

‘Excess Deaths’: The Hidden Impact of COVID-19 on Mortality in New Jersey

The true death toll from COVID-19 remains unknown. In New Jersey, deaths in 2020 exceeded prior years’ totals, even after accounting for those directly attributed to the coronavirus. There were approximately 95,715 deaths in the state in 2020, according to the New Jersey State Health Assessment Data system (NJSHAD). COVID-19 was the leading, or primary, cause of death for 16,458 individuals, leaving 79,257 additional deaths attributed to other reasons (including deaths from unknown causes)¹.

That total of 95,715 deaths far exceeds prior years’ numbers. From 2017 through 2019, total deaths in a single year did not exceed 76,000 in New Jersey. Therefore, even when separating out deaths due to COVID-19, the total number of non-COVID-19 deaths in New Jersey throughout 2020 was roughly 4.3 percent higher than in previous years. That leaves thousands of additional – or “excess” – deaths in New Jersey throughout 2020 compared with prior years¹.

These excess deaths may have resulted from the direct or indirect effects of COVID-19. While individuals infected with the coronavirus may have died as a direct result of the virus, COVID-19 would not have been reported as the leading cause of death if such individuals were not tested for the virus²⁻⁶. Other deaths may be attributed to the indirect impacts of COVID-19, the changes and disruptions to various aspects of everyday life that placed individuals at a greater risk of mortality from other diseases, such as delays in or avoidance of medical care²⁻¹². In particular, two data trends provide insight into New Jersey’s excess deaths in 2020: an increase in home deaths, particularly for diseases or conditions that typically would have been treated in the hospital; and a decline in hospital admissions for serious, emergent conditions such as heart attack and stroke.

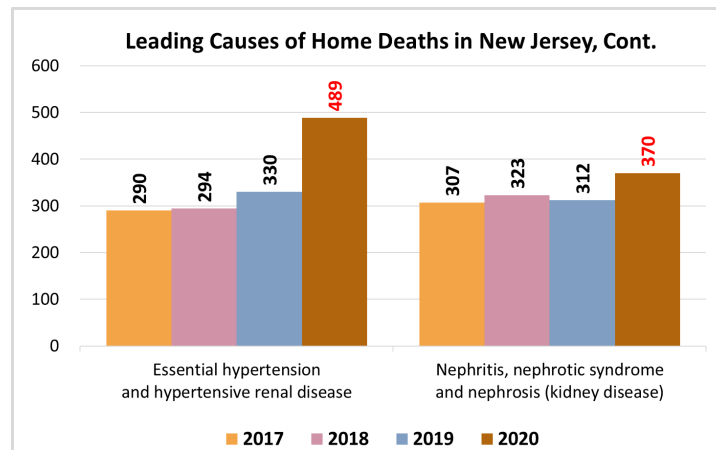
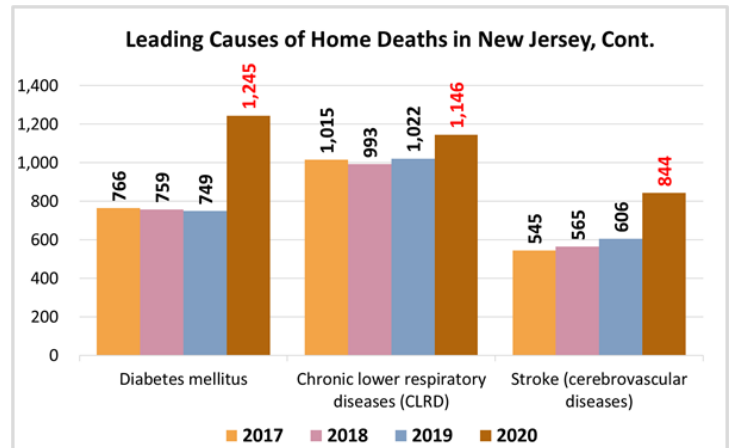
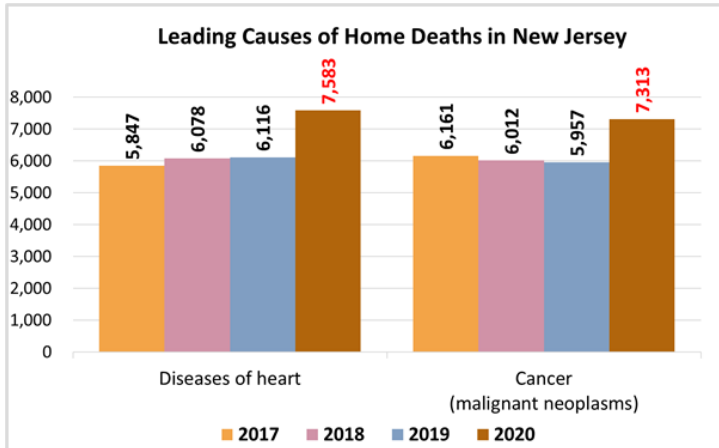
Why excess deaths matter:

