COVID -19 Early Treatment Update 2022

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Disclosures

I have no financial disclosures

Most of these medications are under EUA and not FDA approved

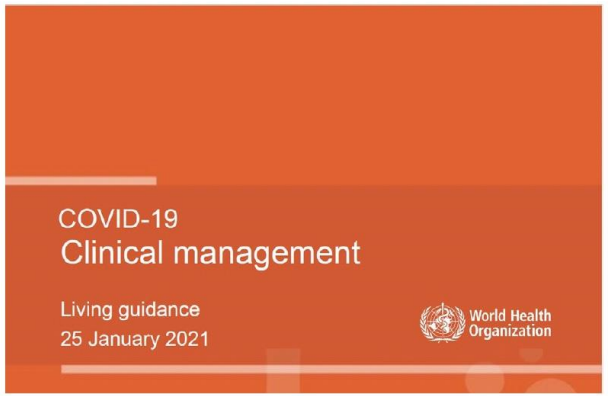
Remdesivir is the only FDA approved therapy for COVID-19

Credit goes to Dr Mark Enzler from Mayo Clinic, Summitview Urgent Care in Yakima, Christina Augnst, Pharm D, Joshua Murdock,Pharm D , R Gandhi from Harvard Medical School , IDSA, John Hopkins, NIH, CDC for their expertise

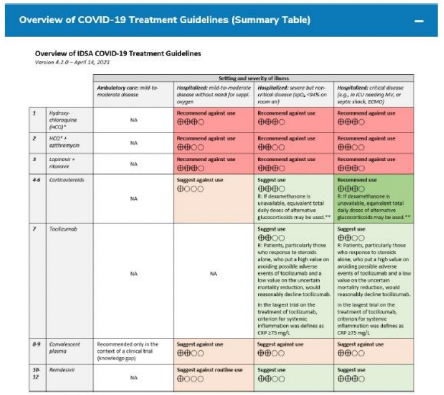
COVID-19 treatment

- Treatment Guideline organizations
  - WHO (World Health Organization)
  - Infectious Diseases Society of America: IDSA (U.S.)
  - National Institute of Health (NIH): U.S.

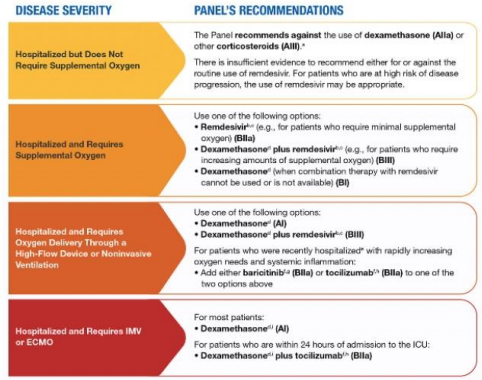
WHO



IDSA



NIH



COVID-19 Pandemic
January, 2022: Covid-19 v. 3.0

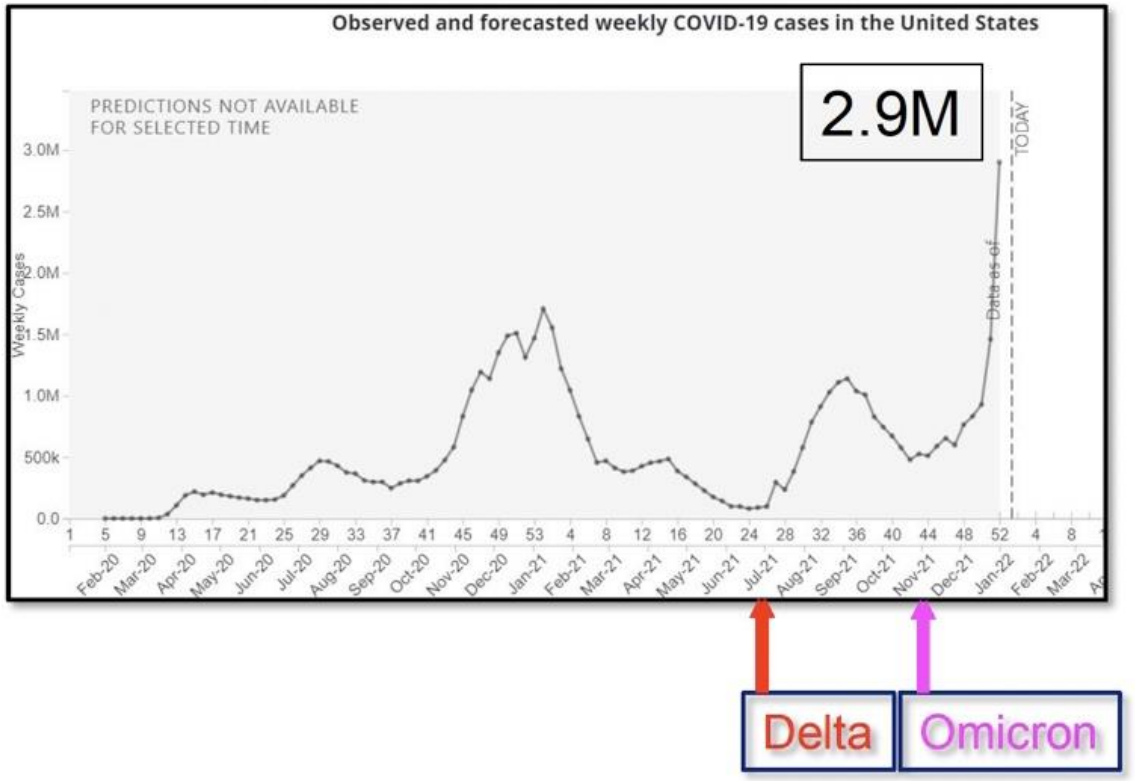
- January, 2020
  - Start of Wuhan, China lockdown; First U.S. Death
- Burden (January 11, 2022)
  - World: > 312 M cases / > 5.5 M deaths
  - U.S. > 62 M cases
    - > 841,000 deaths
      - **1.36%** case fatality ratio (CFR)

MAYO CLINIC

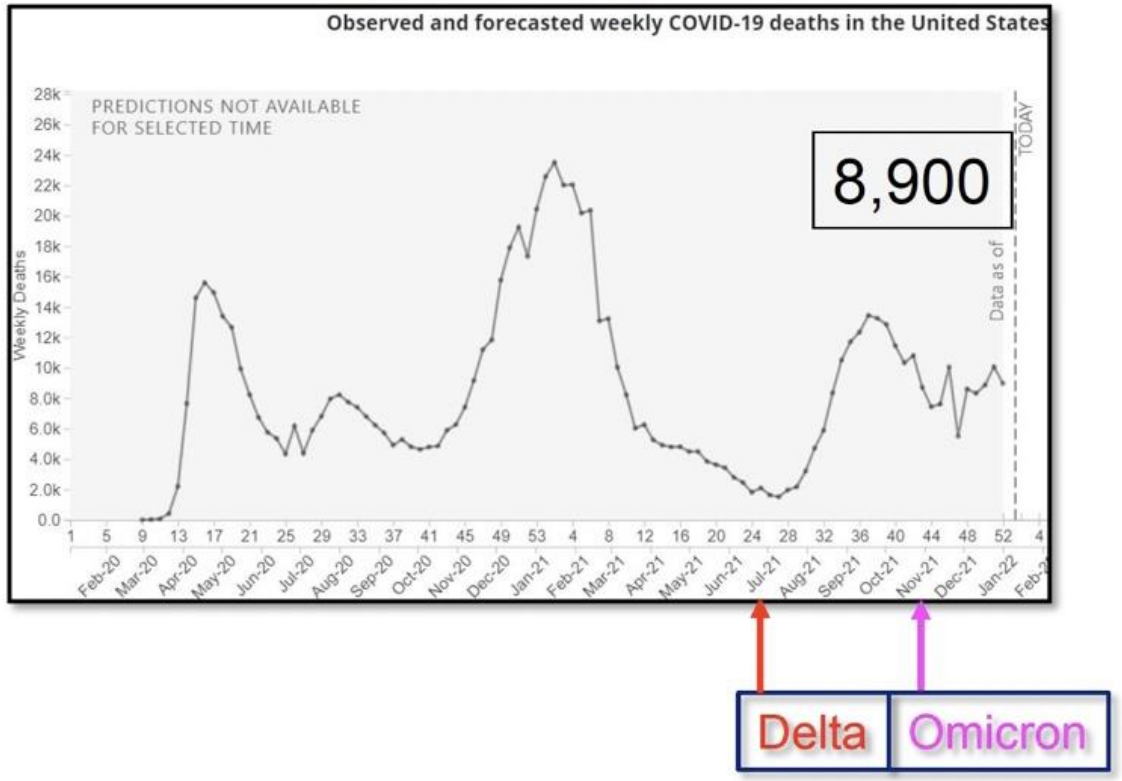
Data source: CDC and Johns Hopkins COVID-19 Worldwide Dashboard
Accessed October 8, 2021

Covid-19 cases / deaths: U.S.
CDC Covid-19 tracker: accessed January 10, 2022

Weekly cases: U.S.



Weekly deaths: U.S.



