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Intervention Time Series Analysis of Organ Donor Transplants in the US

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The Covid-19 pandemic caused by the SARS-COV-2 virus has had and continues to have a catastrophic effect on the healthcare system including organ transplants worldwide. The number of living donor transplants performed in the US was affected significantly with a 22.6 percent decrease in counts from 2019 to 2020 due to concerns of unnecessarily exposing potential living donors and living donor recipients to possible Covid-19 infection. In this talk, we statistically analyze, model and forecast the profound impact of Covid-19, aiding health care professionals in better decision making contributing to improved quality of public health. Specifically, we introduce the Covid-19 pandemic as a time series intervention event and model organ transplant rates in the US from January 2002 to August 2021. This study focuses on the most affected donor transplant series (living donors), vulnerable populations belonging to some major individual-sociocultural factors like age (65+ year olds), ethnicity (Hispanic population), gender (female population) that contribute to disparities in access to donor transplants, and the highest populated region (Region 5) affected by the pandemic in the US. The intervention time series analysis model forecasts the donor transplant counts reasonably well.