Implementation and Outcomes of a Program to Coordinate and Administer Monoclonal Antibody Therapy to Long-Term Care Facility Residents with COVID-19

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Background

- Long-term care facility (LTCF) residents are at increased risk of severe COVID-19, with CMS data indicating >20% mortality among those diagnosed with COVID-19.
- BLAZE-1 trial noted lower hospitalization rates in high-risk patients receiving monoclonal antibody (mAb) vs placebo (4.2% vs 14.6%) for mild to moderate infections, making it a promising treatment option for LTCF residents
  - However, many LTCF lack staff to prepare and administer mAb therapy, limiting its utility in this setting
- Region VII Disaster Health Response Ecosystem (R7DHRE) coordinated via NE Medical Emergency Operations Center (NEMEOC) an ASPR pilot project to facilitate infusion of COVID-19 mAb therapeutics for LTCF residents throughout the state.
- The objective of this project was to implement this statewide program and to monitor outcomes of LTCF residents receiving monoclonal antibody therapy

Methods

• R7DHRE partnered with Great Plains Health, Nebraska DHHS, Nebraska Antimicrobial Stewardship Assessment and Promotion Program (ASAP) and Infection Control Assessment and Promotion Program (ICAP) to surveil cases in the state, establish distribution/administration pathways, and educate providers on mAbs therapeutics.

•A multi-hub-and-spoke model (**Figure 1**) was created to allow LTCF to work with regional hospitals or pharmacy services to administer drug in their facilities, reducing time to therapy and transmission risk associated with patient transport.

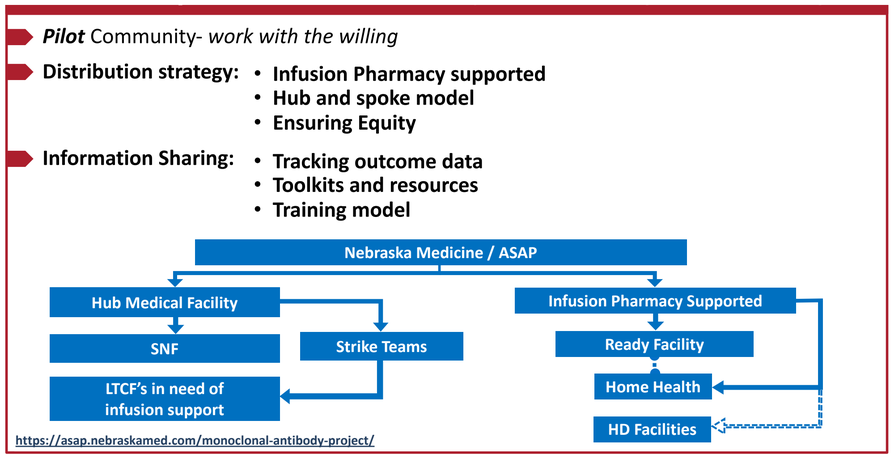
•A centralized request process was created using a REDCap platform and verification of patient eligibility by ASAP.

  •This request link, fact sheets, and custom-built order form templates were hosted on a dedicated ASAP website (https://asap.nebraskamed.com/monoclonal-antibody-project/).

•Outcomes data, including 14- and 28-day COVID-related hospitalizations and mortality were collected using databases from Nebraska Health Information Initiative and Nebraska DHHS. Adverse reactions were self-reported by LTCFs (**Table 1**).

•Reinfection rates in mAb patients and Nebraska's overall LTCF population were also analyzed to determine any potential risk of reinfection in patients receiving mAb therapy (**Table 2**).

Figure 1: Implementation Plan



Results

Table 1: Demographics and Outcomes of mAb Infusions

	mAb Therapy (n=513)
Demographics	
Age, years, mean (median)	81.8 (84)
Male, n (%)	179 (34.9)
Process Measures	
Average time from symptom onset to infusion, days	2.6
Average time from positive test to infusion, days	2.6
Outcome Measures	
Hospitalizations†, all-cause, n (%) 14-day 28-day	 26 (5) 34 (6.6)
Hospitalizations†, COVID-related, n (%) 14-day 28-day	 17 (3.3) 22 (4.3)
Mortality, n (%) 14-day 28-day	 15 (2.9) 24 (4.7)
Adverse reactions reported, n (%)	4 (0.8)

† Hospitalizations include inpatient admissions and ED visits

Results

Table 2: Reinfection Rates for mAb and NE LTCF Residents

	mAb Group (n=513)	Nebraska LTC Residents (n=2996)	p
Reinfections, n (%)	8 (1.6)	37 (1.2)	0.52

Discussion

- A multi-pronged strategy to administer monoclonal antibody therapy to LTCF residents in Nebraska was successfully created and implemented.
  - This method was efficient, with doses delivered on average less than 3 days from symptom onset/positive test to infusion.
- In the first 513 patients included in this analysis, 28-day COVID-related hospitalization and mortality rates were 4.3% and 4.7%, respectively.
  - Compared to BLAZE-1 high-risk placebo comparator group with 14.6% COVID-related hospitalization, mAb therapy appeared to have a large impact in LTCFs in Nebraska.
  - The 4.7% COVID-related mortality rate was also much lower than the state's 20% case fatality rate seen in all LTCF patients.
- These doses appear to have been administered safely, with an adverse reaction rate of 0.8%.
- Despite some early concerns by providers that monoclonal antibody therapy could increase risk of COVID-19 reinfections (due to 90-day delay in vaccinations), we saw no increased risk with the use of mAb therapeutics.

Conclusions

- By utilizing existing relationships with LTCFs in the region, we established a program to promptly distribute, prepare, and administer monoclonal antibody therapy to LTCF residents in need, preventing COVID-related hospitalizations and deaths.
- This program continues to serve facilities throughout the state, particularly during the current Delta wave, offering both treatment and prophylaxis with mAbs when indicated.

Disclosures

- The authors have no conflicts of interest to disclose related to the subject matter of this presentation.