U.S. Covid-19 variants by proportion
Accessed Jan. 11, 2022

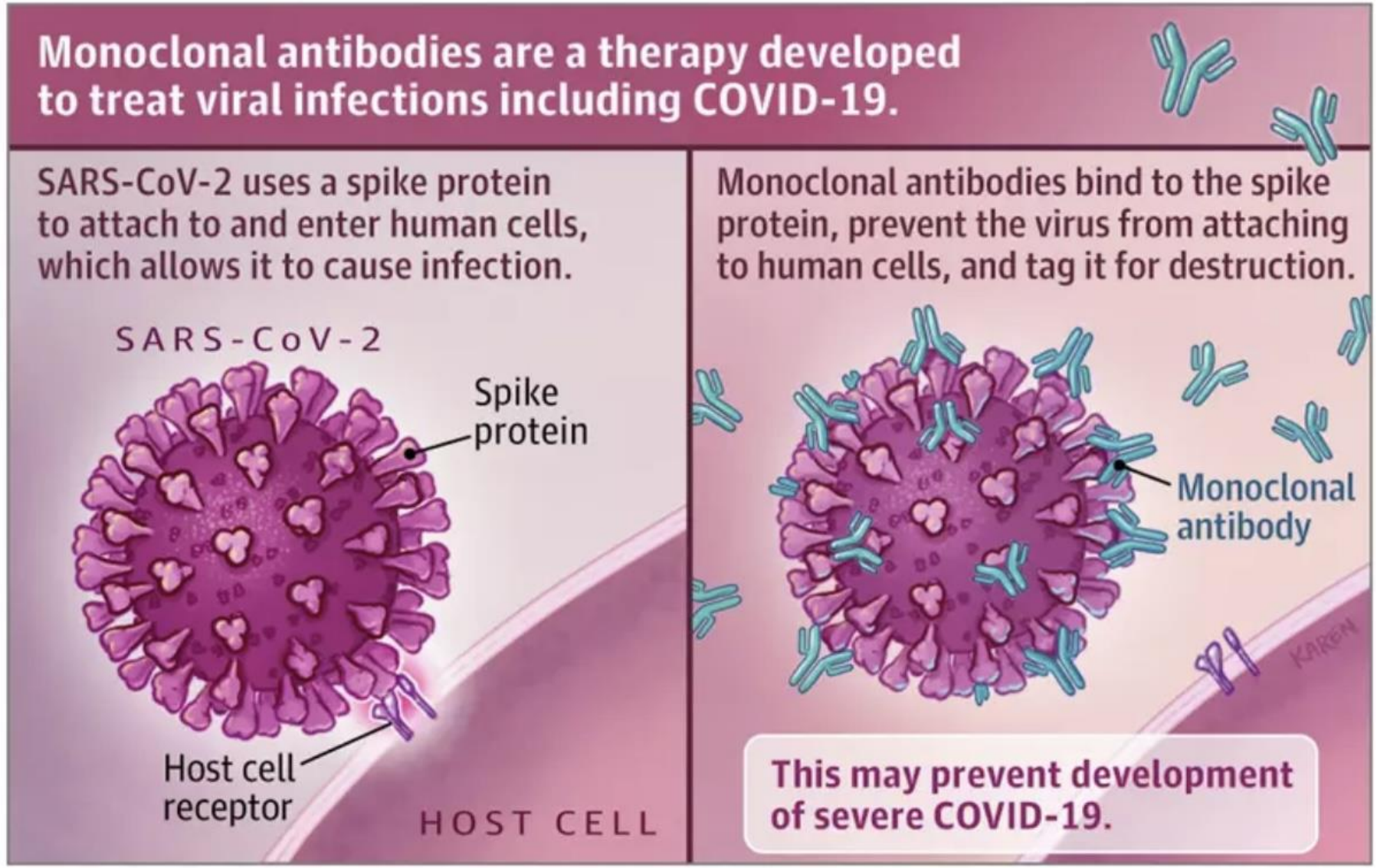
USA

WHO label	Lineage #	US Class	%Total	95%PI
Omicron	B.1.1.529	VOC	98.3%	96.9-99.1%
Delta	B.1.617.2	VOC	1.7%	0.9-3.0%
Other	Other*		0.0%	0.0-0.0%

* Enumerated lineages are US VOC and lineages circulating above 1% nationally in at least one week period. "Other" represents the aggregation of lineages which are circulating <1% nationally during all weeks displayed.
** These data include Nowcast estimates, which are modeled projections that may differ from weighted estimates generated at later dates
# AY.1-AY.127 and their sublineages are aggregated with B.1.617.2. BA.1, BA.2 and BA.3 are aggregated with B.1.1.529.

Omicron: 96-99%
The predominant variant within 5 weeks!

CDC COVID Data Tracker: https://covid.cdc.gov/covid-data-tracker
Accessed Jan. 11, 2022

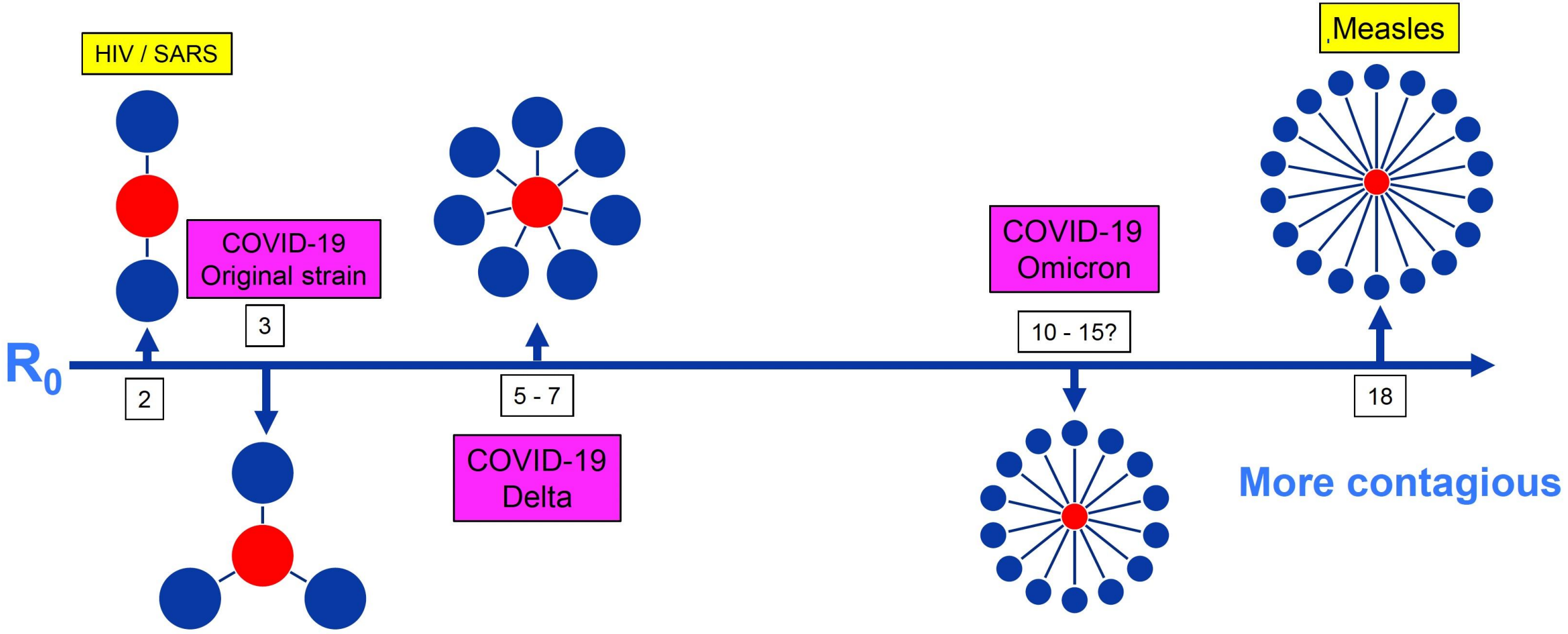


How monoclonal antibodies bind to SARS-CoV-2.

Source: ***JAMA***

COVID-19 Infectivity

R_0: the number of people 1 sick person will infect (on average)

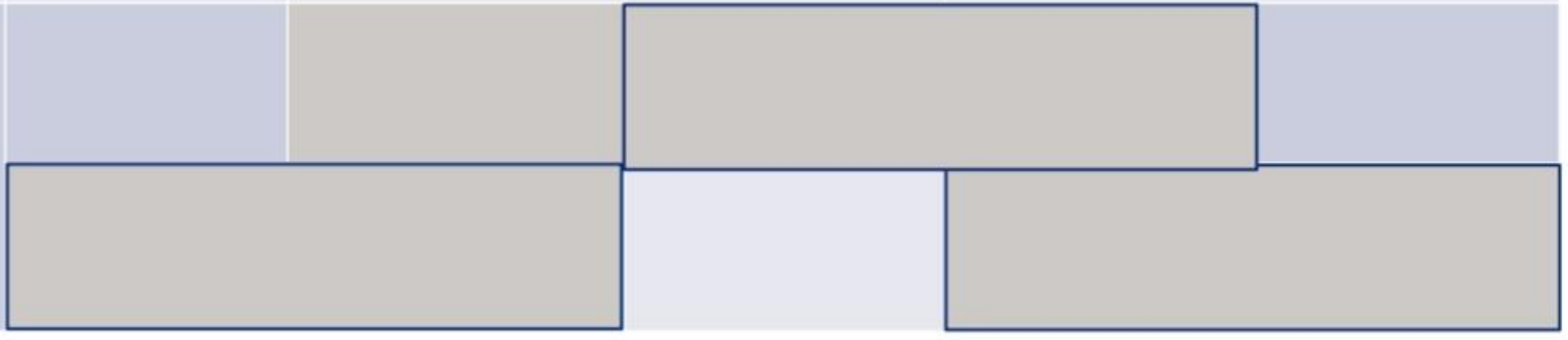


COVID-19
Risks for disease progression and death (1-9%)

- **Age ≥ 65 (75% of deaths)**
- Obesity: BMI > 35
- Chronic kidney disease
- Diabetes mellitus
- Immunocompromised: cancer, drugs (anti-CD20 etc), transplant
- Coronary artery disease / Cerebrovascular disease
- Hypertension
- Lung disease / COPD
- Pregnancy

Treatment across the Covid-19 Spectrum

Stage / severity	No Sx or pre-Sx	Mild illness	Moderate illness	Severe illness*	Critical illness (@ day 10-12)
	(+) PCR without symptoms	Mild symptoms (cough, **fever** taste/smell)	O_2 sat ≥ 94%; pneumonia; **dyspnea** (@ day 5-8)	Sats < 94%, RR > 30; infiltrates > 50%	Resp failure, shock, organ dysfunction, ARDS
Frequency	?	80%		15%	5%
Viral phase	+	+++	+++	+	
Inflammation (CRP, DD, IL6)			++	+++	++
Potential Treatment					



ACTT-1 final report: Beigel JH, et al; NEJM 2020;383:1813-26
RECOVERY Collaborative Group, Horby P, et al. Dexamethasone in hospitalized patients with COVID-19 preliminary report. *N Engl J Med.* July 17, 2020; .

