# 2023 NBER Digitization Tutorial Application

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## Contact Information

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## Course of Graduate Study

**Harvard University PhD in Health Policy (Management track)** *August 2020 - Present*

I'm currently a G3 in the Management track of the Health Policy PhD program at Harvard University. The Management track is jointly administered between Harvard's Graduate School of Arts and Sciences (GSAS) and Harvard Business School (HBS) and is co-chaired by Rob Huckman and Amy Edmondson at HBS. Students in the Management track study questions related to managerial, operational, and strategic issues facing health care organizations.

Relevant coursework includes:

- Empirical Studies of Innovation and Digitization – taught by Shane Greenstein at HBS
- Economics of Ideas, Innovation, and Entrepreneurship – taught by Pierre Azoulay and Scott Stern at MIT
- The Foundations of Strategy – taught by Dennis Yao at HBS
- Microeconomic Theory I and II
- Econometric Methods I and II

## Research Interests

My research is focused on studying the growing use and impact of digital modes of healthcare delivery. My work to date has been organized around three streams, each focused on a particular digital modality for health care delivery:

- **Telemedicine virtual visits (i.e., audio-video visits with health care providers):** my recent projects have studied the tradeoff between improved care access and quality of care for telemedicine follow-ups after cardiac hospitalizations and the productivity impacts of provider telemedicine use
- **Remote patient monitoring (i.e., remote transmission of patient physiological measurements, such as blood pressure, to their healthcare providers)**: my recent projects have described the rapidly growing use of remote patient monitoring (RPM) in outpatient settings, described patterns of adoption across patients and providers, and examined the impact of RPM on patient care patterns and healthcare utilization (e.g., does RPM increase medication switching? is it a substitute or complement for traditional office visits?)
- **Patient portals (secure websites that allow patients to message their providers, schedule appointments, access health records, etc.)**: my recent projects have described the dramatic increase in patient portal messages since the start of the COVID-19

pandemic and documented disparities in patient portal use across racial and ethnic groups, including how often they use the portal, what they use the portal for, and how providers respond to their use (e.g., does a nurse or a physician respond to their medical advice requests)

I'm currently in the process of outlining a dissertation proposal. My plan is to dedicate a chapter of my dissertation to each of these three streams, furthering the work I've already started in these areas:

- **Telemedicine virtual visits**: Many health care providers today operate hybrid practices, offering both in-person and telemedicine visits. However, even holding constant the mix of in-person vs. telemedicine visits, there can be meaningful differences in how those visits are intermixed in a provider's schedule (e.g., are there dedicated telemedicine blocks or are they completely intermixed). Anecdotal evidence suggests that these differences can result in meaningful differences to the provider and patient experience. For example, in-person visits tend to run over while telemedicine visits are typically expected to start on time; thus, switching between the two can result in a chaotic transition for the provider and mismatched expectations from the patient. In my first chapter I hope to examine how scheduling modulates the productivity and quality impacts of telemedicine.
- **Remote patient monitoring**: As discussed earlier, my prior work on RPM has looked at how its use affects outcomes at the patient level (e.g., medication adherence, medication switching, office visit use, and acute care utilization). In future work I plan to examine how RPM use affects provider practice patterns: does RPM allow providers to see more patients? Once a provider starts monitoring patients using RPM, does their capacity become more concentrated on select patients? What happens to the patients that aren't monitored? How do these effects change over time (e.g., providers might allocate more time to patients during the first months of monitoring, but less time once the condition has been stabilized)?
- **Patient portals:** My prior work has shown that Black and Hispanic patients are less likely to receive responses from attending physicians than White patients (and more likely to receive responses from nurses). This holds true even after controlling for a host of patient and message characteristics and the department the message was sent to. I plan to use natural language processing techniques to better parse the drivers of this discrepancy. Is it differences in the message request, the way the message was communicated (e.g., medical vocabulary, grammatical mistakes, tone), or something else? Additionally, using the on-duty message pool triage nurse's propensity to forward messages to attendings as an instrument, I hope to measure the impact of this discrepancy on patient outcomes and subsequent care utilization.