

Mortality Data Quality: Improving Cause of Death Data

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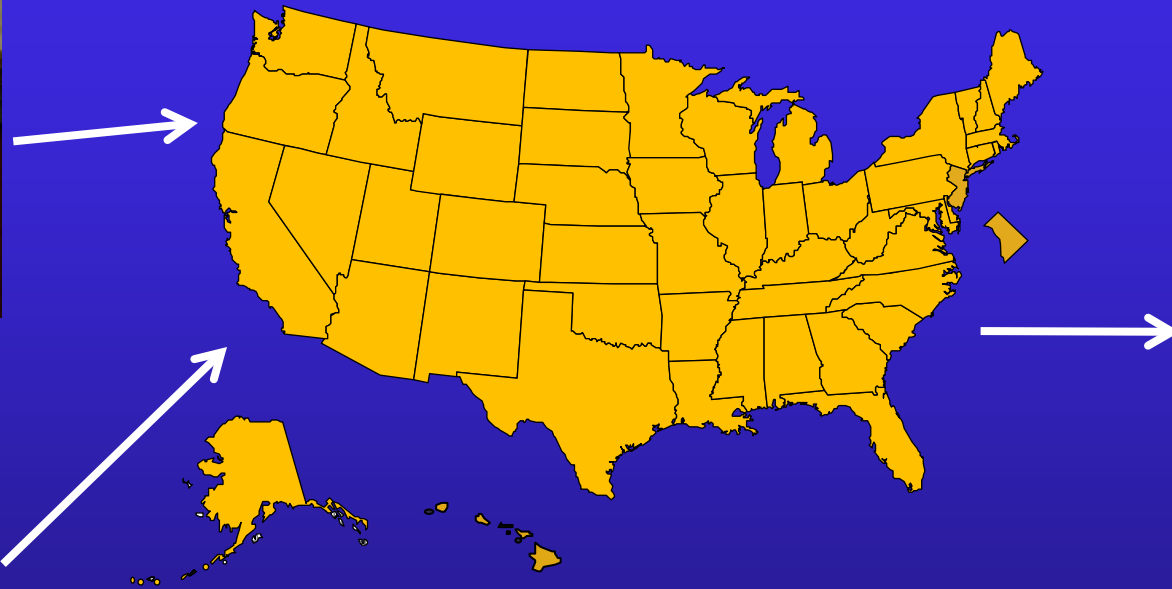
Death Registration in the US



Funeral directors



Physicians
Medical examiners
Coroners



US Vital Registration System

- 50 States
- New York City
- District of Columbia
- 5 Territories

Cause of Death Certification

- Physicians
 - Deaths due to natural causes
- Medical examiners/coroners
 - Injury deaths
 - Deaths occurring under suspicious circumstances
 - Sudden, unattended deaths

CAUSE OF DEATH (See instructions and examples)

Approximate interval:
Onset to death

32. PART I. Enter the chain of events - - diseases, injuries, or complications - - that directly caused the death. DO NOT enter terminal events such as cardiac arrest, respiratory arrest, or ventricular fibrillation without showing the etiology. DO NOT ABBREVIATE. Enter only one cause on a line. Add additional lines if necessary.

IMMEDIATE CAUSE (Final disease or condition resulting in death)

a. _____
Due to (or as a consequence of):

b. _____
Due to (or as a consequence of):

c. _____
Due to (or as a consequence of):

d. _____

Sequentially list conditions, if any, leading to the cause listed on line a. Enter the

UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) **LAST**



Part I: Lines 1-4
Causes of death are entered sequentially starting with immediate cause and ending with the underlying cause.

PART II. Enter other significant conditions contributing to death but not resulting in the underlying cause given in Part I.

33. WAS AN AUTOPSY PERFORMED?

Part II
Other significant conditions contributing to death

35. DID TOBACCO USE CONTRIBUTE TO DEATH?

- Yes Probably
- No Unknown

36. IF FEMALE:

- Not pregnant within past year
- Pregnant at time of death
- Not pregnant but pregnant within 42 days of death
- Not pregnant but pregnant 43 days to 1 year before death
- Unknown if pregnant within the past year

29. MANNER OF DEATH

- Natural Pending Investigation
- Accident
- Suicide Could not be Determined
- Homicide

38. DATE OF INJURY
(Mo/Day/Yr)(Spell Month)

39. TIME OF INJURY

40. PLACE OF INJURY (e.g., Decedent's home, construction site, restaurant, wooded area)

41. INJURY AT WORK?

- Yes No

42. LOCATION OF INJURY: State:
Street & Number:

City or Town:

43. DESCRIBE HOW INJURY OCCURRED

Box 43. How injury occurred
Generally determines external cause of deaths involving injuries.

