

Current Trends in the SARS-CoV-2 Pandemic During the Emergence of the Omicron Variant

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INTRODUCTION

- The pandemic has highlighted the strength of humankind; this strength is shown in the individual stories of millions of health care workers and patients worldwide.
- With the massive amount of data gathered during the treating of this pandemic in hospitals, we can now interpret that data into useful, actionable goals that will save *even more* lives and make conditions better for patients and hospital workers.
- Throughout the COVID-19 pandemic, hospital capacities in the United States have seen constant hospitalization variations associated with peaks of infection.
- It is important to understand the different statistics from a wide range of hospitals regarding their individual hospital capacities and the related variables involved.
- The aim of this study was to gather and interpret comprehensive raw data from the U.S. Department of Health and Human Services published over a four-day average from hospitals across 50 states.
- Multiple variables affect the COVID-19 hospital capacity rate. With the data gathered from the U.S. Department of Health and Human Services we aim to address new variables affecting the hospital capacity rate that have not been previously addressed.

METHODS

- Using the data collected by U.S. Department of Health & Human Services this study examined hospitalization rates from December 15th, 2021 to February 15th, 2022.
- The datum was derived from HHS TeleTracking, the National Healthcare Safety Network, and directly from the HHS Protect state/territorial health departments on behalf of their healthcare facilities.
- Ten variables of interest were conglomerated and combined for statistical analysis. Correlation tests were deployed to explore the relationship between the variables. Descriptive statistics of all hospital datum was calculated. SPSS Version 28 software was used to analyze the data (p-value < 0.05).

