

Media Release

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Has the Coronavirus Pandemic Increased Overall Mortality in Israel?

Until late July 2020, and particularly from March through July, there was no indication of an excess mortality in Israel despite the increase in the number of people who died of the Coronavirus and the increase in their proportion among the overall number of deaths. The mortality rate was particularly low during the first months of the year, but once the pandemic began, and particularly from April through July, it resembled that of previous years, with weekly fluctuations. A statistical calculation of excess mortality (see the explanation below) by weeks found that excess mortality from March through July was approximately 300 deaths out of 19,000 deaths during that period.

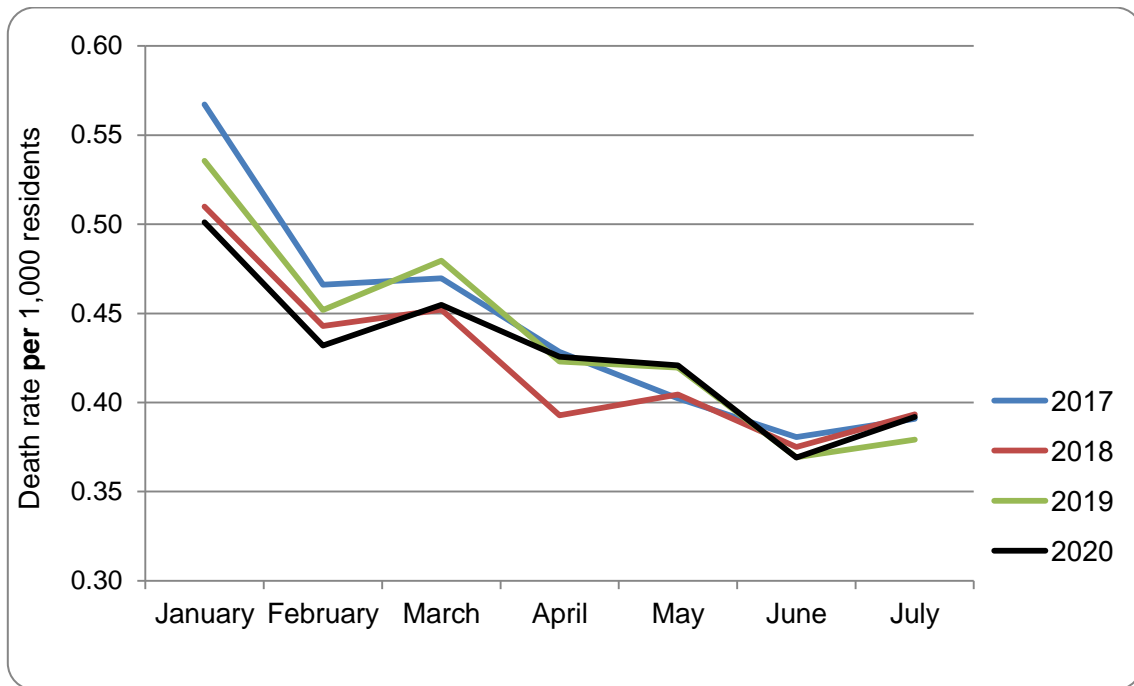
From the beginning of 2020 to the end of July, 27,500 residents of Israel died.¹ There were 27,550 deaths during the same period in 2019. During these months, the crude death rate, which takes population size into account, was slightly lower in 2020 than in 2019: 3.0 per 1,000 in 2020 compared with 3.1 per 1,000 in 2019. The mortality rate between March and July 2020 was almost identical with the mortality rate during the same period in 2019.

¹ Source of the data regarding the deaths: The Population Register of the Population and Immigration Authority.

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Diagram 1 - Crude Death Rate by Month: January–July, 2017–2020



The mortality rate in Israel from the Coronavirus (COVID-19) is low compared with that of many other countries. Of roughly 19,000 deaths in Israel from March through July, approximately 570 people (about 3%) died directly from the Coronavirus (according to data from the Ministry of Health). Still, the question arises as to whether, since the Coronavirus appeared in Israel in March, the pandemic caused excess mortality in Israel – in other words, a higher-than-expected overall mortality rate compared with earlier years, with the addition of mortality that can be caused, for example, by Coronavirus cases that are not identified, other diseases that were not treated in time, hospital avoidance, and so on. In other countries, such as England, the United States, Spain, Italy, and France, excess mortality was reported in the months following the outbreak of the pandemic.² The increase in the percentage of deaths from Coronavirus of the overall number of deaths is prominent mainly in weeks 15 and 16 (April 6–19), beginning with week 28 (July 6–12), and the entire month of July.³ In the last week of July, the percentage of deaths from the Coronavirus reached almost 10% of the overall number of deaths. But is the overall mortality rate higher compared to previous years?

