White House declared the opioid epidemic as a national public health emergency
- HHS responded with a 5-point strategy to combat the crisis
  - Better prevention, treatment and recovery services
  - Better data
  - Better pain management
  - Better availability of overdose-reversing drugs
  - Better research



DVS Funding Addressing Opioid Mortality Data

- Patient-Centered Outcomes Initiative (PCORI)……$2,613,000
  Strengthen opioid mortality data infrastructure for outcomes research
- CDC Opioid Response Coordinating Unit (ORCU) FY18 #1……$1,930,000
  Improve data processing and presentation by NCHS
- CDC ORCU FY18 #2……$5,900,000
  Improve data processing and sharing in the jurisdictions
- ORCU FY19……$11,500,000
  Overall improvement of opioid overdose data in four areas:
  State data infrastructure, data interoperability, NCHS IT, medical examiner/coroner processes

Overview of projects being undertaken by DVS to improve death timeliness and quality

Modernize the Technology Capabilities of the National Vital Statistics System

- Incorporate natural language and machine learning techniques to increase the proportion of records that can be coded automatically
- Create supplemental drug data, beyond ICD-10 coding, by mining the literal text fields of mortality records

- Transition the NVSS from a batch processing to a system that can Receive, code, and return cause of death codes as individual record level transactions from states

Establish Nationally Approved HL7 FHIR Standards for Vital Records Death Reporting

- Contract for creation of implementation guide awarded
- Draft implementation guide developed
- HL7 Ballot Process: March-April 2019
- Connect-A-Thon trials of the data standards happen several times between 2018-2019

- Expand HL7 FHIR standard for mortality reporting to include
  - Data sent back to jurisdictions
  - Data obtained from medical examiners and coroners

Create Applications to Test FHIR Data Standards

- Reference implementation of an EDRS: Nightingale Project
- Testing framework for the development of systems that perform FHIR-based exchange of data: Canary

- Reference implementation of Medical Examiner/Coroner case management system: to be awarded

National Guidelines on Death Investigations, Evaluations and Certifications

- Update the guidelines produced by the National Association of Medical Examiners (NAME) in 2013
- Develop training materials and methodology for educating medical examiners and coroners about the new guidelines

- Develop criteria for identifying suspected drug overdose cases before ME/C investigation completed
- Develop recommendations for forensic toxicology practices for drug overdose investigation

Redesign Vital Statistics Rapid Release Program

- Add additional demographic information to data releases
- Add detailed drug type information

Align Changes with Needs of Researchers

- Linkage with researchers and other users (PCORI)
  - Communications with researchers and users
  - Presentations at national meetings about the project and solicit any input

- PCOR work group of the NCHS Board of Scientific Counselors (PCORI)
  - Solicit input on issues that will affect the usability and usefulness of mortality data for the research community