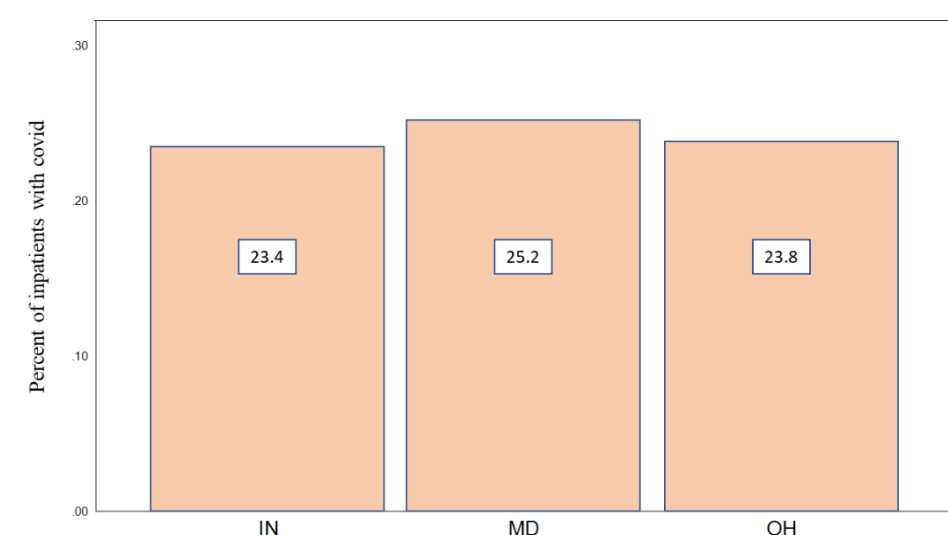


Figure 1. Three states with the highest percentage of inpatients with covid

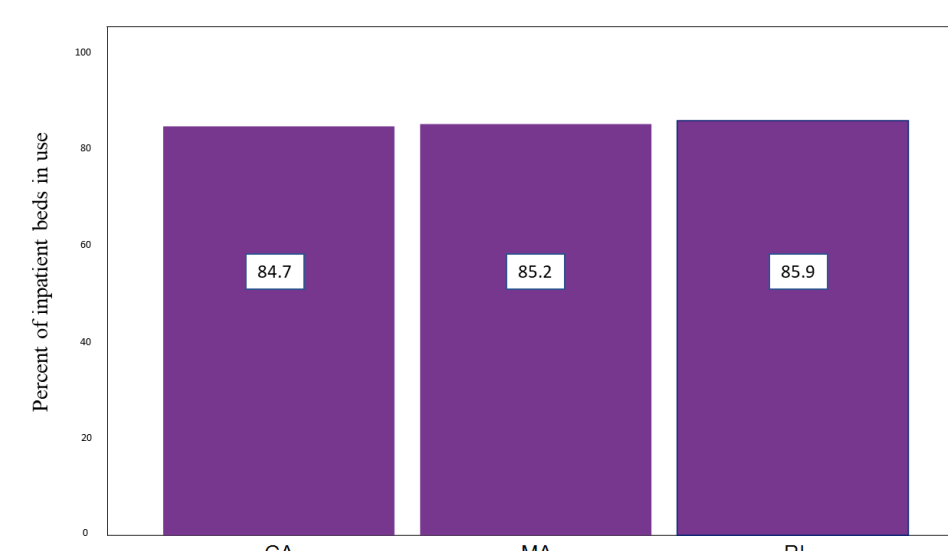


Figure 2. Three states with the highest percentage of inpatient beds in use

	R	p-value
Number of Patients with Suspected or Confirmed COVID-19 who Died	0.433*	<0.001
Number of Hospitals Reporting a Critical Staffing Shortage		

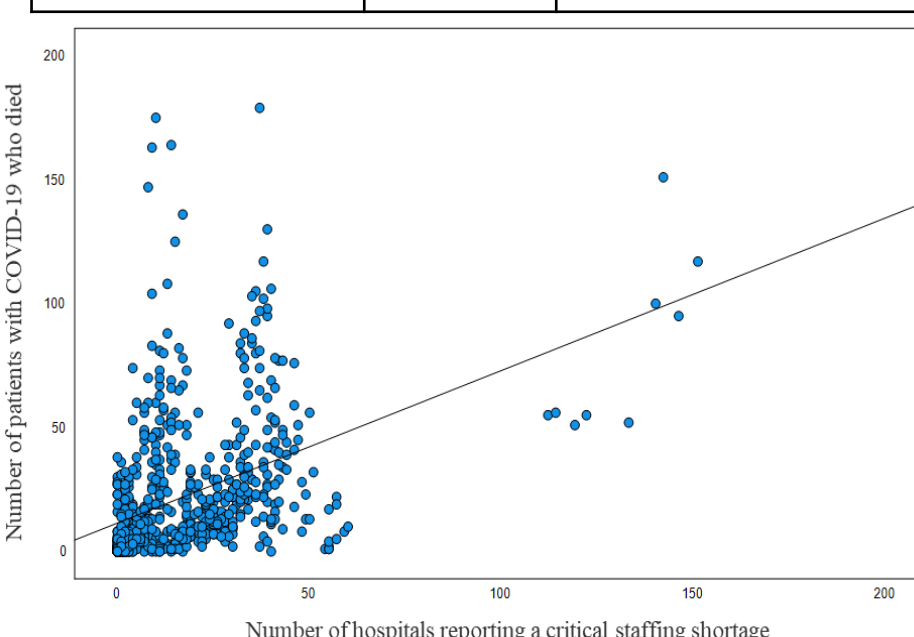


Figure 3. Correlations between number of hospitals reporting a critical staffing shortage and number of patients with COVID-19 who died

	R	p-value
Number of patients with COVID-19 who are currently hospitalized in a pediatric inpatient bed	0.322*	<0.001
Number of Hospitals Reporting a Critical Staffing Shortage		