MV = mechanical ventilation; Sx = symptoms; HF NC: high flow Nasal canula; RR = respiration rate; CRP = C-reactive protein DD = D-dimer; IL6 = interleukin 6

Question 1

17 y.o. pregnant (28 weeks gestation) female
Itchy throat , cough, loss of taste x 2 days
Covid-19 PCR positive 2 days back.
Slight shortness of breath
What is the best outpatient treatment option?

IV remdesivir x 3 days
Molnupiravir, 800mg PO Bid x 5 days
Paxlovid(nirmatrelvir+ ritonavir) Bid for 5 days
Sotrovimab 500mg IV once

Question 2

What happens when MAB are administered

- 1) Reduction in adverse outcomes in low, but not high viral titer patients
- 2) Improved efficacy when used approximately 10 days after symptom onset
- 3)Decreased viral entry, VL and downstream effects when initiated early
- 4) Improved outcomes in patients receiving oxygen therapy due to COVID -19

COVID-19 NIH Treatment Panel Statement on treatment for High-risk, nonhospitalized patient with mild to moderate covid-19

Aged ≥ 12 years and ≥40 kg

Sotrovimab 500mg IV once (w/i 10d)

Paxlovid(nirmatrelvir 300mg plus ritonavir 100mg) PO Bid for 5 days (w/i 5d)

Remdesivir, IV: 200mg once then 100mg daily x 2 (w/i 7d).

Aged ≥ 18 years & above not available

Molnupiravir, 800mg Bid for 5 days (w/i 5d)

Outpatient therapy options: Summary
Nonhospitalized mild-moderate Covid-19 at high-risk for progression

Agent	Class / EUA date	Dose / route / Sx duration / common side effect	RCT Data (n)	Comments
Sotrovimab (GSK)	MoAB: broad anti-SARS / **5/26/21**	IV: 500mg Sx ≤ 10d	COMET-ICE[1]: (583); Covid vaccine status not specified; **reduced H/D by 79%:** 1% vs. 7%; p=0.002 (**6/2021**)	≥ 12y.o. & ≥ 40kg HHS purchased $1B

MoAB = monoclonal antibody; Sx = symptom; H = hospitalization; D = death; EUA = emergency use authorization

[1]COMET-ICE Trial: Sotrovimab. Gupta AG et al. NEJM 2021;385:1941
[2]Paxlovid EPIC-HR Trial: *BMJ* 2021;375:n2713
[3] Remdesivir trial: Gottlieb RL et al. NEJM Dec. 22, 2021
MOVe-OUT trial, Molnupiravir: Bernal et al. NEJM Dec. 16, 2021[4]

Covid-19 Monoclonal antibodies (IV)
Decrease risk hospitalization / death: high risk w/i 10d Sx

Product / manufacturer / dose (mg)	Manufacturer / EUA date	Distributed by HHS?	Trials	Variant activity	Comments
Bamlanivimab 700mg	Lilly **11/2020**	Y	Poor: gamma & beta	**Inactive Delta**	HHS halt use 6/25/21
Bamlanivimab / etesevimab / 700 - 1400	Lilly **Feb. 2021**	Y	Poor: gamma & beta	**Inactive Delta**	HHS halt use 6/25/21

AWP: average wholesale price
WAC: wholesale acquisition cost: cost to wholesalers
HHS = United States Department of Health and Human Services
Px = prophylaxis

All: approved for ≥ 12y.o. ≥ 40 kg
Avoid vaccination for 90 days following administration
H = hospitalization; D = death; EUA = Emergency use authorization

Anti-spike protein monoclonal antibodies (IV)

Target receptor-binding domain of spike protein, blocking viral entry into host cells

- Mayo: **Monoclonal Antibody Rx Team** (**MATRx**): screen COVID (+) PCR mild-moderate Covid & high risk for progression: **start 11/2020**
  - **Age ≥ 65**
  - Any age: BMI > 35; CKD; diabetes
  - ICH: cancer, drugs, transplant, etc
  - **Age ≥ 55** AND CV disease; HTN; or COPD / other respiratory
  - Adolescents with risks
- Mayo Enterprise: > 20,000 patients (12/21), most w/i 3d Dx
  - Developed **MASS comorbidity score**: to stratify who benefits the most for MoAB therapy

MAYO CLINIC

[1]Chen P et al., SARS-CoV-2 neutralizing antibody Ly-CoV555 in outpatients with Covid-19. **NEJM 10/28/20**; DOI: 10.1056/NEJMoa2029849
[2]Weinreich DM et al. REGN-COV2, a neutralizing antibody cocktail, in outpatients with COVID-19. NEJM 2021;384:238-51.
[3] https://www.fda.gov/media/145801/download
*https://www.thelancet.com/pdfs/journals/eclinm/PIIS2589-5370(21)00382-5.pdf
#https://www.medrxiv.org/content/10.1101/2021.06.15.21258542v1; June 16, 2021

CKD: chronic kidney disease; CV = cardiovascular; COPD = emphysema; HTN hypertension

Monoclonal Antibody Screening Score (MASS): Mayo Clinic*

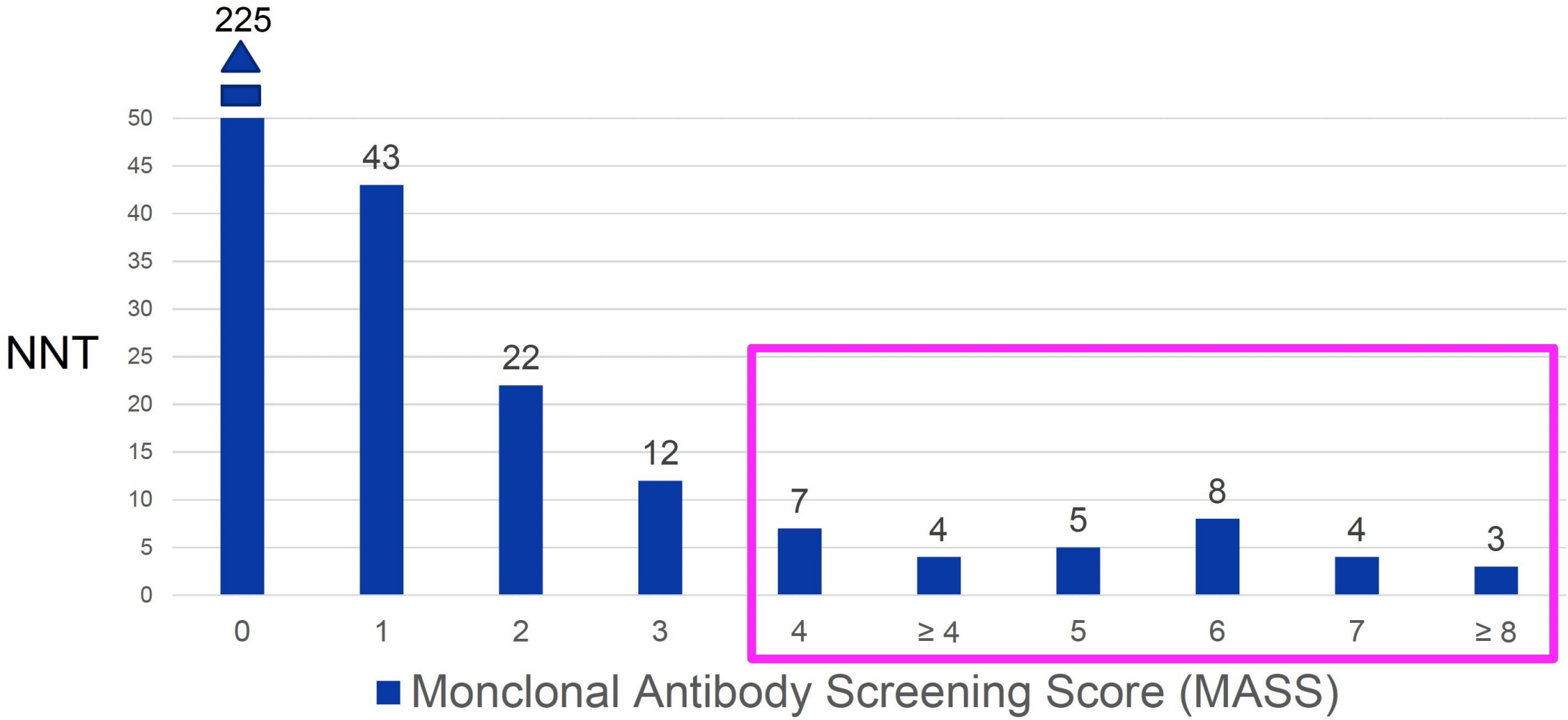
≥ 65 years of age (2)	≥ 55 years of age	≥ 18 years of age
• No additional requirements	• Cardiovascular Disease (2) • Hypertension (1) • COPD/other chronic respiratory disease (3)	• BMI ≥ 35 kg/m^2 (1) • Chronic Kidney Disease (3) • Diabetes (2) • Immunosuppressive disease or receiving immunosuppressive treatment (4)

MAYO CLINIC

*Modified: January 12, 2022

Mayo Pediatrics have different criteria
From: Dr. Raymund Razonable

Covid-19 monoclonal antibody treatment outcome by Monoclonal Antibody Screening Score (MASS)[1]



NNT = number needed to treat

[1]Bierle DM et al.… RR Razonable (Mayo Clinic). Monoclonal antibody treatment of breakthrough COVID-19 in fully vaccinated individuals with high-risk comorbidities. Journal of Infectious Diseases 2021; November 16, 2021

Outpatient therapy options: Summary
Nonhospitalized mild-moderate Covid-19 at high-risk for progression