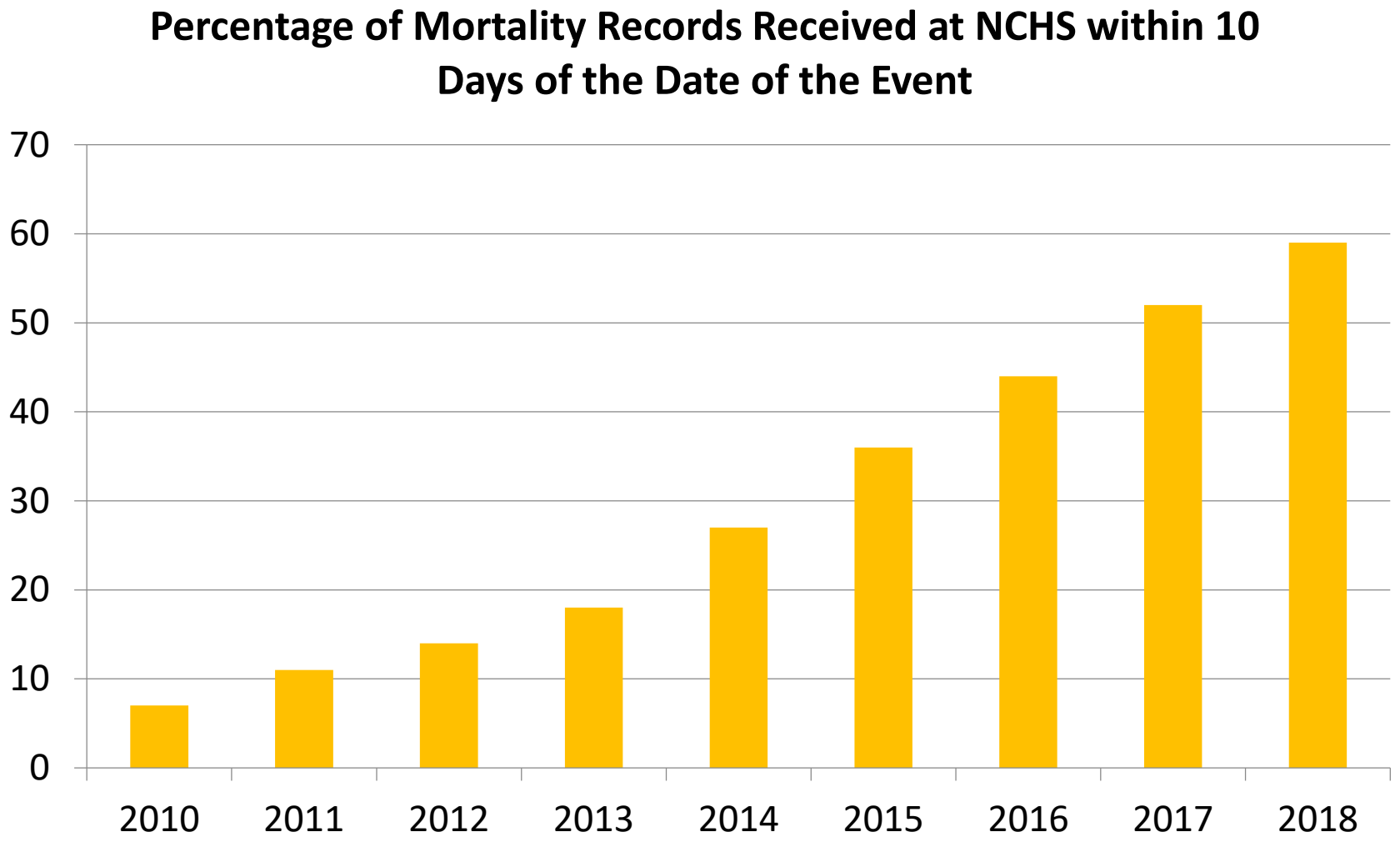
State Projects

- PCOR: 2 Implementer states funded
- ORCU FY18:
  - 4 additional Implementer jurisdictions
  - 10 Interoperability jurisdictions
- ORCU FY19 goals:
  - All jurisdictions have operational EDRS
  - Up to 10 additional jurisdictions to the Implementers' Community

State Goals for Timely and Accurate Data

- Goal #1: Transmit 80% of the mortality records to NCHS within 10 days of the date of the event

Timeliness Reporting



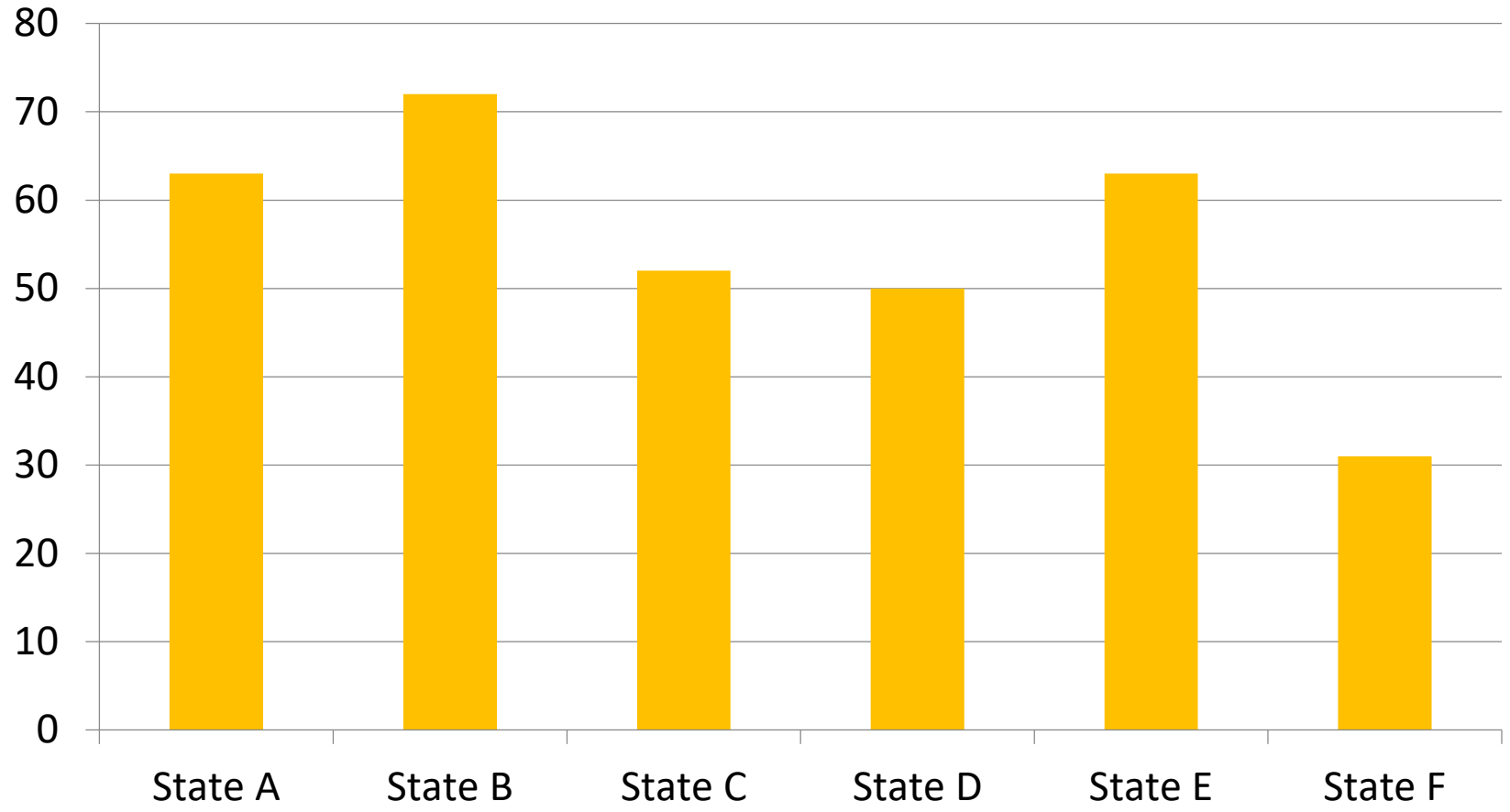
In 2012, we began an initiative to improve the timeliness of the transmission of mortality information to NCHS. The standard set for this initiative was for states to report 80% of their mortality records to NCHS within 10 days of the date of the event. This initiative was the foundation for DVS being capable of contributing to opioid mortality surveillance.