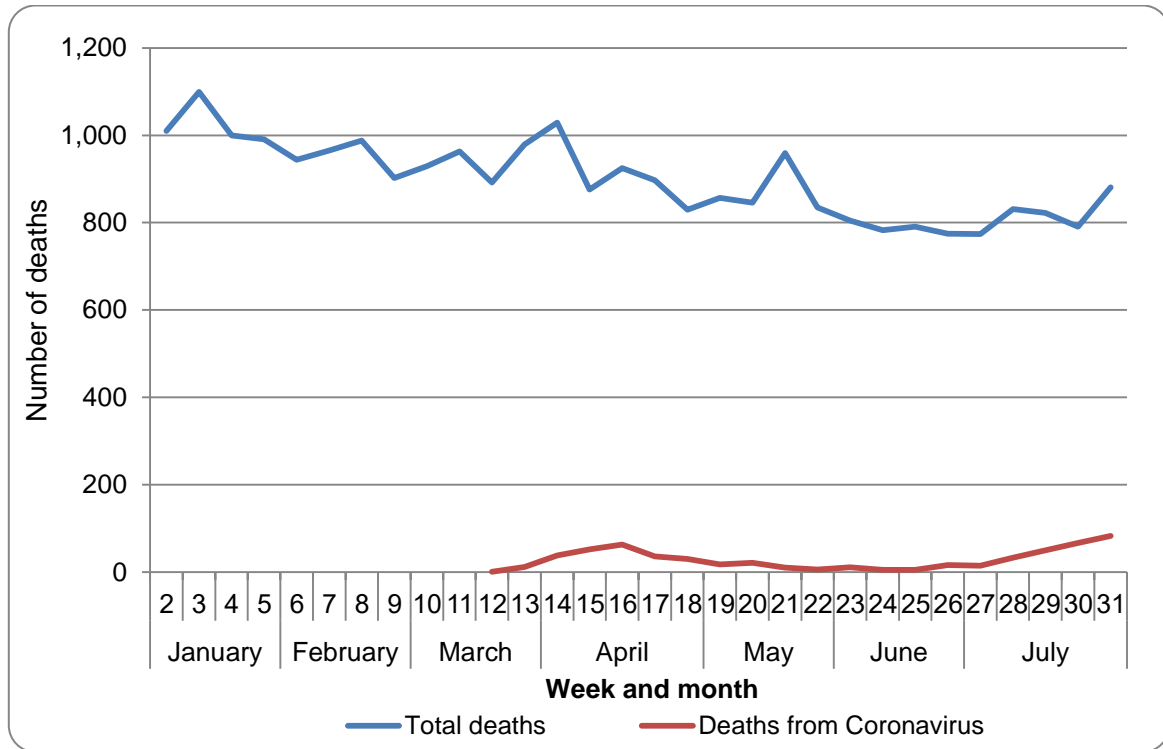
² For data on the excess mortality rate due to the Coronavirus, see “[Tracking COVID-19 Excess Deaths Across Countries](#),” *The Economist*, July 15, 2020 (accessed September 14, 2020).

³ In accordance with the international method of counting weeks, the week begins on Monday.