Agent	Class / EUA date	Dose / route / Sx duration / common side effect	RCT Data (n)	Comments
Sotrovimab (GSK)	MoAB: broad anti-SARS / **5/26/21**	IV: 500mg Sx ≤ 10d	COMET-ICE[1]: (583); Covid vaccine status not specified; **reduced H/D by 79%:** 1% vs. 7%; p=0.002 (**6/2021**)	≥ 12y.o. & ≥ 40kg HHS purchased $1B
Nirmatrelvir / ritonavir (**Paxlovid**) Pfizer	Antiviral: N = proteinase inhibitor; R = booster **12/22/21**	300/100mg Bid PO x 5d Sx ≤ 5 days Dysgeusia, diarrhea, HTN, myalgia	EPIC-HR[2]. n=2085 unvaccinated; **88% effective** reducing H/D vs. placebo (Sx w/i 3-5d): 0.8% (no deaths) vs. 7.0% (7 deaths): placebo p< 0.0001; (**11/8/21**)	≥ 12y.o. & ≥ 40kg Dose adjust CrCl 30-60; avoid < 30 Drug-drug interactions Avoid: liver ≥ Child C Pregnancy: no data
Remdesivir (Veklury®) Gilead	Antiviral / **FDA approved outpatient 1/21/22**	IV 200mg/100/100: d 1, 2, & 3 Sx ≤ 7 d	PINETREE[3]: (562) unvaccinated; **87% lower H/D** 0.7% vs. 5.3% HR 0.13; 95% CI 0.03, 0.59, p=0.008 (**12/22/21**)	FDA EUA Peds ≥ 3.5kg
Molnupiravir (Lagevrio) (200mg tab) Merck **Last Choice**	Antiviral: nucleoside analogue / **12/23/21**	PO: 800mg Bid x 5d / Sx ≤ 5d Nausea / diarrhea / dizziness	MOVe-OUT. (1433) unvaccinated. 6.8% vs. 9.7% H/D Abs RR 3.0% **Rel RR 30%** (RR 0.7; CI 0.49, 0.99): no p reported; **12/6/21**	**≥ 18 y.o.** Potential fetal harm Avoid: lactation/PG Men: barrier prot x 3mo No dose adjust.

MoAB = monoclonal antibody; Sx = symptom; H = hospitalization; D = death; EUA = emergency use authorization

MAYO CLINIC

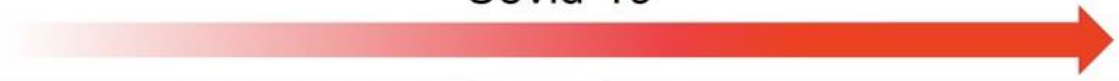
[1]COMET-ICE Trial: Sotrovimab. Gupta AG et al. NEJM 2021;385:1941
[2]Paxlovid EPIC-HR Trial: *BMJ* 2021;375:n2713
[3] Remdesivir trial: Gottlieb RL et al. NEJM Dec. 22, 2021

MOVe-OUT trial, Molnupiravir: Bernal et al. NEJM Dec. 16, 2021[4]

Covid-19 Infection management

Mild-moderate
Covid-19, high risk progression

Severe-to-critical (hospitalized)
Covid-19



Pre-hospital[1]

- Nirmatrelvir-ritonavir (Paxlovid) 300/100mg PO Bid x 5d
- Sotrovimab[2] 500mg IV once
- IV remdesivir x 3d
- Molnupiravir 800mg PO Bid x 5d

Antiviral

- Remdesivir
  - X 5 days

Immune modulators

- Dexamethasone
- Tocilizumab
  - 8mg/kg IV once
- Baricitinib
  - 4mg PO QD 1-14d

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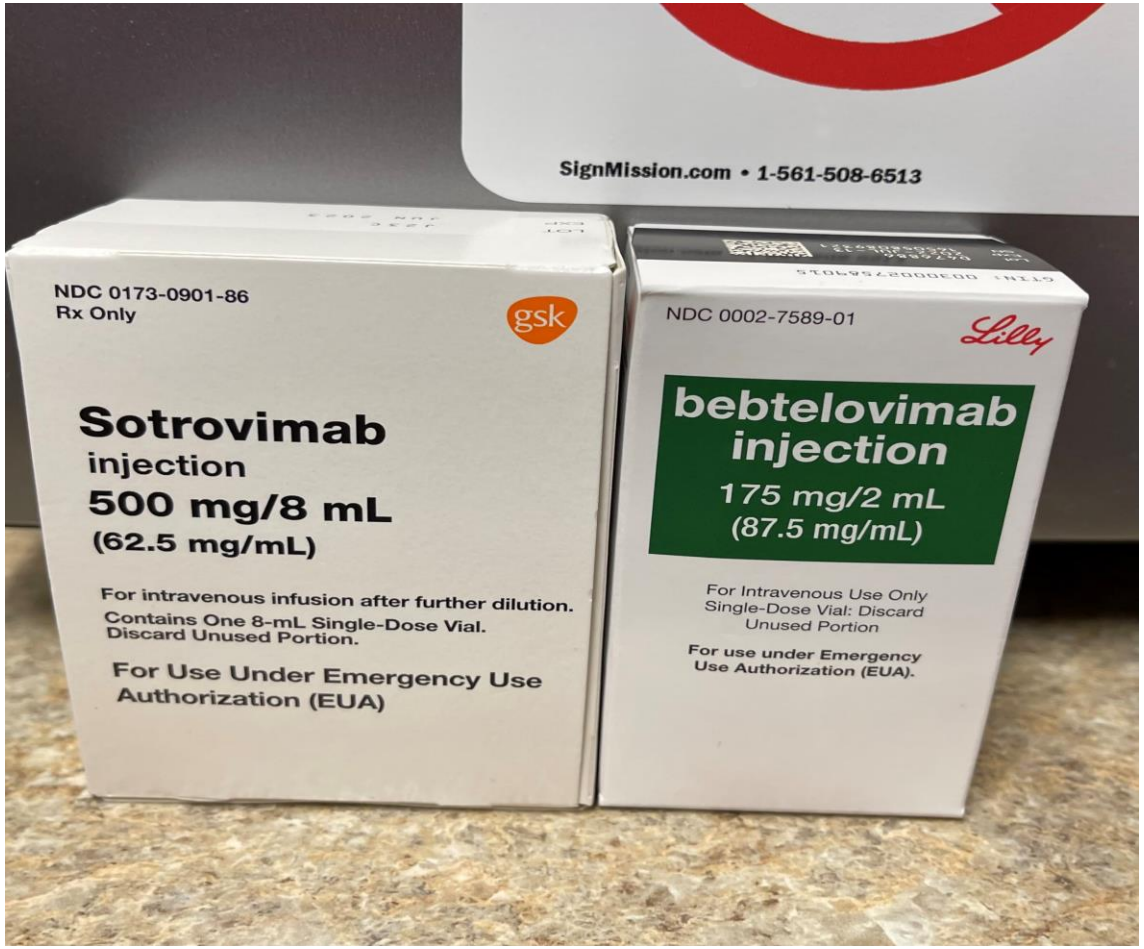
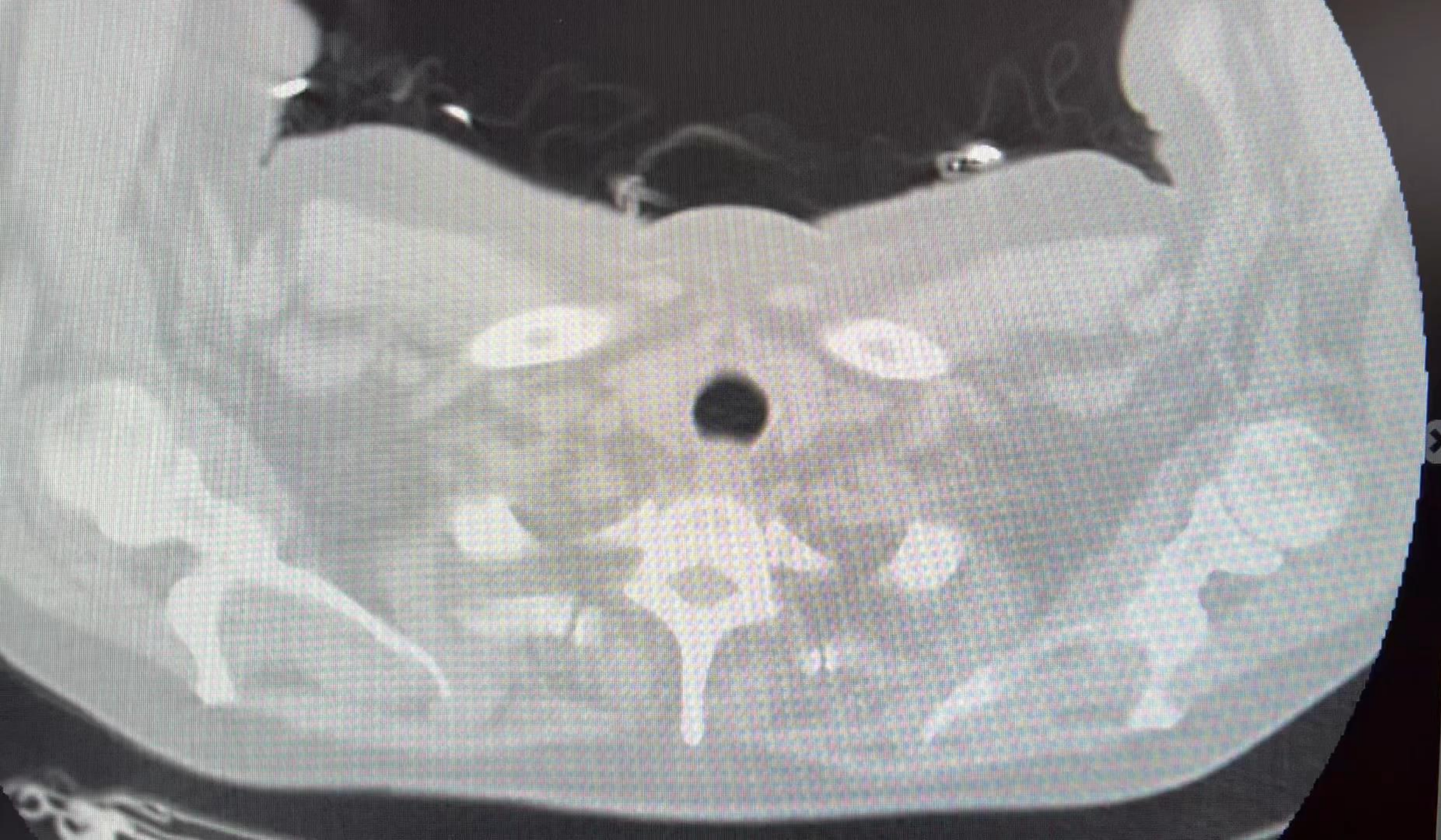
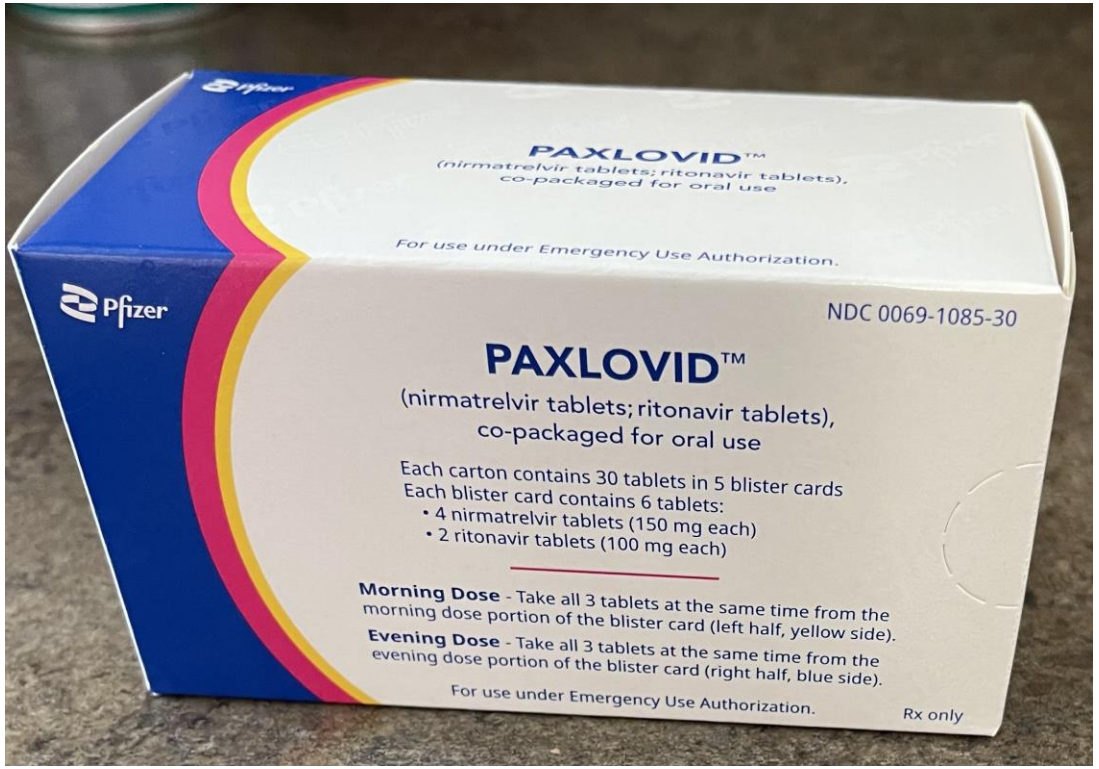
[1]Start w/i 5 days symptom onset: Paxlovid & Molnupiravir; 10 days sotrovimab; 7 days remdesivir
[2]Bamlanivimab / etesevimab and casirivimab / imdevimab: ineffective vs. omicron variant

