

# **National Center for Health Statistics**

## **National Vital Statistics System**

**Behind the Scenes**

**Board of Scientific Counselors Meeting**

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**Steven Schwartz, Ph.D.**

**Director, Division of Vital Statistics**

# The US Constitution

## **Amendment X**

The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.

## **Amendment XIV**

Section 1. All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the US and of the State wherein they reside.

# Goal of today's presentation

Behind the scenes look at how we obtain and continually maintain timely and high quality vital statistics

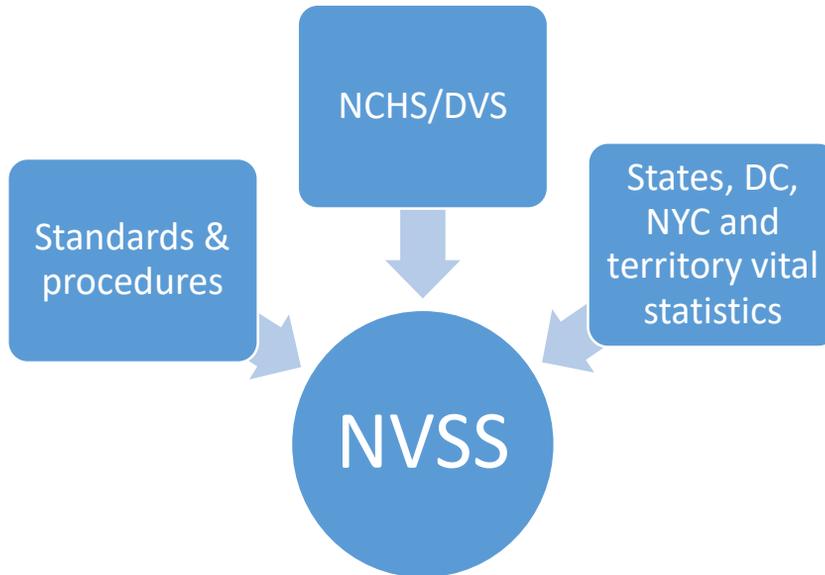
*A peek into the challenges & progress to date*

# The workload

- **3.8 million births**
- **2.8 million deaths**
- **24k fetal deaths > 20 weeks gestation**
- **57 Vital Registration jurisdictions**
- **The Vital Statistics for the United States**

# National Vital Statistics System

Oldest and most successful example of inter-governmental data sharing in Public Health



[https://www.cdc.gov/nchs/nvss/about\\_nvss.htm](https://www.cdc.gov/nchs/nvss/about_nvss.htm)

# Retail v. Wholesale: The Retail Side

- Customer needs: Certified copies of birth, death, marriage, divorce certificates
- Name changes, transgender birth certificates, paternity acknowledgements, corrections and amendments
- Burial, transit and disinterment permits
- Funeral directors
- Internet ordering

# The Wholesale Side: Public Health Data

- The data providers are the doctors, hospitals, nurse midwives, and funeral directors
- Where do race, ancestry, industry and occupation data come from?
  - Funeral directors
- What guarantees that all US vital events are reported?
- The customers need the certificates!

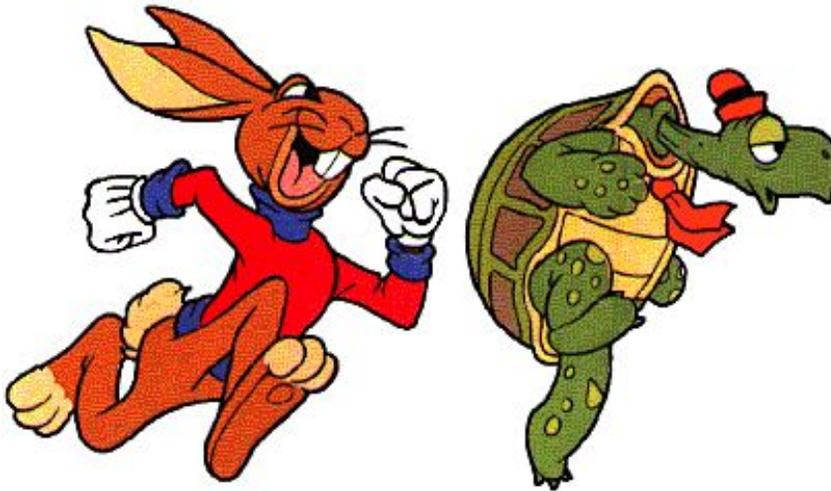
# Follow the money

- NCHS pays states for the data, >\$21M in total, across the 57 jurisdictions/year
- A large jurisdiction may be paid about \$600,000/year from NCHS (wholesale)
- The retail side collects about \$15M/year on the sale of certificates, corrections, amendments and burial permits
- Plus, the states have to watch the books