By seeking to uncover the virus’s true death toll, researchers gain a better understanding of how disruptions brought about by the pandemic have impacted wellbeing and mortality. While the mental health-related impacts of COVID-19 have garnered significant attention, another main concern has been the drop in healthcare utilization. Hospitals in New Jersey and throughout the United States saw substantial declines in volume – for both emergency department visits and inpatient hospitalizations – during the first wave of the pandemic¹³. This paper demonstrates that this trend held true even for potentially life-threatening conditions such as heart attacks and strokes, with roughly 3,800 fewer hospitalizations for acute myocardial infarctions (AMIs) in 2020 and 1,600 fewer stroke and cerebrovascular-related hospitalizations (including intercranial hemorrhage), compared to the prior three-year average.

Using data from the NJSHAD system, NJHA’s Center for Health, Analytics, Research and Transformation (CHART) examined trends among some of the top leading causes of home deaths in New Jersey from 2017 through 2020. CHART identified stark increases in the number of deaths from heart disease, cancer, diabetes, and other causes of death during the pandemic. This paper also examined trends in hospitalization volume for diagnoses associated with a subset of these acute and chronic causes of death including heart attacks, stroke, kidney disease, and heart failure.

Major uptick in home deaths:

Total home deaths in 2020 were approximately 28 percent higher than the prior three-year average (28,326 versus 21,890)¹. The below graphs contain the top leading causes of home deaths in New Jersey most commonly associated with hospital inpatient admissions. Based on data from NJSHAD, deaths from diseases of the heart were approximately 24 percent higher in 2020, compared with 2019. Deaths from stroke experienced a 39 percent increase; diabetes a 66 percent increase; and essential hypertension and hypertensive renal disease a 48 percent increase, compared with the annual totals in the prior three years.



