Newer Covid 19 Therapeutics

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Emergency Use Authorization

- An Emergency Use Authorization (EUA) is a mechanism to facilitate the availability and use of medical countermeasures, including vaccines, during public health emergencies, such as the current COVID-19 pandemic. Under an EUA, FDA may allow the use of *unapproved* medical products, or unapproved uses of approved medical products in an emergency to diagnose, treat, or prevent serious or life-threatening diseases or conditions when certain statutory criteria have been met, including that there are no adequate, approved, and available alternatives. Taking into consideration input from the FDA, manufacturers decide whether and when to submit an EUA request to FDA.
- Once submitted, FDA will evaluate an EUA request and determine whether the relevant statutory criteria are met, taking into account the totality of the scientific evidence about the vaccine that is available to FDA.

Drug Approval Timeline

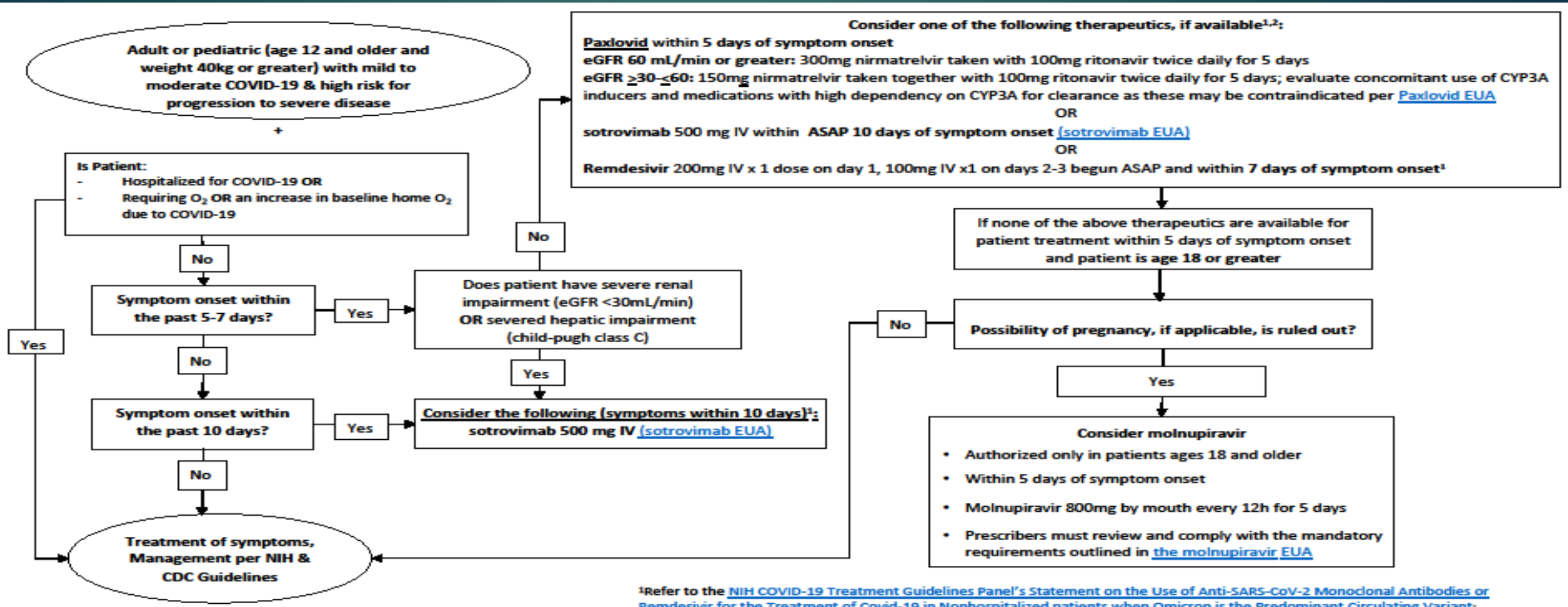
- Lab 2-5 years
- Pre-Clinical Testing 1-2 years
- Phase 1 Healthy Subjects 1-2 years
- Phase 2 Sick Subjects ~3 years
- Phase 3 Large Scale Testing ~4 Years
- Phase 4 FDA review
- Phase 5 post-marketing

- EUA allows for reduced time from Lab through Phase 2 to legal distribution.