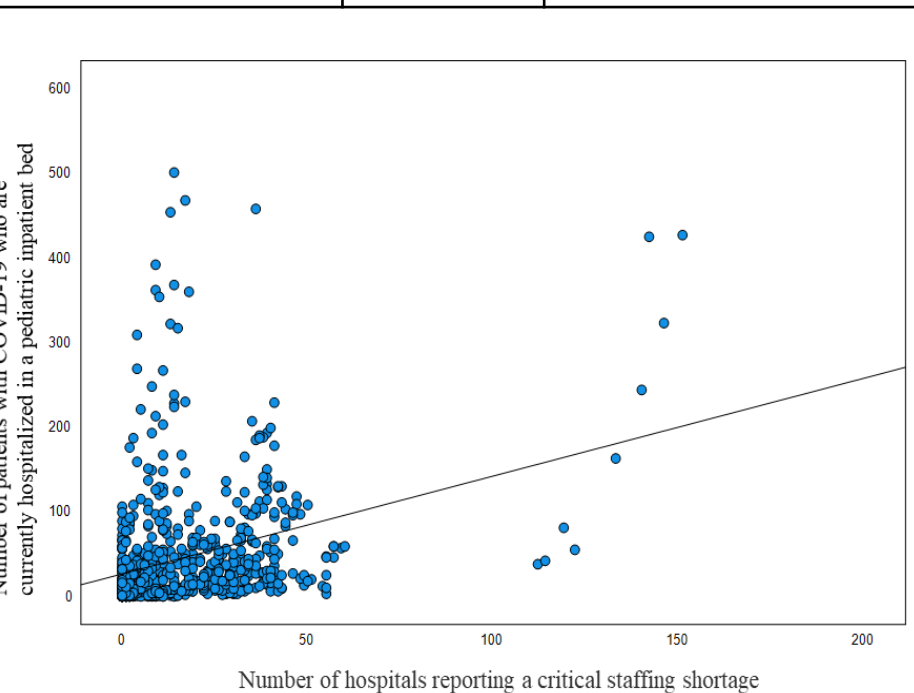


Figure 4. Correlations between number of hospitals reporting a critical staffing shortage and number of patients with COVID-19 who are currently hospitalized in a pediatric inpatient

	R	p-value
Number of patients with COVID-19 who are currently hospitalized in an adult inpatient bed	0.382*	<0.001
Number of Hospitals Reporting a Critical Staffing Shortage		

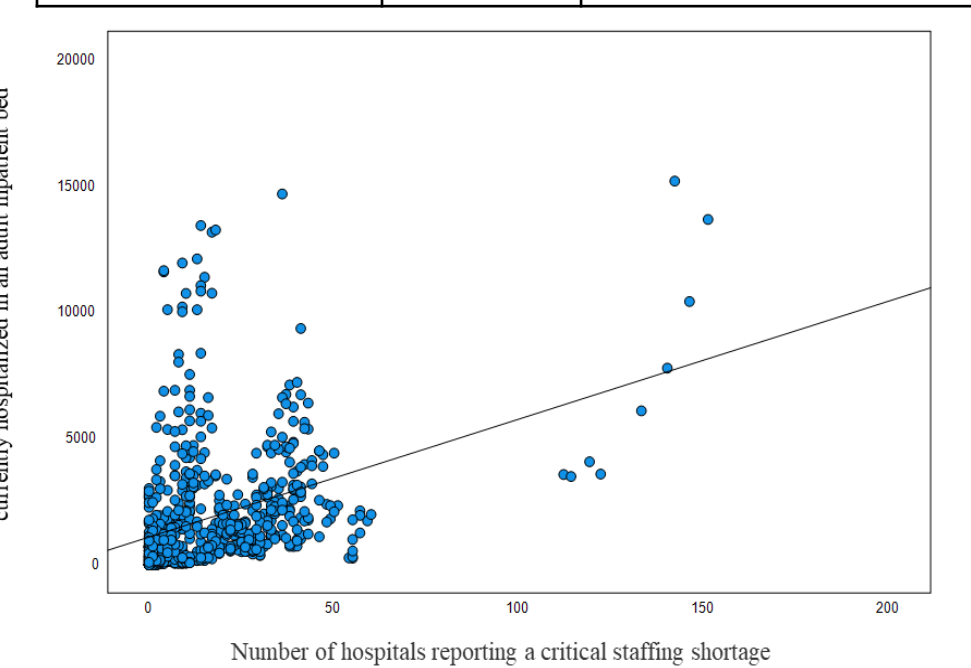


Figure 5. Correlations between number of hospitals reporting a critical staffing shortage and number of patients with COVID-19 who are currently hospitalized in an adult inpatient bed