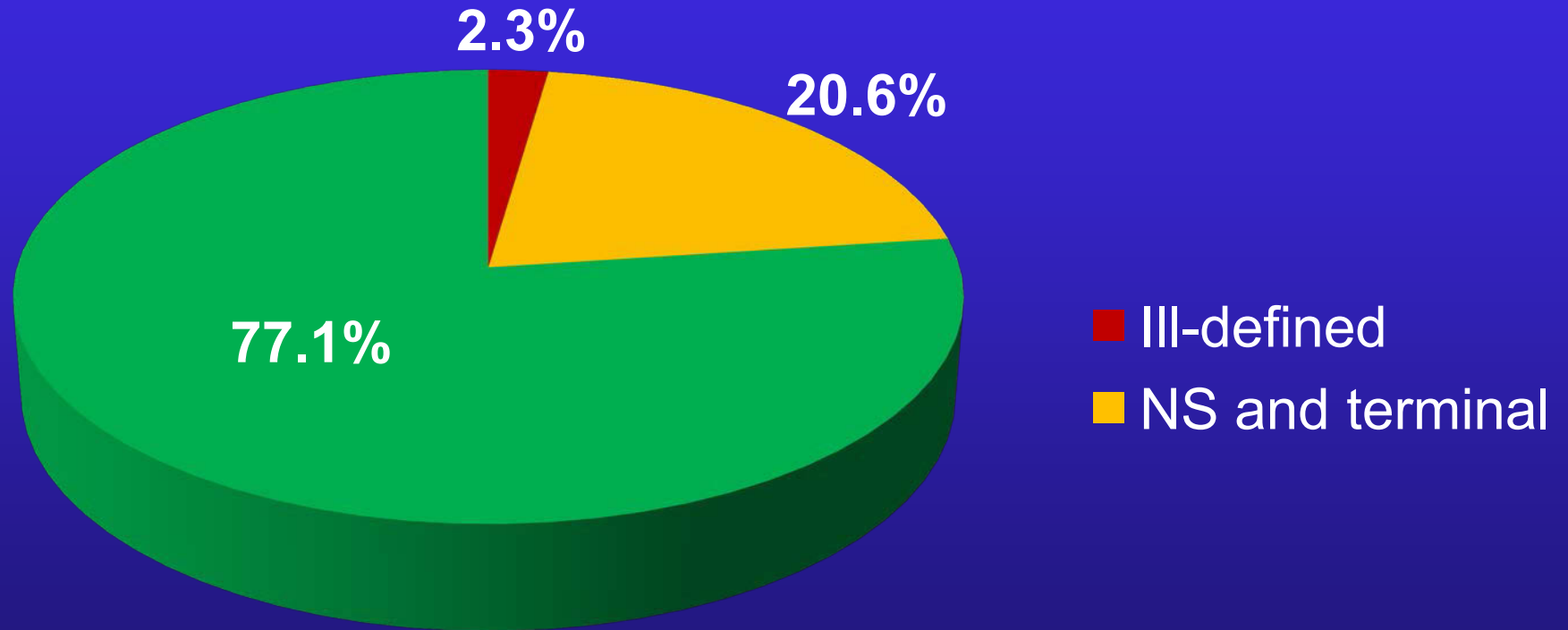
How accurate are cause-of-death statistics?

