# Side-by-Side Overview of Therapeutics Authorized or Approved for the Treatment of Mild to Moderate COVID-19

This table is a quick reference summarizing key information for all outpatient therapies currently authorized or approved in the United States for treatment of mild to moderate COVID-19. If Paxlovid and Veklury (remdesivir) are not available, feasible or clinically appropriate, consider Lagevrio. COVID-19 Convalescent plasma is an additional authorized therapy for specific immunocompromised patients. This resource will be regularly reviewed and updated.

For full details, please review the Prescribing Information or Fact Sheets for Healthcare Providers for each product (links below).

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>IV ANTIVIRALS</th>
<th>ORAL ANTIVIRALS</th>
<th>BLOOD PRODUCTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Treatment</td>
<td>Treatment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Veklury (remdesivir)</td>
<td>Paxlovid (nirmatrelvir co-packaged with ritonavir)</td>
<td>Lagevrio (molnupiravir)</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Gilead Sciences, Inc.</td>
<td>Pfizer, Inc.</td>
<td>Merck Sharp &amp; Dohme Corp., a subsidiary of Merck &amp; Co., Inc.</td>
</tr>
<tr>
<td>Product Websites</td>
<td>Veklury website</td>
<td>Paxlovid website</td>
<td>Lagevrio website</td>
</tr>
<tr>
<td>Package Insert</td>
<td>Veklury Prescribing Information</td>
<td>Paxlovid website</td>
<td>Lagevrio website</td>
</tr>
<tr>
<td>Fact Sheets for Healthcare Providers</td>
<td>N/A</td>
<td>Paxlovid Healthcare Provider Fact Sheet</td>
<td>Lagevrio Healthcare Provider Fact Sheet</td>
</tr>
<tr>
<td>Fact Sheets for Patients, Parents, and Caregivers (English)</td>
<td>Veklury Patient Information (English)</td>
<td>Paxlovid Patient Fact Sheet (English)</td>
<td>Lagevrio Patient Fact Sheet (English)</td>
</tr>
<tr>
<td>Fact Sheets for Patients, Parents, and Caregivers (Spanish)</td>
<td>Not Available</td>
<td>Paxlovid Patient Fact Sheet (Spanish)</td>
<td>Lagevrio Patient Fact Sheet (Spanish)</td>
</tr>
<tr>
<td>Mechanism of Action</td>
<td>Nucleotide analog ribonucleic acid (RNA) polymerase inhibitor that halts viral replication</td>
<td>Viral protease inhibitor that halts viral replication</td>
<td>Nucleoside analog that inhibits viral replication by viral mutagenesis</td>
</tr>
<tr>
<td>Treatment Efficacy per Clinical Trials</td>
<td>87% reduction in hospitalizations/deaths</td>
<td>88% reduction in hospitalizations/deaths</td>
<td>30% reduction in hospitalizations/deaths</td>
</tr>
<tr>
<td>Activity Against SARS-CoV-2 Variants</td>
<td>See Section 12.4 of Veklury Prescribing Information</td>
<td>See Section 12.4 of Paxlovid Healthcare Provider Fact Sheet</td>
<td>See Section 12.4 of Lagevrio Healthcare Provider Fact Sheet</td>
</tr>
<tr>
<td>Authorized or Approved Use(s)</td>
<td>Approved for Treatment of mild to moderate COVID-19</td>
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</tr>
<tr>
<td>PRODUCT</td>
<td>IV ANTIVIRALS</td>
<td>ORAL ANTIVIRALS</td>
<td>BLOOD PRODUCTS</td>
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<td>Lagevrio</td>
</tr>
<tr>
<td></td>
<td>(nirmatrelvir co-packaged with ritonavir)</td>
<td>(molnupiravir)</td>
<td>Convalescent Plasma</td>
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</table>

**Eligible Population(s):**

- **Veklury (remdesivir):**
  - FDA-approved for:
    - Adults and pediatric patients (28 days of age and older and weighing at least 3 kg who are (1) hospitalized or (2) not hospitalized and have mild-to-moderate COVID-19, and are at high risk for progression to severe COVID-19, including hospitalization or death.
- **Paxlovid (nirmatrelvir co-packaged with ritonavir):**
  - Adults and pediatric patients (12 years of age and older weighing at least 40 kg who have mild-to-moderate COVID-19 and are at high risk for progressing to severe COVID-19, including hospitalization or death.
- **Lagevrio (molnupiravir):**
  - Adult patients (18 years of age and older) who have mild-to-moderate COVID-19, are at high risk for progressing to severe COVID-19, including hospitalization or death, and for whom alternative COVID-19 treatment options authorized by FDA are not accessible or clinically appropriate.
- **COVID-19 Convalescent Plasma:**
  - Adult and pediatric patients with immunosuppressive disease or receiving immunosuppressive treatment at high risk for progressing to severe COVID-19, including hospitalization or death, and for whom alternative COVID-19 treatment options authorized/approved by FDA are not accessible or clinically appropriate.