Source: New Jersey State Health Assessment Data

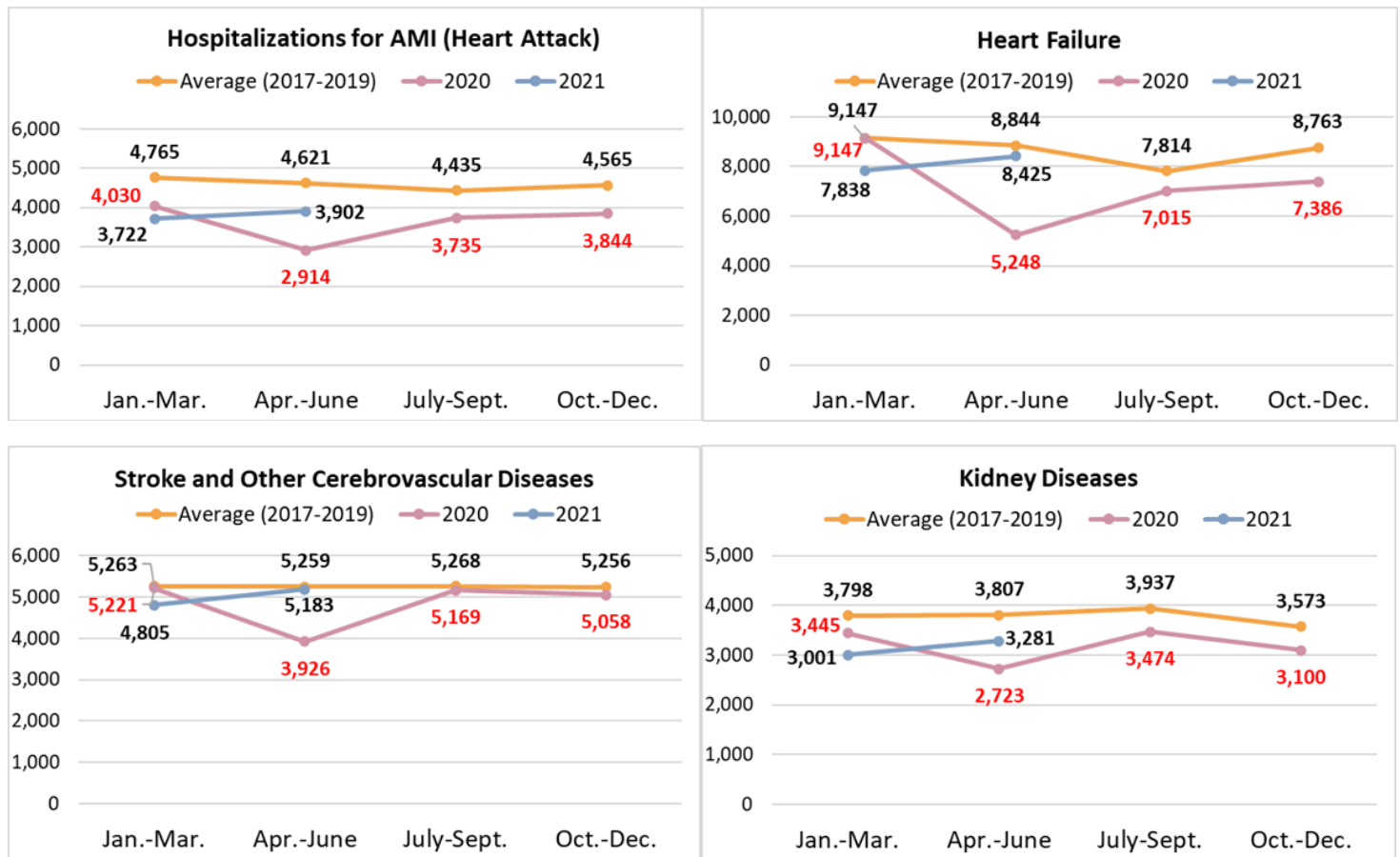
During the first months of the pandemic in New Jersey, many excess home deaths may have resulted from COVID-19 infections that went undiagnosed due to lack of testing. It is now understood that COVID-19 can lead to a variety of lethal health complications, and that underlying chronic conditions can increase the risk of such complications^{2&4}. Furthermore, in some instances, those with COVID-19 may experience a very rapid decline in health¹.

The medical literature is beginning to explore some of these trends observed in the pandemic's earliest days. In an article by the Association of American Medical Colleges, Dr. Ali Raja, executive vice chair of the Department of Emergency Medicine at Massachusetts General Hospital, acknowledges that "for those who die — from a heart attack, for instance — the role of COVID-19 might never be determined unless there's a reason to run a post-mortem test for the disease."² When referring to home deaths, the chief medical examiner of Spokane County, Washington, also noted that "tests are usually conducted only if a medical examiner or coroner has a reason to suspect that a coronavirus infection played a role in someone's death."²

Researchers also acknowledge that many individuals avoided or delayed care at hospitals and other healthcare providers, especially during the peak of the pandemic²⁻¹². Dr. Jeremy Faust, an emergency medicine physician at

Brigham and Women’s Hospital in Boston, acknowledges that “the rise in at-home deaths may also reflect people who are afraid to go to the hospital because of COVID-19, and who die of heart attacks, strokes, diabetes and other conditions not tied to the coronavirus.”⁴ Regardless of whether an individual experiences major cardiac – or other health – symptoms as a direct effect of the coronavirus, the postponement of medical care may still have devastating effects.

