

# Pharmacist Interventions for Appropriate COVID-19 Antiviral Therapy in Long-Term Care Facilities: A Public Health Initiative

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## BACKGROUND

- Prescribing errors related to the COVID-19 oral antiviral agent nirmatrelvir/ritonavir have been reported due to improper renal dosing and drug-drug interactions.<sup>1</sup>
- These patient safety issues are particularly concerning in the long-term care facility (LTCF) population (includes skilled nursing facilities and assisted living facilities).
- The Nebraska Antimicrobial Stewardship Assessment and Promotion Program (ASAP) is a collaborative partnership involving the University of Nebraska Medical Center, Nebraska Medicine, and the Nebraska Department of Health and Human Services (DHHS). ASAP is funded through the Nebraska DHHS healthcare-associated infections and antimicrobial resistance (HAI/AR) program, with a primary focus of promoting safe and effective antimicrobial use.
- In 2022, 7,826 cases of COVID-19 were reported in Nebraska LTCF. At the beginning of the year, ASAP developed a statewide pharmacist-led service to assist LTCF in evaluating resident eligibility for COVID-19 oral therapeutics.
- We studied ASAP pharmacist interventions on COVID-19 oral antiviral prescriptions.

## METHODS

- ASAP created a centralized LTCF treatment request process for oral antivirals. A REDCap survey hosted on the ASAP webpage collected requests submitted by any LTCF in Nebraska.
- Patient information requested for pharmacist review included renal and hepatic function within the last year, date of positive test result and symptom onset, vaccination status, oxygen requirements, immunosuppressed status, concurrent medication list, ability to take oral medications, and the provider's preferred treatment medication.
- After ASAP pharmacist eligibility review and approval, delivery of the appropriate COVID-19 therapeutic to the LTCF was coordinated with Community Pharmacy.
- Pharmacists recorded specific interventions for each treatment in the program database.

## RESULTS

- A total of 630 courses of oral COVID-19 antivirals were administered to Nebraska LTCF residents through the ASAP program from January to December 10, 2022.
- Median patient age was 84 years and 59% female.
- Average time from symptom onset to dispense: 1.6 days
- Figure 1 displays ASAP pharmacist interventions upon pharmacist review of the 630 courses.
  - A majority of dispensed courses (n=410, 65%) needed pharmaceutical interventions upon review for a total of 506 individual interventions.
  - Forty percent of pharmacist interventions were to recommend holding or adjusting doses of concomitant medications with nirmatrelvir/ritonavir therapy. Many residents required multiple medications to be held or adjusted.
  - Thirty-seven residents had prescriptions changed from molnupiravir to nirmatrelvir/ritonavir to align with NIH treatment guideline<sup>2</sup> recommendations.
- Table 1 describes distribution of therapies by facility type and medication dispensed.
- Table 2 outlines patient characteristics of the included LTC population.
  - Renal impairment was a common barrier to therapy in the LTC population. Nearly one in five residents were immediately ineligible for nirmatrelvir/ritonavir due to renal function contraindications. Another third would require a dose reduction of nirmatrelvir/ritonavir if no other contraindications existed.
  - Sixty-six percent of residents were considered fully vaccinated for COVID-19 at the time of the COVID-19 oral antiviral therapy request.
- Figure 2 displays weekly trends in courses administered through Nebraska ASAP in 2022.
- Figure 3 illustrates ASAP outreach in Nebraska
  - LTCFs located in 18 of the 19 local health department areas (95%) requested and received eligibility evaluation assistance from an ASAP pharmacist from January to December 10, 2022.

### DISCLOSURE

The authors of this study have nothing to disclose in relation to the content of this work.

### CONTACT INFORMATION

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Figure 1. ASAP Pharmacist Interventions

