Monoclonal Antibody (mAbs) Information

Sources:

1. Vaccine Adverse Event Reporting System: https://vaers.hhs.gov/esub/index.jsp

2. Interim Considerations: Preparing for the potential management of anaphylaxis after COVID-19 Vaccination: https://www.cdc.gov/vaccines/covid-19/info-by-product/pfizer/anaphylaxis-management.html

3. Operation Warp Speed Monoclonal Antibody Playbook: https://shea-online.org/images/priority-topics/OWS_MAB__playbook_10Nov20.pdf

4. FDA Cornavirus (COVID-19) Update FDA Authorizes Monoclona Antibody for Treament of COVID-19: https://www.fda.gov/news-events/press-announcements/coronavirus-covid-19-update-fda-authorizes-monoclonal-antibody-treatment-covid-19

5. Bamlanivimab EUA Fact Sheet: https://www.fda.gov/media/143603/download

6. MDH REDCAP Survey for Providers Interested in Administering Bamlanivimab: https://redcap.health.state.mn.us/redcap/surveys/?s=YEJDMF47M9

7. AMDA ASCP Monoclonal Antibody Document: https://www.ascp.com/page/mab

Monoclonal Antibody Treatment

Monoclonal antibodies (mAbs) are a man-made protein that sticks to a specific antigen and acts like the body's own antibodies to fight a pathogen. Once the mAbs attaches to the antigen, they can force the body's immune system to destroy specific cells. Researchers are able to design antibodies that target specific antigens, such as those found on the SARS-CoV-2 virus. Monoclonal antibodies in the treatment for COVID-19 attach directly to the virus and neutralize it in an effort to prevent disease progression.

The specific mAbs treatment in long-term care is the Eli Lilly product Bamlanivimab (BAM).

Things to note:

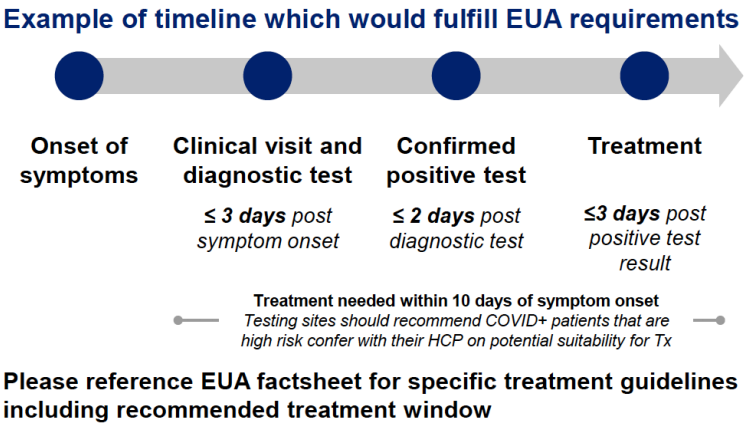
- BAM treatment is most effective when administered early in infection
- Delivered via a one-time IV infusion
- Early evidence indicates BAM treatment can reduce hospitalization, severity of infection and reduce a person's vial load (how much virus is in the body)
- BAM has been classified as a vaccine for **billing** purposes. Billing information can be found HERE.

Emergency Use Authorization

Monoclonal antibody therapy is approved for use through an Emergency Use Authorization (EUA) issued by the FDA. An EUA allows the use of this investigational drug that does not yet have formal FDA approval for use. The use of BAM treatment is authorized only for the duration of the emergency declaration. Client's indicated for use:

