

COVID-19 Key Statistics Update



July 8, 2020



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AUTHOR Lisa A. Schilling, FSA, EA, FCA, MAAA

REVIEWERS R. Dale Hall, FSA, MAAA, CERA, CFA
J. Patrick Wiese, ASA

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Introduction

The COVID-19 pandemic that began in December 2019 continues. Some parts of the world that experienced significant numbers of cases in the winter and spring have brought SARS-CoV-2, the coronavirus that causes COVID-19, under control. Other parts of the world have begun to experience the pandemic only more recently. The coronavirus continues to spread in the U.S., where cases appeared in February, and significant numbers of cases were first recorded in March.

The Society of Actuaries (SOA) published its first COVID-19 research brief on March 10, 2020, followed by regular updates and expansions through June 12, 2020. The comprehensive report includes a section of Key Statistics. This report shows updates through July 5, 2020, to selected graphs from the Key Statistics section of the comprehensive report.

Reported Cases

Confirmed cases are a function of the ability for any public health agency across countries to distribute, administer and collect test results from their respective health systems. It is important to recognize that the number of reported confirmed cases for any disease typically lags the number of actual confirmed cases. As a result, the number of reported confirmed cases typically continues to rise after the actual number of new confirmed cases declines. In addition, It is generally agreed that the number of cases is actually higher than reported due to delays in full testing and reporting, as well as to the existence of cases that have gone undiagnosed.

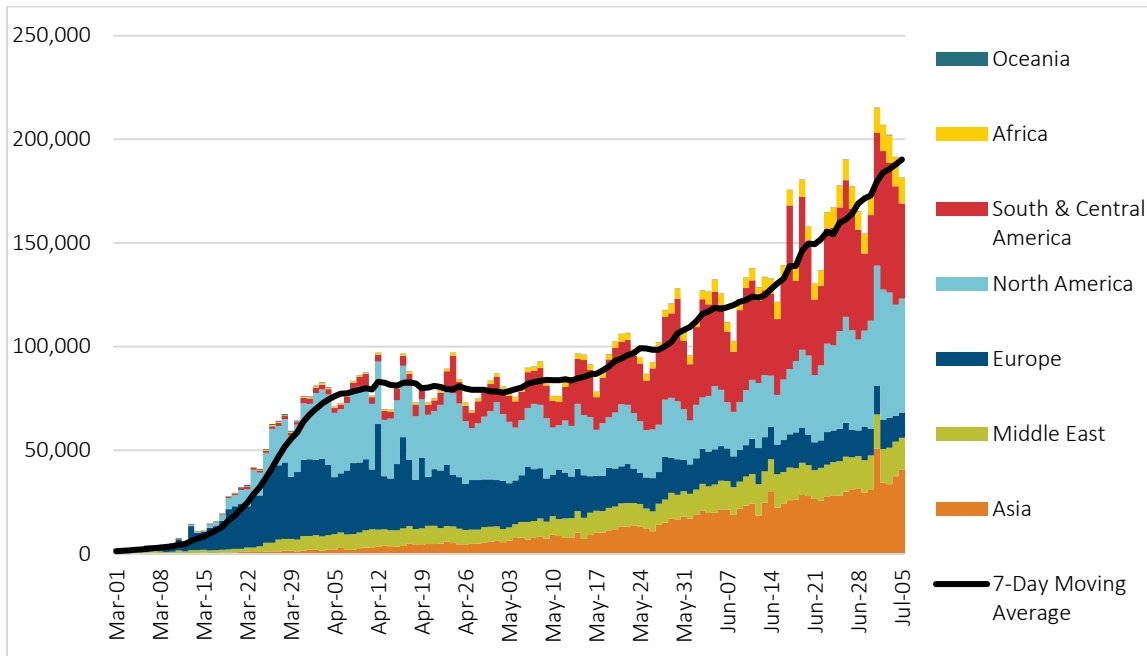
WORLDWIDE CASES

New reported confirmed COVID-19 cases continue to rise worldwide (Figure 1). Through July 5, 2020, nearly 11.5 million cases had been reported. Since the start of the pandemic, the continental location of cases has shifted (Figure 2). Through most of February, daily new reported cases were largely contained in Asia. By mid-March, more daily new reported cases were from Europe than any other continent. By late March, Europe and North America shared roughly 85% of the daily new reported cases, relatively few new reported cases came from Asia, and a relatively small number of new cases began to be reported from Africa and South and Central Americas.

At the end of June, about 60% of daily new reported COVID-19 cases were coming from North, South and Central Americas. New cases in Asia had risen to approximately 20% of the world's daily reported new cases, and roughly 5% of the daily reported new cases were attributable to Africa.

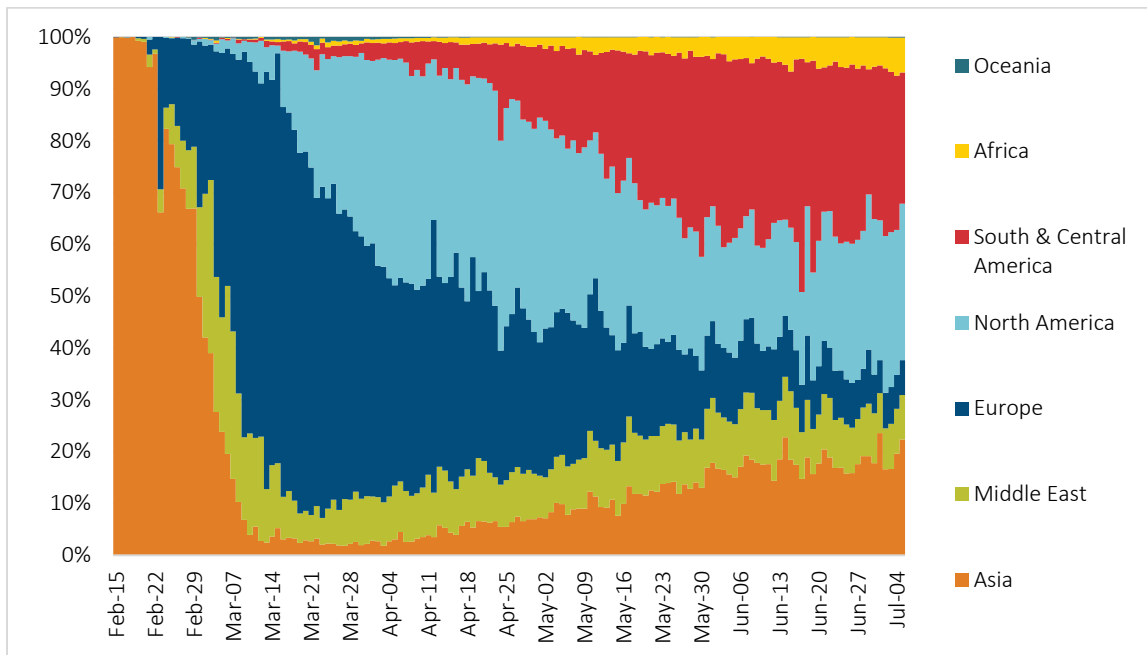
Through July 5, 2020, the U.S. had reported approximately 25% of total cumulative worldwide cases, and Brazil had reported about 14% of them (Figure 3). Three of the six countries with the greatest number of cases reported at least two-thirds of their cases in June or July: Brazil, India and Chile; and the other three (U.S., Russia and Peru) reported about 40% of their cases in June or July.

Figure 1
WORLDWIDE REPORTED CONFIRMED DAILY NEW COVID-19 CASES BY CONTINENT, JULY 5, 2020



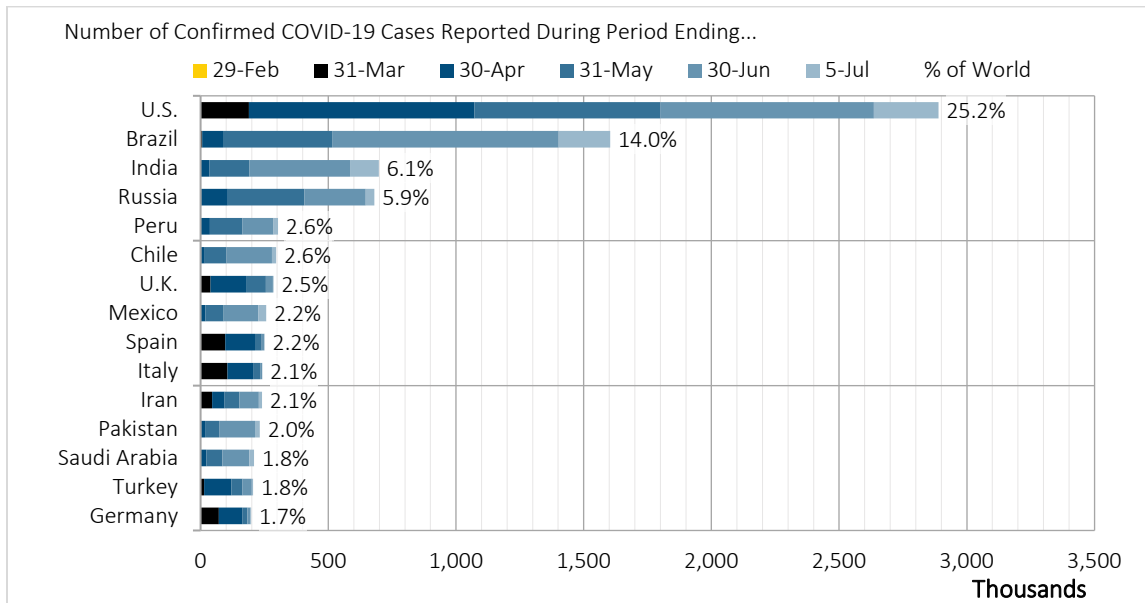
Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