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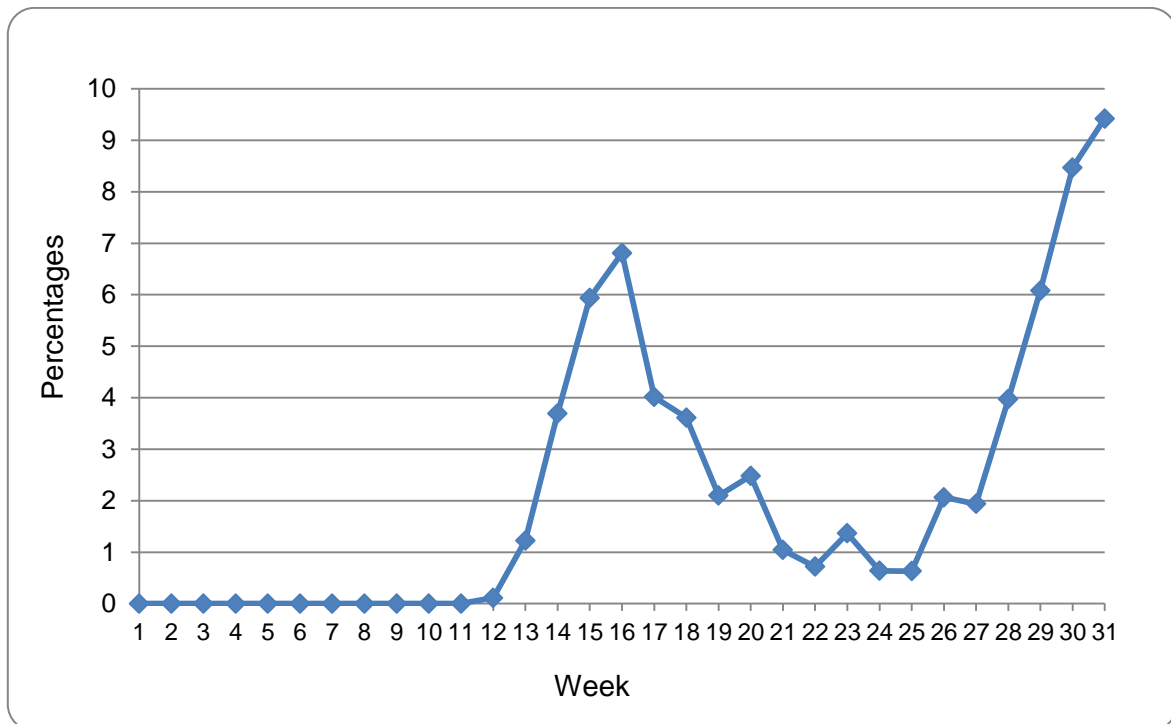
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Diagram 2 - Deaths, Overall and from the Coronavirus, by Week



* According to data from the Ministry of Health

Diagram 3 - Percentage of Deaths from Coronavirus, by Week



In order to answer the question of whether there have been excess mortality in Israel in 2020 and particularly after the outbreak of the pandemic, the **weekly** mortality rates in Israel for 2020 were calculated in comparison with the previous five years (2015–2019),

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using confidence intervals (a range of values that covers the true values in a confidence range of 95%) from the mortality rates in those years.⁴

In all ages: From the beginning of 2020 to the end of July 2020, the mortality rate was higher than expected (outside the range of the confidence interval) in three weeks: 14, 21, and 31, all of them after the outbreak of the pandemic. During these weeks, there were a total of 306 deaths beyond the expected average.

- Week 14 (from March 30) fell at the beginning of the first wave, and there were 114 deaths beyond the expected average. That same week, there were about 40 deaths from the Coronavirus, according to reports of the Ministry of Health.
- There was a heat wave during week 21 (from May 18), which may have contributed to the excess mortality (117 deaths over the average). That same week, 10 deaths from the Coronavirus were reported.
- There was excess mortality (75 deaths) during week 31 (the last week of July). During this week, approximately 83 deaths from the Coronavirus were reported. This week also contained particularly hot days, which may have affected the mortality rate.

By way of comparison, there were six weeks during which the mortality rate was lower than expected: weeks 2, 4–7, and 9, during which there were about 670 fewer deaths than expected. These weeks were in January and February, before the outbreak of the pandemic and the flu season in the winter, which was relatively weak this year. During the