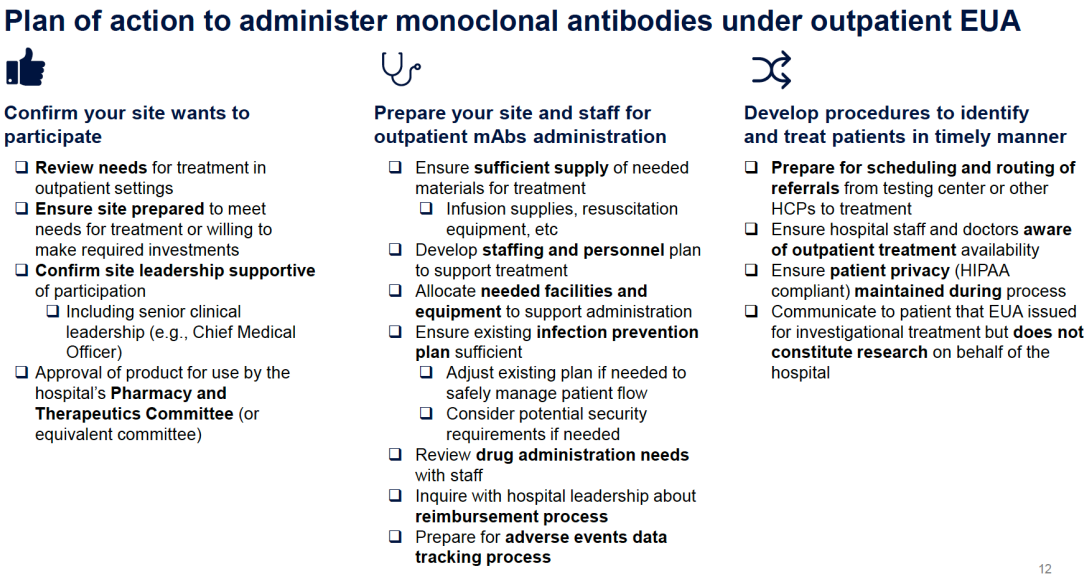
- Have mild to moderate COVID-19 illness
- Are at high risk for progression to severe COVID-19 disease and/or hospitalization
- Have a positive PCR or antigen test
- Are treated as soon as possible following a positive test and within 10 days of symptom onset
- Is symptomatic – but not yet progressed to require hospitalization or oxygen therapy

Providers are required to report on all serious errors and adverse events related to BAM treatment.



OWS MAB Playbook 11/10/2020

To provide BAM treatments in long-term care organizations there are considerations and plans required for MDH to sign off on prior to allocating BAM to organizations for use. The OWS MAB Playbook provides preliminary information on preparing for BAM infusion.



The Minnesota Department of Health has a REDCAP survey available for providers to complete and request BAM doses for use in long-term care organizations. Prior to filling out the REDCAP survey, there are certain processes MDH requires the organization to have in place prior to releasing doses of monoclonal antibody therapy. To assist with preparing these processes please review the mAbs therapy checklist and processes pages prior to submitting a REDCAP survey.

MDH Monoclonal Antibody REDCAP survey link:
https://redcap.health.state.mn.us/redcap/surveys/?s=YEJDMF47M9

Allergic Reactions / Anaphylaxis

According to the CDC:

- Symptoms often occur within 15-30 minutes of vaccination, though it can sometimes take several hours for symptoms to appear.
- Early signs of anaphylaxis can resemble a mild allergic reaction, and it is often difficult to predict whether initial, mild symptoms will progress to become an anaphylactic reaction. In addition, not all symptoms listed above are necessarily present during anaphylaxis, and not all patients have skin reactions.
- Symptoms are considered generalized if there are generalized hives or more than one body system (e.g., cardiovascular, gastrointestinal) is involved.
- If a patient develops itching and swelling confined to the injection site, the patient should be observed closely for the development of generalized symptoms (beyond the recommended observation periods noted above, if necessary).
- If symptoms are generalized, epinephrine should be administered as soon as possible, emergency medical services should be contacted, and patients should be transferred to a higher level of medical care.

