

Mortality of COVID-19 Admitted Patients on Mechanical Ventilators

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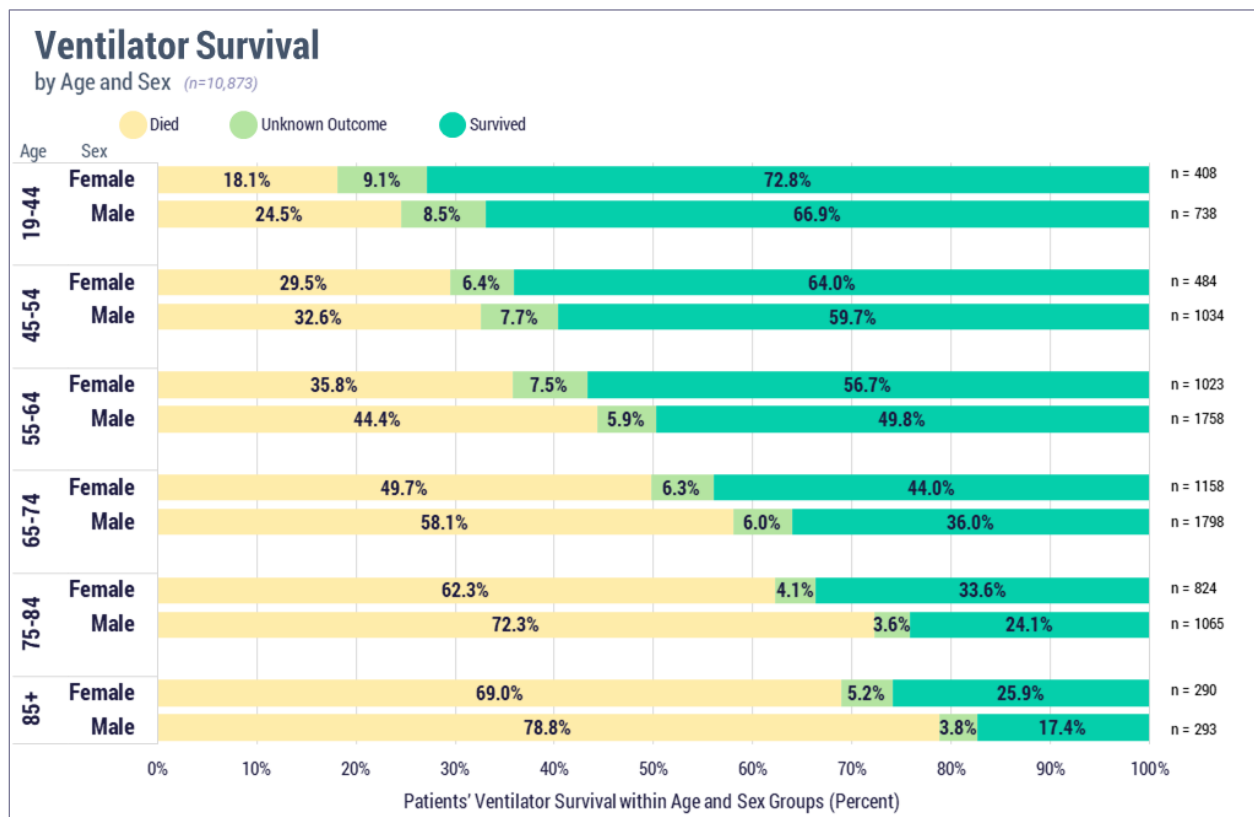
This brief was updated on June 26, 2020, with data as of June 18, 2020. Overall findings remain consistent, but the percentage of patients with an unknown outcome has decreased from 34% to 6%.

Here we examine the mortality of patients who received invasive mechanical ventilation as treatment for acute respiratory failure due to COVID-19.

As of June 18, 2020, for COVID-19 positive patients age 19+ requiring invasive mechanical ventilation (n = 10,873), 4,989 (46%) were discharged from the hospital, 5,215 (48%) died, and 669 (6%) remain in the hospital.

The overall mortality rate in this sample of patients is between 48%-54%. Survival varies with age and sex, with younger and female patients having an increased likelihood of survival. Understanding ventilator survival rates by age and sex may be helpful for clinicians who are counseling patients and family members on likely outcomes with mechanical ventilation.

Data are pooled from 48 health systems representing 333 hospitals spanning 22 states and covering 42 million active patients.



Term	Definition
COVID-19 Patient	Patient with a positive SARS-CoV-2 lab result or a COVID-19 diagnosis. Start Date: The earlier of the earliest positive SARS-CoV-2 lab result collection date or earliest diagnosis noted date
Positive COVID-19 Lab Result	A final result flagged as abnormal for one of the lab components identified by individual health systems for SARS-CoV-2. Positive/Start Date: Date the test was collected/performed
COVID-19 Diagnosis	A patient with one of the following codes for one of the following diagnosis settings. Diagnosis Code: U07.1 (ICD-10), 840539006 (SNOMED) Diagnosis Setting: Encounter Diagnosis, Billing Diagnosis, Problem List, Hospital Problem, Discharge Diagnosis
COVID-19 Related Admission	A hospital admission during which the patient has a positive SARS-CoV-2 lab test or COVID-19 diagnosis, OR a hospital admission with any respiratory diagnosis which happens within 14 days of the patient's COVID-19 "start date." Respiratory Diagnosis Codes: J00-J99 (ICD-10)
Ventilator Usage	A patient is considered to be on a ventilator if they have a procedure with one of the following CPT codes during their COVID-19 related admission. Alternatively, a patient is considered to be on a ventilator if there is documentation other than "Off" or a non-invasive mode (e.g. CPAP, BiPAP) in a Vent Mode flowsheet row, or an oxygen delivery device of ventilator. For this study, we only consider the worst severity a patient reaches on a given calendar day, so if a patient is placed on a ventilator and dies on the same day they will not be included in ventilator usage counts. CPT Codes: 94002, 94003
COVID-related Death	A COVID-19 patient with a death date or discharge date with a discharge disposition of deceased within 6 weeks of their COVID-19 start date.
Patient Sex	Patient's legal sex. Possible values include "Male," "Female," and "Other." Due to low numbers of patients who fell into the "Other" category, it was excluded for clarity.
Active Patient	A patient who has interacted with the health system in the past 2 years, indicated by either a face-to-face visit or an order placed on their chart.

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Data Date: June 18, 2020

Check for [updates](#) at:

<https://ehrn.org/wp-content/uploads/Mortality-COVID-19-Ventilator.pdf>