SARS-CoV-2 anti-viral educational information (6/14/2023):

Patients with risk factors for progression to severe COVID-19 may qualify for pre-emptive treatment to prevent progression to severe COVID-19. The NIH provides treatment guidelines for children and adults: NIH Treatment Guidelines. The choice of specific agent for a patient may depend on product availability, patient eligibility by age/weight, hospitalization status, and drug contraindications (such as drug-drug interactions, liver/kidney dysfunction, history of infusion reactions, and pregnancy status). As of 11/30/2022, no monoclonal antibody is current authorized for pre-emptive treatment of COVID-19. A list of underlying medical conditions associated with higher risk for severe COVID-19 is here: CDC list of risk factors. Age is the strongest risk factor for severe COVID-19 outcomes, with pediatric patients generally having a much lower risk than older adults. The most common risk factors for severe disease in pediatric patients are listed below.

Pediatric Tier 1- High priority, Immunocompromised individuals not expected to mount an adequate immune response to vaccine

1. Any patients with absent or near absent T cells (<300 cells in infants or <100 cells in older children)
   a. Organ transplant recipients receiving anti-thymocyte globulin (ATG) or high dose immunosuppression within 3 months
   b. Patients with recent conditioning for bone marrow transplant (BMT), hemophagocytic lymphohistiocytosis (HLH) treatment, or high-dose immunosuppression for aplastic anemia
   c. Patients receiving induction therapy which depletes T cells for malignancy
2. Patients with common variable immunodeficiency, congenital agammaglobulinemias, or other primary immunodeficiencies characterized by an absent or poor specific Ab response to vaccination.
3. Patients with autoimmune diseases with high dose immunosuppression (i.e. systemic lupus erythematosus, steroids greater than 40mg daily and Cytoxan therapy, multiple T cell inhibitors, or rituximab)

Pediatric Tier 2- Medium priority, Unvaccinated individuals with clinical risk factors for severe disease

1. Patients with at least two risk factors for severe COVID-19 including obesity (≥95%ile for age), moderate-severe asthma, hypertension, poorly-controlled diabetes, DKA, chronic lung disease, congenital heart disease, developmental disability, chronic liver disease, and chronic kidney disease
2. Patients on less intensive immunosuppression or mild-moderate immunodeficiency AND with chronic organ damage
3. Patients with end-stage lung or cardiac disease (including dependence on chronic respiratory support, pulmonary hypertension, single ventricle disease with significant cyanosis, ventricular-assist devices, surfactant deficiency, or CF with FEV1<40% predicted or after lung transplant)
4. Sickle cell disease
5. Severe obesity (>99%ile for age)

Pediatric Tier 4- Low priority, Vaccinated individuals with clinical risk factors for severe disease

1. Same risk factors of Tier 2
2. Priority within this group to individuals who have not received a booster dose

Additional information on oral anti-viral agents (Paxlovid, molnupiravir)

A map showing pharmacies that received allocations of the oral anti-SARS-CoV-2 medications is posted by the state: https://www.dhs.wisconsin.gov/covid-19/therapeutics.htm

- Paxlovid- authorized for patients at high risk of progressing to severe COVID-19, 12 years of age and older weighing at least 40 kg, with positive SARS-CoV-2 testing and symptom onset within 5 days of initiating treatment. Paxlovid received FDA approval for adults on May 25, 2023. Highest efficacy of the oral antiviral drugs. Take the full 5 days to avoid emergence of resistant virus. **Check the NIH guide on drug-drug interactions, Lexicomp, or the other resources below before prescribing.** Some drugs are absolute contraindications (including some antiarrhythmics and anticonvulsants). Therapy adjustment for other interacting medications (holding drug, decreasing dose, or increased monitoring) will be required for the 5-day duration of Paxlovid plus 3-5 days after treatment completion. Notable drugs on the list include cyclosporine, everolimus, sirolimus, tacrolimus, opioids, statins, some steroids.

https://www.covid19treatmentguidelines.nih.gov/therapies/antiviral-therapy/ritonavir-boosted-nirmatrelvir--paxlovid-/ (Table A)

https://www.med.umich.edu/asp/pdf/outpatient_guidelines/Paxlovid-DDI.pdf

https://www.covid19-druginteractions.org/checker

- Molnupiravir- authorized for patients at high risk of progressing to severe COVID-19, 18 years and older, with positive SARS-Co-V-2 testing and symptoms onset within 5 days of initiating treatment **if patient unable to receive Paxlovid due to drug-drug interactions or availability**. Lowest efficacy of the oral antiviral drugs, but better availability. Avoidance of pregnancy is necessary for 4 days (females) or 3 months (males) after completing therapy.

Healthcare providers who prescribe molnupiravir and Paxlovid under the emergency use authorization are required to provide patients and/or their caregivers with information consistent with the conditions of authorization listed in the EUA, and provide a copy of the molnupiravir or Paxlovid Fact Sheet for Patients, Parents and Caregivers.

Additional information on intravenous anti-viral agents (remdesivir)

Remdesivir is FDA approved for the treatment of COVID-19 in hospitalized patients and non-hospitalized patients who are at high risk of progression to severe COVID-19 (1/21/22). On 4/25/22, the FDA approval was extended to include children <12 years with the following restrictions, ≥28 days and >3 kg. It is administered as an intravenous (IV) medication daily for 5-10 days (hospitalized patient with moderate-severe COVID) or 3 days (non-hospitalized or hospitalized patient with mild-moderate early COVID at risk for progression to severe infection).

Patients treated with remdesivir *who required supplemental oxygen* demonstrated a reduction in mortality, improved time to recovery, and fewer progression to invasive ventilation compared with placebo (ACTT-1 Trial). However, in an open-label trial, there was no significant difference in mortality or initiation of ventilation between remdesivir and standard of care across all illness severities (WHO Solidarity trial). The randomized-controlled PINETREE Trial demonstrated an 87% reduction in hospitalization and death in non-hospitalized patients with mild to moderate disease at high risk of progression if given remdesivir for 3 days. This is the basis for recommending a short course of remdesivir IV for outpatients positive for SARS-CoV-2 and at high risk of progression to severe disease. In an updated guideline from the NIH for pediatric patients on 8/8/22, the guideline panel notes that there is insufficient evidence to recommend for or against routine use of remdesivir in children <12 years with risk factors for progression to severe COVID-19.

Pre-exposure prophylaxis with monoclonal antibody (mAb)- no authorized drugs as of 1/26/2023.