# States Change Sloooooowly

2003 U.S. Standard Certificates - 50 states implemented

- **Birth Certificate - 2016**
- **Death Certificate – 2018**
- **Report of fetal death - 2018**



# State Laws and Systems Vary

- Timelines for registration vary
- Registration methods vary
- Data items may be collected differently
- Who has authority to provide or amend information?
- Electronic systems vary in their implementation and contracts

## Other ways vital statistics are different than other public health data systems?

- Collected on a more frequent basis than most (states send daily or several times a week)
- Updates to NCHS are sent – sometimes by mistake and need to be monitored
- Most CDC programs use cooperative agreements, we purchase the data via contracts

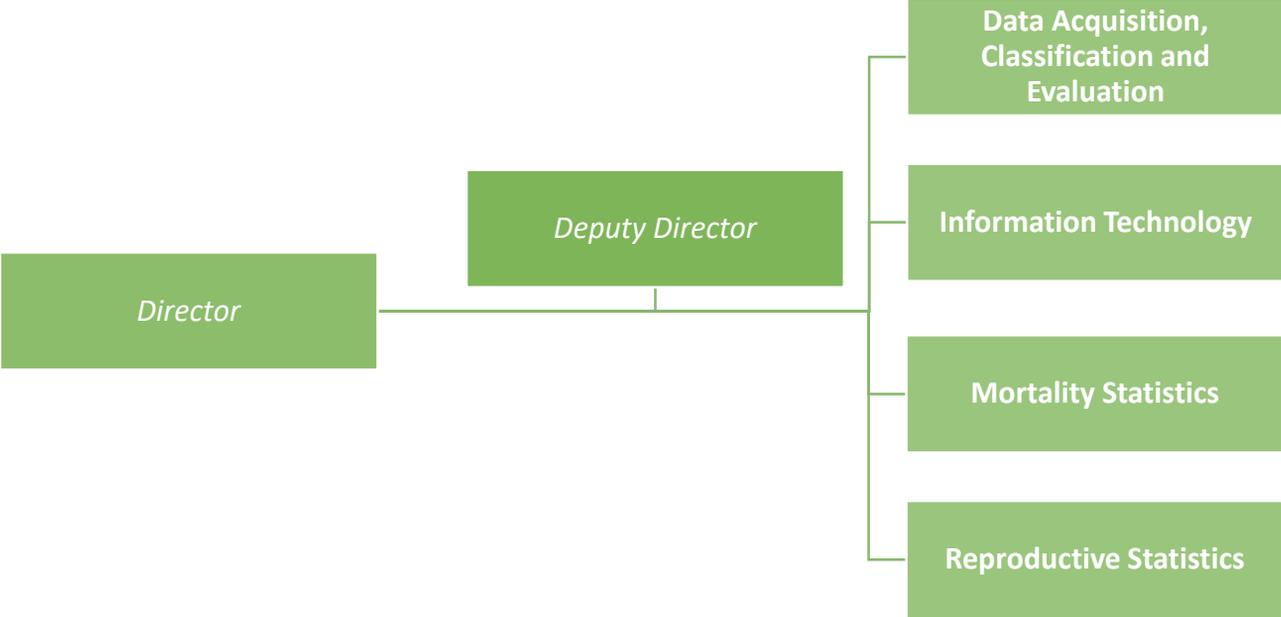
# Vital Statistics Cooperative Program (VSCP) Contract

- NCHS produces national vital statistics by purchasing data ***from 57 jurisdictions***
- Includes births, deaths, fetal deaths, and linked births and infant deaths
- Requires use of US standard certificates and edit checks

# VSCP Contractual Requirements

- Ongoing **timeliness** of births, deaths and fetal deaths
  - E.g., 85% of births within 10 days
- **Final file** closeout deadlines
  - Births – March 1
  - Deaths & Fetal Deaths – May 1
- Cannot exceed thresholds for **unknown values** by item
- **Respond** to any issues identified within 30 days
- Maintain a **Quality Assurance Program**
- Optional tasks as funding allows (“*Special Projects*”)