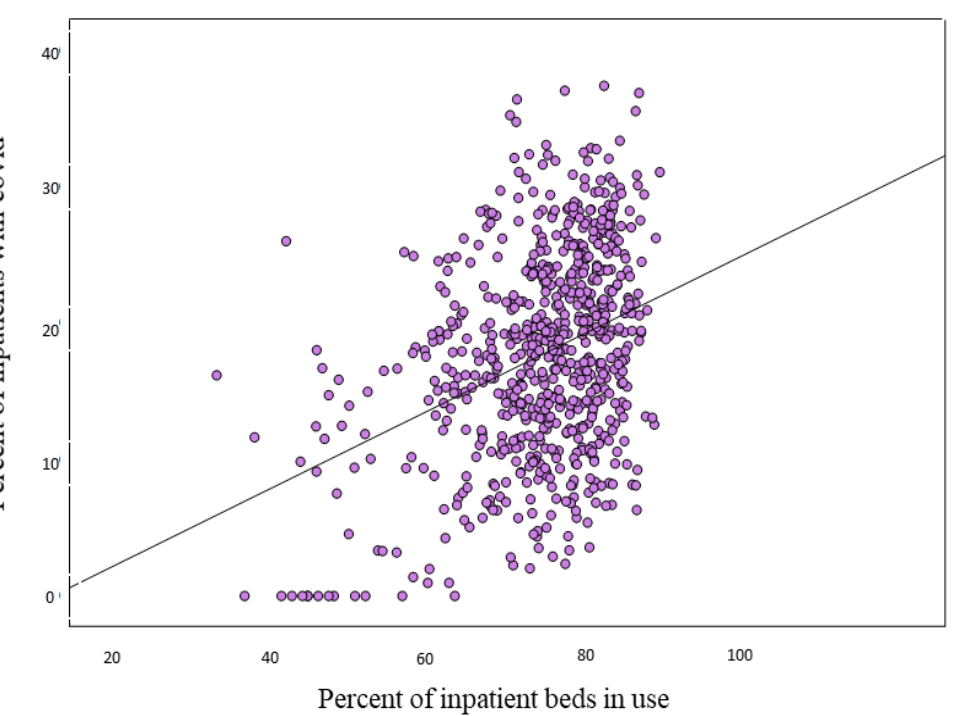


Figure 6. Correlations between percent of inpatient beds in use and percent of inpatients with covid

State	Mean (SD)	p-value (F)
Massachusetts (MA)	13.3 (5.1)	0.018 (4.5) *
Rhode Island (RI)	17 (5.9)	
Georgia (GA)	21.4 (8.9)	