INJECTABLE MONOCLONAL ANTIBODIES





ORAL PILLS FOR OUTPATIENT TREATMENT OF MILD- MODERATE COVID-19



10 Things to Know About

COVID-19 Antiviral Pills

	PAXLOVID	MOLNUPIRAVIR
1 What is it?	2 nirmatrelvir, 1 ritonavir	4 molnupiravir
2 Who makes it?	Pfizer	MERCK
3 How does it work?	Blocks a protein the virus uses to multiply	Inserts itself into the virus's genetic material
4 Who can take it?	Adults & kids 12+ weighing 88+ lbs & at high risk	Adults 18+ at high risk *
5 How effective is it?	Lowers risk by almost 90%	Lowers risk by about 30%
6 Are there any drug interactions?	Many statins, blood thinners, hormonal birth controls, some seizure medications, St. John's wort **	Minimal
7 How much does it cost?	$530	Currently free to applicable patients during the COVID-19 public health emergency — $700
8 How do you take it?	AM 2 / PM 2	2x daily by mouth for 5 days — AM 4 / PM 4
9 What does it treat?	MILD | MODERATE | SEVERE	
10 How can you get it?	Prescription only	

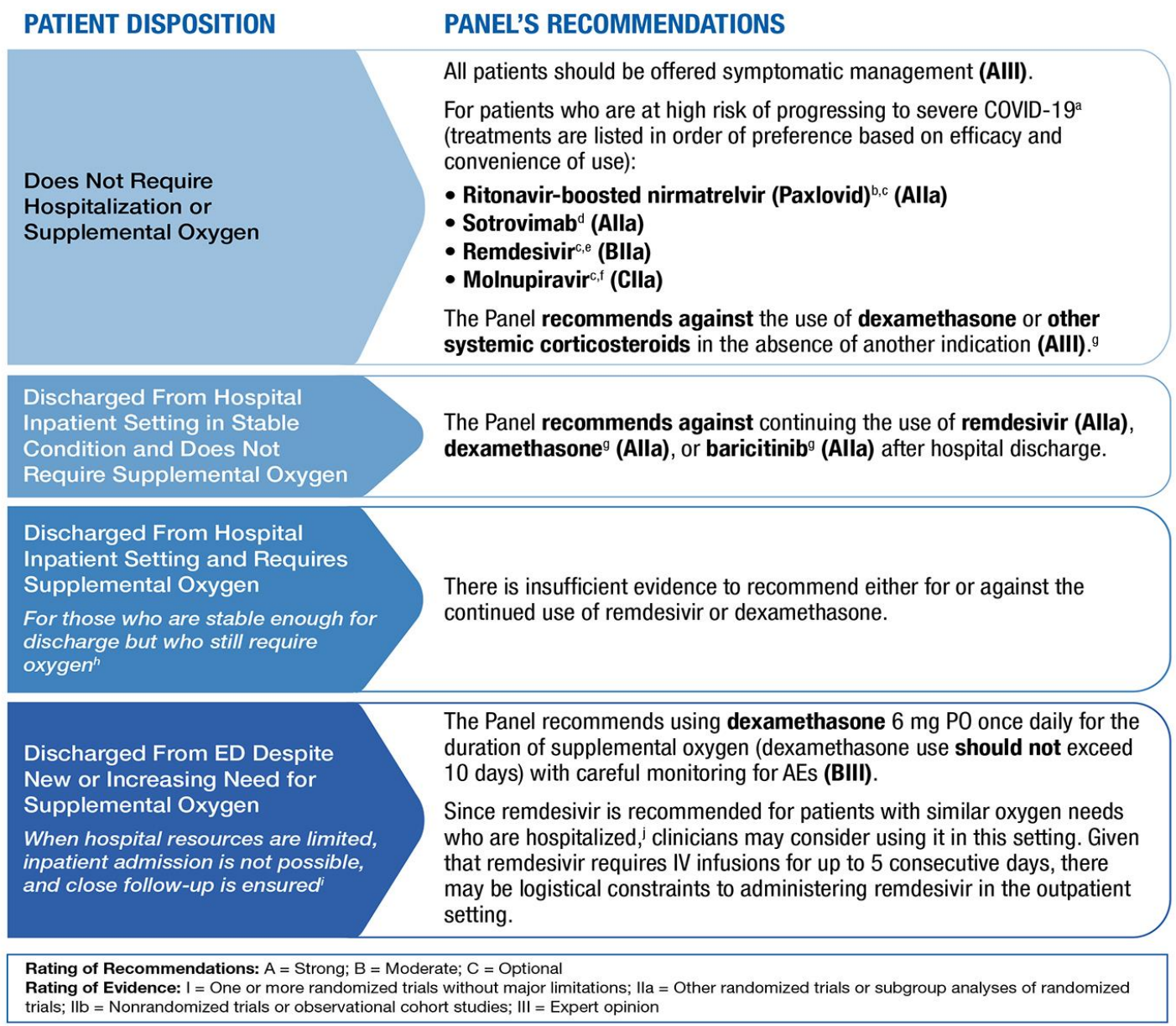
* Should only be used when no other treatment is available for mild to moderate COVID-19.
** Consult your doctor for other potential drug interactions.

