Evaluating an Online Training Protocol to Improve Cause of Death Reporting in North Carolina

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Collaborative Team Members

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Importance of Mortality Statistics

Death certificate data are used to:

- Detect trends and identify community needs
- Inform public health programs
- Assist in funding and resource allocation
Barriers to Death Certificate Accuracy

- Paper based death certification system
- Low volume certifiers
- Decedents with little contact with the healthcare system
- Multiple possible causes of death
- Lack of training
Improving Cause of Death Reporting

- Importance of Cause of Death Reporting
- Completing the Cause of Death Section
- Electronic Certificates
- Medical Examiner/Coroner Cases
- Improving Cause of Death Quiz
- Additional Resources
Cause of Death Reporting Assessment - Question 1 of 5

Improving Cause of Death Reporting

1. Select Immediate Cause (Final disease or condition resulting in death)
2. Select Due to a consequence of
3. Select Due to or as a consequence of
4. Other Conditions

Submit
Z-Score Variables

- Item 1: % of natural deaths at decedent’s residence, age 18-64
- Item 2: % COD I46.9: Cardiac Arrest
- Item 3: % COD I51.9: Unspecified Heart Disease
- Item 4: % COD Pending or Unknown
- Item 5: % COD Ill-Defined Cause of Death
- Item 6: % COD T50.9: Other and unspecified drugs
- Item 7: % Manner of Death Pending or Unknown
- Item 8: % of deaths that were non-residents of county of death
- Item 9: % of deaths with single COD entry on item 23 Part I line a
- Item 10: % of deaths certified by non MD/DO
- Item 11: Avg time (days) between date of death Item 6 and date certified Item 33c
- Item 12: % cases declined by medical examiner item 28b
# Rank of 15 Worst Performing Counties

<table>
<thead>
<tr>
<th>Rank</th>
<th>County</th>
<th>Sum of z-scores</th>
<th>County</th>
<th>Sum of z-scores</th>
<th>County</th>
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<tbody>
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<td>1</td>
<td>Camden</td>
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<td>Tyrrell</td>
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</table>
Demographics

- 211 potential certifiers were invited to respond
- 10 participants responded
  - 5 Beaufort county, 4 Lenoir county, 1 Green county participant(s)
  - 5 NPs, 3 MDs, 2 DOs
  - Primarily low volume certifiers
Kirkpatrick Model of Evaluation

- **Level One: Reaction**
  - Was the training clear, relevant, and engaging?

- **Level Two: Learning**
  - Did participants absorb knowledge and are they committed to applying what they learned?

- **Level Three: Behavior**
  - Did participants apply training principles?

- **Level Four: Results**
  - Was there a significant change in target outcomes as a result of the training?
Survey One: Reaction

- Was the training module engaging and clear both in format and content?
- Is the training relevant to professional activities?
- Can the material be applied in a practical manner?
Survey One Results

- All participants reported they were likely to recommend program to colleagues
- High commitment to application
- Feedback:
  - Reported that training was not relevant to their professional activities
  - Reported lack of training in residency
  - Requested NC specific training and specific training for complex cases e.g. elderly or at-home deaths
Survey 2: Learning

• Has the training module assisted in professional activities?
• What specific components of the module were most helpful?
• Are there additional resources that would be beneficial?
• What improvements could be made to the educational activity?
Survey 2 Preliminary Results

- Most participants reported that they are successfully applying knowledge gained from the training module
- Most agreed it was a worthwhile activity
- Feedback:
  - Reiterated the need for EDRS and specific training for complex cases
  - Suggested a link for training be readily available for those filling out death certificates
Next Steps: Behavior Evaluation

- Participants signed death certificates in target counties can be identified and evaluated
  - Logical cause of death progression
  - Specific primary cause of death code
Next Steps: Results Evaluation

- Target improvement metric: total z-score for target counties in 2018
  - Death certificate data is finalized September of following year
- Unlikely to see significant change
  - Small sample size
  - Confounding variables
Challenges Encountered

• Small sample size
• Difficulty identifying potential certifiers
• Technical errors
• Outdated email addresses
• Lack of response detail
Lessons Learned

• Targeting training to residents and students may be a more effective method of dissemination
  – Difficult to recruit practicing physicians and NPs
• Future training materials could be improved by detailed explorations of complex cases and more suggestions for additional resources
Special Thanks To

• Lee Anne Flagg, CDC/DDPHSS/NCHS/DVS
• Eleanor Howell, NCDHHS
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• The online training module evaluated in this study can be found at:
  https://www.cdc.gov/nchs/training/improving_cause_of_death_reporting/