Emergency Use Authorization

- Qualifications to use Covid EUA agents
  - Writer and User or designee must be aware that Drug is NOT APPROVED
  - Must have (+) Covid Test <except Evusheld>
  - Must have likelihood of developing severe disease or death
    - BMI
    - Comorbidities
    - Advanced Age

NIH Decision aid



Limited use of bamlanivimab/etesevimab and REGEN-COV as they are not expected to be active against the Omicron variant[1]

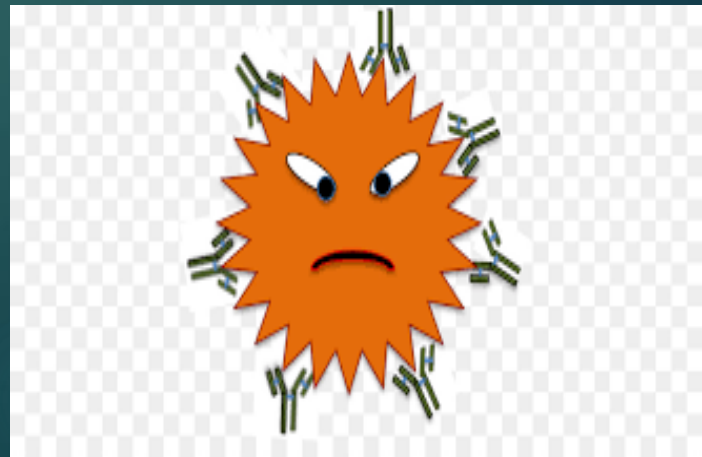
December 30, 2021

[1]Refer to the NIH COVID-19 Treatment Guidelines Panel's Statement on the Use of Anti-SARS-CoV-2 Monoclonal Antibodies or Remdesivir for the Treatment of Covid-19 in Nonhospitalized patients when Omicron is the Predominant Circulating Variant; Remdesivir is only approved for hospitalized individuals with COVID-19. Outpatient treatment is based on information from the literature (Dec 22, 2021 Early Remdesivir to Prevent Progression to Severe Covid-19 in Outpatients; DOI: 10.1056/NEJMoa2116846)

[2] COVID-19 convalescent plasma with high titers of anti-SARS-CoV-2 antibodies is authorized for the treatment of COVID-19 in patients with immunosuppressive disease in either the outpatient or inpatient setting (COVID-19 Convalescent Plasma EUA)

Monoclonal Antibodies (mAb)

- Copies of human antibodies made in a lab to fight disease.
- The mAb binds to a specific site on a virus or cancer cell and stops that cell from entering healthy cells where it would duplicate itself and cause disease.
- Thought of in early 1900s
- Synthesized in 1970s
- First FDA approval for 1988



Monoclonal Antibodies (mAb)

One time injection

Few side effects

Few Interactions

Effective against omicron

- Evusheld
  - Pre-Exposure

    Contraindicated-Vac imunocomp
  - Two IM injections
- Sotrovimab
  - Pos. Covid test
  - Comorbidities
  - IV

Not effective against omicron

- Bam-Ete
- Regen-Cov

Antiviral medications

- Stop viruses from hijacking host cells
  - NO entry
  - Inhibit enzymes host or Virus and stop duplication
- Many are for specific virus or strain
  - Mutations
    - Delta
    - Omicron

Antiviral Medications

- Paxlovid
  - Nirmatrelvir with Ritonavir
  - Two or three tabs BID x 5 days
  - Do Not Crush
  - Up to eighty nine percent effective at reducing progression of disease
- Lagevrio
  - Molnupiravir
  - Four Caps BID x 5 days
  - Do Not Crush
  - Thirty Percent Effective at reducing progression of disease