GoodRx

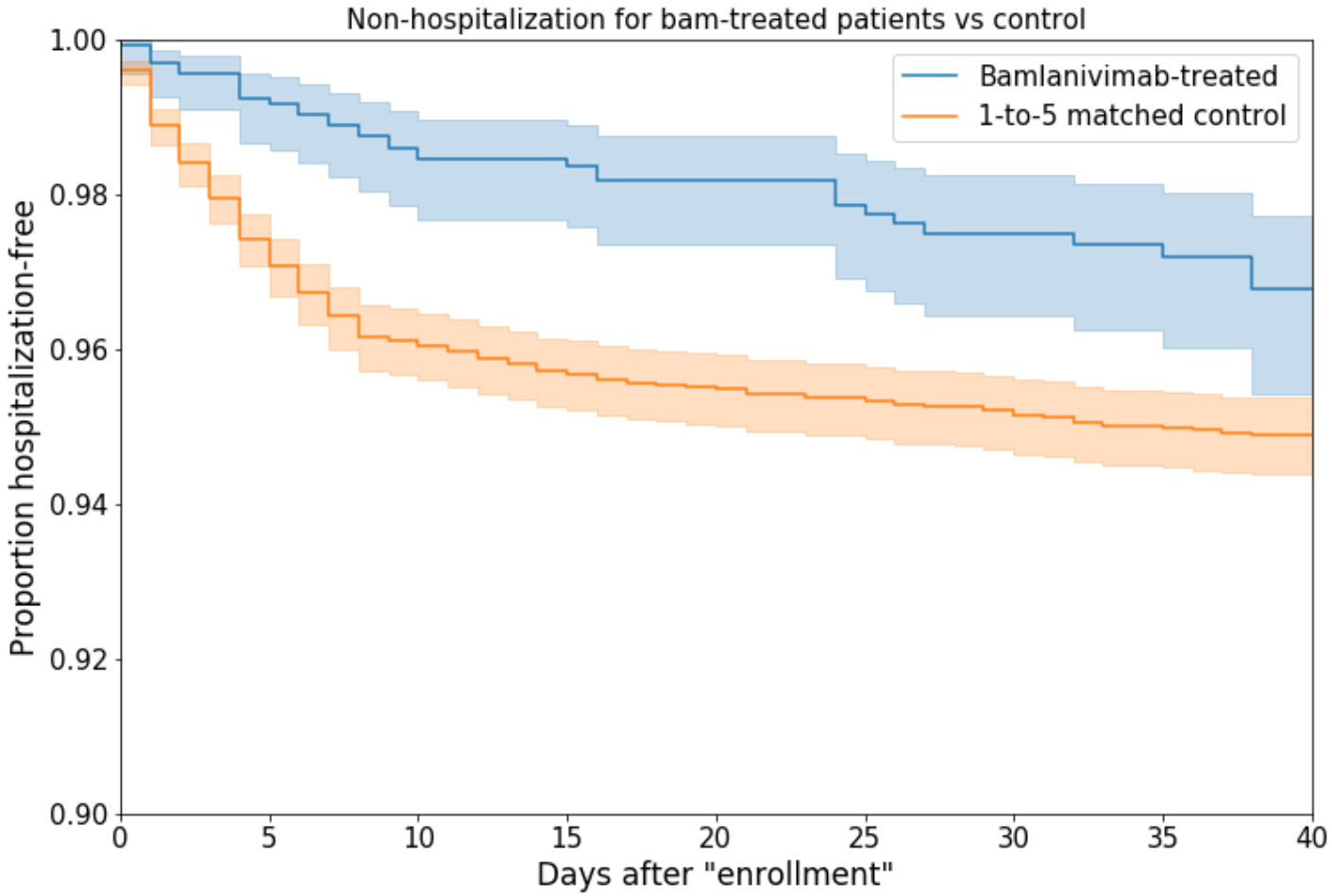
Prescribe an alternative COVID-19 therapy for patients who are receiving any of the medications listed.	**Before prescribing ritonavir-boosted nirmatrelvir (Paxlovid), determine whether the patient is receiving any of the medications listed.** • If the patient is receiving any of these medications, withhold the medication if clinically appropriate. • If withholding is not clinically appropriate, use an alternative concomitant medication or COVID-19 therapy.[a]
• Amiodarone • Apalutamide • Bosentan • Carbamazepine • Cisapride • Clopidogrel • Clozapine • Colchicine in patients with renal and/or hepatic impairment • Disopyramide • Dofetilide • Dronedarone • Eplerenone • Ergot derivatives • Flecainide • Flibanserin • Glecaprevir/pibrentasvir • Ivabradine • Lumateperone • Lurasidone • Mexiletine • Phenobarbital • Phenytoin • Pimozide • Propafenone • Quinidine • Ranolazine • Rifampin • Rifapentine • Rivaroxaban • Sildenafil for pulmonary hypertension • St. John's wort • Tadalafil for pulmonary hypertension • Ticagrelor • Vorapaxar	• Alfuzosin • Alprazolam • Atorvastatin • Avanafil • Clonazepam • Codeine • Cyclosporine[b] • Diazepam • Everolimus[b] • Fentanyl • Hydrocodone • Lomitapide • Lovastatin • Meperidine (pethidine) • Midazolam (oral) • Oxycodone • Piroxicam • Propoxyphene • Rosuvastatin • Salmeterol • Sildenafil for erectile dysfunction • Silodosin • Simvastatin • Sirolimus[b] • Suvorexant • Tacrolimus[b] • Tadalafil for erectile dysfunction • Tamsulosin • Tramadol • Triazolam • Vardenafil

[a] Expert consultation may be considered. In some cases, dose reduction of the concomitant medication may be an appropriate management strategy.

Figure 1. Therapeutic Management of Nonhospitalized Adults With COVID-19



Rating of Recommendations: A = Strong; B = Moderate; C = Optional
Rating of Evidence: I = One or more randomized trials without major limitations; IIa = Other randomized trials or subgroup analyses of randomized trials; IIb = Nonrandomized trials or observational cohort studies; III = Expert opinion


Non-hospitalization for bam-treated patients vs control
Bamlanivimab-treated
1-to-5 matched control
Proportion hospitalization-free
1.00
0.98
0.96
0.94
0.92
0.90
0
5
10
15
20
25
30
35
40
Days after "enrollment"

Conclusions: Mayo Monoclonal Antibody Program

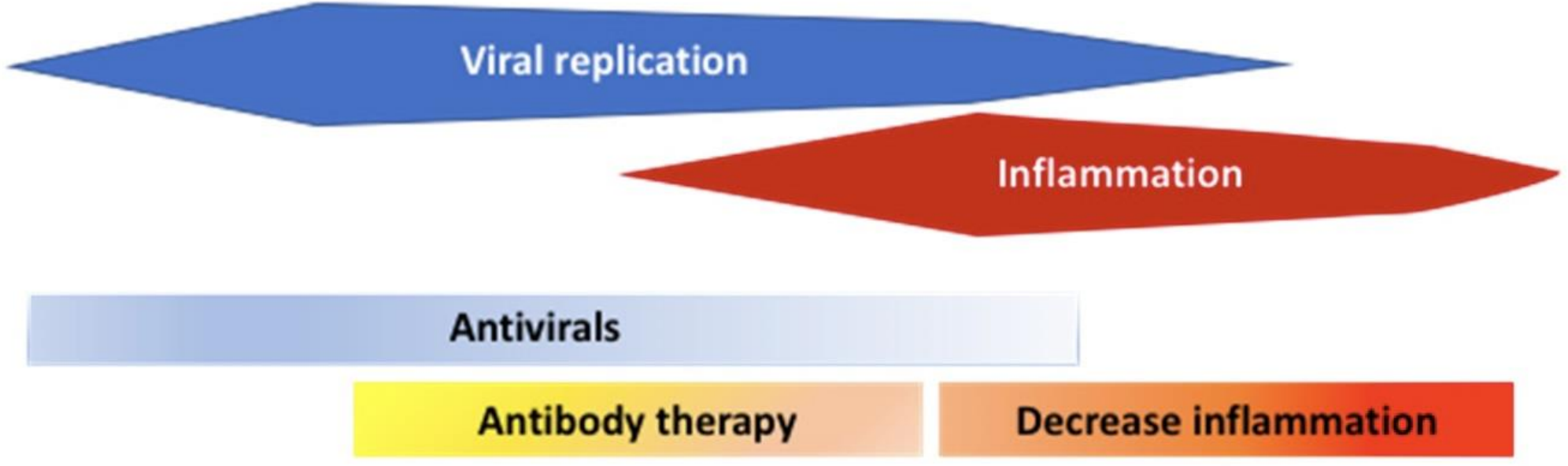
Effective and safe treatment option for high-risk patients with mild to moderate covid-19 in outpatient setting

Program and process: multidisciplinary team, active > passive approach model, support of leadership, partnership with primary providers, physical and electronic infrastructure, flexibility and adaptability (mobile units, underserved persons)

Real-time assessment of clinical outcomes to further guide our practice implementation

Management Across the COVID-19 Spectrum

Stage/ Severity:	Asymptomatic/ Presymptomatic	Mild Illness	Moderate Illness	Severe Illness	Critical illness
	+ SARS-CoV-2 test but no symptoms	Mild symptoms (eg fever, cough, taste/smell changes); no dyspnea	O_2 saturation >=94%, lower respiratory tract disease	O_2 saturation <94%, respiratory rate >30/min; lung infiltrates >50%	Respiratory failure, shock, multi-organ dysfunction/failure
Frequency:	?	80%		15%	5%



Gandhi RT, CID, 2020; Gandhi RT, Lynch J, del Rio C. NEJM 2020

Antiviral Effect of Monoclonal Antibodies

- In outpatients with mild to moderate COVID-19, bamlanivimab and casirivimab + imdevimab appear to accelerate decline in SARS CoV-2 level compared to placebo

