



Red Book[®] Online

Red Book Online Outbreaks: Coronavirus Disease 2019 (COVID-19)

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Cases of COVID-19 in the US

[CDC COVID Data Tracker](#)

Find maps and charts tracking cases, deaths, and trends of COVID-19 in the United States, updated daily

AAP Case Report in Children and Adolescents: [Children and COVID-19: State-Level Data Report \(aap.org\)](#)

Vaccination Rates in US

AAP Report of Vaccination Rates in Children and Adolescents: [Children and COVID-19 Vaccination Trends \(aap.org\)](#)

Overview

SARS-CoV-2 is widespread throughout the United States. More than two years have passed since COVID was categorized as a pandemic by the World Health Organization (March 11, 2020). Since then, the US has seen more than 92.1 million cases of COVID and more than 1 million deaths. As of July 28, 2022, there have been more than 14 million cases of COVID reported in children and adolescents.

Clinical Guidance

- **Presentation:** The most common presenting symptoms of COVID-19 in children are fever and cough; other symptoms can include shortness of breath, sore throat, headache, myalgia, fatigue, and, less frequently, rhinorrhea. Gastrointestinal symptoms such as nausea, vomiting, diarrhea, and poor appetite may occur, with or without respiratory symptoms. Less frequently, infected people can experience anosmia (loss of smell) or ageusia (loss of taste); these occur more commonly in adolescents than in younger children. Conjunctivitis and rashes also have been reported. Children generally have mild disease or may be asymptomatic, although severe and even fatal cases have occurred.
- **Diagnosis:** Acute SARS-CoV-2 infection can be diagnosed by detection of viral RNA from a respiratory source from the upper or lower airway (eg, nasopharynx, oropharynx, nose, saliva, trachea) through reverse transcriptase-polymerase chain reaction (RT-PCR) assay (some may be multiplex assays) or through direct antigen testing for SARS-CoV-2 from a nasopharyngeal or nasal specimen. (See [COVID-19 Testing Guidance \[aap.org\]](#) for additional guidance.)
- **Complications:** Children with obesity or medical comorbidities are at risk for more severe disease. Children from racial or ethnic minority groups may be at higher risk for severe illness. Complications include respiratory failure, acute cardiac injury, acute kidney injury, shock, coagulopathy, and multiorgan failure. Diabetic ketoacidosis and intussusception also have been reported. Laboratory findings may be normal or may include lymphopenia, leukopenia, elevated C-reactive protein or procalcitonin, and elevated alanine aminotransferase and aspartate aminotransferase. Chest imaging may be normal or there may be unilateral or bilateral lung involvement with multiple areas of consolidation and ground glass opacities.
 - **Multisystem Inflammatory Syndrome in Children (MIS-C) Interim Guidance:** Clinical guidance for pediatricians including signs, symptoms, diagnosis, and management of this rare but serious complication associated with COVID-19 in children.
- **Precautions:** Airborne, droplet, and contact precautions are recommended for patients with suspected or known SARS-CoV-2 (including eye protection [face shield or goggles], N95 or higher respirator [or medical mask if not available], gown, and gloves; for aerosol-generating procedures, an N95 or higher respirator should be used). Airborne infection isolation rooms should be prioritized for aerosol-generating procedures. A well-ventilated single-occupancy room with a closed door may be used if aerosol-generating procedures are not performed. Detailed guidance is available on the CDC website ([cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html](https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html)).
- **Prevention:** Promote vaccination to all eligible persons age >6 months among your patient population and in your communities, including household members. Certain immunocompromised patients should receive an additional dose as per [ACIP](#) and [AAP](#). Promote booster vaccinations in anyone ≥5 years per CDC recommendations. (https://www.cdc.gov/coronavirus/2019-ncov/vaccines/booster-shot.html?s_cid=11705:who%20is%20eligible%20for%20covid%20booster:sem.ga:p:RG:GM:gen:PTN:FY22)
 - For pediatricians who have questions that are not addressed by CDC guidelines for a specific patient related to vaccine safety, a consultation can be requested from CDC Clinical Immunization Safety Assessment (<https://www.cdc.gov/vaccinesafety/ensuringsafety/monitoring/cisa/index.html>)
 - Reactions following vaccines can be reported to the Vaccine Adverse Event Reporting System (<https://vaers.hhs.gov/>)
- **Risk Mitigation:** In addition to vaccination, layered mitigation strategies, including wearing well-fitting masks (if ≥2 years), distancing, avoiding crowds, improving ventilation, testing, isolation and quarantine, and hand hygiene are important components of controlling the spread of SARS CoV-2. See [How to Protect Yourself & Others | CDC](#) and [Types of Masks and Respirators | CDC](#). Well-fitting, high-quality masks are very useful tools in protecting the wearer and for source control. Persons who are at increased risk of severe illness and those who spend time with them should consider taking extra precautions, including masking even when levels of virus in the community have decreased.
- **Treatment:** SARS-CoV-2 therapeutic agents, including monoclonal antibodies and SARS-CoV-2 antivirals, have been approved or authorized under an emergency use authorization (EUA) in individuals with COVID-19 at highest risk for disease progression and severity.

