



Chances of survival in respiratory failure requiring a ventilator

If you or a loved one ends up on a ventilator, a common question that is asked: what the chances of survival are?

This is a very reasonable question, yet a very difficult one to answer. There are many factors that determines the outcomes of patients requiring mechanical ventilation.

Those could be divided into: Patients' and diseases' specific factors.

Patients' factors like age, health status prior (comorbidities), immune status, nutritional factors are some of those factors.

Diseases' factors include the reason (etiology) of the respiratory failure, presence of shock state, other organ failure beside the lung are some of those factors.

Below, we will summarize some of the common diseases that the outcomes of respiratory failure have been studied. To note, those are not exclusive numbers and vary between different studies, different populations, races and geographical locations.

Average mortality (death)

Acute Respiratory Distress Syndrome (ARDS)

This is not a specific disease rather a group of many diseases that share certain characteristics on x-rays and oxygen levels. It usually affects 65-80 cases/100,000 persons-year in the US, there is no specific treatment, only supportive care. The syndrome is considered one of the highest risks of death among cases of respiratory failure and the need for mechanical ventilation. Traditionally it has been classified as mild, moderate, and severe depending on the oxygenation levels.

Mild: 25-30%

Moderate: 30-35%

Severe: 35-40%

Pneumonia

Pneumonia is one of the most common causes of respiratory failure that might require mechanical ventilation. Pneumonia is usually classified as community acquired (patients living at their home) or hospital acquired (patients hospitalized for other reasons, or in long term nursing facilities).

Mortality chances are depending on the severity of the disease, and whether the patients require a ventilator or not. Patients who end up requiring a ventilator might have mortality chances between 20-35%.

Chronic Obstructive Lung Disease exacerbation (COPD)

COPD might flare (exacerbate) and cause respiratory failure requiring hospitalization and ventilatory support. It can be caused by infectious or noninfectious process.

Non Invasive respiratory support (NIV: ventilation through a mask. Please refer to the separate document: Oxygen support for respiratory failure) has become the gold standard for respiratory support for COPD, however mechanical ventilation might be needed if worsening condition or patient intolerance.

Patients who only needed NIV had average mortality 5-10%

Patients who only needed NIV had average mortality 10-15%

Asthma exacerbation

Hospital and ICU admissions secondary to asthma exacerbations have declined in last decade. Patients with asthma exacerbations not requiring mechanical ventilation is usually low between 1-5%, however the need for mechanical ventilation raises the chance of death up to 10-20%.

Interstitial Pulmonary Fibrosis (IPF)

Unfortunately IPF has no treatment, though new medications might reduce progression. Patients who require NIV might have mortality of 20-25% and those who require mechanical ventilation is about 40-50%. Combined, chances of mortality for IPF with respiratory failure is about 35%.

Tracheostomy

Approximately 10-15% of patients who require mechanical ventilation might not be able to be liberated after 21 days and require prolonged mechanical ventilation mostly through a tracheostomy. Dependent on many factors including the initial disease, severity of illness, lung functions as discussed above, the average 1 year mortality is high: 50-60%