State Goals for Timely and Accurate Data

- Goal #1: Transmit 80% of the mortality records to NCHS within 10 days of the date of the event

- Goal #2: Transmit 90% of the drug overdose deaths to NCHS within 90 days of the date of the event

Percent of Drug Overdose Death Reported within 90 Days: Implementers' Community: 10/1/2017-9/31/2018



Estimates are for 6 states in Implementers' Community. Data presented are first date that a death record was submitted and was codable as a drug overdose death. The measure being used is a rolling 12 month average with a 6 month lag.

Opioid Project Goals for States: Implementers' Community

- Goal #1: Transmit 80% of the mortality records to NCHS within 10 days of the date of the event
- Goal #2: Transmit 90% of the drug overdose deaths to NCHS within 90 days of the date of the event
- Goal #3: Use APIs to create bidirectional data interoperability

  Jurisdictional electronic death registration system ↔ NCHS
- Goal #4: Have capacity to transmit cause of death information to selected state surveillance systems within 2 days of coded data receipt from NCHS *using API*

Opioid Project Goals for States: Interoperability Project

- Goal #1: Transmit 80% of the mortality records to NCHS within 10 days of the date of the event
- Goal #2: Transmit 90% of the drug overdose deaths to NCHS within 90 days of the date of the event
- Goal #3: Transmit relevant death data to state injury surveillance systems within 2 days of coded data receipt from NCHS
- Optional Scope 2: Transmit relevant death data to state cancer surveillance systems within 2 days of coded data receipt from NCHS

Follow-up on the BSC Recommendations for coding drugs from mortality literal text fields

Recommendations from BSC on Drug Coding - 1

1. A supplement is needed that leverages and maps to the existing *International Statistical Classification of Diseases and Related Health Problems* (ICD-10) coding schema to capture more diverse kinds of information.

   - Goal: map to various systems currently being used in drug research
   - DVS is pursuing a coding system that maps to the ICD-10 codes
   - Envisioning mapping to other systems being used, such as those in National Violent Death Reporting System (NVDRS) and the State Unintentional Drug Overdose Reporting System (SUDORS)

Recommendations from BSC on Drug Coding - 2

2. Researchers want as much detail as possible on drugs related to deaths, but they want this information to be meaningful and truly related to the cause of death. Furthermore, they want to know where on the death certificate this information comes from.

- Working towards this effort using the coding system development
  - Only drugs associated with death
  - Linking drugs to location on death certificate

Recommendations from BSC on Drug Coding - 3

3. The system should be able to change quickly, and with adequate documentation and transparency.

   - Drug coding system will be updated regularly from curated source materials provided by NLM and DOJ.
   - Goal is to do continuous training of machine learning for new drugs as they are identified

Recommendations from BSC on Drug Coding - 4

4. NCHS's list of drugs should be anchored in some standardized drug classification reference system (e.g., RxNorm or the Anatomical Therapeutic Chemical [ATC] system), which should be carefully selected according to NCHS's needs.

- DVS has selected two data sources:
  - RxNorm
  - DOJ: Data from seized drugs and from "Orange" book of scheduled drugs

Recommendations from BSC on Drug Coding - 5

5. Users need to know how to ask questions about the data so that analyses are appropriate and reasonable.

- Plan to work on how to provide users with adequate information about data during upcoming BSC Workgroup meeting
  - Dissemination of data documentation
  - Potential need for webinars or other training opportunities
  - Other options

Thank you

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