could increase the likelihood of patients presenting to the ED before a major thunderstorm, we found no association between thunderstorms and ED visits for control conditions like sepsis or pulmonary embolism. Assuming an average 65 years or older population of 37.7 million Americans (based on census data), approximately 52 000 additional respiratory ED visits were estimated to occur in the 3 or more days surrounding major storms during the 14-year study period.

Discussion | Emergency visits for acute respiratory illness significantly increased during the days before major thunderstorms among Medicare beneficiaries, particularly those with asthma and/or COPD. Visits were temporally associated with rises in temperature and particulate matter concentrations, atmospheric changes that have previously been associated with acute respiratory illness in the Medicare population.[3,4]

Rare epidemics of asthma following thunderstorms in other countries have been hypothesized to result from pollen grains rupturing when wet, allowing winds to carry small pollen particles that can trigger allergic asthma in susceptible patients.[5] In this study, ED visits peaked before the thunderstorm, suggesting pollen particle release from precipitation was not the dominant mechanism. A limitation of this study is that it may not generalize to younger populations for which allergic asthma is common.[6]

To our knowledge, this is the first large-scale study to evaluate the association between thunderstorms and emergency visits for respiratory illness. Our findings suggest antecedent rises in particulate matter concentration and temperature may be the dominant mechanism of thunderstorm-associated acute respiratory disease in older Americans, which may contribute to strain on the health care system as storm activity increases with rising global temperatures

Eric Zou, PhD
Christopher Worsham, MD
Nolan H. Miller, PhD
David Molitor, PhD
Julian Reif, PhD
Anupam B. Jena, MD, PhD

Author Affiliations: Department of Economics, University of Oregon, Eugene (Zou); Harvard Medical School, Department of Health Care Policy, Boston, Massachusetts (Worsham, Jena); Department of Finance, University of Illinois at Urbana-Champaign, Urbana (Miller, Molitor, Reif).

Accepted for Publication: April 6, 2020.

Corresponding Author: Anupam B. Jena, MD, PhD, Department of Health Care Policy, Harvard Medical School, 180 Longwood Ave, Boston, MA 02115 (jena@hcp.med.harvard.edu).

Published Online: August 10, 2020. doi:10.1001/jamainternmed.2020.1672

Author Contributions: Dr Zou had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.
Concept and design: Zou, Worsham, Miller, Molitor, Jena.
Acquisition, analysis, or interpretation of data: All authors.
Drafting of the manuscript: Zou, Worsham, Miller, Jena.
Critical revision of the manuscript for important intellectual content: All authors.
Statistical analysis: Zou, Worsham, Molitor, Jena.
Obtained funding: Miller, Molitor, Reif, Jena.
Administrative, technical, or material support: Miller, Molitor, Reif, Jena.
Supervision: Miller, Jena.

Conflict of Interest Disclosure: Dr Jena reports receiving consulting fees unrelated to this work from Pfizer, Hill Rom Services, Bristol Myers Squibb, Novartis, Amgen, Eli Lilly, Vertex Pharmaceuticals, AstraZeneca, Celgene, Tesaro, Sanofi Aventis, Biogen, Precision Health Economics, and Analysis Group.

Funding/Support: Support was provided by the Office of the Director, National Institutes of Health (grant 1DP5OD017897 to Dr Jena; R01AG053350 to Drs Miller, Molitor, and Reif).

Role of the Funder/Sponsor: The National Institutes of Health had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

Disclaimer: The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

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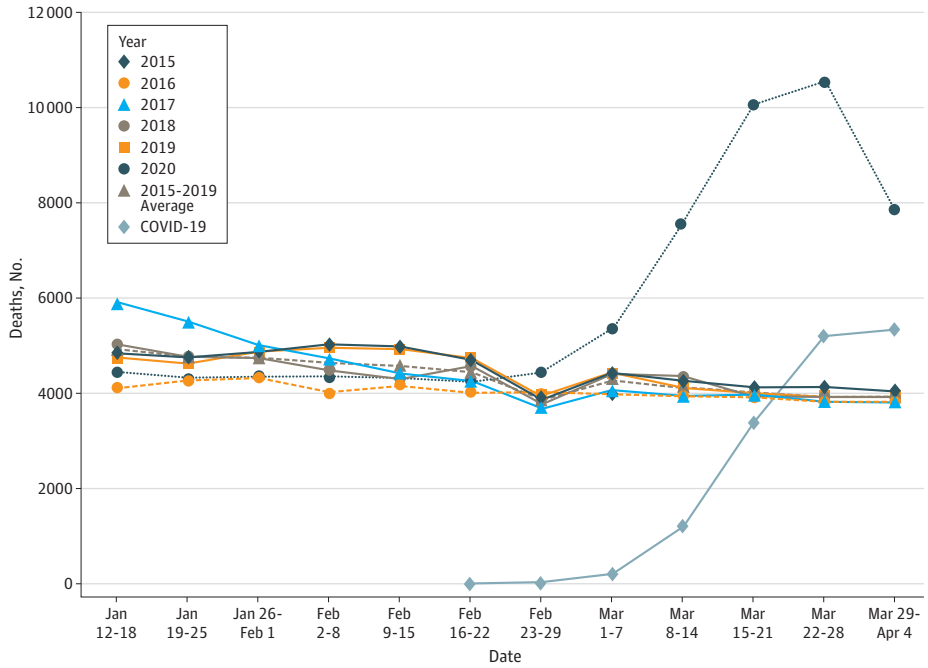
Comparison of Reported Deaths From COVID-19 and Increase in Total Mortality in Italy

