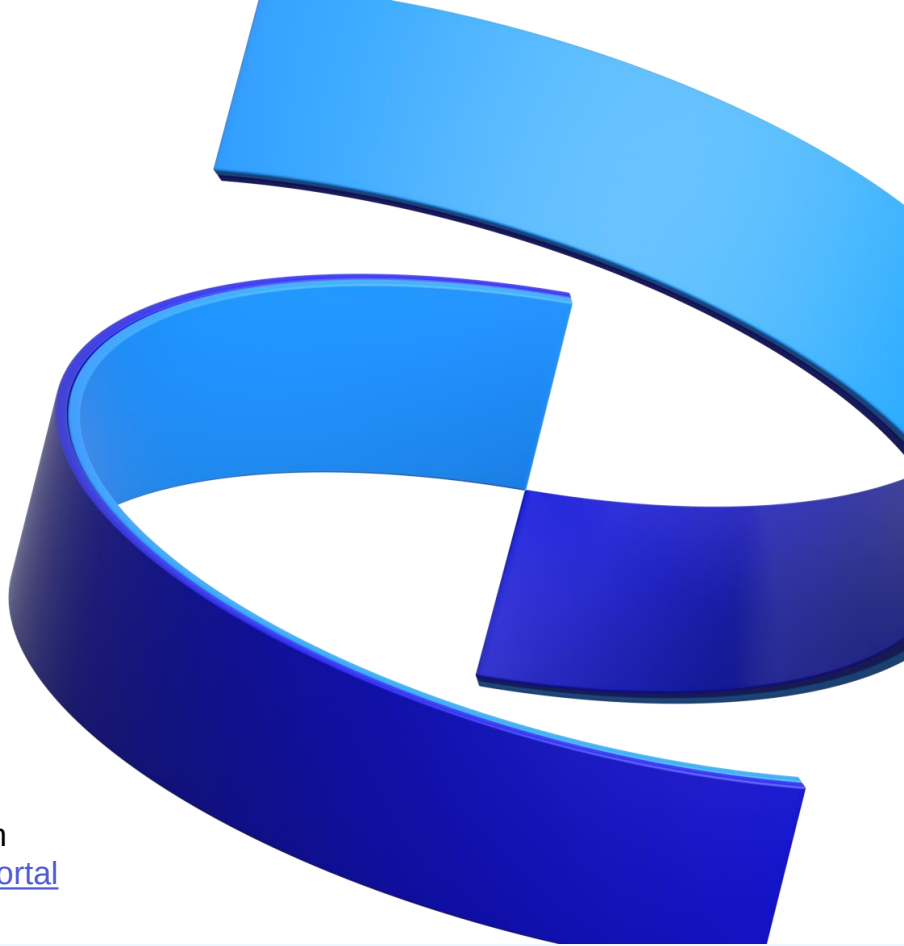
# COVID-19 High Risk and Symptoms Severity

Menu

For additional COVID-19 Medical Education resources, please visit the Pfizer Medical Portal





Pfizer Medical Affairs

# COVID-19

This material covers a brief overview of two distinct COVID-19 aspects:

1. **Identifying patients who are at high risk for progression to severe COVID-19, including hospitalization or death**

2. **Clinical symptom severity spectrum**



Pfizer Medical Affairs

# High-Risk Factors Associated with Progression to Severe COVID-19[1,2]

*Providers should consider the patient's age, presence of underlying medical conditions and other risk factors, and vaccination status in determining the risk of severe COVID-19-associated outcomes for any patient*

## Age ≥50 years[1]

**Age** is the **strongest risk factor** for severe COVID-19 outcomes

25x

*Risk of COVID-19-related deaths among people aged **50–64 years** is **higher** than those aged **18–29 years***

Risk of severe outcomes is increased in people of all ages with certain underlying medical conditions and in people who are ≥50 years, with risk increasing substantially at ages ≥65 years

## Underlying Medical Conditions[1]

Patients with **certain underlying medical conditions** are at high risk for severe COVID-19


*Risk of progression increases with increasing number of underlying conditions, as do poorer outcomes*


## Race and Ethnicity[1]

**Race and ethnicity** are risk markers for other underlying conditions that affect health, including socioeconomic status, access to health care, and exposure to the virus related to occupation, e.g., front-line, essential, and critical infrastructure workers

## COVID-19 Vaccination Status[1]

**Being unvaccinated or not being up to date on COVID-19 vaccinations** increases the risk of severe disease

Previous

Next



1. Centers for Disease Control and Prevention. Underlying Medical Conditions Associated with Higher Risk for Severe COVID-19: Information for Healthcare Professionals. Available at: https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-care/underlyingconditions.html (Accessed February 2023). 2. Centers for Disease Control and PreventionFactors That Affect Your Risk of Getting Very Sick from COVID-19. Available at: https://www.cdc.gov/coronavirus/2019-ncov/your-health/risks-getting-very-sick.html. (Accessed February 2023).