The organization will need a provider order for allergic reaction / anaphylaxis protocol. A sample protocol follows. AMDA and ASCP put together a document for monoclonal antibody treatment in Long-Term care. In the toolkit is a proposed set of infusion orders including orders for hypersentivity reactions. The treatments do

include IV push medications so it is important staff are properly trained to administer that type of meedication – or – you work with your provider to put together a protocol that works for the community. Please note :

**

There is no suggestion for when to give / if to give inhalant medications or antihistamines. Please consult with your medical provider for specific orders for anaphylaxis and update the protocol as appropriate

**

This does not constitute medical advice. Suggested protocol information obtained from the CDC. https://www.cdc.gov/vaccines/covid-19/info-by-product/pfizer/anaphylaxis-management.html

**

Adverse Event Reporting

Long-term care organizations are required to report any adverse events associated with administration of monoclonal antibody therapy. Records should be maintained that include:

- Drug Inventory Information: lot numbers, quantity, receipt date
- Resident Information: resident name, age, disease symptoms, other drugs administered

Please report adverse events through the VAERS system: https://vaers.hhs.gov/esub/index.jsp

Summary

Prior to completing the REDCAP survey requesting to administer monoclonal antibody treatment there are processes that need to be in place in order for MDH to approve dose allocation. These processes include::

1. Process for mAbs therapy readiness
2. Antiphyaxis / Allergic Reaction Protocol
3. Infusion and Monitoring Protcol
4. Medication Receiving Partnership – provider or pharmacy
5. Corresponding Policies & Procedures

For further questions regarding monoclonal antibody treatment, contact the Minnesota Department of Health or Kari Everson RN BSN MSN MHA LNHA, Director of Clinical Care/Nurse Consultant with LeadingAge Minnesoa – keverson@leadingagemn.org

mAbs Therapy Preparation Checklist

- ☐ Create a scheduling process for mAbs clients
- ☐ Allocate a dedicated space for infusion
- ☐ Physician's order / pharmacy partner to receive treatment
- ☐ Provider order for anaphylaxis / allergic reaction protocol
- ☐ Procure required supplies
  - ☐ IV infusion kit
  - ☐ IV pole
  - ☐ Vital Sign monitoring equipment (timing device if no VS stand)
  - ☐ Emergency Medications – See Appendix B for sample emergency protocol
  - ☐ Pulse Oximeter
  - ☐ Oxygen
  - ☐ IV Fluids
  - ☐ Adult-sized pocket mask with one-way valve (CPR resuscitation mask)
  - ☐ Stethoscope
- ☐ Staffing Plan / Infusion Team
- ☐ Staff training for infusion and monitoring
- ☐ Create infusion therapy process
- ☐ Reporting

Example Protocol

Allergic Reaction/Anaphylaxis

1. All individuals receiving mAbs therapy will be monitored for 1 hour after IV infusion.

2. Throughout the 1 hour infusion and 1 hour post-infusion observation period, monitor for signs and symptoms of anaphylaxis.

RESPIRATORY:
- Sensation of throat closing
- Stridor (high pitched sound while breathing)
- SOB
- Wheezing
- Cough

CARDIOVASCULAR:
- Dizziness
- fainting
- tachycardia
- hypotension

GASTROINTESTINAL:
- Nausea
- vomiting diarrhea
- abdominal pain

SKIN/MUCOSAL:
- generalized hives
- itching
- swelling of lips, face, throat

OTHER:
- Difficulty swallowing
- Increased anxiety / agitation
- Flushing
- Acute change in mental status

- RR >/= 30
- HR >/= 130
- SBP < 90

3. If anaphylaxis is suspected:
   - Rapidly assess airway, breathing, circulation and mentation
   - Call EMS
   - Place the resident in a supine position, feet elevated UNLESS upper airway obstruction is present or the resident is vomiting.
   - Epinephrine (1 mg/ml aqueous solution [1:1000 dilution]) is the first-line treatment for anaphylaxis and should be administered immediately.
     - In adults, administer a 0.3 mg intramuscular dose using a premeasured or prefilled syringe, or an autoinjector in the mid-outer thigh.
     - The maximum adult dose is 0.5 mg per dose.
     - Epinephrine dose may be repeated every 5-15 minutes (or more often) as needed to control symptoms while waiting for emergency medical services.
     - Because of the acute, life-threatening nature of anaphylaxis, there are no contraindications to epinephrine administration.

