Examining the Impact of Telemedicine on Clinical Work

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Rationale. Telemedicine – the use of technologies to provide clinical services over distance – has been touted as a valuable tool for increasing access to medical care, especially for patients living in rural and underserved communities. An emerging application of telemedicine is its use among patients with diabetic eye diseases, which have the potential to cause severe vision loss.1 Although current methods to detect and treat diabetic eye diseases are effective in reducing the risk of vision loss, fewer than half of patients with diabetes get the recommended annual screening.1, 2 However, recent studies have found that telemedicine for eye screenings may reduce vision complications and ease the logistical burden for patients to receive the necessary, timely care.3

While recent research supports the clinical value of telemedicine for ocular health, there has not been much research examining how these telemedicine applications impact clinical work processes. Specifically, coordination and knowledge sharing are critical to delivering proper care to patients. Conventional clinical settings presume patients and clinicians share information and interact while they are collocated. However, when individuals are geographically distributed using telemedicine, new methods for delivering care are needed.

Although research examining technology use in organizations has shown distributed workers can increase an organization’s flexibility and responsiveness 4, the inability to engage face-to-face can be problematic. Distributed workers struggle to build trust 4, 5 and can develop conflicts with one another due to incomplete messages or misunderstanding. 6-8 The logistics of completing distributed work can be an obstacle such that distributed workers take longer to complete tasks compared to their co-located counterparts.9 Taken together, this body of research suggests that distributed work can become difficult to manage because the extent to which people are separated from one another impedes their ability to communicate effectively about their work. Hence, the goal of this proposed study is to examine how telemedicine impacts how physicians, nurses and patients coordinate and share knowledge when they are not collocated within a conventional clinical setting.

Academic Objectives. Recognizing both the challenges and opportunities using telemedicine, this project focuses on answering the following research questions: (1) in what ways does telemedicine change how clinicians coordinate clinical work for detecting and treating diabetic eye diseases, and (2) how does telemedicine impact the sharing of complex, critical medical information among clinicians? This project will be conducted in partnership with the University of Michigan’s Kellogg Eye Center that has recently implemented a telemedicine platform.

Student Role:
The student will serve as a research assistant for the project. In this role, I will mentor the student on the process of data collection and scholarly writing. During this project, the student will assist in collecting new data through observations and interviews. Also, the student will have the opportunity to develop a survey for conducting a network
analysis. The student will also have the opportunity to conduct a literature review in preparation for a conference paper.

**Contribution to Student Academic and Professional Development.** The student will gain experience with organizing, analyzing, and presenting multiple types of data. He or she will gain skills in using a mixed methods approach and exposure to different software for data collection and analysis (e.g., Qualtrics, NVivo, statnet).

**Mentoring Plan:**

I will meet with the student on a weekly basis throughout the project. We will work closely during data collection phases of the project where I will also be present to demonstrate how to collect data during observations, best practices for conducting semi-structured interviews and how to develop a network survey questionnaire. Given that this project is in the early stages of data collection, I will involve the student using the pilot data for developing a conference paper.
References