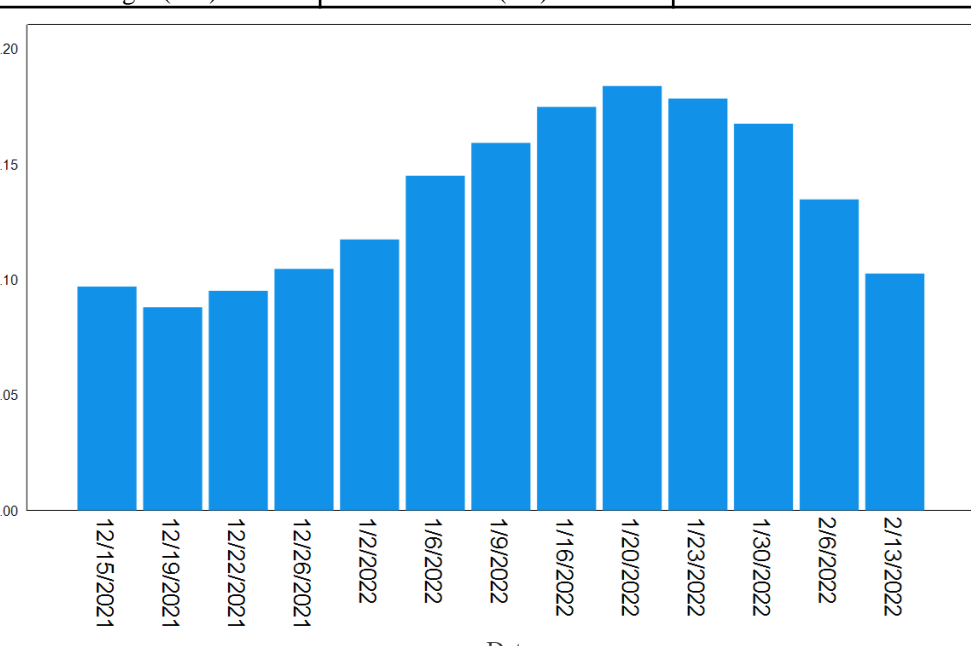


Figure 7. Percent of total inpatient beds currently used by patients with COVID-19 over a two-month period