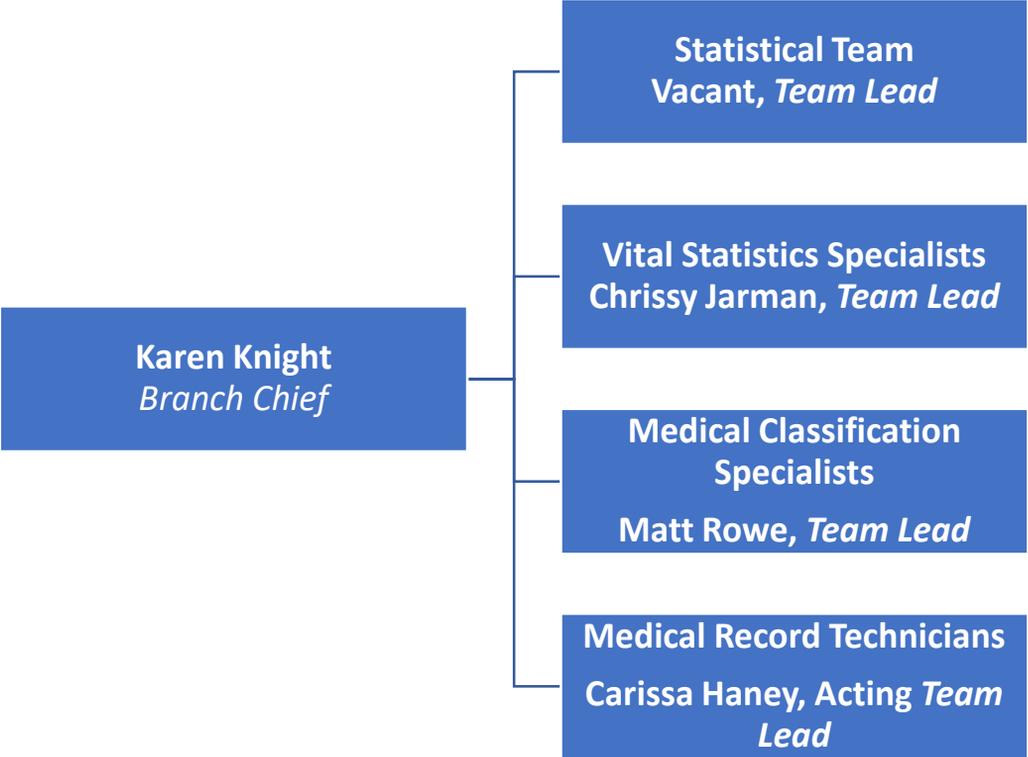
# Division of Vital Statistics, NCHS



## Data Acquisition, Classification and Evaluation Branch

- Administers the VSCP and National Death Index contracts, including funded Special Projects
- Monitors and evaluates status of deliverables on an ongoing basis
- Codes causes of death and fetal death and returns the codes to the jurisdictions
- Contract requires that coded records be returned to the jurisdiction within 10 days.

# DACEB



# Ongoing Monitoring and Evaluation Activities

- Monitor the database daily for state file updates, missing or skipped shipments
- Identify new errors or issues in the content or volume of data
  - 10's of thousands daily for each data year
- Identify file transmission stoppages from states, and help locate the problem – the state, STEVE, CDC systems or our system.