Soon after the first patients with coronavirus 2019 (COVID-19) were diagnosed in Italy in February 2020, a severe epidemic developed.[1] The greatest concentration of cases has been in Lombardy, a region of northern Italy with a population of 10 million in 2019. As of the end of April 2020, there had been 27 682 reported deaths from COVID-19 in Italy, compared with 26 097 in the UK, 24 543 in Spain, 4637 in China, and 60 966 in the US.[2]

In many countries, there is concern that the number of reported deaths from COVID-19 substantially understates the actual increase in mortality that may be directly or indirectly associated with the pandemic.[3] We compared the number of reported deaths from COVID-19 in Italy and the increase in total mortality.

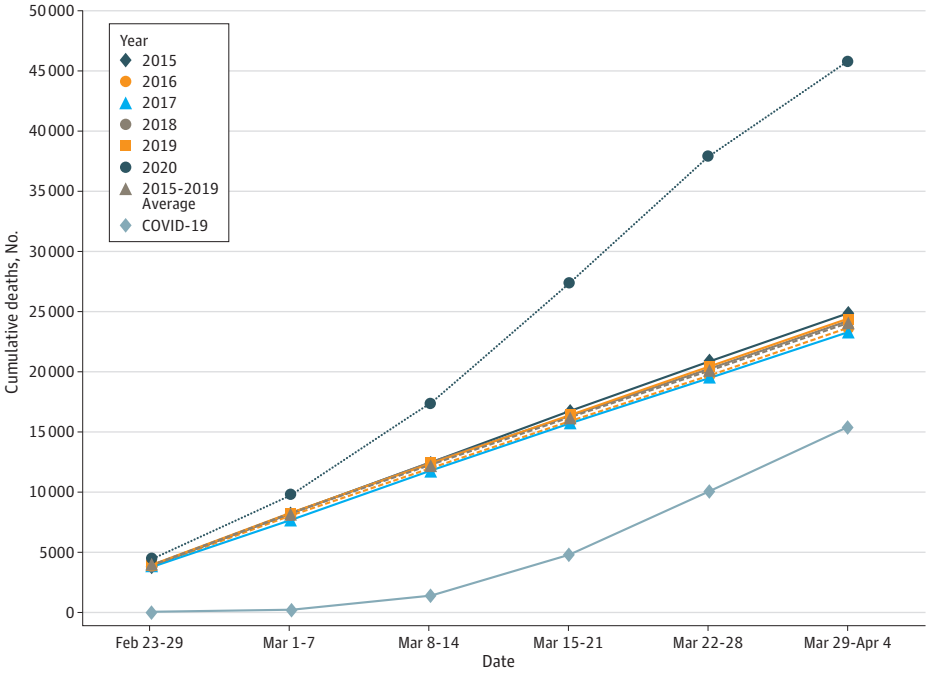
Methods | We obtained the number of reported COVID-19 deaths in Italy from the National Health Authority.[4] Deaths are reported for patients who tested positive in hospitals and a few nursing homes. Reported COVID-19 deaths do not

Figure 1. Overall Number of Deaths Reported in Italy During the January 12-April 4 Period, 2015 Through 2020



Deaths were counted among 1689 municipalities, and reported deaths from COVID-19 during the same period.

Figure 2. Cumulative Number of Deaths Reported in Italy During the February 23-April 4 Period, 2015 Through 2020



Deaths were counted among 1689 municipalities, and reported deaths from COVID-19 during the same period.

include people who died at home or in care facilities where testing was not performed. We obtained preliminary mortality data for January 12 to April 4, 2020, from the Italian National Institute of Statistics, for 1689 Italian municipalities (21.4% of the country).[5] These municipalities are those with more than 10 deaths and where mortality increased by 20% or more between March 1 and April 4, 2020.[5] We compared the preliminary totals of deaths in 2020 with the average annual number of deaths in these municipalities during the same time period in 2015 through 2019.[5] We calculated the weekly number of deaths over the 3-month period as well as the distribution according to age and sex.