Figure 2
PERCENTAGE OF WORLDWIDE DAILY REPORTED NEW COVID-19 DEATHS BY CONTINENT, JULY 5, 2020



Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

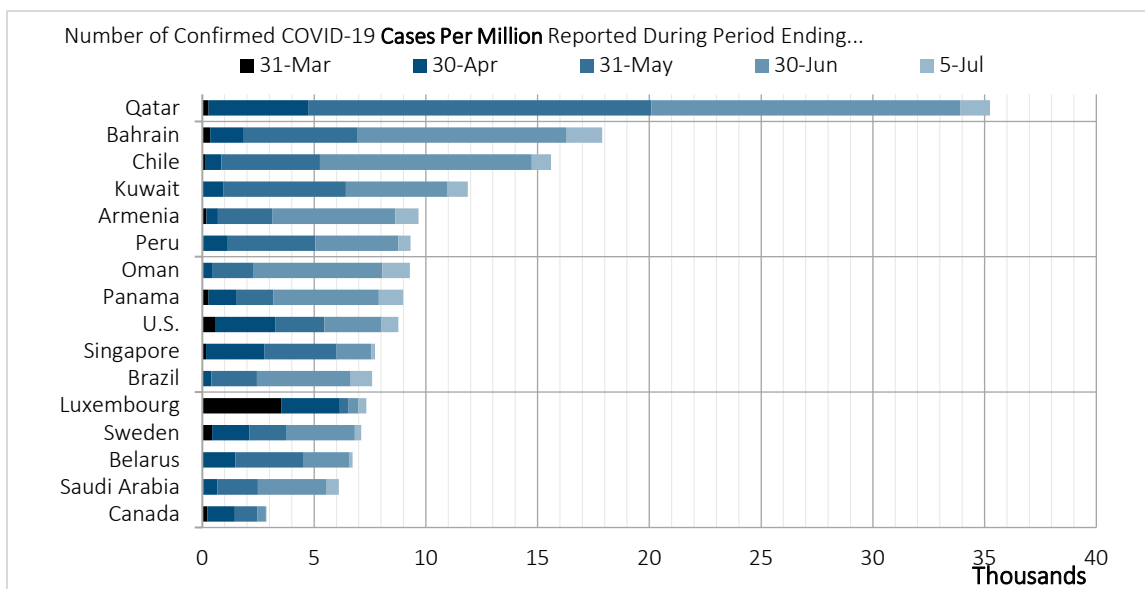
Figure 3
TOP 15 COUNTRIES FOR NUMBER OF REPORTED CONFIRMED COVID-19 CASES, JULY 5, 2020



Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

Because population sizes differ across countries, considering the number of cases per million may be more insightful than examining the number of cases (Figure 4). Although Canada is not among the 15 countries with the greatest number of cases per million, Canada appears in the graph as a point of reference. While the U.S. ranks first in the number of cases, it ranks ninth in the number of cases per million. Qatar ranks first in number of cases per million of population, far outpacing second place Bahrain and third place Chile.

Figure 4
TOP 15 COUNTRIES FOR NUMBER OF REPORTED CONFIRMED COVID-19 CASES PER MILLION, JULY 5, 2020

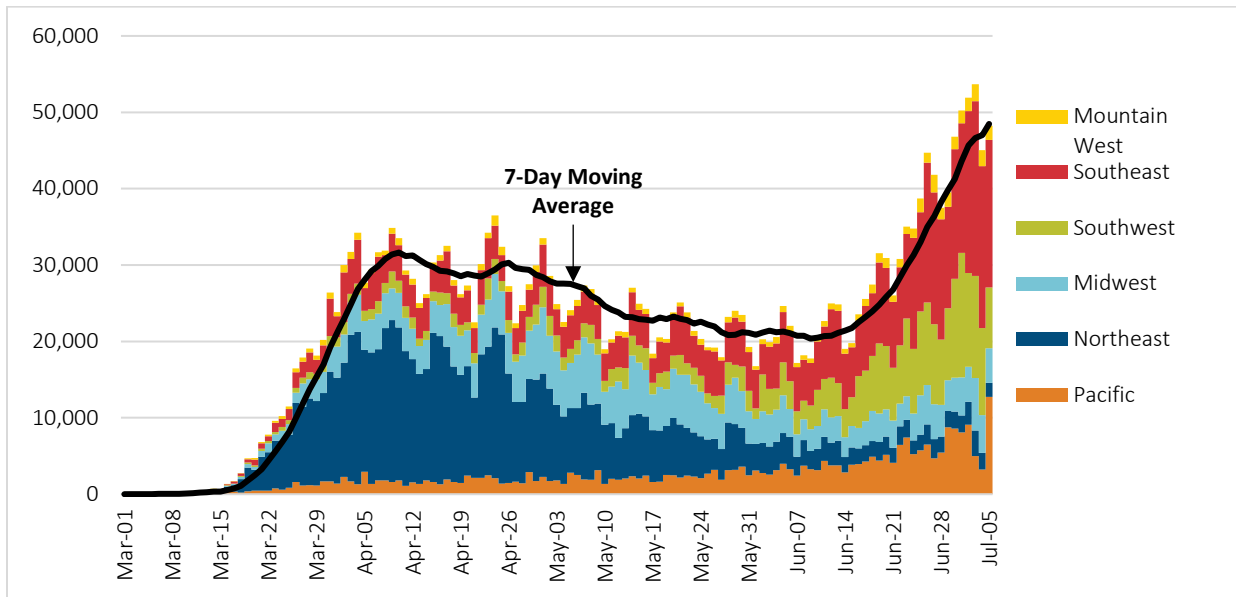


Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

U.S. CASES

In the U.S., new reported confirmed COVID-19 cases initially peaked in early April 2020 and slowly declined before increasing again in later April (Figure 5); states are identified with corresponding colors by region in Figure 6. New cases generally declined slowly from late April until June 11, when they began an incline that is nearly as steep as the initial increase in new cases from mid-March through early April. As of July 5, 2020, the 7-day rolling average of daily new cases is more than double its equivalent on June 9, which was its lowest point since April 1, 2020.

Figure 5
U.S. DAILY REPORTED CONFIRMED NEW COVID-19 CASES BY REGION, JULY 5, 2020



Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

The regional location of new reported confirmed COVID-19 cases has clearly shifted since March 1, as is especially apparent in Figure 7. At the start of March, daily new reported confirmed cases were reported primarily from Pacific states. By March 19, the Northeast dominated daily new reported confirmed cases of COVID-19. By early July, very few daily new reported confirmed cases came from the Northeast, roughly 40% of new cases were attributable to Southeastern states, and new cases in Pacific states had risen significantly from their low percentages in late March through mid-May.

Figure 6
U.S. REGIONS

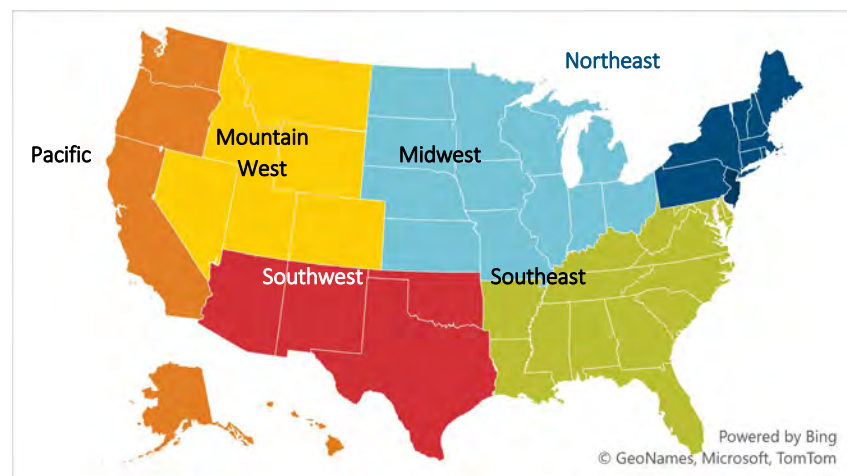
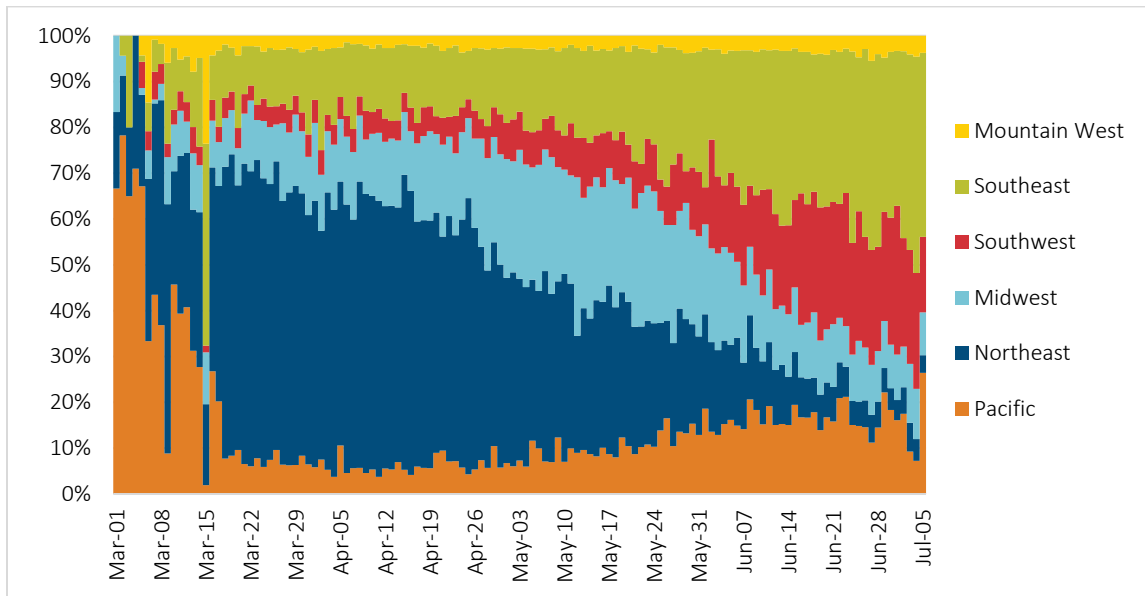


