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Media Reports as a Tool for Timely Monitoring of COVID-19–Related Deaths Among First Responders—United States, April 2020

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Abstract

We aimed to describe coronavirus disease 2019 (COVID-19) deaths among first responders early in the COVID-19 pandemic. We used media reports to gather timely information about COVID-19–related deaths among first responders during March 30–April 30, 2020, and evaluated the sensitivity of media scanning compared with traditional surveillance. We abstracted information about demographic characteristics, occupation, underlying conditions, and exposure source. Twelve of 19 US public health jurisdictions with data on reported deaths provided verification, and 7 jurisdictions reported whether additional deaths had occurred; we calculated the sensitivity of media scanning among these 7 jurisdictions. We identified 97 COVID-19–related first-responder deaths during the study period through media and jurisdiction reports. Participating jurisdictions reported 5 deaths not reported by the media. Sixty-six decedents worked in law enforcement, and 31 decedents worked in fire/emergency medical services. Media reports rarely noted underlying conditions. The media scan sensitivity was 88% (95% CI, 73%-96%) in the subset of 7 jurisdictions. Media reports demonstrated high sensitivity in documenting COVID-19–related deaths among first responders; however, information on risk factors was scarce. Routine collection of data on industry and occupation could improve understanding of COVID-19 morbidity and mortality among all workers.

Keywords

COVID-19, first responders, workplace, surveillance

Surveillance of coronavirus disease 2019 (COVID-19) by industry and occupation can help protect the health and safety of our national workforce. However, collecting data on industry and occupation for each COVID-19 case is resource intensive. Before May 2020, the Centers for Disease Control and Prevention (CDC) case report form for COVID-19 requested only occupational information about health care personnel.[1] As of May 2020, the form included only a free-text field for industry and occupation for cases with suspected workplace exposure; as such, information on industry and occupation sent to CDC for COVID-19 cases was limited.[1,2] To understand the morbidity and mortality of and risk factors for COVID-19 among working populations, timely and representative surveillance data on industry and occupation are needed for all cases.

Media reports can be used during disasters to augment traditional mortality surveillance methods and may provide

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more timely information than traditional surveillance.[3,4] Workers in law enforcement, fire, and emergency medical services (EMS) agencies (ie, first responders) are visible figures in their communities and essential critical infrastructure workers who may have occupational exposure to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes COVID-19. To gather timely information early in the COVID-19 pandemic among this workforce, we used media scan techniques to monitor publicly available reports of COVID-19–related deaths among first responders and verified that information with US public health jurisdictions.

Methods

We monitored publicly available media reports of all COVID-19–related deaths among first responders that occurred during March 30–April 30, 2020, in the United States. We defined first responders as employees and volunteers of law enforcement, fire, or EMS agencies who did not primarily work or volunteer in correctional facilities.[5,6]

We identified media reports using Google Alerts and Talkwalker, a media analytics program. Search strategies used for Google and Talkwalker varied slightly, but both included terms such as ("law enforcement" OR "police*" OR "firefighter*" OR "EMS" OR "paramedic*") AND ("COVID-19" OR "corona*") AND "death*." Using information found in the media reports, we conducted follow-up Google searches for additional information. We also monitored alerts from the US Fire Administration and memorial webpages (Police1, FireRescue1, EMS1)[7-9] to identify new deaths or abstract additional information. We abstracted information about demographic characteristics, occupation, underlying medical conditions, and potential exposure to SARS-CoV-2 (occupational or other). We managed data using Research Electronic Data Capture software (Vanderbilt University) and analyzed data using SAS version 9.4 (SAS Institute, Inc).