4. Report adverse event : https://vaers.hhs.govexternal icon

Infusion Supply List

- [ ] IV infusion kit
- [ ] IV start kit
- [ ] Extension tubing
- [ ] Tape
- [ ] IV pole
- [ ] Vital Sign monitoring equipment (timing device if no VS stand)
- [ ] Emergency Medications – See Appendix B for sample emergency protocol
- [ ] Pulse Oximeter
- [ ] Oxygen
- [ ] IV Fluids
- [ ] Adult-sized pocket mask with one-way valve (CPR resuscitation mask)
- [ ] Stethoscope
- [ ] Gloves
- [ ] Gown
- [ ] Eye Protection
- [ ] N95 Respirator / Facemask
- [ ] Saline Syringes
- [ ] 2x2 gauze
- [ ] Adhesive bandages
- [ ] Sharps container
- [ ] Privacy screen – if needed
- [ ] Biohazard disposal bags
- [ ] Alcohol wipes (70%)
- [ ] Paper towels
- [ ] Trash bins / liners
- [ ] Environmental surface cleaner(s)

Printable Card
Allergy / Anaphylaxis Signs & Symptoms

Symptoms of Allergic / Anaphylactic Reaction

☐ RESPIRATORY:
- Sensation of throat closing
- Stridor (high pitched sound while breathing)
- SOB
- Wheezing
- Cough

☐ CARDIOVASCULAR:
- Dizziness
- fainting
- tachycardia
- hypotension

☐ GASTROINTESTINAL:
- Nausea
- vomiting diarrhea
- abdominal pain

☐ SKIN/MUCOSAL:
- generalized hives
- itching
- swelling of lips, face, throat

☐ OTHER:
- Difficulty swallowing
- Increased anxiety / agitation
- Flushing
- Acute change in mental status

- RR >/= 30
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- SBP < 90

COVID-19 Monoclonal Antibody Infusion Orders
From AMDA ASCP Monoclonal Antibody Treatments in Senior Care Environments

- ✓ **Place peripheral IV**

- ✓ **Monoclonal Antibody Infusion Orders**
  - bamlanivimab 700 mg IV over 1 hour once
  - casirivimab – imdevimab 2400 mg IV over 1 hour once

- ✓ **Hypersensitivity Reaction Management**
  - ✓ For ALL Reactions:
    - Provide supplemental oxygen via nasal cannula to keep O2 saturation >94%
    - Obtain vital signs and O2 saturation every 10 minutes
    - Refer to orders below for symptomatic management
    - Contact physician
    - Complete FDA Medwatch Event Report

  - ✓ For fever or chills:
    - acetaminophen 1000 mg PO once

  - ✓ For itching, rash, hives or flushing:
    - diphenhydramine 25 mg IV once
    - famotidine 20 mg IV once
    - If patient desires to complete infusion, decrease monoclonal antibody infusion rate by half
      - Change bamlanivimab infusion rate to 100 mL/hour until bag complete
      - Change casirivimab – imdevimab infusion rate to 125 mL/hour until bag complete

  - ✓ For shortness of breath, wheezing, or chest tightness:
    - Discontinue monoclonal antibody infusion
    - diphenhydramine 50 mg IV once
    - albuterol neb 2.5 mg INH once
    - methylprednisolone 125mg IVP once

  - ✓ For stridor, severe bronchospasm, sensation of throat closure or choking, or SBP <90
    - Discontinue monoclonal antibody infusion
    - Evaluate airway
    - epinephrine 0.3 mg IM once into anterolateral thigh
    - Place patient into recumbent position with lower extremities elevated
    - 0.9% sodium chloride 500 mL IV bolus once
    - Call “Condition” / Call 911

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Readiness Document for Clinicians for Use of Monoclonal Antibody Infusions for Treatment of COVID-19

MONOCLONAL ANTIBODY ELIGIBILITY CRITERIA CHECKLIST

Several monoclonal antibodies have received emergency use authorization from the FDA for the treatment of mild to moderate COVID-19 in adults with positive results of direct SARS-CoV-2 viral testing, and who are at high risk for progressing to severe COVID-19 and/or hospitalization.

