

Counting COVID-19 deaths

5/18/20

Death Certificate Structure

- Part 1: Immediate and Underlying Cause of Death
 - For reporting the sequence of conditions that led directly to death
 - Line A: the immediate cause of death
 - Underlying causes of death (UCOD) are “(a) the disease or injury which initiated the train of morbid events leading directly to death or (b) the circumstances of the accident or violence which produced the fatal injury”
- Part 2: Other significant conditions contributing to death

Coding deaths for COVID-19

- If played a role in the death, COVID-19 should be listed
 - Often not the immediate cause of death but one of the underlying causes
 - Generally listed at or near the bottom of the train of UCOD
- Underlying or co-morbid conditions (e.g., COPD or hypertension)
 - These do not cause COVID-19 but may increase the severity of the infection
 - Such conditions are listed in Part 2
- Post mortem testing- if testing not done prior to death or if results negative
- “Probable” or “Presumed” qualifiers if COVID-19 suspected but not proven

Preliminary Estimate of Excess Mortality During the COVID-19 Outbreak—New York City, March 11–May 2, 2020

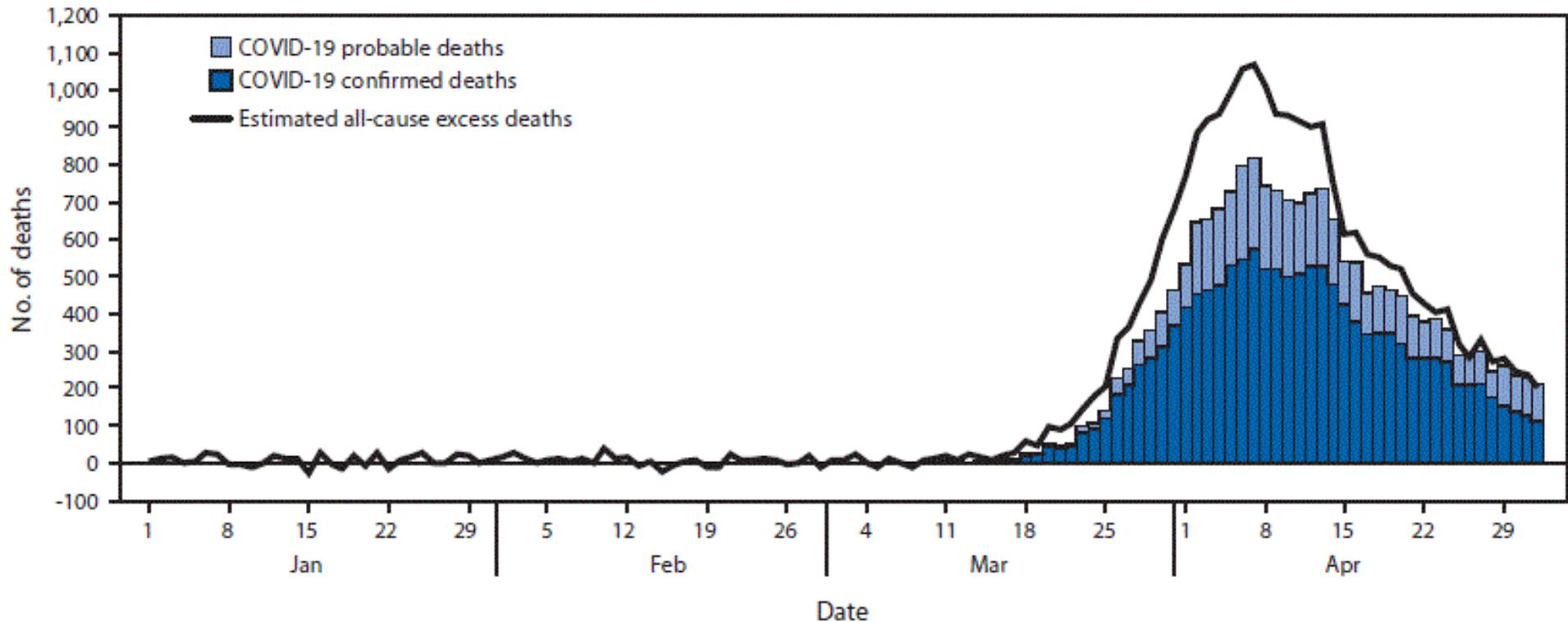
- Case Definition

- Confirmed COVID-19–associated deaths: Deaths occurring in persons with laboratory-confirmed SARS-CoV-2 infection
- Probable COVID-19-associated deaths: Deaths for which COVID-19, SARS-CoV-2, or an equivalent term is listed on the death certificate as an immediate, underlying, or contributing cause of death, but that do not have laboratory-confirmation of COVID-19

- Methods

- Daily match between all deaths reported to the DOHMH electronic vital registry system (eVital) (2) and laboratory-confirmed cases of COVID-19 beginning March 13, 2020
- Estimated excess deaths using a seasonal periodic regression model, as for seasonal influenza.
- Excess deaths were determined for the period March 11–May 2, 2020, using mortality data from the period January 1, 2015–May 2, 2020 and calculated as the difference between the seasonally expected baseline number and the reported number of all-cause deaths

Number of laboratory-confirmed* and probable† COVID-19–associated deaths and total estimated excess deaths§ — New York City, March 11–May 2, 2020



* Death in a person with a positive laboratory test for SARS-CoV-2 RNA.

† Death in a person without a positive test for SARS-CoV-2 RNA but for whom COVID-19, SARS-CoV-2, or a related term was listed as an immediate, underlying, or contributing cause of death on the death certificate.

§ Total excess all-cause deaths were calculated as observed deaths minus expected deaths as determined by a seasonal regression model using mortality data from the period January 1, 2015–May 2, 2020.

Limitations

- Method does not account for uncertainty in the reporting lag or completeness of these provisional data.
- Proportion of excess deaths that occurred in persons infected with SARS-CoV-2 or resulted from indirect impacts of the pandemic are unknown and require further investigation.
- Does not account for factors causally associated with SARS-CoV-2 that might affect death rates, including other pathogens circulating during the overlapping 2019–20 influenza season

Conclusions

- COVID-19–associated mortality is higher in persons with underlying chronic health conditions such as heart disease and diabetes (9), and deaths in persons with these chronic health conditions might not be recognized as being directly attributable to COVID-19.
- Social distancing practices, the demand on hospitals and health care providers, and public fear related to COVID-19 might lead to delays in seeking or obtaining lifesaving care.
- Monitoring of all-cause deaths and estimating excess mortality during the pandemic provides a more sensitive measure of the total number of deaths than would be recorded by counting laboratory-confirmed or probable COVID-19–associated deaths.
- All-cause mortality surveillance based on electronic reporting of the event of death provides a faster and more inclusive measure of the pandemic’s impact on mortality than does relying only on national COVID-19 reporting mechanisms