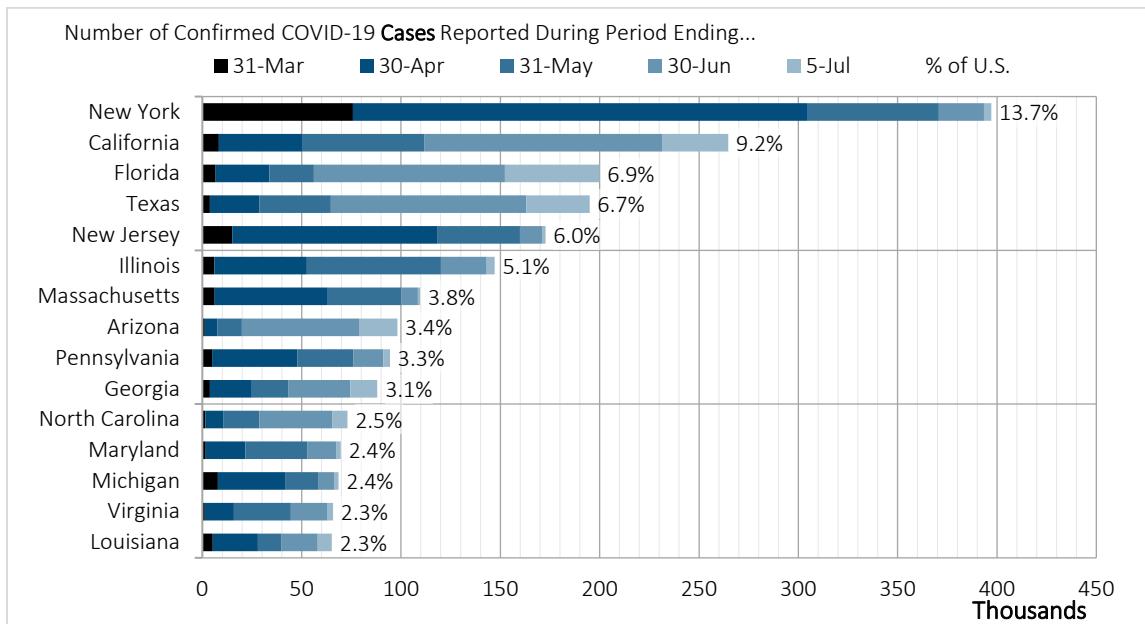
Figure 7
PROPORTION OF U.S. DAILY REPORTED CONFIRMED NEW COVID-19 CASES BY REGION, JULY 5, 2020



Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

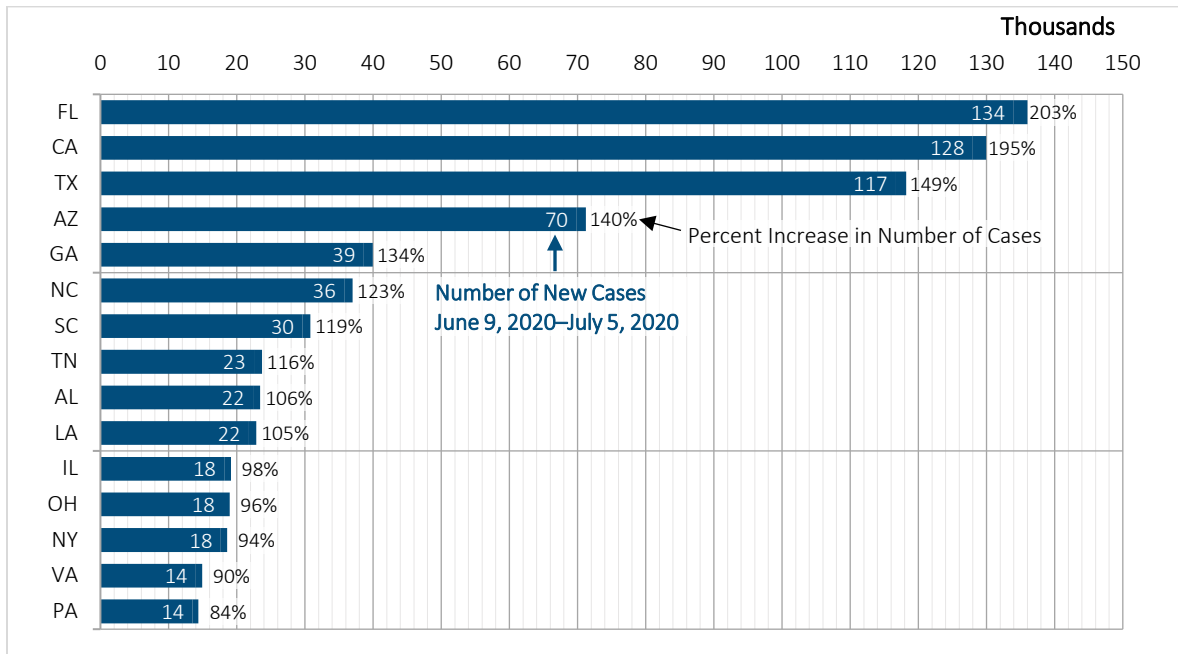
While New York contains more cases than any other state (Figure 8) the greatest growth since June 9 has come from other states (Figure 9). Florida, California, Texas and Arizona have reported the greatest increase in cases, in terms of both numbers and percentage increase.

Figure 8
TOP 15 STATES FOR NUMBER OF REPORTED CONFIRMED COVID-19 CASES, JULY 5, 2020



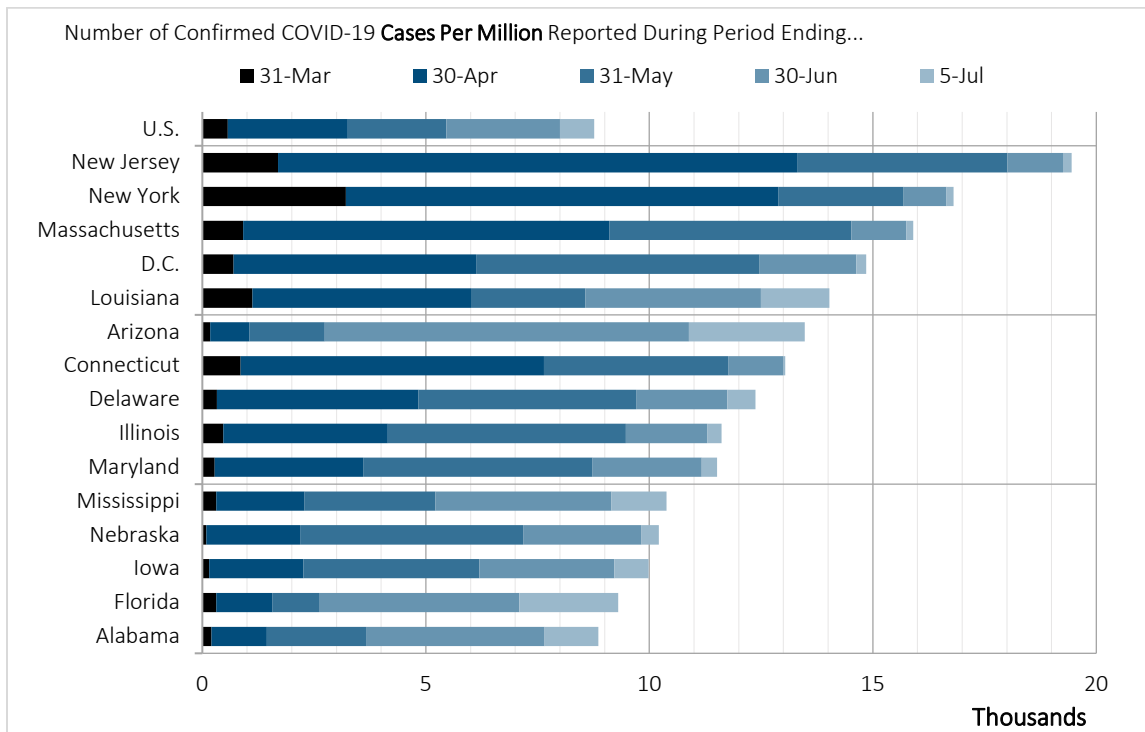
Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