We sent lists of these publicly reported deaths to public health jurisdictions where deceased first responders reportedly worked or resided for verification as COVID-19–related deaths. We requested that jurisdictions report additional COVID-19–related first-responder deaths if possible. We also provided lists of deaths from neighboring jurisdictions if it was likely that a decedent was employed in one jurisdiction but resided in another jurisdiction. To verify that deaths met the COVID-19 case definition,[10] jurisdiction representatives cross-referenced the list of media-reported COVID-19–related deaths using 1 or more of the following traditional data sources: surveillance databases for people under investigation for COVID-19 (ie, being tested for potential COVID-19 infection), COVID-19 cases, and COVID-19 deaths; medical examiner records; and occupational fatality case tracking databases. To identify additional COVID-19–related deaths not found in public reports, jurisdictional representatives searched the same COVID-19 data sources by relevant industry and occupation codes or keywords. For verified COVID-19–related deaths, jurisdiction representatives provided information, when available, that was missing or incorrect in the media reports. We calculated the sensitivity of the media scan among jurisdictions that reported whether additional deaths occurred and used the Clopper-Pearson method to calculate the 95% CI.

Results

During March 30–April 30, 2020, we identified 94 deaths in 19 jurisdictions through the media scan (Table). Twelve participating jurisdictions (Chicago, Illinois; Delaware; Florida; Georgia; Illinois; Louisiana; Massachusetts; Michigan; Mississippi; New Jersey; Pennsylvania; and Washington State) reviewed information on 42 first-responder deaths from the media scan; the other 7 jurisdictions (corresponding to 52 media-reported deaths) elected not to participate. After verification, some participating jurisdictions had no COVID-19–related deaths among first responders in their jurisdiction; reasons included a decedent having worked in one jurisdiction but resided in another, a death not being verified as related to COVID-19, or incorrect media scan information.

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Table. Reported COVID-19–related deaths among employees and volunteers of first-responder agencies, by demographic, clinical, and work-related characteristics, United States, March 30–April 30, 2020

Characteristics	Information from media scan, plus jurisdictional review and verification (n = 97)[a]
Demographic	
Sex	
Female	14
Male	82
Missing data/not reported	1
Age, median (range), y	54 (24-78)
Age, y	
16-44	18
45-54	23
55-64	23
≥65	13
Missing data/not reported	20
Clinical	
Any information on underlying conditions	35[b]
Cardiovascular disease	7
Chronic kidney disease	3
Diabetes	14
Hypertension	19
Obesity	10
Respiratory	9
Other/unspecified	6
No known underlying conditions	5
Work-related	
Industry	
Law enforcement[c]	66
Fire/EMS[d]	31
Job title category	
Police officer	31
Firefighter/EMS/paramedic	16
School safety officer	21
Traffic officer	8
Auxiliary police officer	8
Other[e]	13
Work location, by state	
New York (includes New York City)	43[f]
New Jersey	19
Illinois (includes Chicago)	7[g]
Louisiana	6
Pennsylvania	5
Michigan	3
Florida	3
California	2
Other[h]	9

Abbreviations: COVID-19, coronavirus disease 2019; EMS, emergency medical service.

[a]Participating jurisdictions identified 5 additional deaths and could not verify 2 death reports, for a total of 97 deaths (94 media scan + 5 jurisdiction – 2 unverified). Fifty-two deaths were not validated by jurisdictions. All values are numbers unless otherwise indicated.

[b]Information on underlying conditions was available for only 35 decedents. Twenty-one decedents had >1 underlying condition.

[c]Included police officers (career and volunteer) and civilian support staff members and excluded workers in correctional facility settings.

[d]Included career and volunteer firefighters, EMS workers, and support staff members.

[e]Job titles included administrator, chaplain, clerical, custodian, communications technician, inspector, analyst, educator, and mechanic.

[f]Thirty-eight decedents worked in New York City.

[g]Five decedents worked in Chicago.

[h]Other jurisdictions with 1 death each included Colorado, Indiana, Maryland, Massachusetts, Mississippi, Missouri, North Carolina, Tennessee, and the District of Columbia.

Participating jurisdictions verified 40 deaths as COVID-19–related, determined that 2 deaths did not meet the definition of a COVID-19 death, and identified 5 additional COVID-19–related deaths in their jurisdictions. After excluding the 2 unverified deaths and adding 5 deaths to the 94 deaths identified by the media scan, media and jurisdiction reports together identified 97 first-responder deaths (Table).