- Diagnostic errors vs. certification errors
- Declining autopsy rates
- Difficulties associated with multiple chronic diseases
- Studies
 - Autopsy studies
 - Medical record review

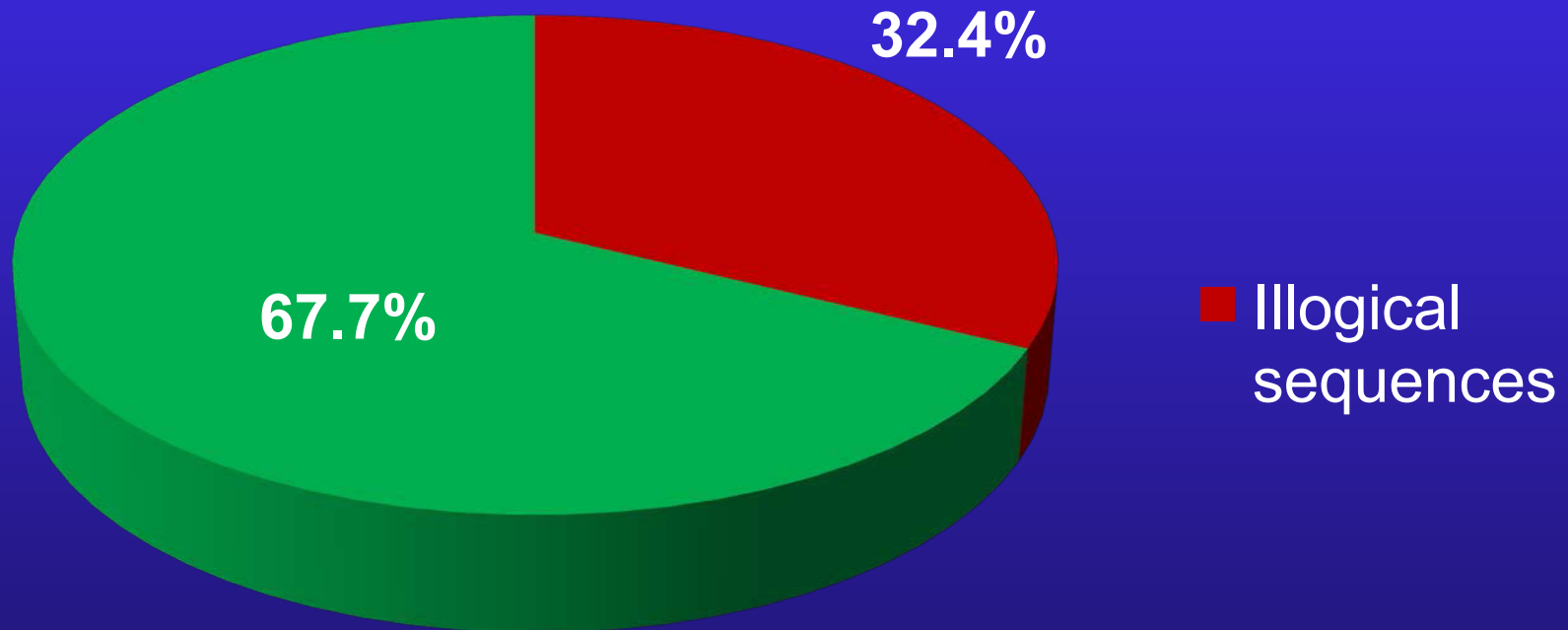
Common Problems with COD Certification

- **Ill-defined conditions**
 - Reporting of symptoms or unknown cause
 - Cardiac/cardiopulmonary/respiratory arrest,
 - Senility or old age
- **Non-specific processes or terminal conditions**
 - Cancer without specification of site
 - Non-specific heart disease/CVD
 - Heart or renal failure
 - Pulmonary embolism
- **Illogical sequences**
 - Cause of death statements that contain conditions/diseases that are not logically linked in a proper sequence

