

Thesis Portfolio

A Systems Approach to Optimizing Patient Flow During the COVID-19 Pandemic
(Technical Report)

Influences of Misinformation and Conspiracy Theories on the Public
(STS Research Paper)

An Undergraduate Thesis

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Bachelor of Science, School of Engineering

Courtney Laughlin
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Department of Engineering Systems and Environment

Table of Contents

Sociotechnical Synthesis

A Systems Approach to Optimizing Patient Flow During the COVID-19 Pandemic

Influences of Misinformation and Conspiracy Theories on the Public

Thesis Prospectus

Sociotechnical Synthesis

The presence of the novel coronavirus pandemic has been felt all over the world. This thesis considers two issues related to the coronavirus pandemic. The first issue is examined in a technical report on the optimization of patient flow in healthcare systems affected by the COVID-19 pandemic. This report suggests that although it is hard to make changes in existing healthcare processes, changes are needed in order to deal with this 'new normal.' The addition of COVID related visits has taken time away from normal patient workflow. Problems were identified in each stage of the patient admittance process and the report details solutions for how to optimize patient flow within the University Physicians Charlottesville General Internal Medicine Clinic at the University of Virginia. The research outlined in this technical report draws attention to the importance of changes made to the current state of healthcare systems in this new COVID climate. The second issue is discussed in the STS research paper on 'misinformation and conspiracy theories' effects on the general public's responses to the coronavirus pandemic and other significant events. This paper argues that a sociotechnical model of media effects dictates social responses to the COVID-19 virus itself and, in turn, how consequential the pandemic will be; documentary analysis of misinformation and conspiracy theories surrounding other consequential events in history sets precedent for how the spread of false information will affect the COVID-19 pandemic. This paper finds that misinformation and conspiracy theory surrounding the pandemic immensely impacts the longevity of the virus in the United States; these social phenomena continue to influence people's decisions regarding the pandemic, the full effects of which are still unknown. The STS research stresses the gravity of analysis on messages circulated by false information in the media, the general public's responses to these messages, and what effects these responses have.

Both of these issues associated with the COVID-19 pandemic are important ones to discuss because social responses to the pandemic have directly affected the way healthcare systems work. Misinformation about the virus subsequently leads to people's decisions to not follow basic public health measures put in place. These actions successively impact patient flow in healthcare systems around the country. The spread of false information needs to be regulated more thoroughly than it is as social responses to false information have had a great deal of both short-term and long-term effects. These two projects being done concurrently gives prominence to what extent false information has affected healthcare systems. Because the spread of false information, namely misinformation and conspiracy theories, is such a complicated problem to tame, measures need to be taken in healthcare processes to account for the dangerous rise in COVID cases we have seen throughout 2020 and 2021. Research into both of these issues has indicated a huge predicament that will most definitely reoccur. The author hopes that both of these papers can be used as frameworks for future situations connected to misinformation and conspiracy theories.