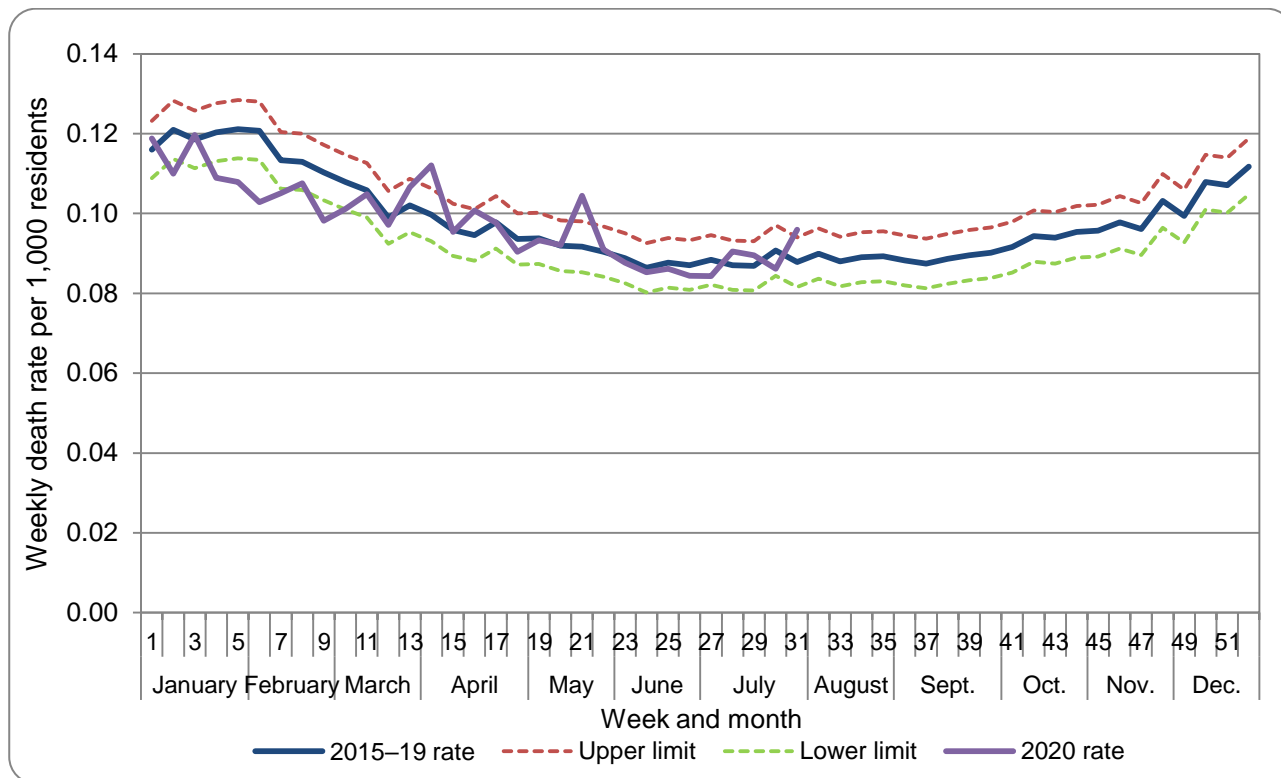
⁴ Mortality rates, as opposed to absolute numbers, enable neutralization of the increase in the number of deaths due to population increase. Calculating the rates for five years and calculating the confidence interval enable the determination of the boundaries of the random changes in the mortality rate that take place week by week during the same period of the previous year. In each week in 2020 that the mortality rate remained within the boundaries of the confidence interval of 95%, there is no excess or lack compared with the expected rate. Weeks during which the mortality rate in 2020 fell outside the confidence interval are considered to be weeks with an exceptional mortality rate (high or low). The number of “excess” or “lacking” deaths can be estimated for a specific week based on the difference between the actual mortality rates and the expected average. The data were calculated for the overall population, as well as for persons aged 70 and over and persons aged 80 and over, in order to examine whether there was excess mortality among these ages in particular. Calculation of the current “excess” is in comparison with the average mortality rate from 2015 through 2019. It should be remembered that there were exceptional mortality events from influenza and/or other exceptional climate phenomena from 2015 to 2019 as well.

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period after the outbreak of the pandemic, there were no weeks during which mortality was significantly lower than expected (outside the range of the confidence interval), but during most of the weeks, it was near or lower than the average.

Diagram 4 - Weekly Death Rate, 2015–2019 Average With Confidence Interval, and in 2020