Bamlanivimab vs placebo

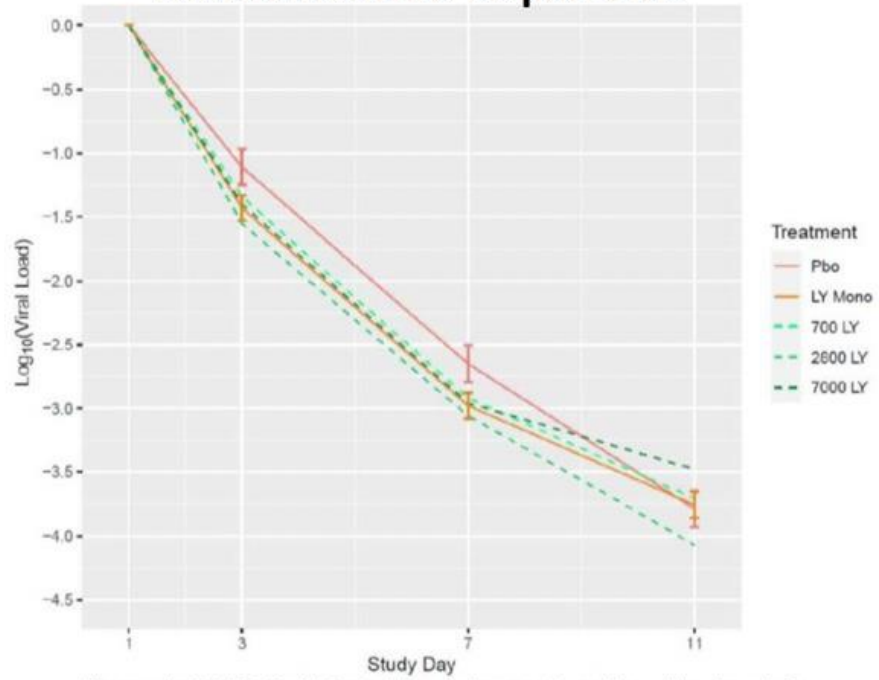
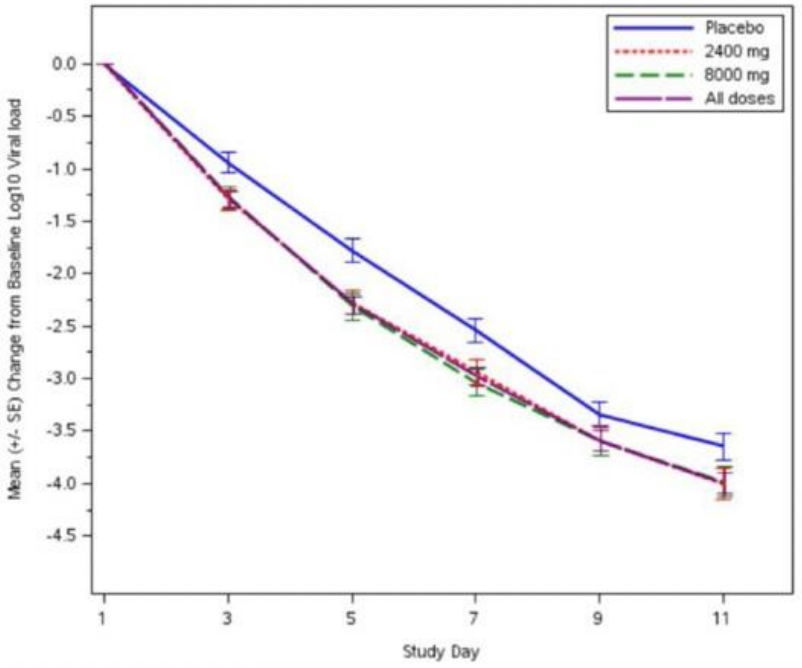


Figure 1: SARS-CoV-2 viral load change from baseline by visit.

Difference statistically significant for intermediate dose

Casirivimab/imdevimab vs placebo



Largest reduction in viral load in participants seronegative at baseline

Chen P et al, NEJM, 2020; http://pi.lilly.com/eua/bamlanivimab-eua-factsheet-hcp.pdf; https://www.regeneron.com/sites/default/files/treatment-covid19-eua-fda-letter.pdf; Weinreich DM et al. N Engl J Med 2020 Dec 17

Bamlanivimab

- In outpatients with mild to moderate disease (n=452) enrolled within 3 days of positive SARS-CoV-2 test, lower rate of ED visits/hospitalization in those who received bamlanivimab vs. placebo, particularly among high-risk patients
- Time to symptom improvement: median 6 days with antibody, 8 days with placebo
- Safety of antibody and placebo appeared to be similar

Hospitalization/ED Visit: All Participants

Treatment	N	Events	Proportion
Placebo	156	9	6%
700 mg	101	1	1%
2800 mg	107	2	2%
7000 mg	101	2	2%
Pooled antibody	309	5	2%

Hospitalization/ED Visit: Participants at Higher Risk of Hospitalization

Treatment	N	Events	Proportion
Placebo	69	7	10%
700 mg	46	1	2%
2800 mg	46	1	2%
7000 mg	44	2	5%
Pooled antibody	136	4	3%

Chen P et al, NEJM, 2020; http://pi.lilly.com/eua/bamlanivimab-eua-factsheet-hcp.pdf

Casirivimab/Imdevimab (C/I)

- In outpatients with mild to moderate disease (n=799) enrolled within 3 days of positive SARS-CoV-2 test, lower rate of hospitalization/ED visit in those who received casirivimab/imdevimab vs. placebo, particularly among high-risk patients
- Median time to symptom improvement: 5 days with C/I and 6 days with placebo
- Safety of antibodies and placebo similar
  - 1 anaphylactic reaction, 4 infusion reactions (8000 mg group)

Hospitalization/ED Visit: All Participants

Treatment	N	Events	Proportion
Placebo	231	10	4%
C/I 2400 mg	215	4	2%
C/I 8000 mg	219	4	2%
Pooled antibody	434	8	2%

Hospitalization/ED Visit: Participants at Higher Risk of Hospitalization

Treatment	N	Events	Proportion
Placebo	78	7	9%
C/I 2400 mg	70	2	3%
C/I 8000 mg	81	2	2%
Pooled antibody	151	4	3%

https://www.regeneron.com/sites/default/files/treatment-covid19-eua-fda-letter.pdf; Weinreich DM et al. N Engl J Med 2020 Dec 17

Patients with Multiple Risk Factors Appear to be at Greatest Risk

COVID-NET:
Adjusted rate ratios for COVID-19 Hospitalization

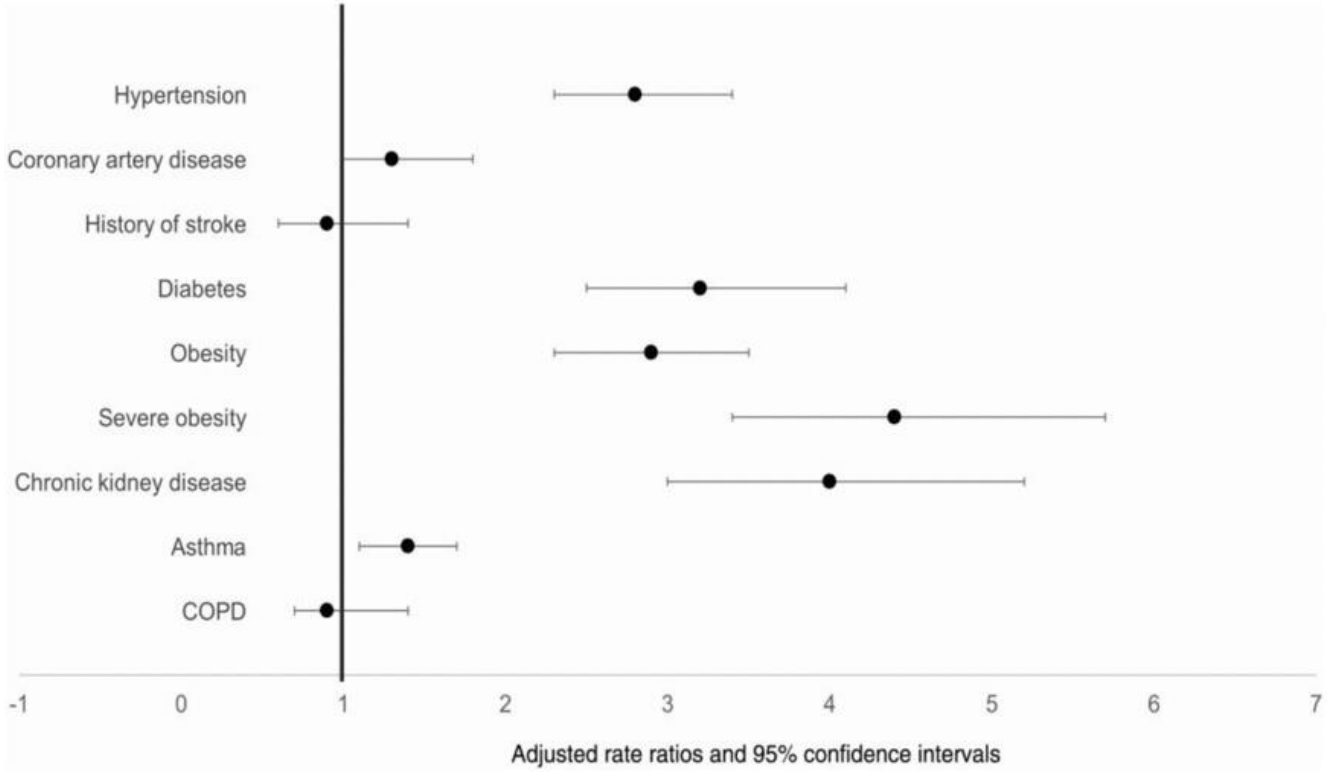


Table 3. Unadjusted and Adjusted[a] Rate Ratios for Number of Underlying Medical Conditions and Hospitalization for Coronavirus Disease 2019 (COVID-19), COVID-19–Associated Hospitalization Surveillance Network, 1 March–23 June 2020

Characteristic	Unadjusted RR (95% CI)	Adjusted RR[a] (95% CI)
No. of conditions[b]		
1	2.8 (2.7–3.1)	2.5 (2.1–3.0)
2	5.6 (5.2–6.1)	4.5 (3.7–5.5)
≥3	7.2 (6.6–7.9)	5.0 (3.9–6.3)
Age 45–64 y[c]	…	1.8 (1.5–2.2)
Age ≥65 y[c]	…	2.6 (2.1–3.1)
Male sex[d]	…	1.2 (1.1–1.4)
Non-Hispanic black[e]	…	3.9 (3.3–4.7)
Other race/ethnicity[e]	…	3.3 (2.8–3.9)

Abbreviations: CI, confidence interval; RR, rate ratio.

[a]Model for number of conditions (variable) is adjusted for age, sex, and race/ethnicity.

[b]Reference group is no underlying medical condition; number of conditions is a sum of underlying medical conditions excluding hypertension; the most recent year of available Behavioral Risk Factor Surveillance System data for hypertension was 2017.