Looking at New Jersey’s hospital discharge data, hospitalizations for acute myocardial infarction (AMIs), or heart attacks, stroke or other cerebrovascular-related diseases experienced steep declines in April through June 2020 compared with the prior three-year average for the same months. In 2020, the number of hospitalizations for AMIs from April through June was 37 percent lower than the average over the prior three years (2,914 versus 4,621). This number is based on ICD-10 codes for a patient’s Principal Diagnosis (the condition chiefly responsible for a patient’s admission.) Stroke and other cerebrovascular disease-related hospitalizations also decreased by 25 percent compared with the same time periods in prior years. Hospitalizations for other serious heart and kidney-related conditions that may require immediate medical care were also lower in 2020. There were approximately 5,772 fewer hospitalizations for heart failure (a 17 percent decline), and 2,374 fewer kidney disease-related hospitalizations including chronic kidney disease and acute kidney failure (a 16 percent decline) in 2020 than the prior three-year average. While 2021 discharge data is currently preliminary, volume in the first quarter of 2021 – for all diagnoses examined – continues to be lower than prior years.



Source: New Jersey Hospital Discharge Data

Note: Volumes in 2020 and 2021 include COVID-19 positive hospitalizations as the goal was to capture all patients hospitalized with the Principle Diagnosis ICD-10 codes examined in this paper.

From 2017-2019, hospital admissions for these conditions remained stable, never shifting more than 1.9 percent on average from one year to the next. From 2019 to 2020, hospitalizations for these four conditions together decreased over 16 percent. Given prior years’ numbers, New Jersey’s hospitals could expect to treat a similar number of patients for heart attacks, strokes, hemorrhages and other serve health conditions. What, therefore, happened to the thousands of

individuals who did not go to hospitals for severe health conditions or major chronic diseases in 2020? Perhaps, for some, admission to a hospital would not have impacted their outcome or condition significantly. Alternatively, many New Jerseyans may have simply missed opportunities for care and treatment to mitigate the progression of chronic or potentially fatal conditions. However, in an NJHA survey of a representative sampling of New Jersey adults in September 2020, 83 percent of respondents reported being concerned about going to a hospital during the pandemic amid fear that they could contract COVID.

It is important to acknowledge that many hospitals were overwhelmed with COVID-19 patients during the peak of the pandemic, which significantly strained hospitals' resources. Ambulance services also reported extraordinary volume. Consumer hesitance to seek care at a hospital was therefore understandable. Despite this, substantial declines in hospitalizations during the pandemic have raised concerns given the missed opportunities for medical services and interventions. Given the ongoing threat of COVID, including the rise of new variants, it remains crucial that individuals do not delay or avoid seeking medical care.

1. <https://www-doh.state.nj.us/doh-shad/>
2. <https://www.aamc.org/news-insights/how-are-covid-19-deaths-counted-it-s-complicated>
3. <https://www.latimes.com/projects/coronavirus-home-deaths/>
4. <https://www.propublica.org/article/a-spike-in-people-dying-at-home-suggests-coronavirus-deaths-in-houston-may-be-higher-than-reported>
5. <https://www.nature.com/articles/d41586-020-02497-w>
6. <https://time.com/5857088/covid-19-death-toll/>
7. <https://www.theguardian.com/society/2020/oct/19/third-more-deaths-at-home-before-covid-england>
8. <https://www.bbc.com/news/health-54598728>
9. <https://www.nytimes.com/2020/04/06/well/live/coronavirus-doctors-hospitals-emergency-care-heart-attack-stroke.html>
10. <https://www.latimes.com/science/story/2021-06-09/us-deaths-heart-disease-diabetes-climbed-during-pandemic>
11. <https://jamanetwork.com/journals/jama-health-forum/fullarticle/2774358>
12. <https://www.bmj.com/content/369/bmj.m2115>
13. <https://www.njha.com/healthy-communities/understanding-the-healthcare-landscape/chart/bulletins/>

Visit www.njha.com/chart for additional resources.