Based on media and jurisdiction reports, when available, most decedents were male (82 of 97, 85%) (Table). The median age at death was 54 years; 18 decedents were aged 16-44 years. Sixty-six decedents worked in law enforcement and 31 worked in fire or EMS; job titles indicated various job duties. Information on a potential source of SARS-CoV-2 exposure was available for 23 deaths; potential occupational exposure to SARS-CoV-2 was mentioned for 18 deaths. Information on underlying medical conditions was available for 35 decedents. Among 30 decedents with reported underlying conditions, 26 (87%) conditions were identified only through jurisdictions. The most commonly reported underlying conditions were hypertension (n = 19) and diabetes (n = 14).

Of the 12 participating jurisdictions, 7 (Delaware, Illinois, Louisiana, Massachusetts, Mississippi, New Jersey, and Pennsylvania) provided information about additional deaths or reported no additional deaths. These 7 jurisdictions reported 40 deaths, and the sensitivity of the media scan

among these jurisdictions was 88% (35 of 40 deaths; 95% CI, 73%-96%).

Discussion

Media reports have been used during other disasters, such as hurricanes, to augment traditional mortality surveillance methods and can help identify deaths quickly, provide situational awareness, and inform traditional surveillance activities and responses.[3,4] We used media reports to quickly document mortality among first responders early in the COVID-19 pandemic, when other sources of data on industry and occupation for COVID-19 cases were not widely available. Among a subset of deaths verified by jurisdictions, the sensitivity of the media scan was 88%.

To provide the most complete picture of COVID-19–related first-responder deaths, we presented media scan–identified deaths and deaths identified by participating jurisdictions together. These results should be interpreted with caution and the understanding that media scans may identify unverified deaths or include incorrect information on demographic characteristics or industry and occupation. For example, in the subset of jurisdictions that verified media scan information, 2 media-reported deaths were not identified in jurisdictional surveillance data. Although the sensitivity of the media scan was 88% in a subset of jurisdictions, this calculation was based on small numbers and varying levels of completeness of industry and occupation data available to jurisdictions. The sensitivity of the media scan and the count of COVID-19–related deaths were limited by an inability to verify 52 deaths among nonparticipating jurisdictions. Media scans are also limited because they rely on media reporting trends and completeness, which vary over time and by target population, geographic location, and source. Consequently, findings from this analysis may not be generalizable nationally or beyond the early stages of the pandemic.

First responders compose a critical national workforce of approximately 1.5 million people.[11] Media reporting on COVID-19–related deaths among first responders was a timely information source to supplement traditional surveillance systems early in the pandemic, when information on industry and occupation was not routinely collected. However, media scan results alone were not complete enough to understand COVID-19 mortality among first responders, to deduce how COVID-19 mortality among first responders compares with COVID-19 mortality among the general population, or to identify occupational risk factors.

Although media scan techniques provided valuable situational awareness quickly, traditional surveillance systems are still needed to provide representative, stable, and high-quality data on cases by industry and occupation over time. Having complete, accurate data on cases is especially important for workers with less visibility and representation than first responders, such as people working in social services, health care support, transportation, retail, food services, and manufacturing.[12,13] Public health surveillance with routine collection and reporting of data on industry and occupation could improve understanding COVID-19 mortality and risk factors among all workers and inform prevention strategies.[1]

Current efforts and tools available to collect industry and occupation data as part of public health surveillance are summarized in a CDC National Institute for Occupational Safety and Health blog,[1] with instructions for recording data on industry and occupation. The National Institute for Occupational Safety and Health also produced a training video[14] on the collection of industry and occupation data. Whenever possible, industry and occupation data including employment for the 14 days before diagnosis should be collected for COVID-19 cases.[1] Death certificate–based surveillance[15] might provide more industry and occupation information about deaths[16] resulting from COVID-19 over time. Although collecting these data is a challenge, improved knowledge of occupational COVID-19 morbidity and mortality can inform control measures and guidance and should be considered a key element of all public health surveillance systems.[5,6]

Disclaimer

The findings and conclusions of this article are those of the authors and do not necessarily reflect those of the Centers for Disease Control and Prevention.

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