Excess Deaths During the COVID-19 Pandemic: Implications for US Death Investigation Systems

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Quality death investigation is a critical piece of an effective public health system.[1] When a person dies, a coroner, medical examiner, or health professional with knowledge of the decedent's medical conditions fills out the death certificate. Accurate cause-of-death ascertainment has broad implications for understanding the burden of disease throughout the United States.

During the coronavirus disease 2019 (COVID-19) pandemic, vital statistics have had an important role in shaping the public health response, including recommendations for physical distancing and mask wearing, temporary lockdowns, and mobilization of health care systems.[2] Racial and socioeconomic disparities in deaths attributed to COVID-19 have shown how structural racism contributed to vulnerability during the pandemic.[3]

Although monitoring death certificates for reference to COVID-19 is a useful method for detecting the mortality associated with severe acute respiratory syndrome coronavirus 2 infection, it is likely to result in an undercount if COVID-19 is missing on death certificates in cases in which COVID-19 contributed to death.[4–6] In fact, between 15% and 34% of excess deaths that occurred in 2020 during the COVID-19 pandemic were not directly assigned to COVID-19 on death certificates.[7] These deaths likely include COVID-19 deaths not assigned to COVID-19 and indirect deaths related to social and economic consequences of the pandemic.

Previous work has demonstrated that the percentage of excess deaths not assigned to COVID-19 varies by state and county.[4,6] At the county level, a previous analysis found that the percentage of excess deaths not assigned to COVID-19 was higher in areas with lower average socioeconomic status, counties with more non-Hispanic Black residents, and counties in the South and West.[6] Areas without medical examiners may also have a higher percentage of excess deaths not assigned to COVID-19.[8] Many of these areas rely on coroners who are laypeople who typically lack professional training in medical certification, are usually elected, and often serve dual roles such as a sheriff–coroner.[1]

One reason why COVID-19 deaths may not be assigned to COVID-19 is if testing does not occur. In rural areas, where coroners are more common, there is often less access to health care, including COVID-19 testing.[9] Coroners may also be less likely to perform postmortem COVID-19 testing as a result of budget limitations. Moreover, prior research has identified partisan differences in attitudes toward COVID-19 and behaviors such as physical distancing and mask wearing.[10] Thus, partisan differences could affect the likelihood that an individual or their family members seek COVID-19 testing while alive and whether coroners pursue postmortem testing. Because some states require testing for confirmation of a COVID-19 death, this could affect a state's COVID-19 death count.[11]

Regardless of the cause, the possibility that the quality of death investigation systems may affect the reporting of COVID-19 deaths holds implications for the study of geographic variation in COVID-19 mortality, which is an important tool for documenting disparities. If disparities in excess deaths not assigned to COVID-19 differ from disparities in deaths directly assigned to COVID-19, at-risk populations may be missed when monitoring assigned COVID-19 deaths alone. For this reason, when feasible, we believe excess mortality should be leveraged in studies of geographic and other population variation in COVID-19 mortality.

Moving forward, greater attention should be given to the death investigation system in the United States, including to potential data quality issues associated with the coroner system. As the case of COVID-19 demonstrates, differential ascertainment may be more

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likely when determination of the cause of death depends on access to medical care or when attribution is politicized or stigmatized. Such factors were likely important contributors to the significant underreporting of opioid-related overdose as a cause of death in the recent past, which had implications for the delayed response to the opioid crisis.[12] As the United States reckons with making much-needed investments in its public health system in response to the pandemic, it would be a mistake not to include improvements to the death investigation system in these conversations. AJPH

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