Monoclonal Antibodies:

- On February 11, 2022, the FDA authorized bebtelovimab for use in persons ≥12 years (≥40 kg) with mild to moderate COVID-19, within 7 days of symptom onset, and for whom alternative COVID-19 treatment options approved or authorized by FDA are not accessible or clinically appropriate (<https://www.fda.gov/media/156152/download>).
- **Tixagevimab/cilgavimab**, a long-acting monoclonal combination received an EUA from the FDA on December 8, 2021 for **pre-exposure prophylaxis** for persons age ≥12 years (≥40 kg) with moderate or severe immunocompromise not expected to mount an adequate antibody response to COVID-19 vaccination.
- On February 24, 2022 the FDA revised the **Evusheld EUA** to authorize a higher initial dosage (tixagevimab 300 mg/cilgavimab 300 mg), that may be more effective against Omicron (please refer to EUA information for patients that have received the lower dose) and on June 29, 2022 FDA recommended that repeat dosing of the higher dose be administered every 6 months if patients need ongoing protection (<https://www.fda.gov/media/154701/download>).
- Current evidence suggests that bebtelovimab and **tixagevimab/cilgavimab** have retained activity against currently circulating Omicron subvariants. Refer to the CDC website for the most up to date information on circulating variants and subvariants (**SARS-CoV-2 Variant Classifications and Definitions** [[cdc.gov](https://www.cdc.gov)]).

Antivirals:

- The oral SARS-CoV-2 antiviral, **Paxlovid** is authorized for use in children ≥12 years of age and ≥40 kg at high-risk for severe COVID-19 with laboratory-confirmed SARS-CoV-2 within 5 days of symptom onset. Paxlovid is co-packaged as a combination of nirmatrelvir (two, 300 mg tablets) and ritonavir (one, 100 mg tablet) taken twice a day for 5 days. Given the potential for drug-drug interactions, a thorough medication review is recommended. One useful tool is the Liverpool drug interactions <https://www.covid19-druginteractions.org/checker>. Paxlovid is not recommended for use in patients with severe renal or severe hepatic impairment. The dose should be modified for moderate renal impairment (e.g. CrCl 30-60 mL/min) and these doses are available in a different packaging configuration (Paxlovid 150 mg; 100 mg Dose Pack).
- Intravenous remdesivir is approved for use in children at least 28 days old and weighing at least 3 kg with laboratory-confirmed SARS CoV-2 infection to treat those hospitalized with COVID-19 (5-10 day course; see prescribing information and NIH guidelines) and a 3-day regimen for those who are outpatients and are at high risk for severe COVID-19 (within 7 days of symptom onset). Refer to **Remdesivir | COVID-19 Treatment Guidelines** ([nih.gov](https://www.nih.gov)).
- The oral antiviral molnupiravir is authorized for use in high-risk individuals ≥18 years of age with laboratory-confirmed SARS-CoV-2 within 5 days of symptom onset, at a dosage of 800 mg (four, 200 mg capsules) every 12 hours for 5 days. Given the lower reported efficacy of reducing COVID-19 hospitalization and death with molnupiravir, it should be reserved for use in patients at highest risk for progression and for whom alternative FDA-authorized COVID-19 treatment options are not accessible or clinically appropriate.

AAP has guidance on the use of monoclonal antibodies and antivirals for children (**Outpatient COVID-19 Management Strategies in Children and Adolescents** [[aap.org](https://www.aap.org)]).

- **Other Treatment:** Websites from the National Institutes of Health (www.covid19treatmentguidelines.nih.gov/special-populations/children/, <https://www.covid19treatmentguidelines.nih.gov/therapies/statement-on-therapies-for-high-risk-nonhospitalized-patients/>, www.covid19treatmentguidelines.nih.gov/therapeutic-management/), and the Infectious Disease Society of America (www.idsociety.org/practice-guideline/covid-19-guideline-treatment-and-management/) have updated information on treatment for COVID-19.
- **Reporting and assistance:** **COVID-19 Electronic Case Reporting for Healthcare Providers | CDC**
- Promote mental and physical health during the pandemic and safe practices in returning to school and sports.
- Advocate for optimal health for all children and youth especially those with special needs and include all communities, especially those that do not have adequate social, educational, and health care services.

Resources

- AAP: [Critical Updates on COVID-19](#)
- AAP Policy: [COVID-19 Vaccines in Infants, Children, and Adolescents](#)
- AAP: [COVID-19 Interim Guidance](#)
- CDC: [COVID-19](#)
- *Red Book* chapter: [Coronaviruses, Including SARS-CoV-2 and MERS-CoV](#)
- *Red Book Online*: [Vaccine Status Tables](#)

Pediatric Practice Tools and Info

Watch AAP Town Halls to learn about COVID-19 from the experts: [Connecting with the Experts: A COVID-19 Townhall Series \(aap.org\)](#)

AAP Practice Information on Vaccine Promotion and Implementation: [COVID-19 Vaccine for Children](#)

AAP Practice Info: [Help for Pediatric Practices](#)

Public Health Resources

CDC: [Health Departments: Information on COVID-19](#)

Information for Patients and Caregivers

AAP HealthyChildren.org: [COVID-19](#) | In Spanish: [COVID-19](#)

CDC: [Your Health | COVID-19](#)

Infection Prevention and Control Resources

[Project Firstline \(aap.org\)](#)

[COVID-19 Infection Prevention and Control: Frequently Asked Questions \(aap.org\)](#)