Figure 9
STATES WITH GREATEST NUMBER OF NEW REPORTED CONFIRMED COVID-19 CASES, JUNE 9, 2020–JULY 5, 2020



Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

Figure 10
TOP 15 STATES FOR NUMBER OF REPORTED CONFIRMED COVID-19 CASES PER MILLION, JULY 5, 2020

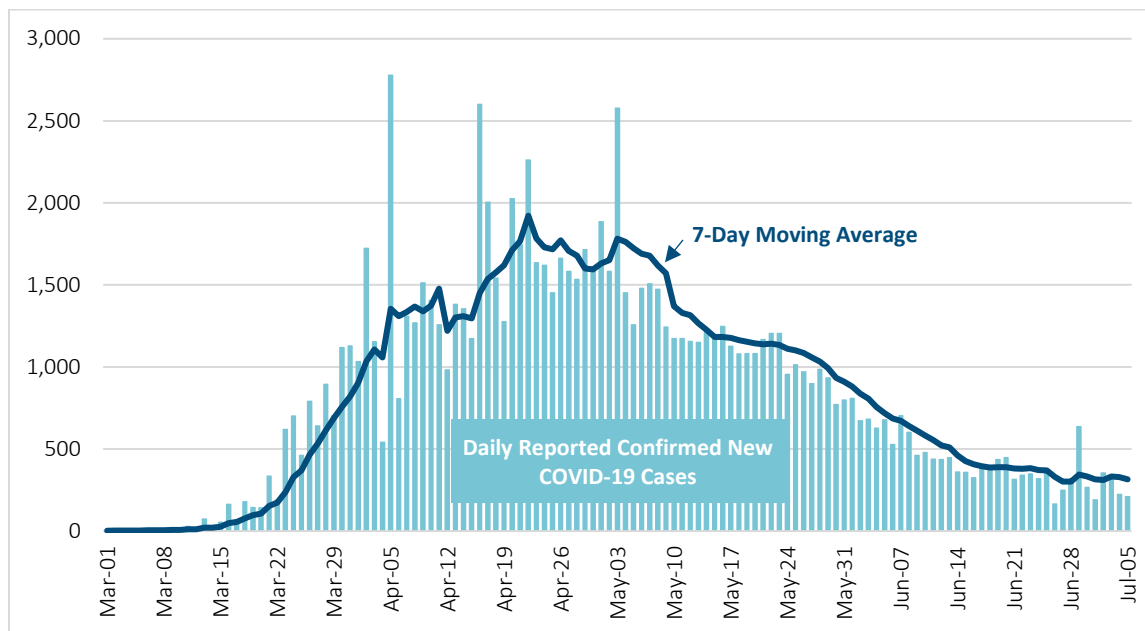


Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

CANADIAN CASES

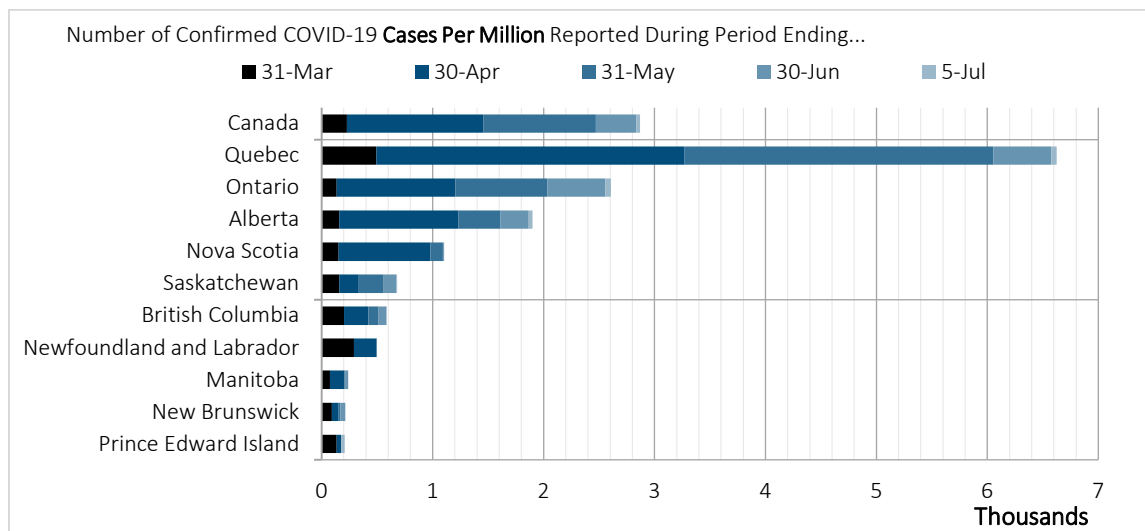
In Canada, the number of daily new reported confirmed COVID-19 cases has fallen steadily since early May (Figure 11). Quebec shows more than double the number of reported confirmed COVID-19 cases per million than the respective number for Canada as a whole, but all provinces show significantly reduced incidence of new reported cases (Figure 12).

Figure 11
CANADIAN REPORTED CONFIRMED NEW COVID-19 CASES, JULY 5, 2020



Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

Figure 12
NUMBER OF REPORTED CONFIRMED COVID-19 CASES PER MILLION BY PROVINCE, JULY 5, 2020



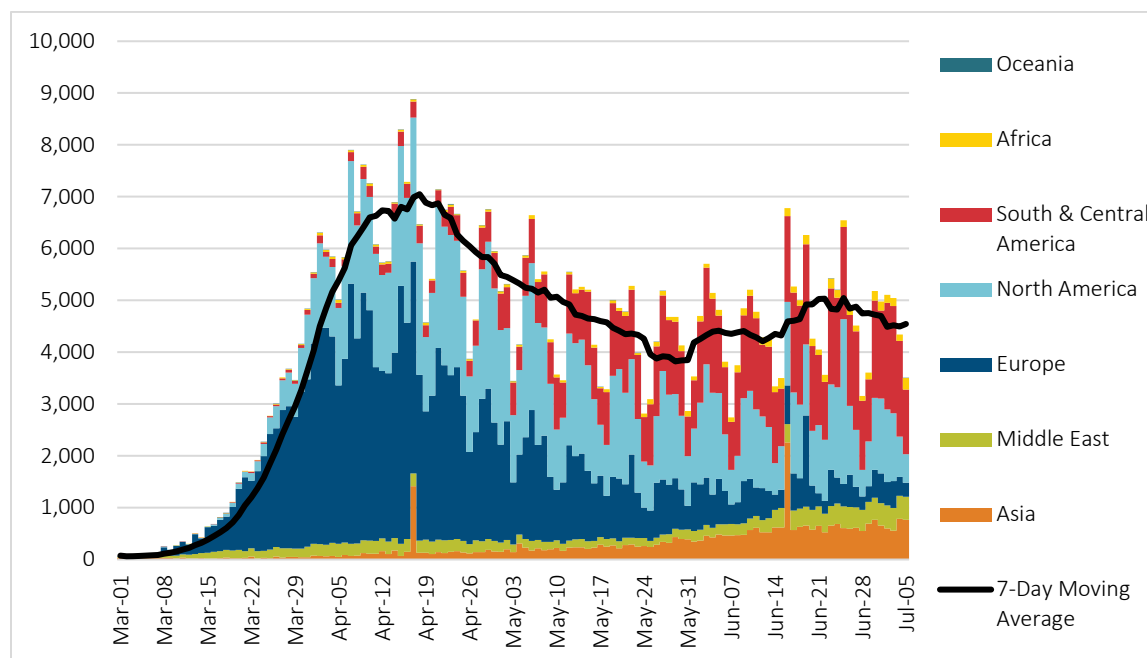
Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

Reported Deaths

WORLDWIDE DEATHS

Through July 5, 2020, approximately 534,000 deaths due to COVID-19 had been reported worldwide. While the number of daily reported new COVID-19 cases has consistently risen since the start of the pandemic, the number of reported new COVID-19 deaths slowed from mid-April through the end of May before slowly rising again (Figure 13). In addition, there has been a clear shift in the concentrations of deaths by continent. Through April, with most deaths occurred in Europe and North America. Starting in late April, Deaths in Europe declined while deaths in South and Central America began increasing significantly.

Figure 13
WORLDWIDE DAILY REPORTED NEW COVID-19 DEATHS BY CONTINENT, JULY 5, 2020

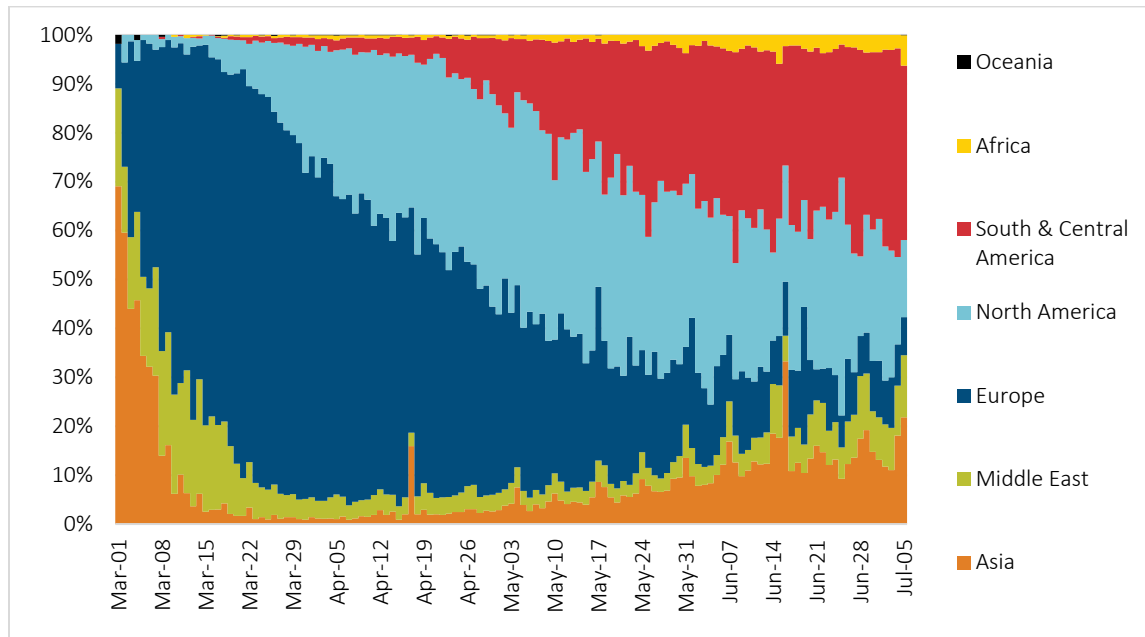


Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

The distribution of deaths across continents is more clearly illustrated in Figure 14. While the number of deaths in very early March was relatively small and are not clearly visible in Figure 13, Figure 14 shows that nearly all of them came from Asia and the Middle East, with a few from Europe. By the end of March, most COVID-19 deaths were occurring in Europe, although deaths in North America were an increasingly larger proportion of total COVID-19 deaths.

By early June, roughly one-third of COVID-19 deaths were occurring in Asia, the Middle East and Europe, roughly one-third in North America and roughly one-third in South and Central America. By July 5, 2020, Asia, the Middle East and Europe accounted 42% of deaths, largely because of increases in Asia and the Middle East; deaths in North America comprised 16% of the total; and 36% of deaths were attributable to South and Central Americas. In addition, the proportion of COVID-19 deaths occurring in Africa had grown to roughly 5%.