Pfizer Medical Affairs

# Identifying Patients Who Are at High Risk for Progression to Severe COVID-19 – Underlying Medical Conditions[1]

## The risk of severe COVID-19 increases as the number of underlying medical conditions increases in a person

**Higher Risk (conclusive)** | *Meta-analysis or systematic review demonstrated good or strong evidence*

- Asthma
- Cancer, including hematological malignancies
- Cerebrovascular disease
- Chronic kidney disease,* including patients on dialysis
- Chronic lung diseases limited to:
  - Bronchiectasis, COPD, interstitial lung disease, pulmonary embolism, pulmonary hypertension
- Chronic liver diseases limited to:
  - Cirrhosis, non-alcoholic fatty liver disease, alcoholic liver disease, autoimmune hepatitis
- Cystic fibrosis
- Diabetes mellitus, type 1 and type 2*†
- Disabilities:†
  - Including down syndrome
- Heart conditions (such as heart failure, coronary artery disease, or cardiomyopathies)
- HIV
- Mental health disorders limited to:
  - Mood disorders (including depression) and schizophrenia spectrum disorders
- Neurologic conditions limited to dementia†
- Obesity (BMI ≥30 kg/m$^2$ or ≥95$^{th}$ percentile in children)*
- Primary immunodeficiencies
- Pregnancy and recent pregnancy
- Physical inactivity
- Smoking, current and former
- Solid organ or hematopoietic cell transplantation
- Tuberculosis
- Use of corticosteroids or other immunosuppressive medications

**Suggestive Higher Risk** | *Evidence supported by mostly cohort, case-control, or cross-sectional studies*

- Children with certain underlying conditions
- Overweight (BMI ≥25 kg/m$^2$, but <30 kg/m$^2$)
- Sickle cell disease
- Substance use disorders

**Mixed Evidence (inconclusive: no conclusions can be drawn from the evidence)** | *Meta-analysis or systematic review is inconclusive*

- Alpha 1 antitrypsin deficiency
- Bronchopulmonary disease
- Hepatitis B
- Hepatitis C
- Hypertension*
- Thalassemia

Previous Next

BMI, body mass index; COPD, chronic obstructive pulmonary disease, HIV, human immunodeficiency virus.
*Indicates underlying conditions for which there is evidence for pregnant and non-pregnant people.
†Underlying conditions for which there is evidence in pediatric patients.

1. Underlying Medical Conditions Associated with Higher Risk for Severe COVID-19: Information for Healthcare Professionals. Available at: https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-care/underlyingconditions.html. (Accessed: February 2023).



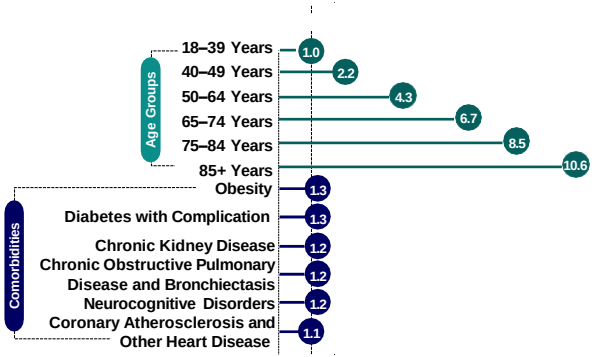
Pfizer Medical Affairs

# Risk of Death by COVID-19 Increases with Increasing Age and Number of Underlying Medical Conditions[1]

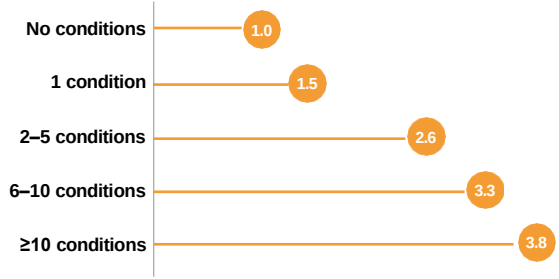
## Key findings from one large cross-sectional study

Underlying Medical Conditions and Severe Illness Among 540,667 Adults Hospitalized With COVID-19, March 2020–March 2021

**COVID-19 Death Risk Ratio (RR) for Select Age Groups and Underlying Medical Conditions**




**COVID-19 Death Risk Ratio (RR) Increase as the Underlying Medical Conditions Increases**




Previous

Next



1. Underlying Underlying Medical Conditions Associated with Higher Risk for Severe COVID-19: Information for Healthcare Professionals. https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-care/underlyingconditions.html (Accessed February 2023).

