

The Rise and Fall of COVID in New Jersey: Hospitals Respond as the Curve Flattens

New Jersey's first COVID-19 case was reported on March 4, 2020. Seventy-seven days later, New Jersey has seen more than 150,000 of its residents test positive for the virus, which represents 1.7 percent of the state's population. Additionally, more than 10,000 of the state's residents have died from the virus. This represents a death rate of approximately 7.1 percent.

Nationally, more than 1.5 million have been infected, which represents approximately 0.45 percent of the population, and with over 90,000 fatalities the national death rate also stands at just over 6 percent. New Jersey is clearly a hot spot for infections, but on average the population is no more prone to mortality than the country as a whole.

These are sobering statistics and the pandemic is far from over. This report shows the trajectory of the virus in New Jersey, focusing particularly on hospital capacity throughout the surge, along with the down slope of COVID-19 activity observed as the state enacted strict distancing policies. The same data may also help prepare us for future surges or spikes in infection rates.

New Jersey's first known case of COVID-19 was announced March 4. Through March and April, New Jersey's COVID plight began to crystalize and attention was placed on ensuring adequate hospital bed capacity. The questions most commonly asked were "When will the peak occur?" and "Will there be sufficient bed capacity?"

The Peak

April 14, 2020, was the height of New Jersey's COVID-19 activity.

On this date, New Jersey reached the following peaks:

- 8,084 patients were hospitalized with COVID-19
- 82 percent of intensive care beds were filled
- 62 percent of ventilators were in use.

These numbers represent a statewide average. However, COVID-19 activity varied significantly across time and geography.

On April 14, Hackensack University Medical Center was the state's busiest hospital treating COVID-19 patients, with 470 cases. Rounding out the top five were St. Joseph's Medical Center (351), Saint Barnabas Medical Center (310) and Morristown Medical Center (309) and Overlook Medical Center (304).

Two weeks prior, on March 31, the statewide total number of hospitalizations was 5,269. In just 14 days New Jersey saw the number of hospital inpatients grow by more than 50 percent.