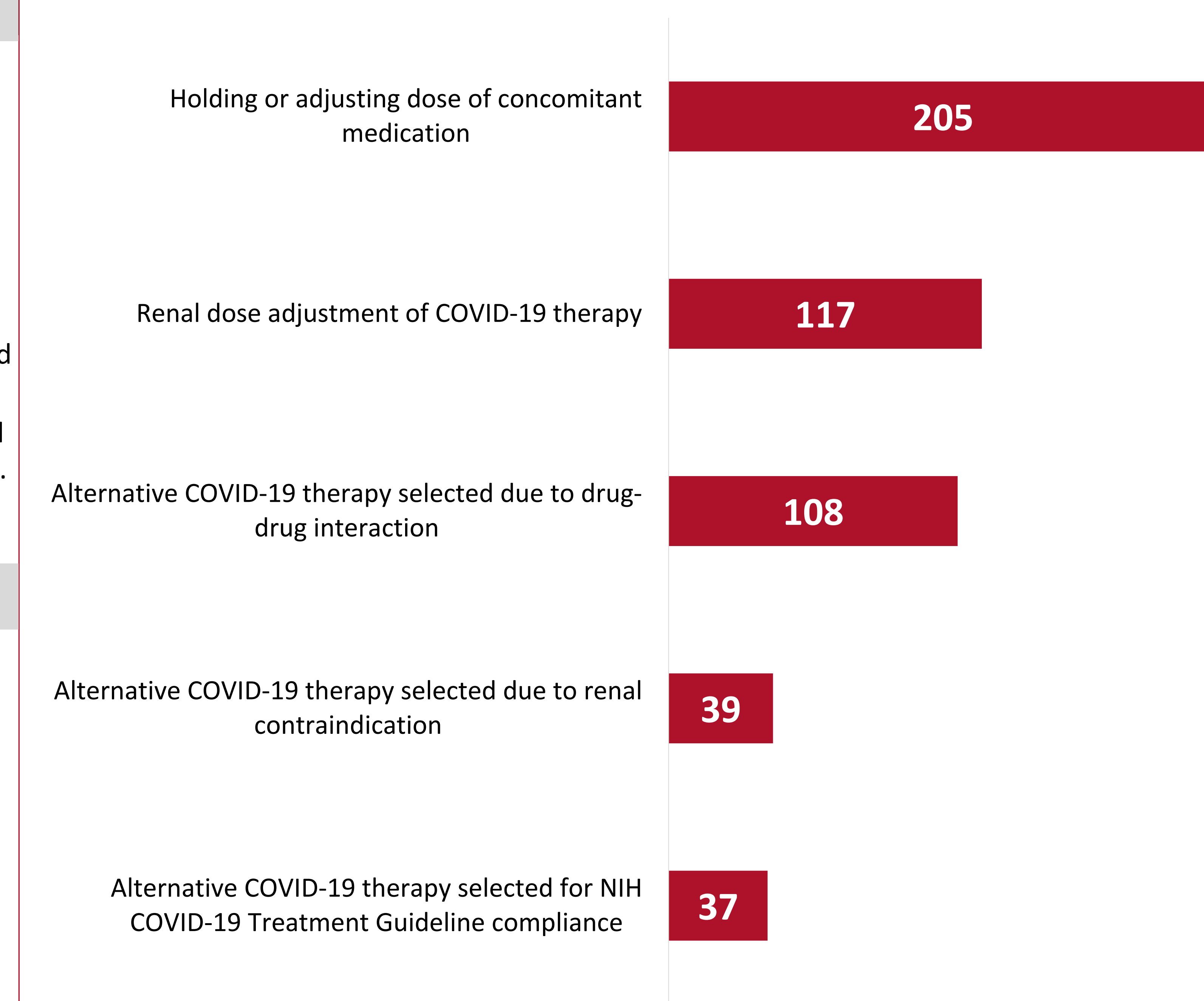


Table 1. Antiviral Courses Administered through Nebraska ASAP, 2022

All values listed as n (%)	Courses (n = 630)
<b>Courses dispensed by facility type</b>	
Assisted Living Facility	217 (34)
Skilled Nursing Facility	413 (66)
<b>Medication dispensed</b>	
Nirmatrelvir/ritonavir	319 (50.6)
Molnupiravir	311 (49.4)

Table 2. Patient Characteristics

All values listed as n (%)	Courses (n = 630)
<b>Race</b>	
White	609 (96.7)
Black or African American	14 (2.2)
Hispanic or Latino	5 (0.8)
Other	2 (0.3)
<b>COVID-19 Vaccination Status</b>	
Fully vaccinated and boosted	409 (64.9)
Fully vaccinated, not eligible for booster	7 (1.1)
Fully vaccinated, eligible for booster but not received	165 (26.2)
Partially vaccinated	17 (2.7)
Unvaccinated	30 (4.8)
Unknown	2 (0.3)
<b>eGFR (mL/min)</b>	
>60	316 (50.2)
30-60	209 (33.2)
<30	105 (16.6)
<b>Severely immunocompromised</b>	2 (0.3)
<b>Severe hepatic impairment</b>	3 (0.5)