We used StatView 5.0 (SAS Institute Inc) for statistical analyses.

Results | Starting in late February 2020, the number of COVID-19 deaths increased weekly, and then plateaued during the week of March 29 to April 4 (**Figure 1**). Total annual mortality for March and early April was similar for 2015 through 2019 (average 20 214 deaths per year). For March 1 to April 4, 2020, however, there were 41 329 reported deaths, a 104.5% increase compared with the average number of deaths for the prior 5 years (**Figure 2**).

For each year from 2015 to 2019, men had lower numbers of deaths than women for March and early April (on average 9395 and 10 819 deaths per year, respectively). For March 1 to April 4, 2020, however, there were 21 266 deaths among men and 20 063 among women. Compared with the average number of annual deaths in the prior 5 years, the increase was 126.4% for men and 85.4% for women. For people aged 65 to 74 years, there were 5417 deaths between March 1 and April 4, 2020, compared with the average number of 2566 annual deaths in the prior 5 years (111.1% increase). For people aged 74 years and older, there were 32 829 deaths in 2020 compared with the average number of 15 677 annual deaths in the prior 5 years (109.4% increase).

Of the 41 329 reported deaths from March 1 to April 4, 2020, 19 824 were in Lombardy. Compared with the same period in 2019, there were 12 576 more deaths in 2020 than in 2019 (7248 deaths, increase of 173.5%). For men, deaths increased from 3328 in 2019 to 10 415 in 2020 (213.0%) and for women from 3920 to 9409 (140.0%).

Discussion | Our findings show that the official count of COVID-19 deaths in Italy has substantially understated the actual increase in mortality related to the pandemic, as is the case in other countries.[3] There may be several explanations, including additional deaths directly related to the virus, deaths related to underlying health conditions exacerbated by the virus, and delayed care from the avoidance of hospitals or the demands on hospitals of caring for COVID-19 patients. The differences for men, for people 65 years and older, and for the Lombardy region are particularly noteworthy. A limitation is that the official count of COVID-19 deaths could be revised as additional data are reported.

Manfredi Rizzo, MD, PhD
Luca Foresti, BPhys
Nicola Montano, MD, PhD

Author Affiliations: Department of Health Promotion, Mother and Child Care, Internal Medicine and Medical Specialties, University of Palermo, Italy (Rizzo); Department of Medicine, University of South Carolina, Columbia (Rizzo); Medical Center Santagostino, Milan, Italy (Foresti); IRCCS Ca' Granda Foundation, Hospital Maggiore Policlinic, Milan, Italy (Montano); Department of Clinical Science and Community Health, University of Milan, Italy (Montano).

Corresponding Author: Nicola Montano, MD, PhD, Department of Clinical Sciences and Community Health, University of Milan, Department of Internal Medicine, IRCCS Fondazione Ca' Granda, Ospedale Maggiore Policlinico, Via F. Sforza 35, 20122 Milano, Italy (nicola.montano@unimi.it).

Accepted for Publication: May 10, 2020.

Published Online: July 20, 2020. doi:10.1001/jamainternmed.2020.2543

Author Contributions: Dr Montano had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.
Concept and design: All authors.
Acquisition, analysis, or interpretation of data: Rizzo.
Drafting of the manuscript: Rizzo, Montano.
Critical revision of the manuscript for important intellectual content: Rizzo, Foresti.
Statistical analysis: Rizzo.
Supervision: All authors.

Conflict of Interest Disclosures: Dr Rizzo is currently CMR Director, Novo Nordisk Europe East LM; Luca Foresti, BPhys, is currently CEO, Medical Center Santagostino. However, This article has been written independently and no financial or professional help was received for its preparation. No other disclosures were reported.

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Early Intervention of Palliative Care in the Emergency Department During the COVID-19 Pandemic

During the novel coronavirus disease 2019 (COVID-19) pandemic, it is particularly critical to ensure that life-sustaining treatment (LST) such as intubation and resource-intensive cardiopulmonary resuscitation (CPR) are aligned with a patient's goals and values, and to avoid LSTs in patients with a poor prognosis that are unlikely to be beneficial, but have a high risk of causing additional suffering.[1] The high volume and acuity of COVID-19 patients makes it extremely challenging for emergency department (ED) clinicians to take adequate time to clarify goals of care (GOC). We implemented an ED-based COVID-19 palliative care response team focused on providing high-quality GOC conversations in time-critical situations. We examined the clinical characteristics and outcomes of patients who received this intervention.

Methods | This retrospective observational study was conducted in the ED of an urban, quaternary care academic medical center in New York, New York. We included 110 patients for whom the palliative care team was consulted between March 27, 2020, and April 10, 2020, with follow-up