Figure 14
PROPORTION OF DAILY REPORTED NEW COVID-19 DEATHS BY CONTINENT, JULY 5, 2020

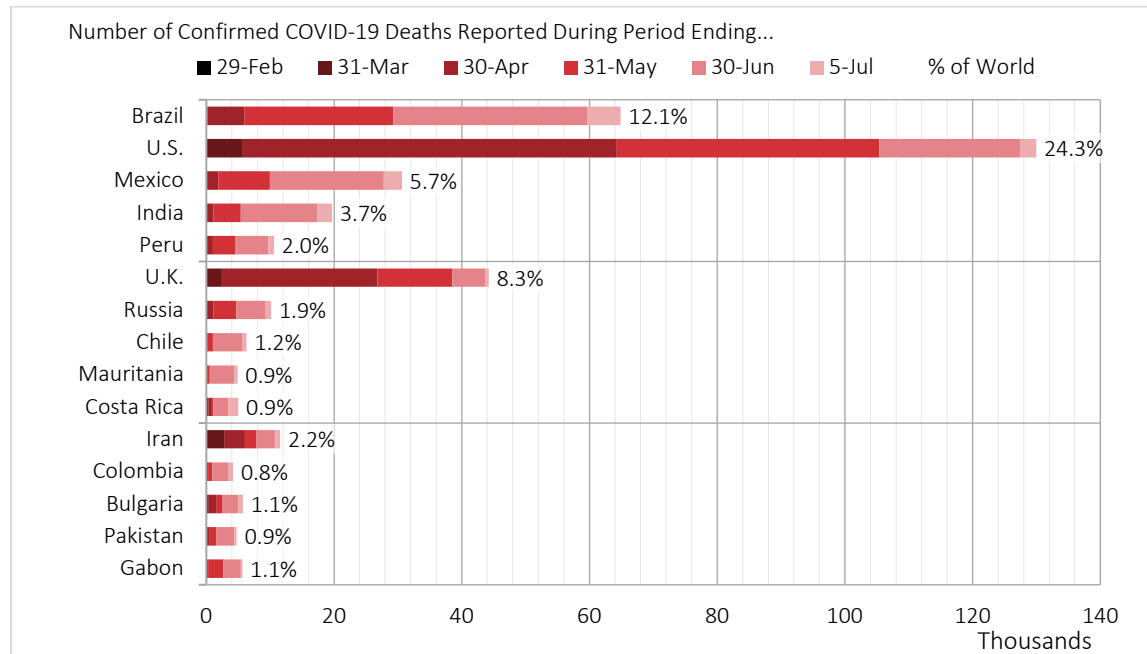


Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

Through the same date, roughly half (51.2%) of the reported COVID-19 deaths have occurred in four countries: the U.S., Brazil, the U.K. and Italy (Figure 15). Because population sizes differ by country, considering the number of new deaths per million of population may be more illuminating than studying numbers of new deaths (Figure 16).

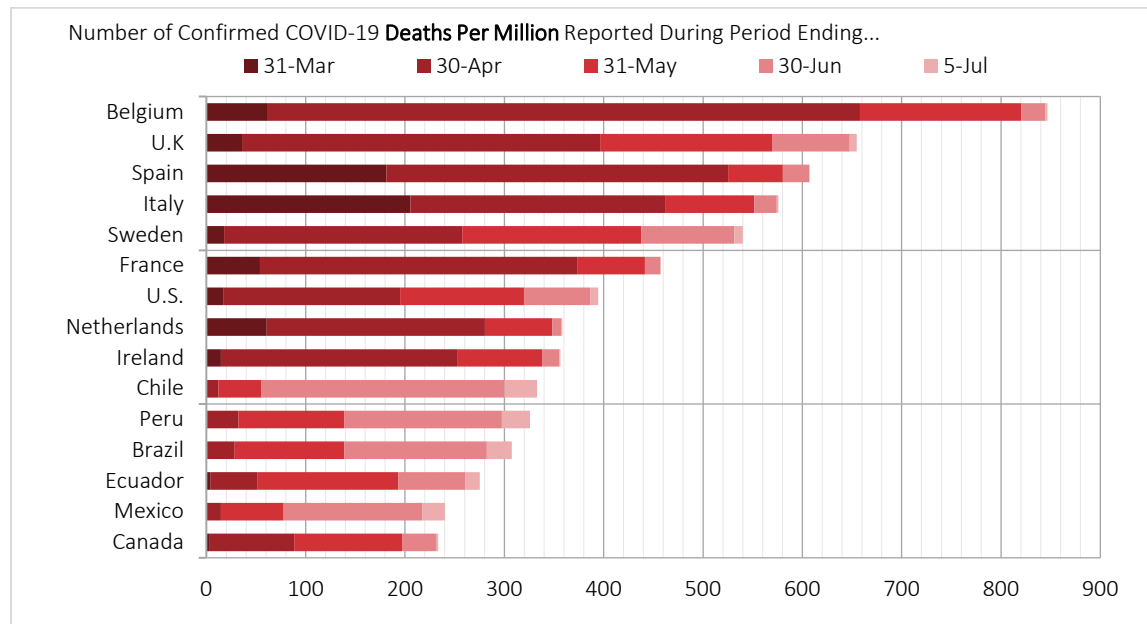
While the U.S. ranks first in the number of cases through July 5, 2020, it ranks seventh in the number of deaths per million. Belgium ranks first in number of deaths per million of population, followed by the U.K. and Spain. Canada ranks fourteenth in number of deaths and fifteenth in deaths per million.

Figure 15
TOP 15 COUNTRIES FOR NUMBER OF REPORTED COVID-19 DEATHS, JULY 5, 2020



Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

Figure 16
TOP 15 COUNTRIES FOR NUMBER OF REPORTED CONFIRMED COVID-19 DEATHS PER MILLION, JULY 5, 2020

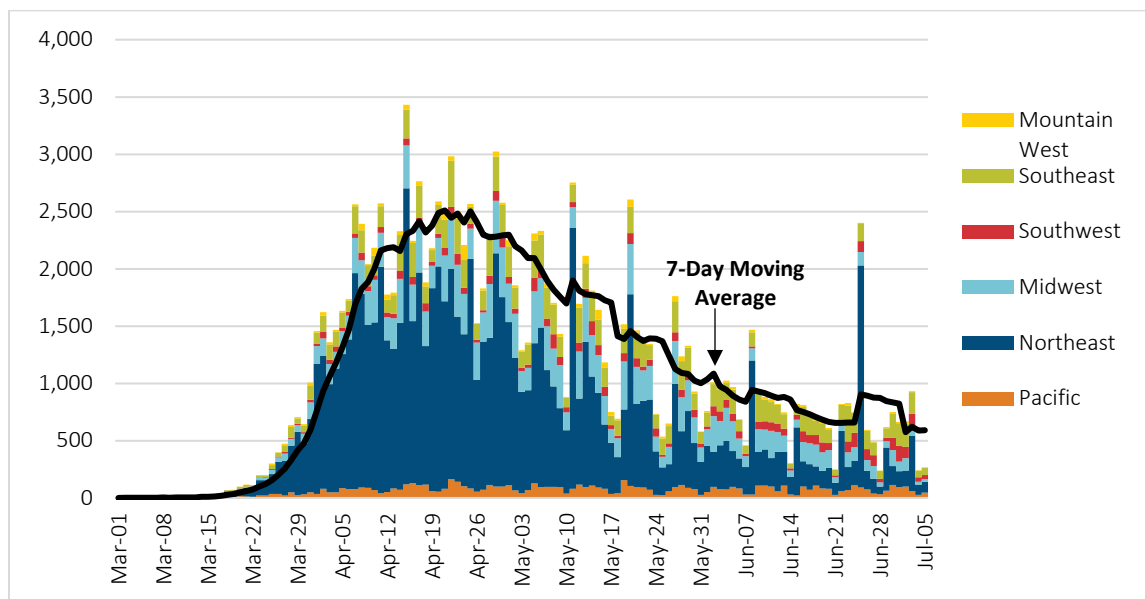


Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

U.S. DEATHS

The number of reported new daily COVID-19 deaths in the U.S. has generally declined since the first week of May (Figure 17). One notable exception was June 25, when New Jersey reported 1,854 probable COVID-19 deaths since the start of the pandemic.¹ Prior to that, New Jersey, like other states, had reported only confirmed cases.

Figure 17
U.S. DAILY REPORTED NEW COVID-19 DEATHS BY REGION, JULY 5, 2020



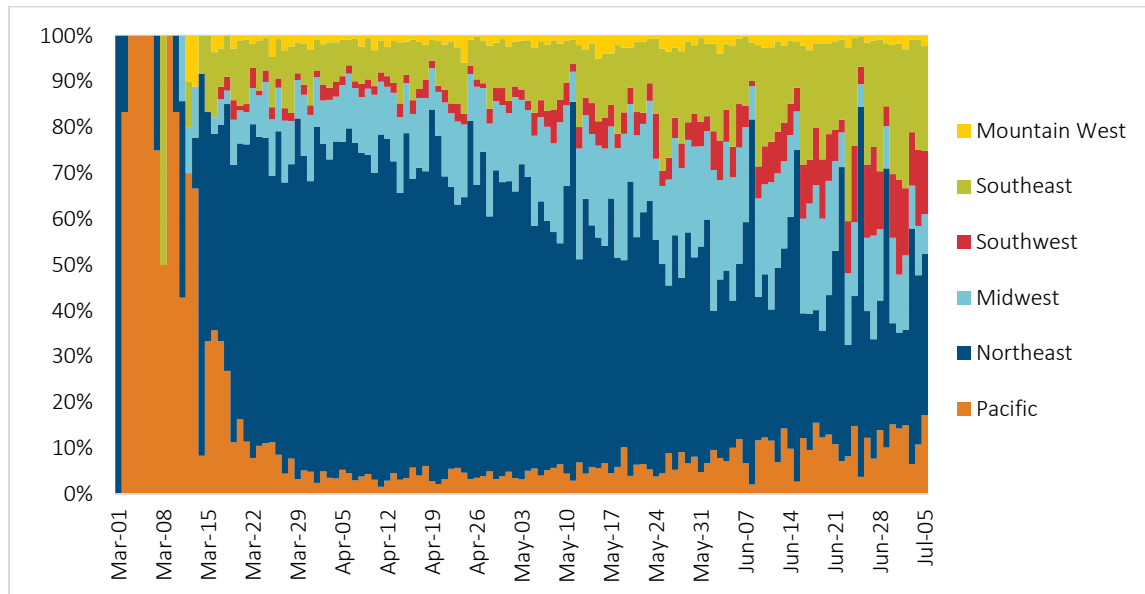
Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

As the concentration of COVID-19 cases has shifted across regions, COVID-19 deaths have also shifted, which is especially apparent in Figure 18. During the first half of March, nearly all U.S. deaths were reported from Pacific states. Significant numbers of new COVID-19 deaths began regularly occurring in the Northeast in mid-March, with roughly one-half of deaths from the Northeast, about one-third from Pacific states, and the remainder distributed across other regions.