[c]Reference group is 18–44 years.

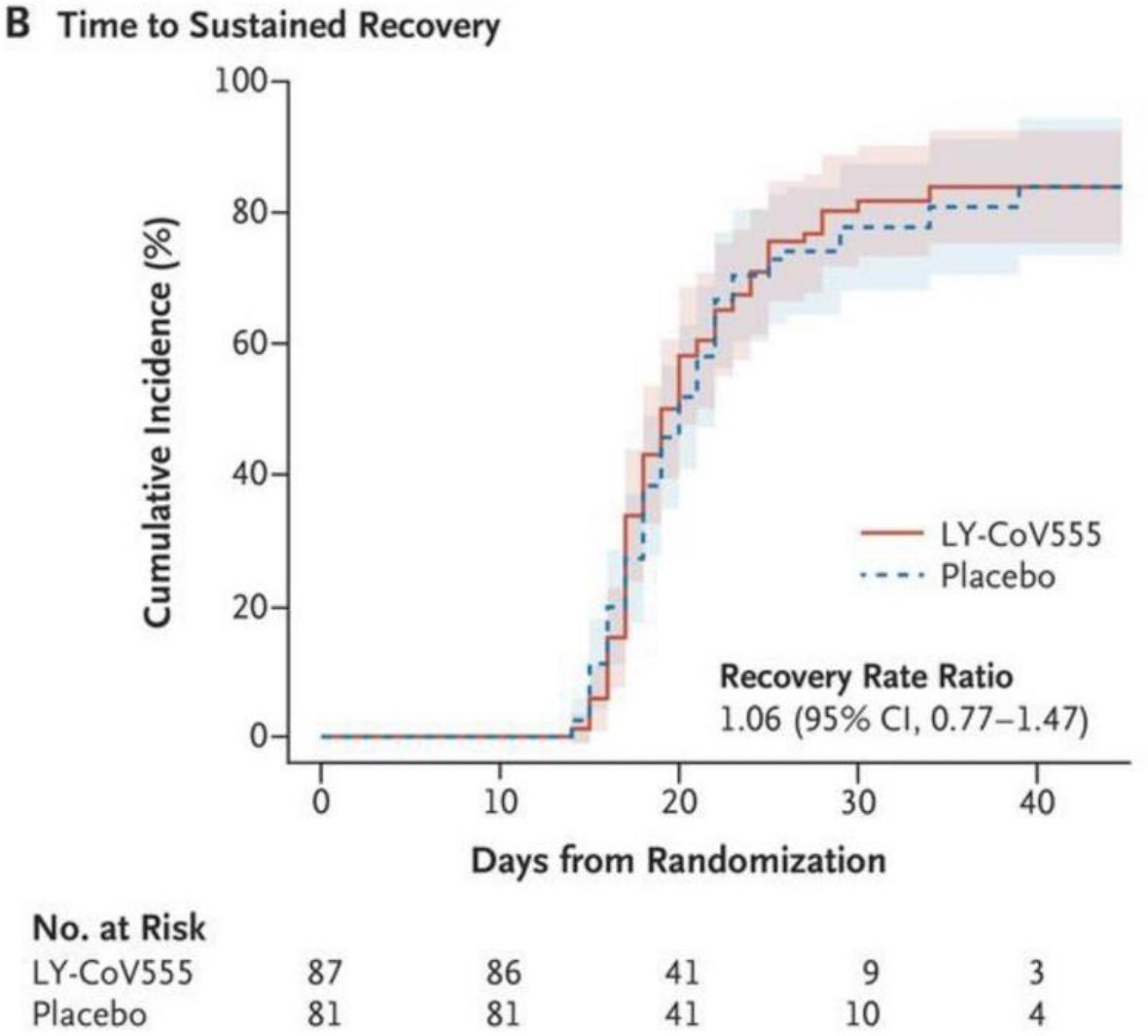
[d]Reference group is female.

[e]Reference group is non-Hispanic white.

Kim L et al, CID 2020

Bamlanivimab in Hospitalized Patients

- Hospitalized patients with COVID-19 and without end organ failure randomized 1:1 to receive LY-CoV555 or placebo (ACTIV-3)
- Stopped for futility after 314 participants enrolled: no evidence for efficacy of the antibody



NIAID Office of Communications, NIH-Sponsored ACTIV-3 Trial Closes LY-CoV555 Sub-Study, 2020; ACTIV-3/TICO LY-CoV555 Study Group, NEJM 2020

REGN-COV2 in Hospitalized Patients

REGN-COV2 INDEPENDENT DATA MONITORING COMMITTEE RECOMMENDS HOLDING ENROLLMENT IN HOSPITALIZED PATIENTS WITH HIGH OXYGEN REQUIREMENTS AND CONTINUING ENROLLMENT IN PATIENTS WITH LOW OR NO OXYGEN REQUIREMENTS

TARRYTOWN, N.Y., Oct. 30, 2020 /PRNewswire/ --

December 29, 2020 at 4:30 PM EST

REGENERON ANNOUNCES ENCOURAGING INITIAL DATA FROM COVID-19 ANTIBODY COCKTAIL TRIAL IN HOSPITALIZED PATIENTS ON LOW-FLOW OXYGEN

TARRYTOWN, N.Y., Dec. 29, 2020 /PRNewswire/ --

Phase 3 program in hospitalized patients to continue based on passing futility analysis on ability to reduce incidence of death or mechanical ventilation

As in earlier outpatient trial, immune status when patients entered the trial was a strong predictor of viral load and clinical outcomes

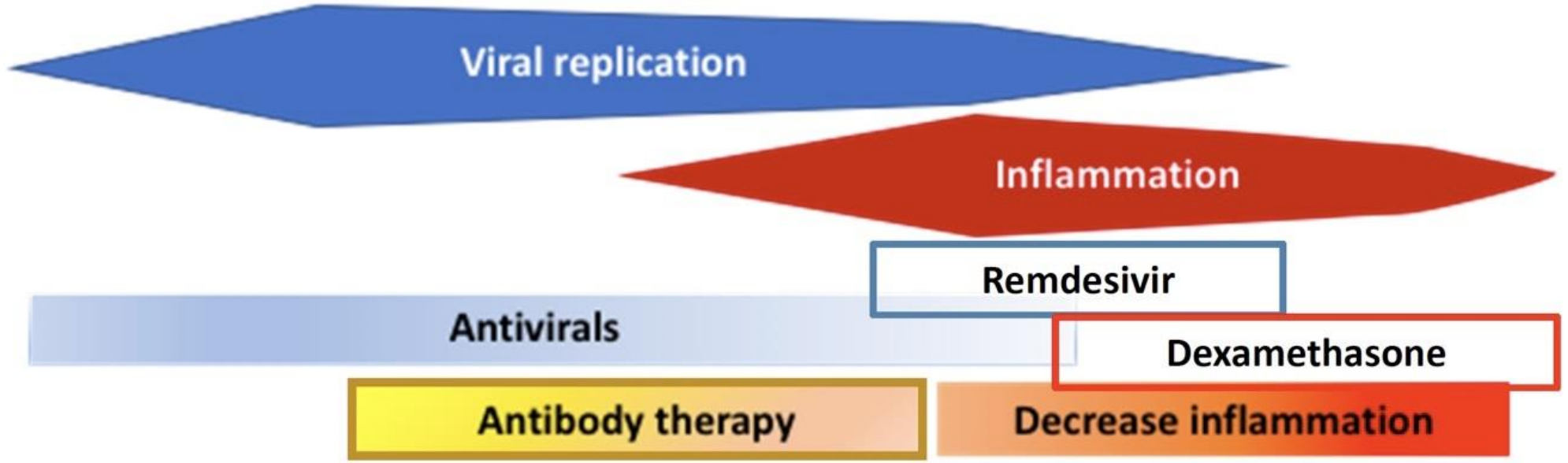
First antibody therapy to demonstrate anti-viral effect in patients hospitalized with COVID-19

- EUA recommends against Casirivimab/Imdevimab in patients who are hospitalized for COVID-19 or who require oxygen therapy due to COVID-19

- REGN-COV2 still being evaluated in hospitalized patients in the RECOVERY trial and in ongoing trial in people on low flow oxygen

Management Across the COVID-19 Spectrum

Stage/ Severity:	Asymptomatic/ Presymptomatic	Mild Illness	Moderate Illness	Severe Illness	Critical illness
	+ SARS-CoV-2 test but no symptoms	Mild symptoms (eg fever, cough, taste/smell changes); no dyspnea	O_2 saturation >=94%, lower respiratory tract disease	O_2 saturation <94%, respiratory rate >30/min; lung infiltrates >50%	Respiratory failure, shock, multi-organ dysfunction/failure
Frequency:	?	80%		15%	5%



Gandhi RT, CID, 2020; Gandhi RT, Lynch J, del Rio C. NEJM 2020

Q1 Answer: COVID-19 outpatient treatment: pregnancyEarly COVID-19 infection

Pregnant patients are at high risk for COVID-19 progression

Sotrovimab is the treatment of choice for pregnancy

IV **remdesivir** for 3 days could be an alternative treatment choice IF sotrovimab is unavailable.

There are no pregnancy data for **Paxlovid**.

Molnupiravir is contraindicated in pregnancy & < 18 y.o.

Question 2

What happens when MAB are administered

- 1) Reduction in adverse outcomes in low, but not high viral titer patients
- 2) Improved efficacy when used approximately 10 days after symptom onset
- 3)Decreased viral entry, VL and downstream effects when initiated early
- 4) Improved outcomes in patients receiving oxygen therapy due to COVID -19

COVID-19 Selected Resources

- IDSA: https://www.idsociety.org/practice-guideline/covid-19-guideline-treatment-and-management/
- NIH: https://www.covid19treatmentguidelines.nih.gov/
- CDC: https://www.coronavirus.gov
- WHO: https://www.who.int/publications/i/item/clinical-management-of-covid-19
- The Medical Letter:
  - Covid-19 Vaccine Comparison Chart
  - Treatments Considered for COVID-19