**Prescribing Window:**

- **Veklury (remdesivir):** Initiate within 7 days of symptom onset.
- **Paxlovid (nirmatrelvir co-packaged with ritonavir):** Initiate within 5 days of symptom onset.
- **Lagevrio (molnupiravir):** Initiate within 5 days of symptom onset.
- **COVID-19 Convalescent Plasma:** Not specified.

**History Requirements:**

- **Veklury (remdesivir):**
  - Assessment of renal impairment.
  - Assessment of hepatic impairment.
  - Assessment of prothrombin time.
  - Previous severe hypersensitivity reactions, including anaphylaxis, to Veklury (remdesivir).
- **Paxlovid (nirmatrelvir co-packaged with ritonavir):**
  - Assessment of renal impairment.
  - Assessment of hepatic impairment.
  - Previous severe hypersensitivity reactions, including anaphylaxis, to Paxlovid.
- **Lagevrio (molnupiravir):**
  - Assessment of pregnancy status and contraceptive use.
  - Assessment of breastfeeding status.
  - Previous severe hypersensitivity reactions, including anaphylaxis, to Lagevrio.
- **COVID-19 Convalescent Plasma:**
  - Assessment of prior history of severe allergic reactions or anaphylaxis to plasma transfusion.

**Limitations of Authorized Use:**

- **Veklury (remdesivir):** This product has received FDA approval. Please refer to prescribing information for further information.
- **Paxlovid (nirmatrelvir co-packaged with ritonavir):** Not authorized for:
  - Pediatric patients less than 12 years of age or weighing less than 40 kg.
  - Initiation in patients requiring hospitalization due to severe or critical COVID-19.
  - Pre-exposure or post-exposure prophylaxis for prevention of COVID-19.
  - Use for longer than 5 consecutive days.
- **Lagevrio (molnupiravir):** Not authorized for:
  - Patients less than 18 years of age.
  - Initiation in patients who are hospitalized due to COVID-19.
  - Pre-exposure or post-exposure prophylaxis for prevention of COVID-19.
  - Use for longer than 5 consecutive days.
- **COVID-19 Convalescent Plasma:** Not authorized for:
  - Treatment of immunocompetent patients with COVID-19.
**Family Planning Considerations**

- **Pregnancy:** Available data from published case reports and compassionate use of remdesivir in pregnant women are insufficient to evaluate for a drug-associated risk of major birth defects, miscarriage, or adverse maternal or fetal outcomes. There are maternal and fetal risks associated with untreated COVID-19 in pregnancy.

- **Lactation:** There are no available data on the presence of remdesivir in human milk, the effects on the breastfed infant, or the effects on milk production.

- **Ritronavir** may reduce the efficacy of combined hormonal contraceptives. Patients should use an effective alternative contraceptive method or an additional barrier method of contraception.

- **Pregnancy:** There is no available human data on the use of nirmatrelvir (a component of Paxlovid) during pregnancy to evaluate for a drug-associated risk of major birth defects, miscarriage, or adverse maternal or fetal outcomes. There are maternal and fetal risks associated with untreated COVID-19 in pregnancy.

- **Lactation:** There is no available data on the presence of nirmatrelvir (a component of Paxlovid) in human or animal milk, the effects on the breastfed infant, or the effects on milk production. The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for Paxlovid and any potential adverse effects on the breastfed infant from Paxlovid or from the underlying maternal condition.

- **Pregnancy:** Not recommended for use during pregnancy because may cause fetal harm when given to pregnant individuals based on animal reproduction studies. Authorized for use in pregnancy only if benefits would outweigh risks for the individual patient; documentation requirements apply.

- **Lactation:** Females of childbearing potential should be advised of potential risk to a fetus and should use a reliable method of contraception correctly and consistently, as applicable, for the duration of treatment and for 4 days after the last dose of Lagevrio.