Percent Ill-defined and Non-Specific/Terminal Diseases: US, 2013

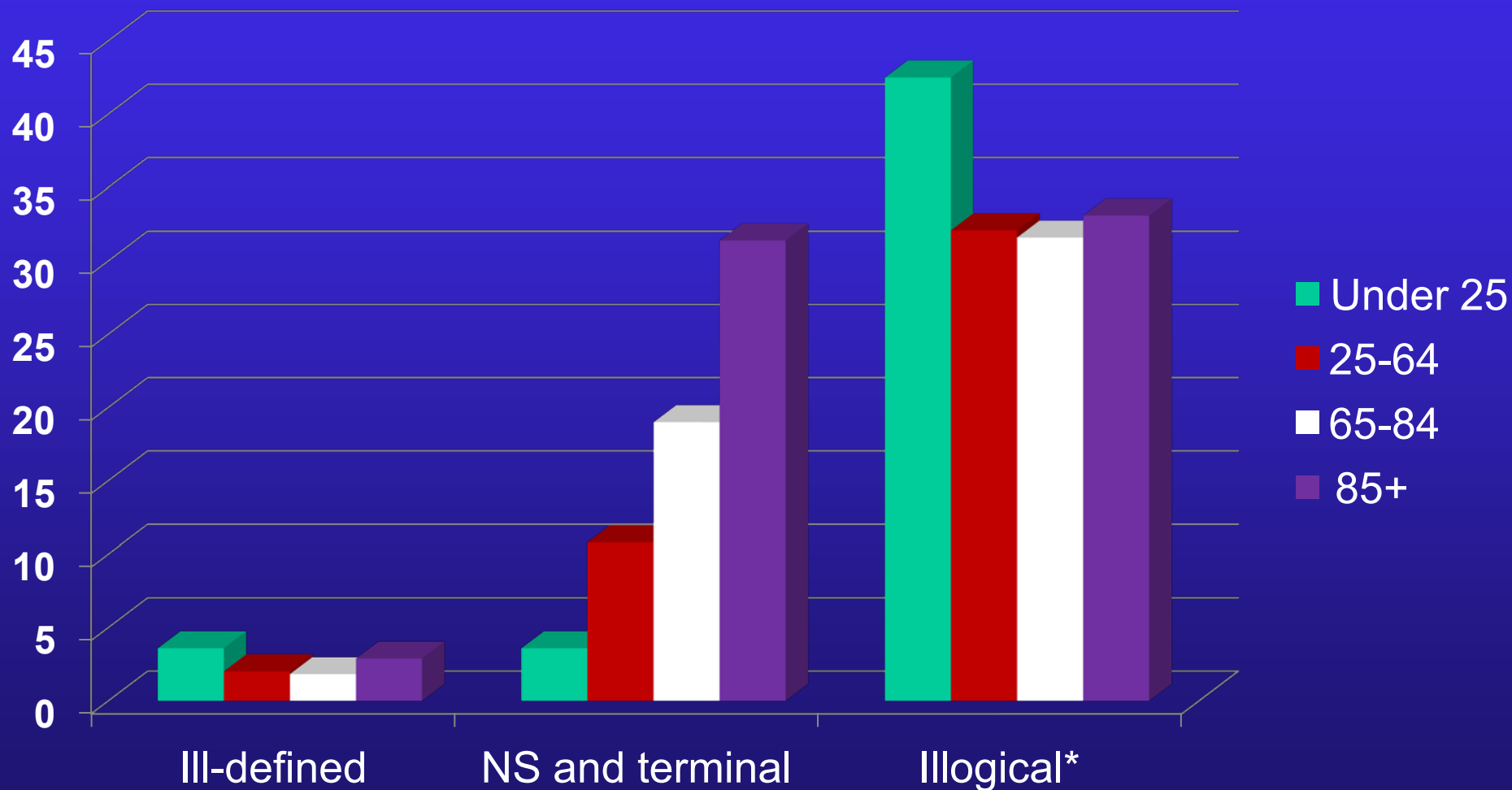


Percent Illogical Sequences: US, 2013



NOTE: Excludes external causes of death and cases with only one condition reported

Percentages by Age: US, 2013



* Excludes external causes of death and cases with only one condition reported

Current Initiatives

- E-learning training
 - Working with Education and Training Services in CSELS to attach CE credits
 - 508 compliance
- Development of Cause of Death App
 - Working with Informatics Lab in CSELS
 - Quick reference guide for physicians with examples
- VIEWS (Validation and Interactive Edits Web Service)
 - Real-time edits and querying during electronic certification

Current Initiatives (cont.)

- Collaboration with Association of American Medical Colleges (AAMC)
 - Disseminate COD training tools (e.g., e-learning, app)
 - Include COD certification as an administrative core competency for residency training
- Machine Learning Project
 - Funding provided to GA Tech University
 - Determine feasibility of using machine learning algorithms and data from electronic health records to help physicians determine an optimal sequence of events leading to death

Current Initiatives (cont.)

- NCHS COD Improvement Project
 - Hiring Associate Service Fellow
 - Coordination of existing efforts and technical assistance to states
 - Review of quality studies and development of standard measures of quality
- State Projects – NM and VT
 - Evaluation of accuracy and quality of cause of death reporting
 - Comparison of death certificates with decedent medical records

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