Resident Name: _____ Room: _____ Date: _____

Inclusion Criteria ***(Must Meet All 3 Criteria)***	**Yes**	**No**
Mild to moderately symptomatic COVID-19[1]		
Within 10 days of symptom onset, preferably in the first 3 days		
Positive direct test for SARS-CoV-2 *(either A or B)* A) If no outbreak present in the building, PCR positive B) If outbreak is present in the building, PCR or antigen positive		

High Risk Criteria for Adults ***(Must Have 1 of the Following)***	**Yes**	**No**
Body mass index ≥ 35		
Age ≥ 65		
Chronic kidney disease		
Diabetes		
Immunosuppressive disease or currently receiving immunosuppressive treatment		
≥ 55 years of age AND have: • cardiovascular disease, OR • hypertension, OR • chronic obstructive pulmonary disease/other chronic respiratory disease		

Exclusion Criteria ***(May Not Have Any of the Following)***	**Yes**	**No**
Patient is hospitalized or meets hospitalization criteria[2]		
Patient requires oxygen due to COVID-19 (Pulse ox ≤ 93% on room air)		
If on chronic oxygen, patient requires an increase in oxygen therapy due to COVID-19		
Patient is on hospice, is hospice eligible, had a palliative care/hospice consult within the prior 6 months, or has a life expectancy less than 6 months (clinician judgement or MDS J1400), inclusions of these residents can be decided on a case by case basis		

DEFINITIONS

[1]**Mild to Moderate Symptoms (1 or more of the following)**	[2]**Hospitalization Criteria Definition (1 or more of the following)**

• Fever (99.0 or greater) • New cough • Sore throat • Malaise • Headaches • Muscle pain/aches • Gastrointestinal symptoms • Shortness of breath with exertion • Loss of smell and taste	• RR≥30 • HR ≥ 130 • SBP < 90 despite fluid resuscitation

Infusion-related reactions have been observed and there is potential for severe reactions, including anaphylaxis. Monoclonal antibody treatment may only be administered in settings in which health care providers have immediate access to treat a severe infusion reaction, such as anaphylaxis, and the ability to activate the emergency medical system (EMS).

Post-acute and long-term care settings with access to such expertise and resources may be able to administer monoclonal antibody in their own facilities.

Administration of monoclonal antibody treatment requires documentation of:

1. Patient has been given FDA Fact sheet for patients
2. Patient has been informed of alternatives to receiving monoclonal antibody treatment
3. Patient has been informed that this is an unapproved drug that is authorized for use under the FDA Emergency Use Authorization (EUA)
4. Reporting of adverse events to FDA MedWatch, following the requirements under Emergency Use Authorizations (see last page for details)

Fact sheets for patients:

https://www.fda.gov/media/143604/download (bamlavinimab)

https://www.fda.gov/media/143893/download (casirivimab plus imdevimab)

Resources for clinicians:

Further information for healthcare providers including instructions on preparation of infusions and side effects are available in the following factsheets

https://www.fda.gov/media/143603/download (bamlavinimab)

https://www.fda.gov/media/143892/download (casirivimab plus imdevimab)

https://asap.nebraskamed.com/monoclonal-antibody-project/

Monitoring for nurses and prescribers

- Patients treated with monoclonal antibody treatment should continue to self-isolate and use infection control measures (e.g., wear mask, isolate, social distance, avoid sharing personal items, clean and disinfect "high touch" surfaces, and frequent handwashing) according to CDC guidelines.
- **Clinically monitor patients, including vital signs during administration and observe patients for at least 1 hour after infusion is complete.**
- There is a potential for serious hypersensitivity reaction, including anaphylaxis, with administration of monoclonal antibody treatment. If signs and symptoms of a clinically significant hypersensitivity reaction or anaphylaxis occur, immediately discontinue administration, and initiate appropriate medications and/or supportive care.

Suggested medications to be available in Nursing home infusion site: E-Box for MAb infusions:

Medication	**Number of doses**
epinephrine 0.3 mg IM	
methylprednisolone 125mg	
albuterol neb 2.5 mg INH	
diphenhydramine 50 mg IV	
famotidine 20 mg IV	
Albuterol syr 2 mg PO	
Diphenhydramine 25mg PO	