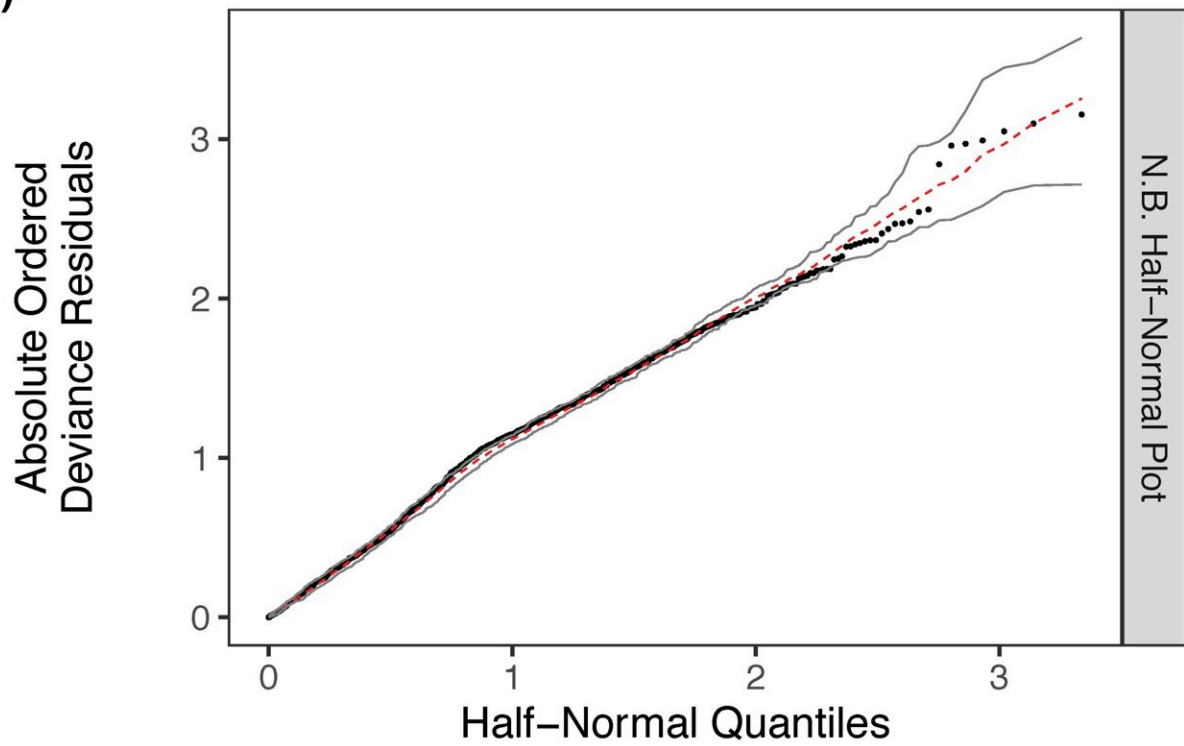


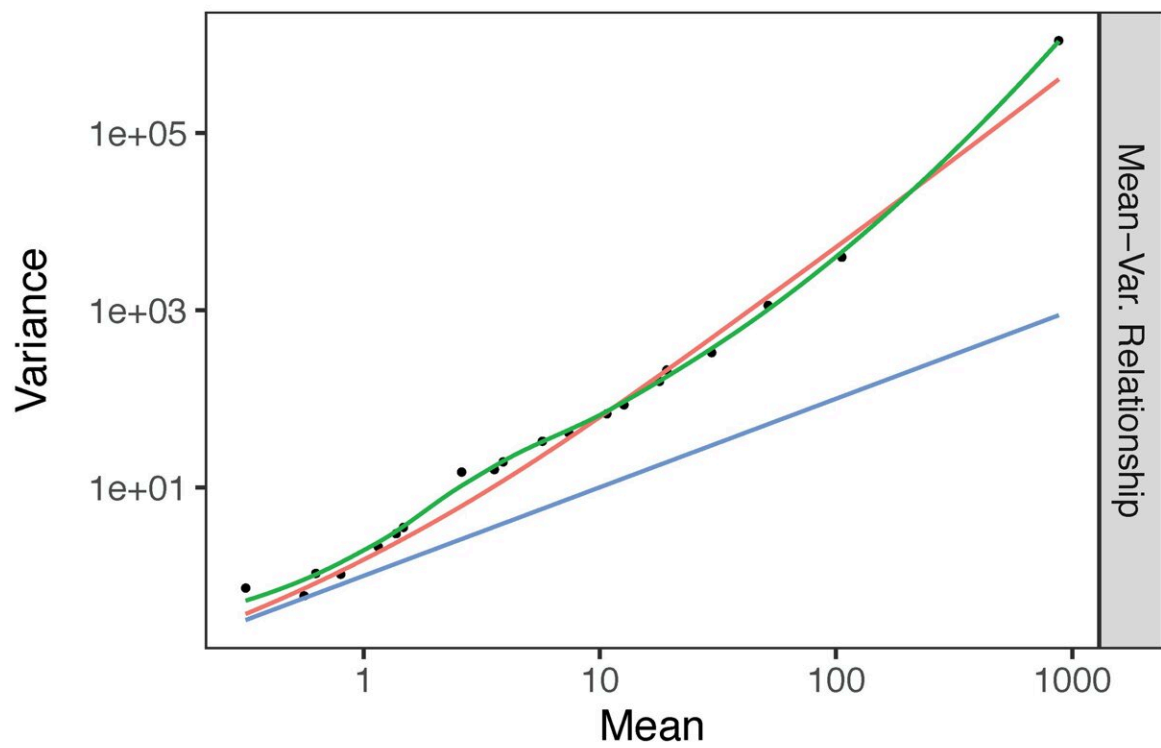
Counties with intervention measures, more hospitals experienced fewer COVID-19 deaths

October 18 2021, by Nardy Baeza Bickel

(A)



(B)



Variance — Neg. Binomial — Obs. Data — Poisson

Fig 1. Assessing model fit. Plots showing (A) half-normal residuals and (B) mean-variance relationship of the observed county-level COVID-19 IaCFRs. Credit: DOI: 10.1371/journal.pone.0258308

Counties that banned in-person religious gatherings and those with a greater number of hospitals per capita were associated with a decreased case-fatality rate of COVID-19 during the pandemic's first wave, according to a new University of Michigan study.

On the other hand, counties with high prevalence of asthma and a greater concentration of people over 65 were linked to higher fatality rates, the analysis showed.

This study, published in *PLOS ONE*, was completed as part of the COVID-19 Dispersed Volunteer Research Network and was presented at the World Microbe Forum, a collaborative virtual meeting conference hosted by the American Society for Microbiology and the Federation of European Microbiological Societies, earlier this year.

"Our work provides insights that may help officials target [public health interventions](#) and [health care resources](#) to locations that are at increased risk of COVID-19 fatalities in subsequent waves," said Jess Millar, a graduate research assistant in the U-M departments of Computational Medicine and Bioinformatics, and of Epidemiology.

Millar and colleagues looked at public data from 3,000 counties to do the risk factor analysis of demographic, socioeconomic and health-related variables during the first wave of the pandemic (March 28 to June 12, 2020). The case-fatality rate was defined as the number of deaths divided by the total number of confirmed COVID-19 cases.

Researchers found a reduction in case-fatality rates of:

- 32% per additional hospital per 10,000 people
- 13% if religious gatherings were banned
- 1.5% per 1% increase in the proportion of population without health insurance
- 0.79% per 1% increase in the proportion of mobile homes

They saw an increase in case-fatality rates of:

- 9.5% per 1% increase in asthma prevalence
- 4.5% increase per 1% increase in population over age 65
- 3.2% per one additional hospital
- 0.97% per 1% increase in Black or African American population

More information: Jess A. Millar et al, Risk factors for increased COVID-19 case-fatality in the United States: A county-level analysis during the first wave, *PLOS ONE* (2021). [DOI: 10.1371/journal.pone.0258308](https://doi.org/10.1371/journal.pone.0258308)

Provided by University of Michigan

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