Mortality Data Quality: Improving Cause of Death Data

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Death Registration in the US

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

Part II
Other significant conditions contributing to death

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 Illogical Sequences: US, 2013

67.7% Illogical sequences

32.4%

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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