Paxlovid Limitations

- Do Not Crush
- GFR adjustments
  - In patients with moderate renal impairment (eGFR ≥30 to <60 mL/min), reduce the dose of PAXLOVID to 150 mg nirmatrelvir and 100 mg ritonavir twice daily for 5 days.
- Packaging will be adjusted at time of dispensing
  - One or Two nirmatrelvir
- Drug Interactions
- Drug Interactions
- Drug Interactions

Paxlovid interactions

- Highlights
  - Amiodarone
  - Cancer Meds
  - Aids Meds
  - Warfarin
  - Xarelto
  - Carbamazepine
  - Phenobarbital
  - Phenytoin
  - Bupropion
  - Trazodone
  - Azole antifungals
  - Biaxin and Erythromycin
  - Clozapine
  - Quetiapine
  - Digoxin
  - Statins
  - Fentanyl
  - Methadone

Paxlovid interactions https://www.covid19-druginteractions.org/

- Highlights ONLY
  - Amiodarone↑
  - Cancer Meds↑
  - HIV Meds↑(most)
  - Warfarin up or down INR often
  - Xarelto↑
  - Carbamazepine↑
  - Phenobarbital↓
  - Phenytoin↓
  - Bupropion↓
  - Trazodone↑
  - Benzos↑
  - Amlodipine/Diltiazem↑
  - Azole antifungals↑(most)
  - Biaxin and Erythromycin↑
  - Clozapine↑
  - Quetiapine↑
  - Digoxin↑
  - Statins↑
  - Fentanyl↑
  - Methadone↓

One Pager

Table:1

Drug	Dose	Unique Characteristics	NIH endorsed for Omicron
Nirmatrelvir + Ritonavir *Paxlovid*	300 mg or 150 mg and 100 mg BID x 5 days	Oral 89% effective CYP3A4 interactions Renal Dosing	Yes
Sotrovimab Xevudy	500 mg IV X 1	IV only Omicron effective mAb	Yes
Remdesivir *Velkury*	Day 1 load dose: 200 mg IV over 30-120 min, THEN 100mg daily x 5-10 days	**Hospital ONLY**	Yes
Tixagevimab + Cilgavimab *Evusheld*	150 mg aa IM different sites @ same time	Non-exposure prophylaxis only	Yes
Molnupiravir *Lagvrio*	Day 2 and thereafter: 100 mg IV qDay	**Oral 50% effective**	Yes
Casirivimab + Imdevimab *Regen-COV*	600 mg aa in a single IV or Subcuteaneous dose	IV and Subcutaneuos route approved reduced Omincron effectivenss	NO
Bamlanivimab + Etesevimab	700 mg and 1,400 mg in a single IV dose	IV only reduced Omicron effectiveiness	NO

Ask Your Pharmacy

- It has been said that during the pandemic we must move quicker and communicate better than ever. Distribution of therapeutics is USG dependent. ODH determines how to distribute therapeutics in Ohio. They have been very kind to LTC and ODH/ODA dispensing partners have been encouraged to help distribute where needed. If your pharmacy does not have a supply of Sotrovimab, I recommend, that you request that they try to obtain it from another pharmacy. If that approach doesn't work, please contact R3AP (855-732-7632) for assistance.

References

- https://www.covid19treatmentguidelines.nih.gov/therapies/statement-on-therapies-for-high-risk-nonhospitalized-patients/
- U.S. Department of Health and Human Services. (2021, December 30). Statement on therapies for high-risk, nonhospitalized patients. National Institutes of Health. Retrieved January 9, 2022, from https://www.covid19treatmentguidelines.nih.gov/therapies/statement-on-therapies-for-high-risk-nonhospitalized-patients/
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- Evusheld [EUA}. Cambridge, UK; AstraZeneca: 2021
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- Regen-Cov [EUA]. Tarrytown, NY; Regeneron: 2021
- Bam-Ete [EUA]. Indianapolis, IN; Eli Lilly and Co: 2021

Questions?