

## **Abstract: Flu/COVID Research Grant**

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A new coronavirus, SARS-CoV-2, to which humans possess little underlying immunity has been spreading throughout the globe. People worldwide must figure out how to cope with the consequence of infection—a new and potentially lethal disease, COVID-19. Rural regions face many challenges that are not present in urban areas. As a vaccine will likely not be available for 12-18 months, it is critical to devise effective strategies quickly to protect rural regions from echo waves of the virus that will likely circulate over the next few years. The world experienced a similar situation in 1918-19 when a new, lethal strain of influenza began to infect humans. Although there are significant differences between these two pandemics, the viruses have similar modes of transmission and overall impacts on human communities. The focus of this project is to compare epidemic patterns and Missouri residents' responses in 1918 to those occurring at present during the COVID-19 pandemic, with primary attention paid to urban-rural differences. This will increase understanding of how life situations in urban vs. rural situations affects epidemic disease experiences and will provide knowledge of important community characteristics that put residents at greater risk during epidemics. The study also sheds light on which characteristics of a region have been present for 100 years or more (likely more fundamental to life in that region) and which are aspects of modern life and perhaps more malleable. In addition, this project will provide training in data collection and analysis for one undergraduate and two graduate students and it will give them first-hand experience in doing important research to help deal with an unforeseen and serious public health event. Project personnel are also putting their research results into action, as they are communicating their results as they become available to employees of the Missouri Department of Health and Senior Services, who are on the front line as Missouri deals with this pandemic.

Understanding the experiences and responses of rural citizens to these two pandemics provides important insights that may lead to new public health strategies that are more tailored to the needs of rural residents during major disease outbreaks. The project involves in-depth comparative analysis of mortality and morbidity patterns during the 1918 influenza pandemic and the present COVID-19 pandemic in the state of Missouri. Analysis will focus on data aggregated at the county level and will determine county characteristics (e.g, population density, # of hospitals, household composition, proximity to large urban area, ethnic composition, mobility patterns) that are associated with death and/or illness rates during the two pandemics. Historical data from the Missouri 1918 influenza pandemic will be examined to identify control strategies used in different counties during the pandemic, determine their effectiveness, and assess whether they would be of use during the present pandemic to aid in the development of potential strategies that public health authorities can add to the arsenal already being used in rural counties.

### **CONTACT INFORMATION**

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