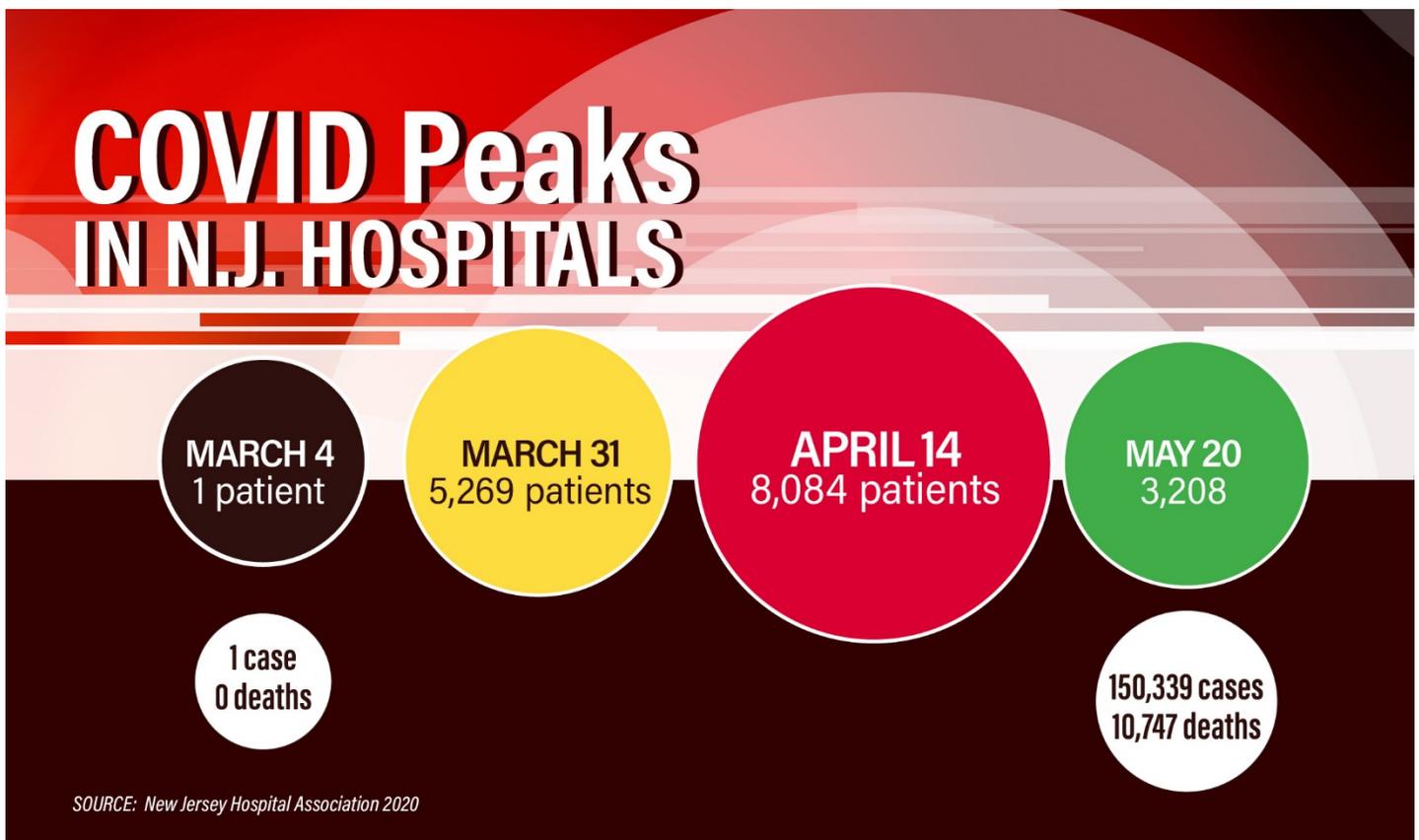
The Response

New Jersey hospitals mobilized to meet these capacity needs with rapid expansion of beds – action made possible by regulatory waivers that provided flexibility from the state's bed licensure requirements. Traditionally, New Jersey's hospitals collectively have approximately 1,800 intensive care beds at their disposal. Over the course of a year, 63 percent of those

beds are occupied at any given time. By April 14, 2020, hospitals had increased their ICU bed capacity to close to 2,800 beds, representing an increase in ICU bed capacity between 50 and 60 percent. Even with those additional beds, the state's hospitals were reporting an average ICU occupancy rate of 82 percent. The rates across the state were similar, with the northern region running at 83 percent, the central region at 88 percent and the southern region at 70 percent ICU occupancy.

The most severe COVID patients were in need of ventilators, machines that move oxygen in and carbon dioxide out of a patient's lungs. Approximately one in every four confirmed positive COVID patients was in need of ventilation. This was uniform across the state: the North region at 28 percent, the Central region at 25 percent and the South region at 26 percent.

On April 14, hospitals reported 3,103 ventilators across the state. More than 61 percent, or 1,915 were in use, with some hospitals maxed out with 100 percent of their vents in use. Nearly ninety percent of those ventilators, a total of 1,705, were being utilized by a COVID patient. Due to the efforts to increase New Jersey's ventilator inventory from the strategic national stockpile, loans from other states and hospitals' own independent efforts to secure vents, availability was pushed to near limits during the surge but was never exceeded.



The Present

On May 20, 2020, approximately five weeks after the hospitalization peak in New Jersey, the current case counts, bed and ventilator capacity are much more stable. The total number of confirmed positive COVID-19 hospital inpatients stands at 2,381 and the number of persons under investigation in a hospital inpatient bed stands at just 827, for a collective total of 3,208. This represents a 60 percent decline from the mid-April peak. ICU bed capacity remains at approximately 2,800 beds, but the stress on those beds has diminished considerably. Overall statewide ICU bed occupancy stands at 65 percent, much more in line with the pre-COVID occupancy of 63 percent. However, there are far more beds available in the system.

A similar trend is revealed regarding ventilators. Hospitals are currently reporting 3,144 total ventilators across all hospitals, but only 1,173 are in use, leaving 63 percent of all hospital vents available. Of the 1,173 ventilators in use at hospitals, 700 are being utilized by COVID-positive hospital inpatients, or 60 percent. This is well below the peak when 90 percent were required by COVID patients. The only anomaly in these trends is the percent of COVID-positive patients in hospitals that require ventilation. It now stands at 30 percent, but the raw number of COVID patients on a ventilator has decreased by more than half, from 1,705 to 700.

The Road Ahead

In large scale emergencies – whether it's a pandemic like COVID-19, a natural disaster like Superstorm Sandy or a man-made event like 9/11 – hospitals serve as a front line in caring for stricken communities. In this pandemic, hospital nimbleness in expanding bed capacity was key to meeting the surge and providing care in New Jersey's communities. One of the key lessons learned is that flexibility in the form of federal and state waivers is essential to facilitate quick action in a highly regulated sector. These waivers supported transitioning from conventional standards, for example, by expanding space and bed capacity through licensed bed and physical space waivers, increasing staffing resources through reciprocity of healthcare professional licenses across state lines and broadening the use of telehealth by clinicians to provide care.

As New Jersey emerges from the crisis phase of COVID-19, the data also underscores the importance of resiliency planning for the state's hospitals. With many public health experts predicting a resurgence of COVID-19 in the fall, the experience of rapidly expanding capacity, along with the accompanying staffing and personal protective equipment, is valuable for hospitals' ability to reactivate this response when needed. Providers, public health leaders and decision makers should continue to utilize the wealth of data available to them to anticipate and be prepared.

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