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

Understanding the Role of Facebook in Vaccine Misinformation during the COVID-19 Pandemic using Care Ethics
(STS Research Paper)

An Undergraduate Thesis Portfolio

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Socio-technical Synthesis: Patient Flow and Vaccine Misinformation

My technical and Science, Technology, and Society (STS) projects both address different problems relating to patient health. There are many factors that correspond to patient health, including quality of healthcare and patient choices. While the technical project relates to quality of healthcare and focuses on identifying process issues that impact patient flow in a clinical setting, the STS project relates to identifying factors that influence a patient's choice in receiving a vaccine. The STS project seeks to understand the role of social media platforms in vaccine misinformation and how misinformation has contributed to vaccine hesitancy. The following paragraphs will provide an overview of both projects and will explain the benefits of considering both research problems simultaneously.

The Internal Medicine, Primary Care Clinic in Charlottesville, VA has faced many challenges in its admittance process since the beginning of the Coronavirus 2019 (COVID-19) pandemic. To mitigate the spread of COVID-19, new requirements were put in place, including temperature checks, remote waiting rooms, and reduced capacity of in-person appointments. These new steps have made it difficult for the Primary Care Clinic to operate at pre-COVID-19 levels, and as a result, the technical project utilized a systems approach to analyze the weaknesses of the current system and develop recommendations to improve patient flow. From this approach, the team identified weaknesses and piloted a new remote registration process where patients were asked to enter the clinic 10 minutes before their scheduled appointment time; this change resulted in a decrease in nurse perceived workload, an increase in the percentage of remotely registered patients who arrived on time, and an increase in predictability of the overall arrival process. The goal of this project was to identify weaknesses in the existing

process, implement solutions, and develop a generic framework that can be applied to other health systems to improve patient flow.

The STS project focuses on understanding the role of Facebook, a major social media platform, in combatting COVID-19 vaccine misinformation during the COVID-19 pandemic and how this has contributed to vaccine hesitancy. Currently, most research focuses on analyzing existing misinformation posts and gathering content themes. While this research helps explain why users are posting and interacting with vaccine misinformation, there is little research examining the role of the platform provider in moderating content and spreading misinformation to its users. The STS project analyzes how Facebook has contributed to COVID-19 vaccine misinformation due to its delay and lack of clarity in policies on misinformation. More specifically, the paper utilizes care ethics to understand how Facebook has acted on vaccine misinformation with respect to its relationship to its users. The goal of this project is to gain a better understanding in the role of a social media platform in distributing health misinformation.

While these projects were not very closely aligned, working on both projects simultaneously has given me a better understanding on the complexity of patient health. The technical project provided insight on the different factors in a clinical setting that contribute to patient flow and clinic efficiency, and the STS project examined how Facebook's actions have contributed to the spread of COVID-19 vaccine misinformation online, negatively impacting vaccine confidence. By working on both these projects at the same time, I have been able to learn how there are both many technical and social influences associated with patient health that need to be considered in many different case studies.