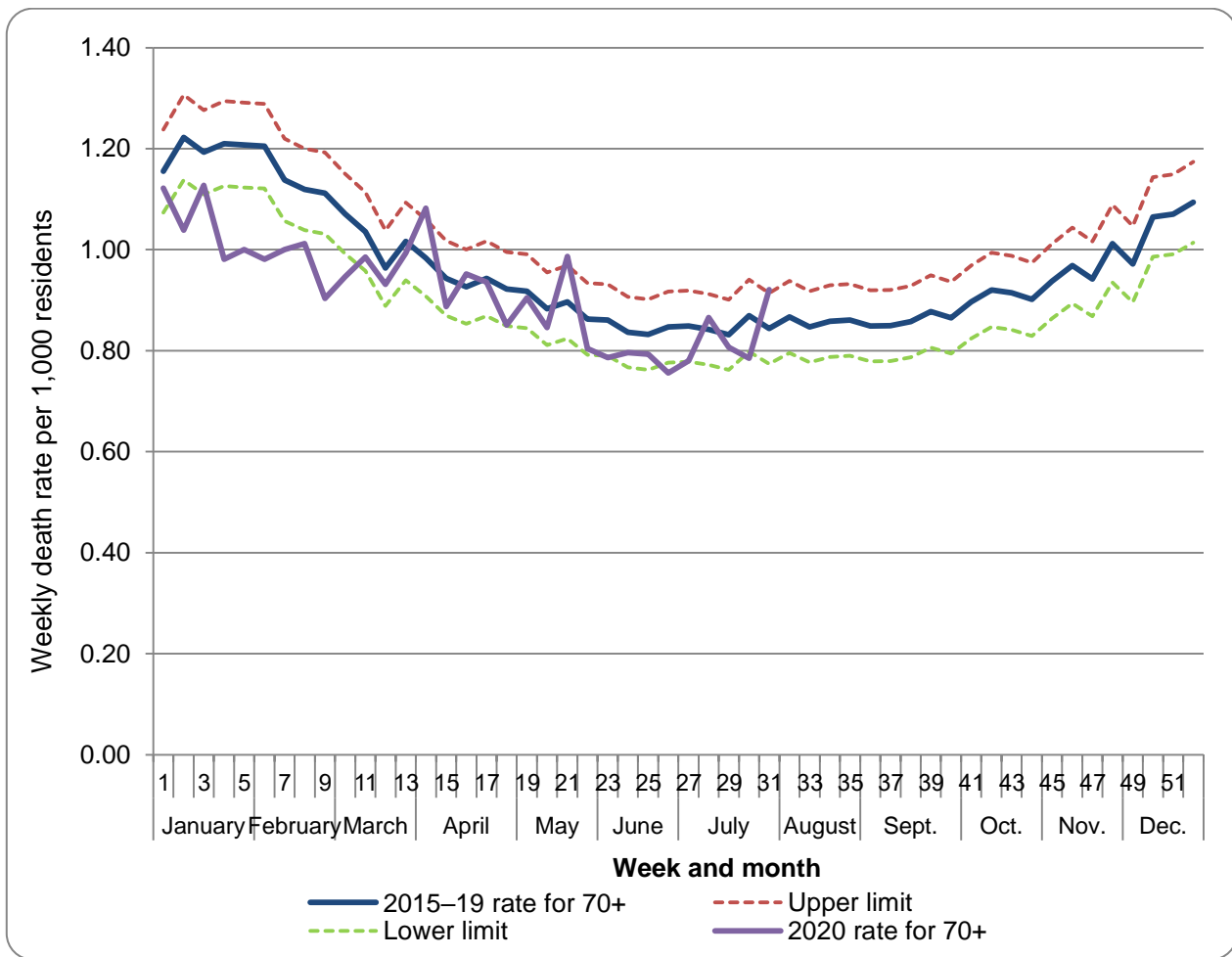
Ages 70 and over: As with all ages, there were three weeks during which mortality was significantly higher (outside the range of the confidence interval): weeks 14 (the beginning of the first wave), 21 (during which there was a heat wave), and 31. During these weeks, the number of deaths exceeded the average by 197 (73 deaths in week 14, 67 in week 21, and 57 in week 31) (the same weeks as in the overall population).

By way of comparison, there were 11 weeks in which mortality was lower than expected. During seven of them, which were before the outbreak of the pandemic, there were about 1,060 fewer deaths than expected. Three weeks were after the pandemic broke out: weeks 23 (from June 2), 26 (from June 22), and 30 (from July 20). During those weeks, there were 186 fewer deaths than expected. Overall, it cannot be said that mortality among persons aged 70 and over was higher than expected between March and July. In most weeks, mortality was even lower than the average, even if it was within the limits of the confidence interval – in other words, the difference was not statistically significant.

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**Diagram 5 - Rate of Deaths Among Persons Aged 70 and Over, by Week, 2015–2019
Average With Confidence Interval and in 2020**



Among persons aged 80 and over, the situation is similar, though with a very small excess. There was an “excess” in two weeks only – week 21 in May (80 deaths) and week 31 in July (47 deaths). For six weeks, there was a “lack”, all of them before the outbreak of the pandemic. The mortality rate remained unexceptional during the rest of the weeks. Mortality among persons aged 80 and over was lower than expected during most weeks in June and July, but within the limits of the confidence interval.

To sum up, by the **end of July 2020**, there are no indications of significant excess mortality in Israel despite the increase in the number of deaths from the Coronavirus and their percentage among the overall number of deaths. Mortality was particularly low in the first months of 2020, but it was similar to previous years at the beginning of the pandemic and particularly between April and July, with fluctuations among the weeks. Three weeks were found during which mortality was slightly higher than expected – about 300 deaths overall. During the remaining weeks, mortality was close to or even lower than average.

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