In general, more than half of new COVID-19 deaths continued to occur in the Northeast until late May. During that period, the proportion of new reported COVID-19 deaths in the Midwest grew significantly. And by the end of that period, the proportion of new reported deaths from the Southeast had also grown substantially. Through June, the proportions of deaths occurring in the Northeast generally declined before ticking upward at the end of the month and into July. Proportions of new COVID-19 deaths attributable to the Midwest generally declined through June and into July. However, the proportions of new COVID-19 deaths steadily increased through June and into July in the Southeast, Southwest and Pacific.

¹ Murphy, Governor Phil. (2020, June 25). "Transcript: June 25th, 2020 Coronavirus Briefing Media." State of New Jersey. <https://www.nj.gov/governor/news/news/562020/20200625a.shtml>.

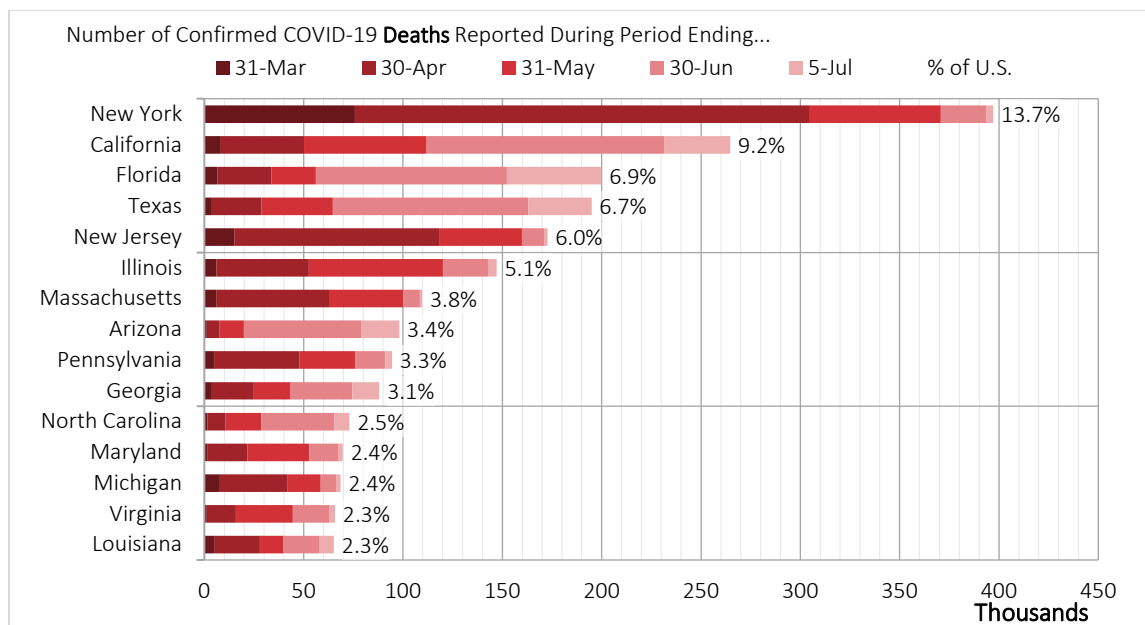
Figure 18
PROPORTION OF U.S. DAILY REPORTED NEW COVID-19 DEATHS BY REGION, JULY 5, 2020



Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

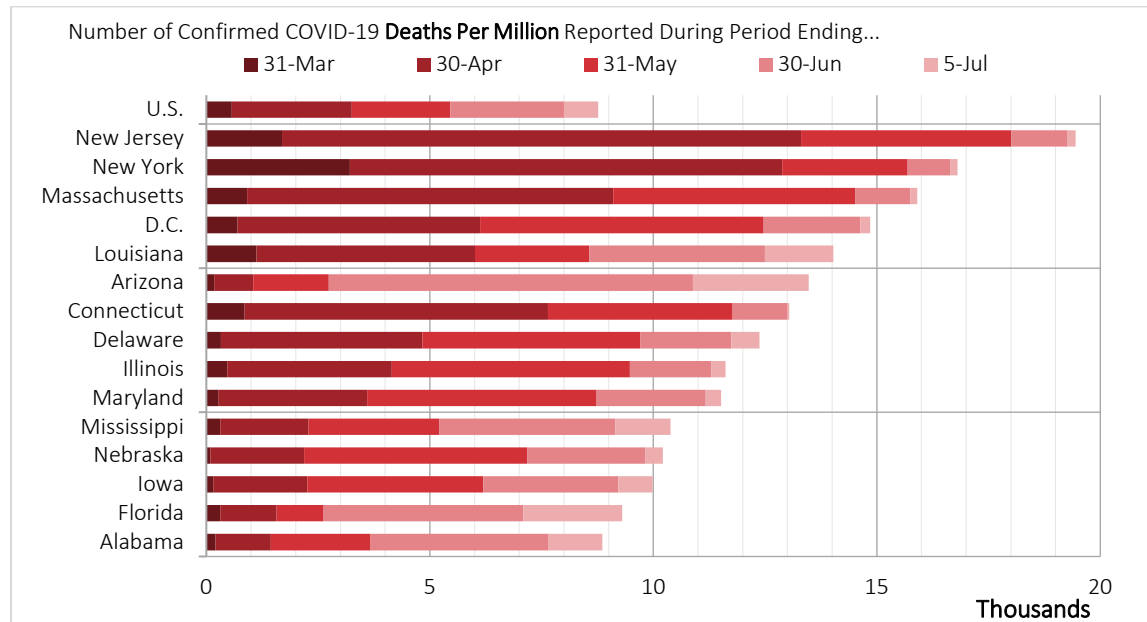
Through July 5, more than 40% of U.S. COVID-19 reported deaths have occurred in five states: New York, California, Florida, Texas and New Jersey (Figure 19). After adjusting for population size (Figure 20), only two of those states are among the five states with the greatest number of COVID-19 deaths per million of population: New Jersey, New York, Massachusetts, D.C. and Louisiana.