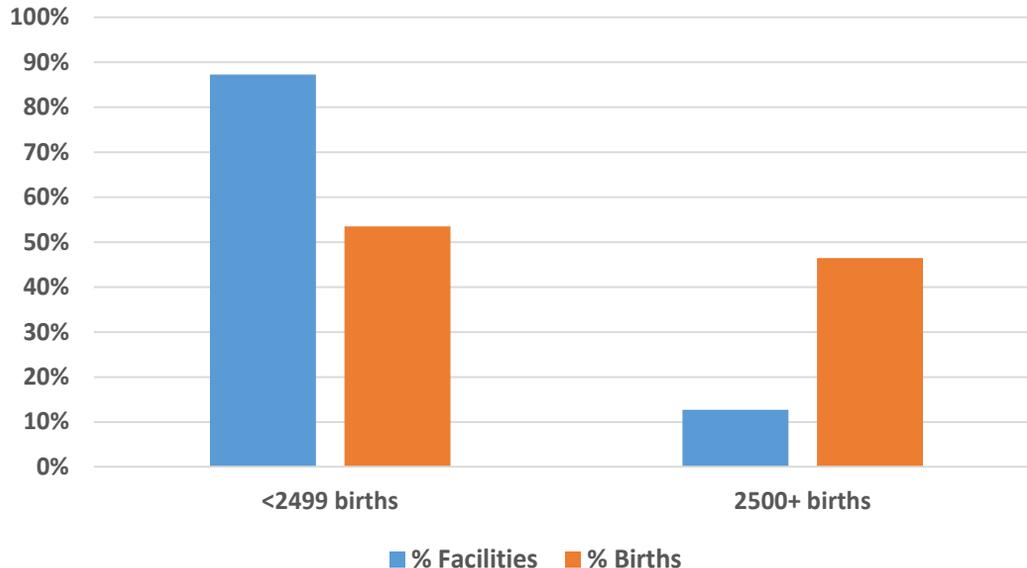
- Send states reports on data that fail NCHS edits, missing records, egregious data quality issues
- Evaluate completeness of all files, linkage between births/deaths for infant deaths
- Send reports on low survival births & other tools to identify unlinked infant deaths

- Evaluate unknown values over tolerance by field (weekly reports)
- Quarterly analysis of over- or under reporting on birth items at state and facility level
- Suspicious patterns in data reporting, e.g., potential use of system defaults or incorrect collection
- To be used by the state in their QA program
- Contract requires a response/resolution in 30 days
- Reports information to publication Branches to inform data use restrictions.

# Source of Birth Data Quality Issues

- Source of the issue often at facility level
- Over 3500 birthing facilities in the US.

Birthing Facility Distribution, 2018 Births



# Cause of Death Data Quality

*processed separately*

- Code to ICD-10 – multiple and underlying causes & answer state questions
- Many processing errors on this part of the file because of the multi-step process to auto-code
- Identify and confirm rare causes with CDC partners and the jurisdiction
- Identify ways to improve a state's auto-coding rate
- Provide information to support a state's QA program / promote NCHS e-learning / system improvements

**Almost all ICD-10 mortality expertise is at NCHS!**

## Cause of Death Data Quality

- Follow-up on pending causes of death
- Analyze and report on blank or underreported fields that affect coding to the ICD-10 rules. (e.g., blank pregnancy or manner of death checkboxes, etc.)
- Identify and correct errors in coding  
Manually reviewed >25K for 2018 data year!

Staff **monitor, evaluate** and **code** data on a daily basis and *work closely with states* to

- Identify data issues early and manage ongoing contract performance
- Help states troubleshoot the source of the problem:
  - Systems, Processes, Incorrect edits or defaults, Facility reporting, Certifier Reporting, Etc., etc., etc.!
- Impress the importance of faster resolution – since the data is used on an ongoing basis

# Summary of Challenges

- Not all states collect information the same way or on same timelines.
- Did not use standard certificates or edits in new systems; may use defaults or not fully tested before implementation
- Data providers at birthing facilities may not understand the importance, or what to enter on a birth certificate
- Many cause-of-death certifiers are poorly trained, or only certify a few a year
- High pending causes of death from a ME/coroner shortage
- High staff turnover, staff shortages

## Yet, major progress has been made by

- Collaborative efforts with **NAPHSIS** and the states
- Our DACEB staff **orient new state staff** to vital statistics and what's expected for the VSCP
- **Creating and targeting analyses and reports** to help states with data quality follow-up
- Promotion of **E-learning for data providers**
- **Special Projects** to address mortality timeliness and quality
- **Files are closed faster than ever and generally of better quality**
- **Data available on an ongoing basis for surveillance**

# State Vital Statistics Improvement Cooperative Agreement Activities

- Birth Data Quality Workgroup
  - Recommended dropping non-performing items from birth and fetal death file
  - Promotion of e-learning training module
- Mortality Data Quality Workgroup, analysis and prioritization of data quality issues
- Training of new registrars, new state staff, and Field Services training
- Monthly calls with state leadership
- Development and technical assistance for new PHAB Accreditation Standards for vital statistics