Figure 2. COVID-19 Therapeutic Courses Administered through Nebraska ASAP, 2022

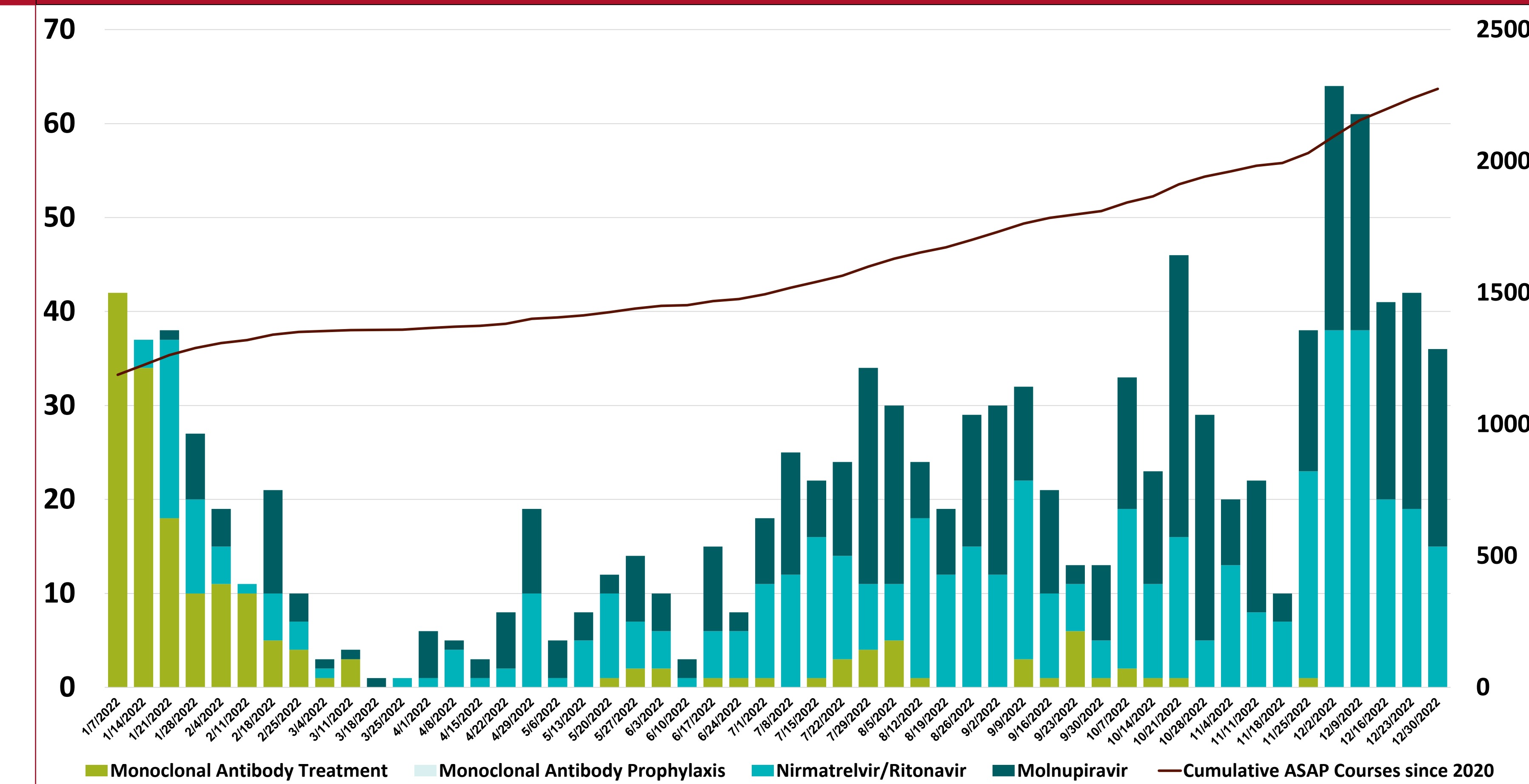
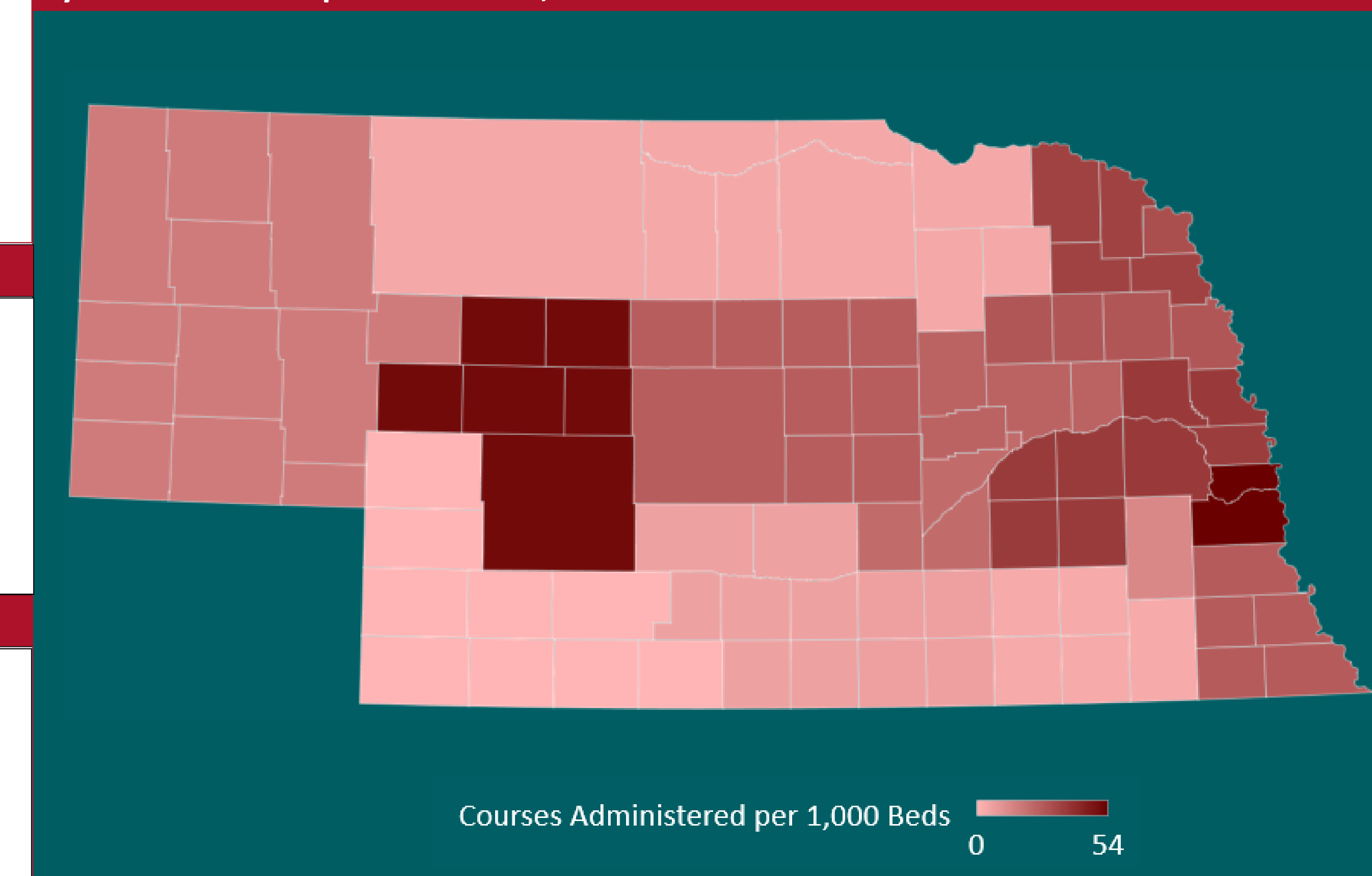


Figure 3. Courses Administered through Nebraska ASAP per 1,000 LTC beds by Local Health Department area, 2022



## CONCLUSIONS AND FUTURE DIRECTIONS

- Pharmacist review of oral antiviral prescriptions for COVID-19 through a public health supported initiative identified and prevented potential patient safety issues in LTCF residents.
- Future studies should analyze the impact of similar interventions on patient outcomes.

## REFERENCES

- Institute for Safe Medication Practices (ISMP). Numerous wrong dose errors with Paxlovid. *ISMP Medication Safety Alert! Acute Care*. 2022;27(13):1-3.
- Coronavirus Disease 2019 (COVID-19) Treatment Guidelines, NIH. <https://www.covid19treatmentguidelines.nih.gov>

## ACKNOWLEDGEMENTS

This work was performed as a collaborative effort between Nebraska Medicine/University of Nebraska Medical Center and the Nebraska Antimicrobial Stewardship Assessment and Promotion Program (ASAP), which is funded by the Nebraska Department of Health and Human Services through the CDC Epidemiology and Laboratory Capacity Grant. The project described in this poster was supported by Community Pharmacy partners.