Figure 19
TOP 15 STATES FOR NUMBER OF REPORTED CONFIRMED COVID-19 DEATHS, JULY 5, 2020



Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

Figure 20
TOP 15 STATES FOR NUMBER OF REPORTED COVID-19 DEATHS PER MILLION, JULY 5, 2020

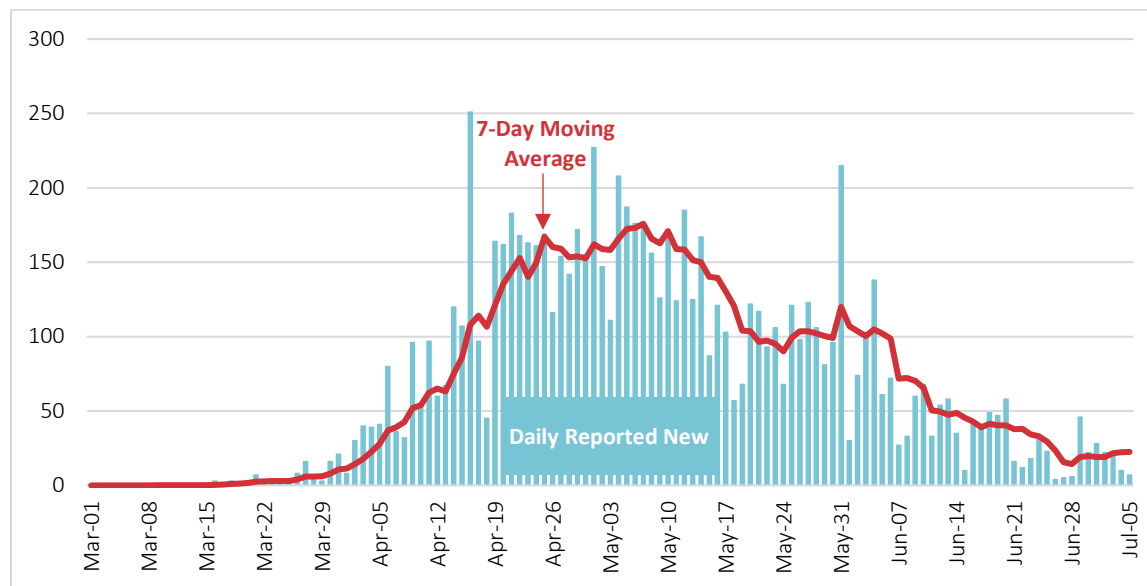


Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

CANADIAN DEATHS

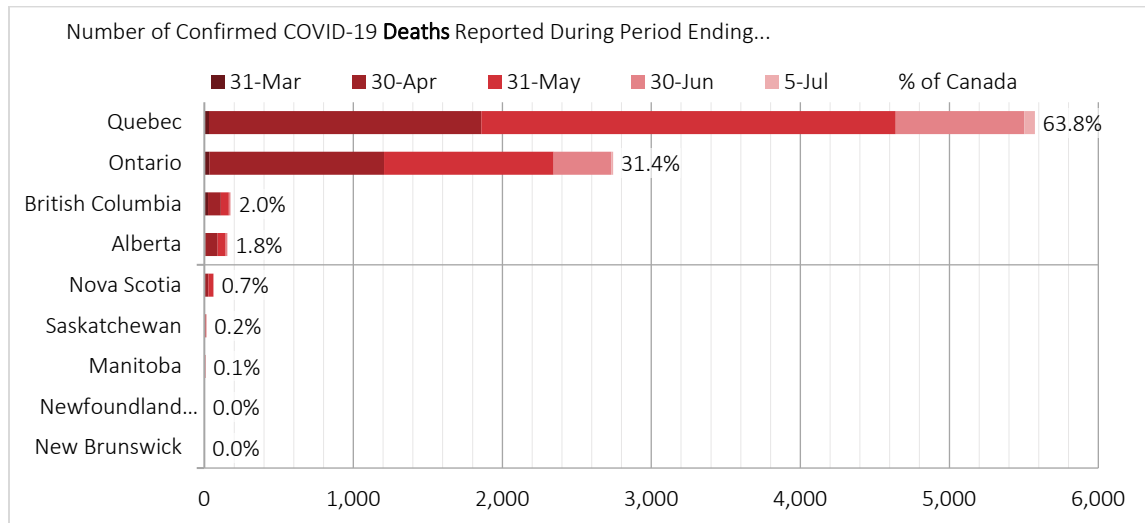
In Canada, the number of daily new reported COVID-19 deaths has seen a downward trend since early May (Figure 21). Through July 5, 2020, approximately 95% of Canadian COVID-19 deaths have occurred in Quebec and Ontario (Figure 22). While Quebec has experienced about double the number of deaths as Ontario, Quebec is less populous. Quebec's number of COVID-19 deaths per million is about 3.5 times that of Ontario (Figure 23).

Figure 21
CANADIAN REPORTED NEW COVID-19 DEATHS, JULY 5, 2020



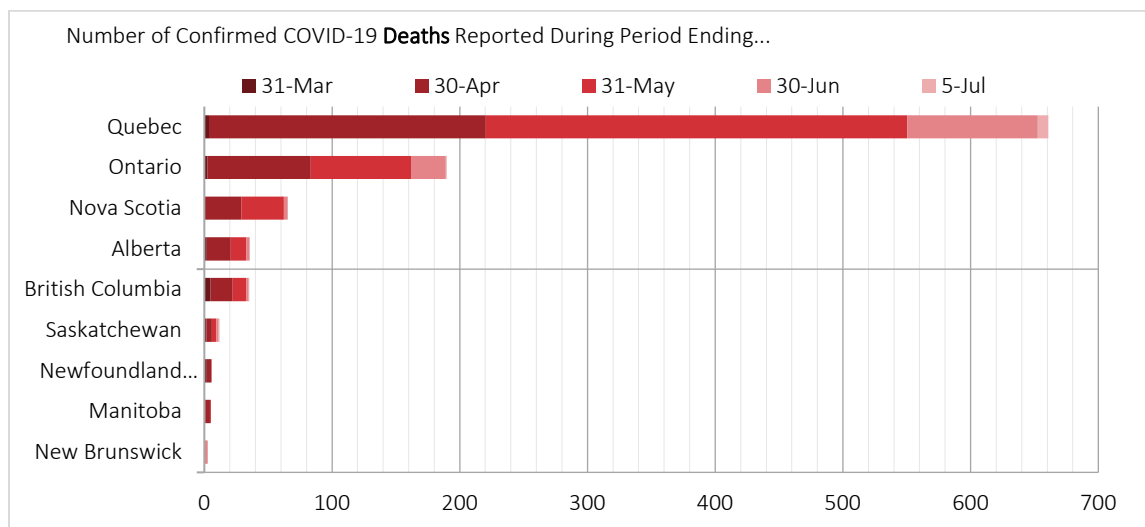
Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

Figure 22
NUMBER OF REPORTED COVID-19 DEATHS BY PROVINCE, JULY 5, 2020



Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

Figure 23
NUMBER OF REPORTED COVID-19 DEATHS PER MILLION BY PROVINCE, JULY 5, 2020



Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

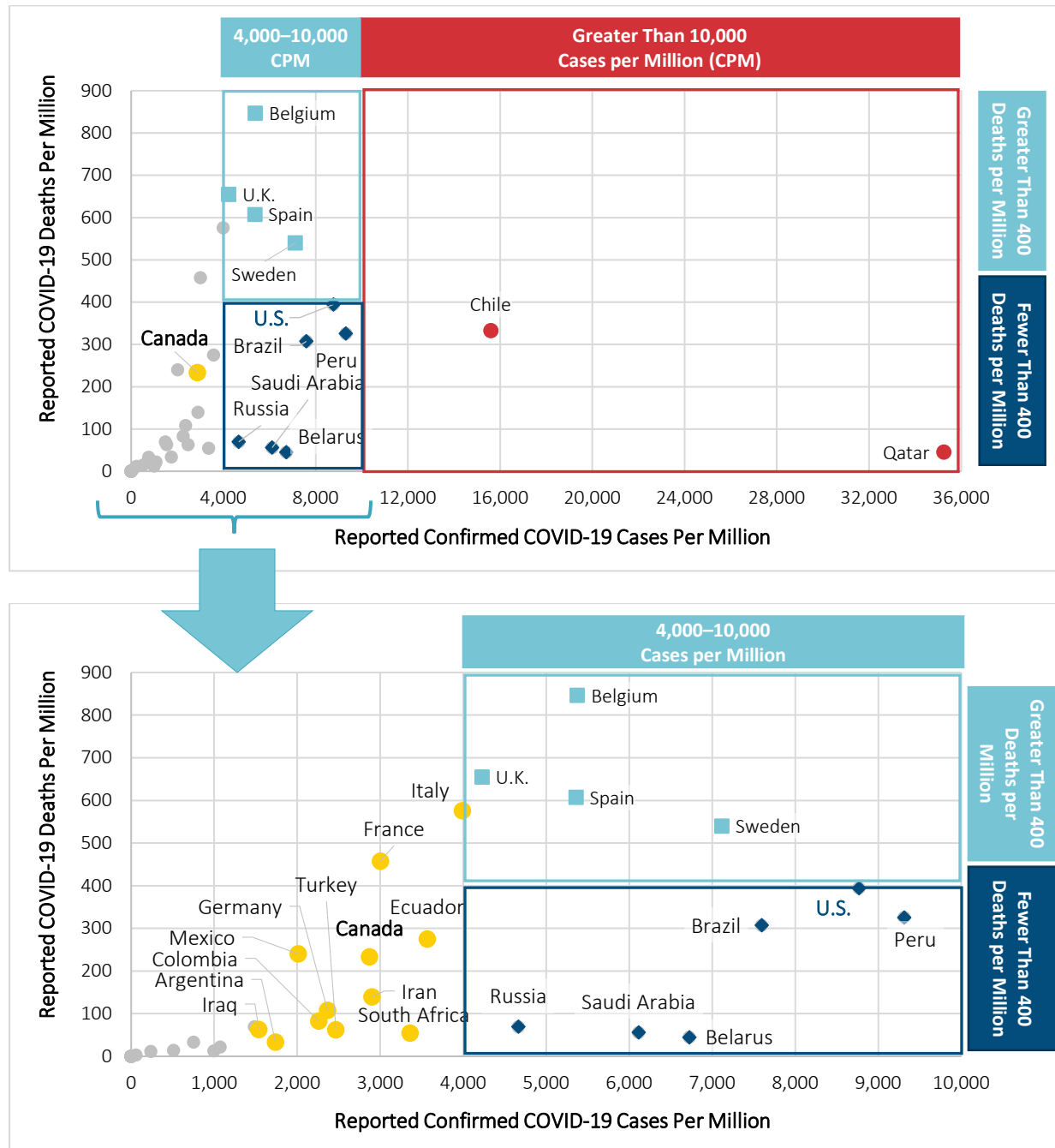
Cases Per Million Compared to Deaths Per Million

Locations with the greatest number of reported COVID-19 deaths per million are not always the locations with the greatest number of reported confirmed COVID-19 cases per million. This section of the report looks more closely at the relationship between these two metrics. Analysis of the reasons that regions have high or low cases per million or deaths per million is beyond the scope of this study.

WORLDWIDE CASES PER MILLION COMPARED TO DEATHS PER MILLION

In Figure 24, reported COVID-19 deaths per million are plotted along the vertical axis against reported confirmed COVID-19 cases per million along the horizontal axis for the 30 countries with the greatest number of reported confirmed COVID-19 cases. Countries with fewer than 4,000 cases per million are not identified, except for Canada as a point of reference. Qatar stands out from these 30 countries with an exceptionally high number of cases per million but a low number of deaths per million. Chile also stands out as having a significantly higher number of cases per million with a moderate level of deaths per million relative to the other countries in this group. Belgium stands out as having a very high number of deaths per million, although its number of cases per million is more moderate for these countries.