- **Males of reproductive potential who are sexually active with females of childbearing potential should use an effective contraceptive method and for at least 3 months after the last dose of Lagevrio**

- **Lactation:** Based on the potential for adverse reactions in the infant from Lagevrio, breastfeeding is not recommended during treatment with Lagevrio and for 4 days after the final dose. A lactating individual may consider interrupting breastfeeding and may consider pumping and discarding breast milk during treatment and for 4 days after the last dose of Lagevrio.

**Contraindications**

- **Individuals with a history of clinically significant hypersensitivity reactions, including anaphylaxis, to Veklury or any components of the product** Consider discontinuing Veklury if ALT levels increase to greater than 5 times the upper limit of normal. Discontinue Veklury if ALT elevation is accompanied by signs or symptoms of liver inflammation.

- **Individuals with significant hypersensitivity reactions, including anaphylaxis, to any component of Paxlovid** Co-administration with drugs highly dependent on CYP3A for clearance and for which elevated concentrations are associated with serious and/or life-threatening reactions.

- **Individuals with significant hypersensitivity reactions, including anaphylaxis, to any component of Lagevrio**

- **Individuals with a history of severe allergic reactions or anaphylaxis to plasma transfusion.**

**Administration Route(s)**

<table>
<thead>
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<td>IV Infusion</td>
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<td>Dosage</td>
<td>For adults and pediatric patients weighing at least 40 kg: A single loading dose of Veklury 200 mg on Day 1 via intravenous infusion followed by once-daily maintenance doses of Veklury 100 mg from Day 2 via IV infusion For other non-hospitalized populations, see below</td>
<td>800 mg (four 200 mg capsules) taken orally every 12 hours for 5 days, with or without food. For administration via nasogastric (NG) or orogastric (OG) Tube (12F or Larger), refer to instructions within the EUA Fact Sheet, Section 2.3</td>
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<td>Dosage for Special Populations</td>
<td>Pediatric patients 28 days of age and older and weighing at least 3 kg to less than 40 kg: a single loading dose of Veklury 5 mg/kg on Day 1 via intravenous infusion followed by once-daily maintenance doses of Veklury 2.5 mg/kg from Day 2 via intravenous infusion Renal: Not recommended in patients with eGFR less than 30 mL/min</td>
<td>Pediatric patients at least 12 years or older, and weighing at least 40 kg: No dosage adjustment Pregnancy or Lactation: No dosage adjustment Renal: No dosage adjustment is needed in patients with mild renal impairment Dose reduction for moderate renal impairment (eGFR ≥30 to &lt;60 mL/min): 150 mg nirmatrelvir (one 150 mg tablet) with 100 mg ritonavir (one 100 mg tablet), with both tablets taken together twice daily for 5 days Paxlovid is not recommended in patients with severe renal impairment (eGFR &lt;30 mL/min) Hepatic: No dosage adjustment for mild or moderate hepatic impairment Paxlovid is not recommended for use in patients with severe hepatic impairment</td>
<td>COVID-19 Convalescent Plasma</td>
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<td>Health care providers will administer COVID-19 convalescent plasma according to standard hospital procedures and institutional medical and nursing practices May first consider starting with one unit of COVID-19 convalescent plasma (about 200 mL), with administration of additional convalescent plasma units based on the prescribing physician’s medical judgment and the patient’s clinical response Patients with impaired cardiac function and heart failure may require a smaller volume or more prolonged transfusion times.</td>
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<td>Post-Administration Observation Period</td>
<td>One hour</td>
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| Adverse Events (from Clinical Trials)[5] | Adverse events (incidence ≥1%) were nausea (10.8%), headache (5.7%), cough (3.6%), diarrhea (3.9%), dyspnea (2.5%), fatigue (1.8%), apnea (2.5%), anosmia (3.2%), dizziness (1.8%), and chills (2.2%)
| Lab abnormalities: | All grade 3 or higher (10.8%)  
| Potential for Drug-Drug Interactions | Due to potential antagonism based on data from cell culture experiments, concomitant use of Veklury (remdesivir) with chloroquine phosphate or hydroxychloroquine sulfate is not recommended.  
| Based on a drug interaction study conducted with Veklury (remdesivir), no clinically significant drug interactions are expected with inducers of cytochrome P450 (CYP) 3A4 or inhibitors of Organic Anion Transporting Polypeptides (OATP) 1B1/1B3, and P-glycoprotein (P-gp).  
| Paxlovid (nirmatrelvir co-packaged with ritonavir) | Paxlovid (nirmatrelvir co-packaged with ritonavir) is a strong inhibitor of CYP3A and may increase plasma concentrations of drugs that are primarily metabolized by CYP3A. Co-administration of Paxlovid with drugs highly dependent on CYP3A for clearance and for which elevated plasma concentrations are associated with serious and/or life-threatening events is contraindicated (see Fact Sheet Drug Interactions Section [7])  
| Potential for Patient Non-Compliance | Moderate | Moderate | Moderate | Minimal |
| Cost to Patients for USG-Procured Drug | Currently not procured by USG. For more information, refer to ASPR’s Veklury homepage.  
| Medicaid/Private Insurers: | Medicaid/Medicaid: $0  
|   | Private Insurers: $0  
| Provider Payment (Administration or Dispensing Fee)[5] | Medicare: For outpatient setting refer to Medicare FAQ (ref Q30 on p.146)  
| Medicaid/Private Insurers: | Variable  
| Product Availability | Commercially available  
| COVID-19 Convalescent Plasma | Widely available; no supply constraints  
| | Widely available; no supply constraints  
<p>| | Variable by jurisdiction and healthcare facility; potential supply constraints |</p>
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**Other Considerations**