Pfizer Medical Affairs

# Clinical Progression in COVID-19 is Varied

## Potential for progression to severe disease[1]

### Clinical disease course[2]

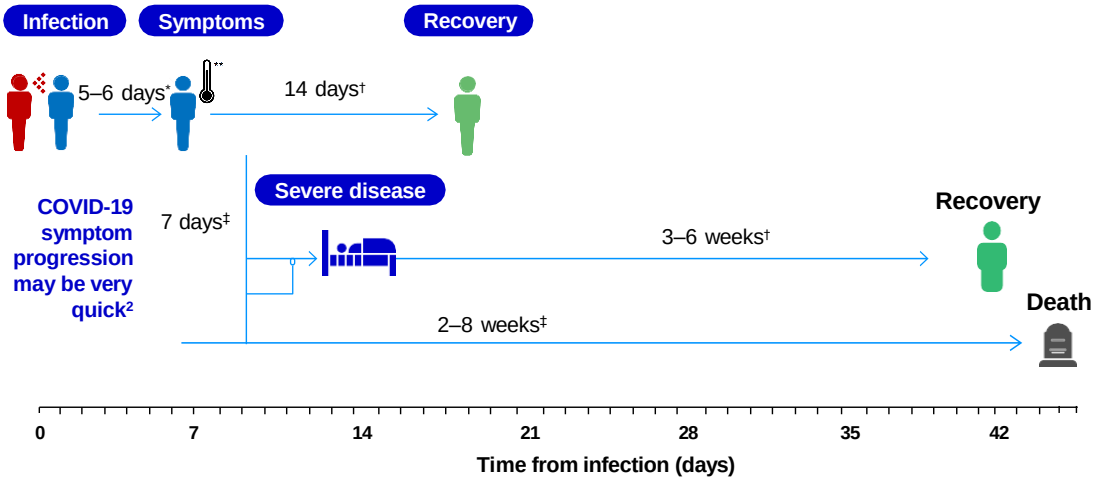



Figure adapted from the Report of the WHO-China Joint Mission on Coronavirus Disease 2019.[2]

### Severe outcomes of COVID-19 are defined as[3]

- Hospitalization
- Admission to the ICU
- Intubation or mechanical ventilation
- Death

Previous

Next



*Mean; ** Other symptoms, including mild respiratory symptoms; † Median time period for recovery of mild disease; ‡Unknown average type. ICU, intensive care unit.

1. Bestetti RB, et al. Int J Environ Res Public Health 2021;18:7212; 2. World Health Organization. Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19): 16–24 February 2020 [online]. Available at: https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf. (Accessed February 20233).
3. Centers for Disease Control and Prevention. Underlying Medical Conditions Associated with Higher Risk for Severe COVID-19: Information for Healthcare Professionals. Available at: https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-care/underlyingconditions.html. (Accessed February 2023).

Pfizer Medical Affairs

# Clinical Symptom Severity Spectrum[1]

## NIH guidelines: the COVID-19 severity spectrum

| Stage | Characteristics |
|---|---|
| **Asymptomatic or pre-symptomatic** | Positive test for SARS-CoV-2 but no symptoms |
| **Mild illness** | Varied symptoms (e.g., fever, cough, sore throat, malaise, headache, muscle pain) but no shortness of breath, dyspnea or abnormal imaging |
| **Moderate illness** | $SpO_2$ ≥94% and evidence of lower respiratory disease during clinical assessment or imaging |
| **Severe illness** | $SpO_2$ <94%, $PaO_2/FiO_2$ <300mmHg, respiratory rate >30 breaths/min, or lung infiltrates >50% on imaging |
| **Critical illness** | Respiratory failure, septic shock, and/or multiorgan dysfunction |

Visit the NIH website for the most up-to-date clinical spectrum information.

Previous Next



NIH, National Institutes of Health; $PaO_2/FiO_2$ , ratio of arterial partial pressure of oxygen to fraction of inspired oxygen; $SpO_2$, oxygen saturation.

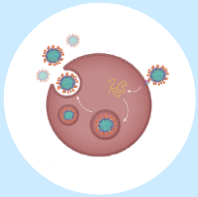
1. NIH COVID-19 Treatment Guidelines. Clinical Spectrum of SARS-CoV-2 Infection. Available from: https://www.covid19treatmentguidelines.nih.gov/overview/clinical-spectrum/. (Accessed February 2023).

Pfizer Medical Affairs

# Additional COVID-19 Education Resources

## Pfizer Medical Portal – Infectious Disease

Explore topics such as:



SARS-CoV-2 Viral Replication

SARS-CoV-2 Virology

COVID-19 Clinical Presentation

COVID-19 Clinical Overview

COVID-19 Testing and Diagnosis

Previous



Pfizer Medical Affairs