Figure 24
COVID-19 CASES PER MILLION AND DEATHS PER MILLION, JULY 5, 2020

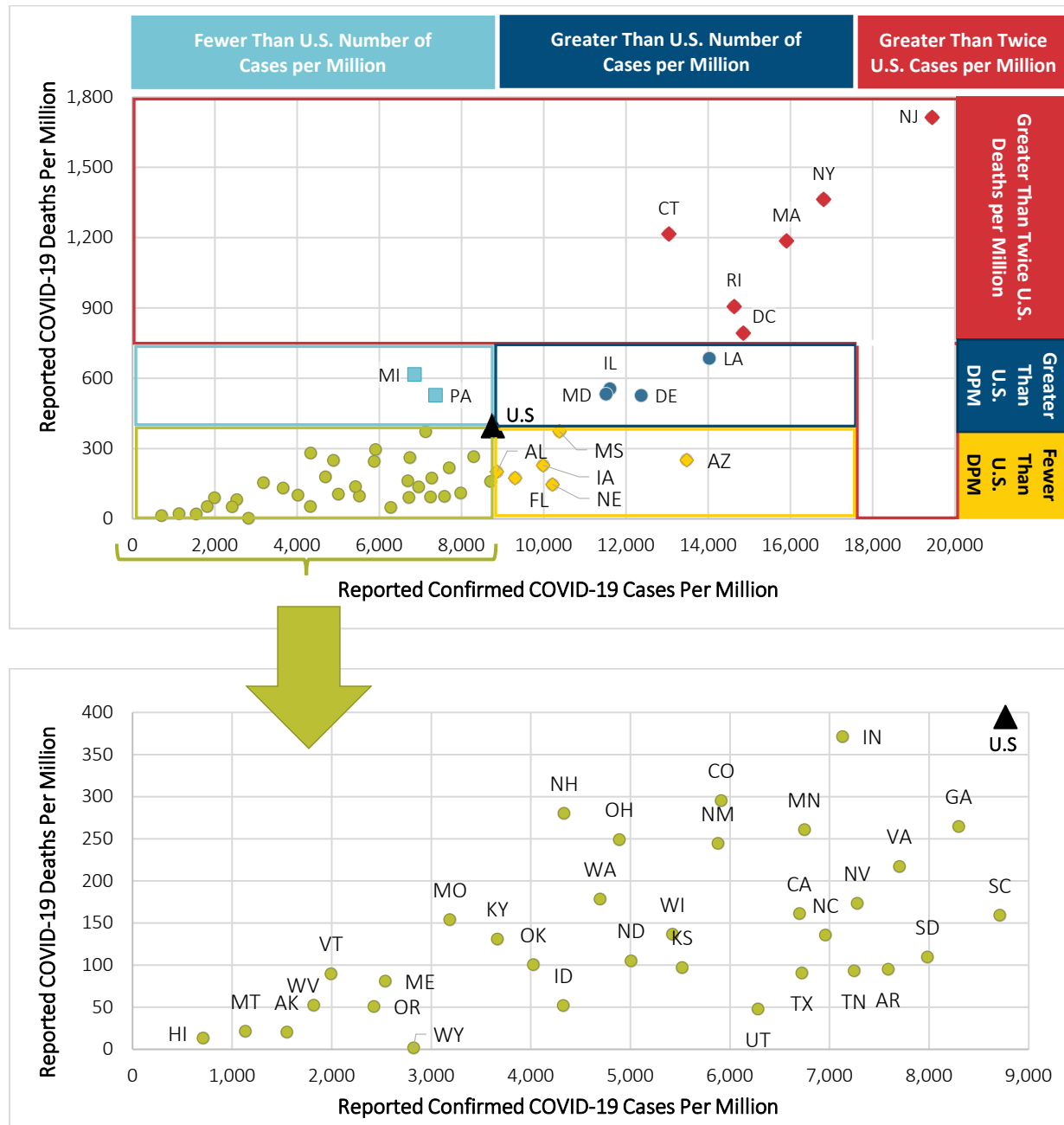


Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

U.S. CASES PER MILLION COMPARED TO DEATHS PER MILLION

Within the U.S., the numbers of both cases per million and deaths per million for some states far exceed any country's national metrics. Figure 25 shows that as of July 5, 2020, the U.S. national number of cases per million was 8,768, and the number of deaths per million was 394. The number of cases per million ranged from 710 in Hawaii to 19,445 in New Jersey, and the number of deaths per million ranged from 1.7 in Wyoming to 1,713 in Hawaii.

Figure 25
COVID-19 REPORTED CONFIRMED CASES PER MILLION AND DEATHS PER MILLION, JULY 5, 2020



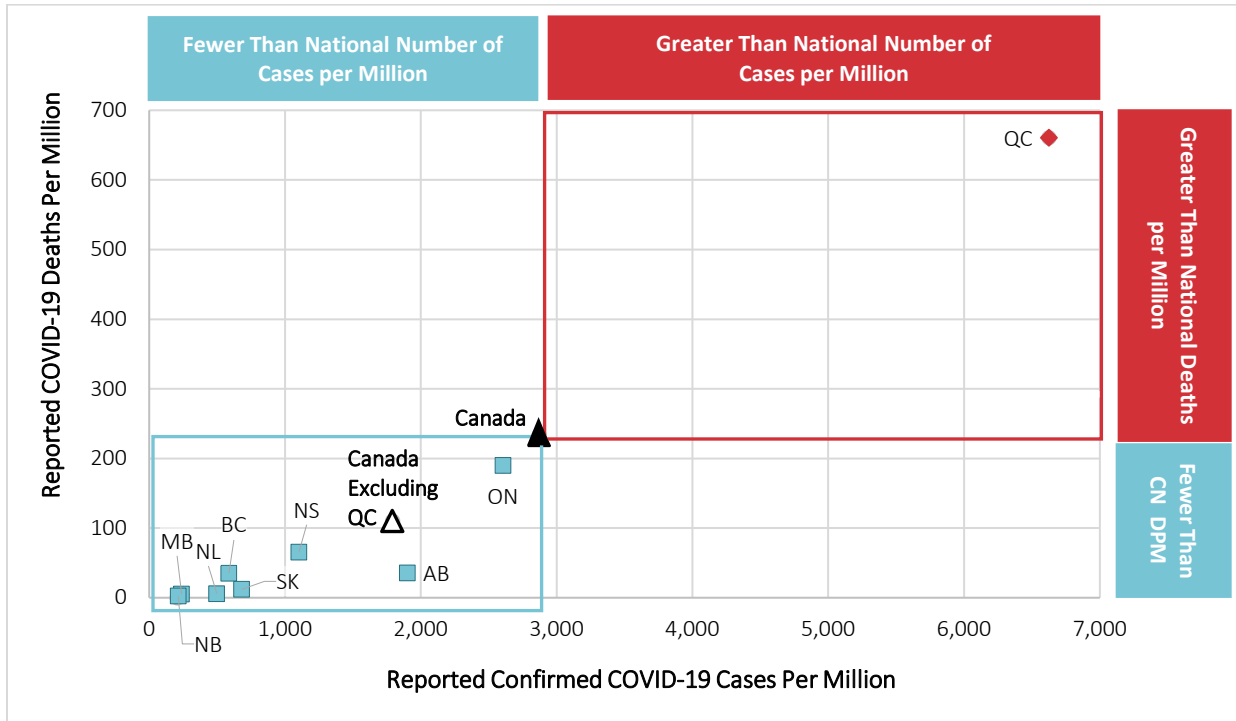
Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors' calculations.

CANADIAN CASES PER MILLION COMPARED TO DEATHS PER MILLION

The plot of Canadian COVID-19 reported confirmed cases per million against reported deaths per million shows that Quebec and Ontario experience have heavily skewed the national statistics for Canada, but especially Quebec (Figure 26). As of July 5, 2020, Canada's national COVID-19 reported confirmed cases per million and reported deaths per million were 2,870 and 234, respectively. The only province that exceeds either metric is Quebec, at 6,624 and 661, respectively.

To understand the degree to which Quebec’s metrics influence the national metrics, one can compare the national metric to the national metric recomputed excluding Quebec: 1,791 cases per million and 110 deaths per million. Within this subset of provinces, only Alberta and Ontario have greater numbers of cases per million—1,900 and 2,606, respectively. And only Ontario has a greater number of deaths per million, 190.

Figure 26
COVID-19 REPORTED CONFIRMED CASES PER MILLION AND DEATHS PER MILLION, JULY 5, 2020



Data source: Johns Hopkins University Coronavirus Resource Center <https://coronavirus.jhu.edu/map.html> and authors’ calculations.

About The Society of Actuaries

With roots dating back to 1889, the *Society of Actuaries* (SOA) is the world's largest actuarial professional organizations with more than 31,000 members. Through research and education, the SOA's mission is to advance actuarial knowledge and to enhance the ability of actuaries to provide expert advice and relevant solutions for financial, business and societal challenges. The SOA's vision is for actuaries to be the leading professionals in the measurement and management of risk.

The SOA supports actuaries and advances knowledge through research and education. As part of its work, the SOA seeks to inform public policy development and public understanding through research. The SOA aspires to be a trusted source of objective, data-driven research and analysis with an actuarial perspective for its members, industry, policymakers and the public. This distinct perspective comes from the SOA as an association of actuaries, who have a rigorous formal education and direct experience as practitioners as they perform applied research. The SOA also welcomes the opportunity to partner with other organizations in our work where appropriate.

The SOA has a history of working with public policymakers and regulators in developing historical experience studies and projection techniques as well as individual reports on health care, retirement and other topics. The SOA's research is intended to aid the work of policymakers and regulators and follow certain core principles:

Objectivity: The SOA's research informs and provides analysis that can be relied upon by other individuals or organizations involved in public policy discussions. The SOA does not take advocacy positions or lobby specific policy proposals.

Quality: The SOA aspires to the highest ethical and quality standards in all of its research and analysis. Our research process is overseen by experienced actuaries and nonactuaries from a range of industry sectors and organizations. A rigorous peer-review process ensures the quality and integrity of our work.

Relevance: The SOA provides timely research on public policy issues. Our research advances actuarial knowledge while providing critical insights on key policy issues, and thereby provides value to stakeholders and decision makers.

Quantification: The SOA leverages the diverse skill sets of actuaries to provide research and findings that are driven by the best available data and methods. Actuaries use detailed modeling to analyze financial risk and provide distinct insight and quantification. Further, actuarial standards require transparency and the disclosure of the assumptions and analytic approach underlying the work.

Society of Actuaries
475 N. Martingale Road, Suite 600
Schaumburg, Illinois 60173
www.SOA.org