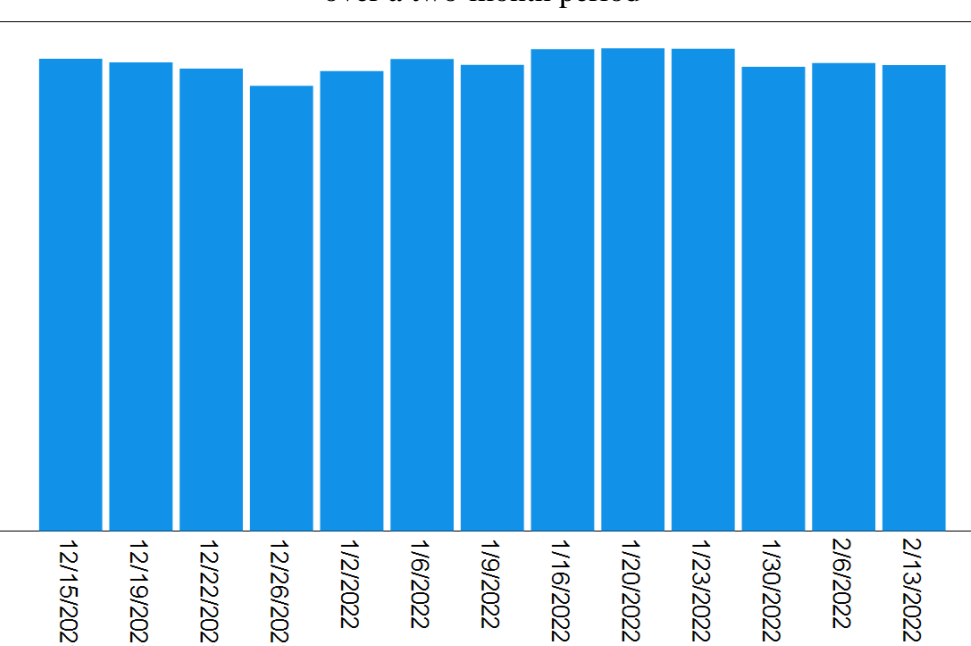


Figure 8. Percent of staffed adult ICU beds in use over a two-month period

RESULTS

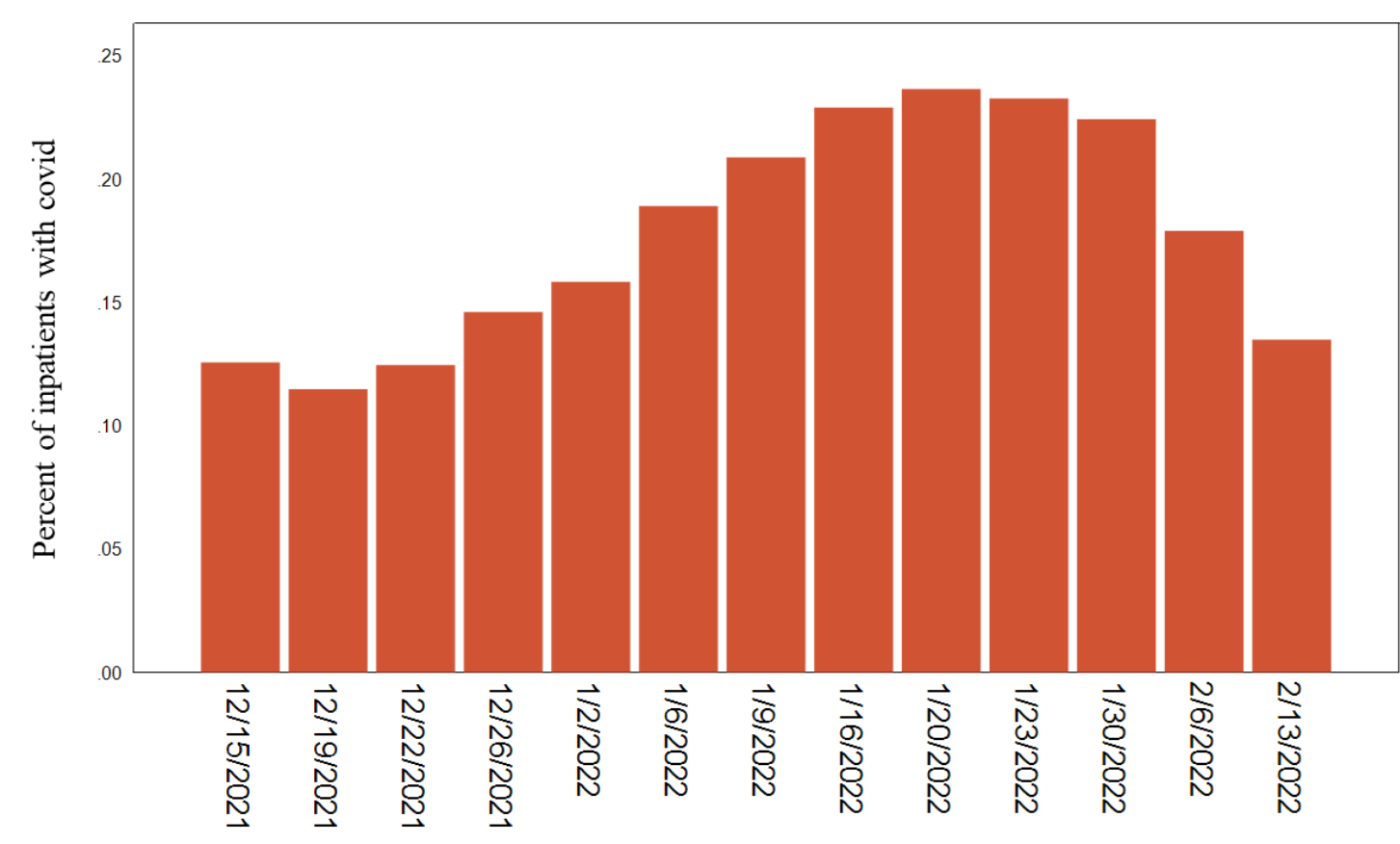


Figure 7. Percent of inpatients with COVID-19 over a two-month period

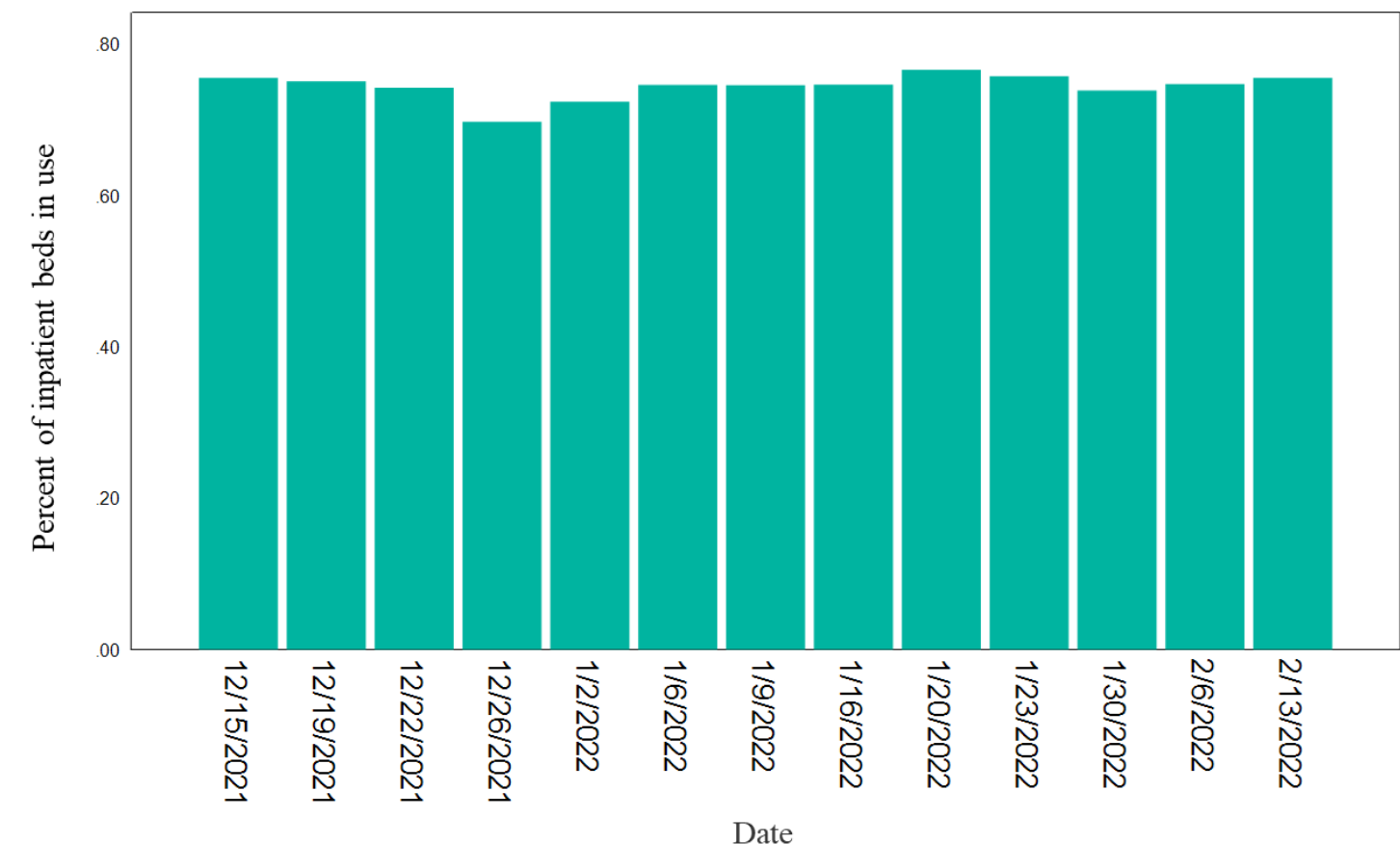


Figure 8. Percent of inpatient (beds) in use over a two-month period

DISCUSSION

- Critical staffing shortages lead to an increase in COVID-19 patient deaths.
- The healthcare system is more fragile than we thought, most hospitals are hovering at about 80% capacity for inpatient beds on average. If another variant more severe in hospitalizations were to arise, then the healthcare system may be in trouble.
- Results of this study can inform hospital administrators and public health policy makers on how to modify use of existing hospital and human resources as the continually evolving pandemic taxes hospital capacity.

Acknowledgement

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