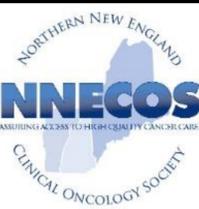




# Cancer Mortality: Sources of Misclassification in Death Certificates

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## AIM

The purpose of this research is to identify the main sources of bias and misclassification in the completion of the cause of death section on death certificates.

## BACKGROUND

### Inaccurate Diagnosis:

A study comparing true death certificates with clinical summaries from medical records found that **51% of the death certificates had major errors**<sup>1</sup>

### Limited Quality:

Another study found that **45% of cancer death certificates were of limited quality** with nonspecific causes of death or only one nonterminal cause of death<sup>2</sup>



### Consequences for Cancer Research:

A 2011 study found that inaccurate reporting of deaths from rectal cancer significantly **increased the 5-year cause-specific survival rate** for the cancer<sup>3</sup>

## METHODS

- **Focus Groups:** Four 60-minute long groups, each with 4-8 local providers
  - Residents, attendings, and nurse practitioners
  - Providers from hospital medicine, palliative care, and community practices
- **Transcription:** Each group was recorded and transcribed in full
- **Analysis:** Transcripts were analyzed with Constant Comparison Analysis, a research method developed by Glaser and Strauss to group data into units and categories which are then used to identify larger themes

## RESULTS: MAIN THEMES

### Challenges providers face when completing death certificates

#### Procedural Challenges

Changes in technology  
Restrictive form  
Variation in training  
Lack of Feedback

*"If you have someone who has had cancer over a long period of time with many changes and recurrences the form on the death certificate is not conducive to listing those out in a meaningful way"*

#### Clinical uncertainty

Gaps in patient care  
Unexpected deaths

*"Sometimes the cause of death is ambiguous because the patient is comfort measures only"*

### Provider approaches to determining the cause of death

#### Broadest Diagnosis

Cardiac arrest  
Respiratory failure  
Hypoxic brain death

*"It's never really that black and white which is a little bit frustrating. If you are uncertain you can easily argue that the patient died of a cardiac arrest or from brain hypo perfusion"*

#### Clinical judgement on a specific diagnosis

Demographics  
Medical record, PCP

*"I think its important to remember that it is a medical opinion, so you don't have to have all the facts"*

### Completing death certificates for patients with cancer

#### Immediate cause of death

Cancer can be the immediate cause

*"I was always taught that people don't die of cancer, there is something that causes the eventual organ failure and that cancer is a contributing factor"*

#### Heightened documentation requirements

*"For us to include cancer as a cause of death on the death certificate we would want to have a tissue diagnosis or a radiological diagnosis"*

## CONCLUSIONS

Considering the specific challenges providers face in the completion of death certificates identified through thematic analysis of focus groups, there are two major areas for intervention:

1. **Training and regular feedback** to ensure more consistency in the data obtained from death certificates
  - Electronic forms allow for implementation of more strict standards as well as immediate feedback
2. **Careful data-centered approach to the cause of death**, especially in patients with cancer
  - The data-centered approach many oncologists and palliative care physicians take to completing the death certificate is an excellent model for all providers

## NEXT STEPS

**Additional Focus Group** with individuals from the New Hampshire State Cancer Registry, the state medical examiners office and staff at Vital Records

**Work with the Geisel School of Medicine and residency programs at DHMC** to pilot training materials centered around completing death certificates accurately

**Share our data with Vital Records** to assist in their creation and implementation of a new app for completing death certificates in New Hampshire

## REFERENCES

1. McGivern, Lauri, et al. "Death certification errors and the effect on mortality statistics." *Public Health Reports* 132.6 (2017): 669-675
2. Falci, Laura, et al. "Examination of Cause-of-Death Data Quality Among New York City Deaths Due to Cancer, Pneumonia, or Diabetes From 2010 to 2014." *American journal of epidemiology* 187.1 (2017): 144-152
3. Yin, Daixin, et al. "Effect of misclassified underlying cause of death on survival estimates of colon and rectal cancer." *Journal of the National Cancer Institute* 103.14 (2011): 1130-1133