May be prescribed for an individual patient by physicians, advanced practice registered nurses, and physician assistants that are licensed or authorized under state law to prescribe drugs in the therapeutic class to which Veklury belongs (i.e., anti-infectives) infusion supplies; trained staff in IV administration; IV access; immediate access to resuscitation meds; ability to activate EMS in outpatient settings.

May be prescribed for an individual patient by physicians, advanced practice registered nurses, and physician assistants that are licensed or authorized under state law to prescribe drugs in the therapeutic class to which Paxlovid belongs (i.e., anti-infectives).

May also be prescribed by a state-licensed pharmacist under the following conditions:

- Sufficient information is available, such as through access to health records less than 12 months old or consultation with a health care provider in an established provider-patient relationship with the individual patient, to assess renal and hepatic function; and
- Sufficient information is available, such as through access to health records, patient reporting of medical history, or consultation with a health care provider in an established provider-patient relationship with the individual patient, to obtain a comprehensive list of medications (prescribed and non-prescribed) that the patient is taking to assess for potential drug interaction.

The state-licensed pharmacist should refer an individual patient for clinical evaluation (e.g., telehealth, in-person visit) with a physician, advanced practice registered nurse, or physician assistant licensed or authorized under state law to prescribe drugs, if any of the following apply:

- Sufficient information is not available to assess renal and hepatic function
- Sufficient information is not available to assess for a potential drug interaction
- Modification of other medications is needed due to a potential drug interaction.

May be prescribed for an individual patient by physicians, advanced practice registered nurses, and physician assistants that are licensed or authorized under state law to prescribe drugs in the therapeutic class to which Lagevrio belongs (i.e., anti-infectives).

See the Circular of Information for use of human blood and blood components.
For more details on Therapeutic Management, see Therapeutic Management of Nonhospitalized Adults With COVID-19.

For more details on clinical trial results, see Clinical Studies section of each respective product’s Fact Sheet for Health Care Providers or, for approved products, see Clinical Studies section of Prescribing Information or see Prescribing Information for approved products. For the published literature referenced in each trial, please click on the following links: Veklury (remdesivir), Paxlovid (nirmatrelvir co-packaged with ritonavir), Lagevrio (molnupiravir).

For more details, see NCATS open data website and CDC Nowcast Projections.

For more details, see each product’s Fact Sheet for Health Care Providers or Prescribing Information for additional details and criteria for identifying high risk patients/individuals. CDC also maintains a listing underlying medical conditions associated with higher risk for severe COVID-19.

For more details, see Paxlovid Patient Eligibility Checklist.

For more details on adverse events from clinical trials and details on clinical worsening after administration, see Sections 6 and 5 of each respective product’s Fact Sheet for Health Care Providers or, for approved products, see respective product’s Prescribing Information.

For more details on Medicaid resources, see Medicaid Coronavirus Disease 2019. For more details on Medicare FAQ for Service, Medicare FAQ Fee for Service Billing.

Some patients/individuals may be responsible for co-pays, deductibles, and/or other charges.

For more details on where to find COVID-19 therapeutics, see COVID-19 Therapeutics Locator.

For more details on Test to Treat sites, see the Test to Treat Locator.