Paperwork

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Abstract

Healthcare today provides an especially rich context for the intertwined transformation of work and the technologies of work, which need to be understood in tandem. Advances in artificial intelligence, robotics, the internet of things, and computational science promise to transform healthcare. The slow speed of organizational and professional change compared to the rapid innovation of healthcare technology makes it a compelling context for engaged scholarship. Sorting through the promise, hype, and reality of the datafication and automation of health and healthcare presents challenges that communication scholarship can help address. In this essay, I share my own healthcare paperwork and information technology story and discuss implications for the study of health information technology, automation, and healthcare work.

Keywords: Information technology, healthcare, datafication, automation, analytics

Paperwork

Prologue

I hobbled into the ER at about eight o'clock, unsteady on my borrowed crutches. The waiting room was quiet and green. A mom surrounded by three kids watched a television in one corner. A woman and man sat together. He held his head up with an ice pack wrapped in a towel.

The clerk at the front desk asked how he could help. I replied that I thought I might have broken my leg. He asked me for my insurance card, my identification, and a credit card, and he handed me a clipboard.

A clipboard.

Still in my workout clothes with no pockets, I had a shopping bag slung around my neck. I wrestled the clipboard into my bag, and hopped over to a row of chairs. The clipboard held forms for consent for treatment and financial responsibility. Other forms asked me to describe my symptoms and medical problems, list my medications, and provide my address and other contact information. I checked "no" a lot. I listed my over-the-counter allergy medicine, googling for its correct spelling: C-e-t-i-r-i-z-i-n-e. I described my injury. I wrote out my address, phone number, emergency contact, my social security, my employer, my job title, my insurance information… I hopped back to the sitting clerk, and handed him the clipboard. He returned my documents, and I waited.

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Two years before, through the Center for Health Communication (CHC), a collaboration of the Moody College of Communication and Dell Medical School at the University of Texas at Austin, I had started collaborations with the Health Informatics and Health Information Technology (HIHIT) program, at the time, housed in the College of Natural Sciences, and now at

McCombs School of Business. HIHIT runs a post-baccalaureate professional development program "to prepare a data-capable 21st century workforce for careers in healthcare" and conducts research on innovation in healthcare technology, processes, and people. The institutionalized structures and practices of healthcare complicate and slow organizational and technological change involved in creating and implementing knowledge management systems like electronic health records (EHRs) and developing novel organizational forms (Barbour, 2010). The slow speed of organizational and professional change compared to the rapid innovation of healthcare technology makes it a compelling context for engaged scholarship.

For example, the widespread adoption of EHRs and the datafication of health in general have coincided with increasing interest in and capacity for analytics and data-intensive automation, creating a fervor for data- and technology-driven solutions to all the problems that ail modern medicine (Krumholz, 2014; Sholler, Bailey, & Rennecker, 2016; Topol, 2019). Healthcare today provides an especially rich context for the intertwined transformation of work and the technologies of work, which need to be understood in tandem (Bailey & Leonardi, 2015; Leonardi, 2012; Sennett, 2009). As I waited in the ER, I thought of my work with the CHC and HIHIT. We had multiple projects developing, including an effort to implement a mechanism for information sharing among providers' EHRs and public health organizations in Central Texas. Data-sharing among EHRs, even within the same healthcare organization, is always complex and can be impossible (Boonstra, Versluis, & Vos, 2014; Hersh et al., 2013; Khurshid, 2017).

Another, broader proposal focused on the datafication and automation of health and the future of work in healthcare. This research aimed to understand how providers, administrators, analysts, and programmers would navigate the organizational and communicative challenges in the looming data- and technology-intensive wave of change in healthcare (Johnston, 2018;

Topol, 2019). The hopes are that healthcare analytics and automation will augment rather than replace workers, because of the high-stakes of the work, healthcare workforce shortages, and the need for autonomy in how healthcare work gets done. Health analytics and automation have been promoted as potentially improving the coordination of caregiving, lowering costs, and improving health outcomes and the patient experience, all by supporting healthcare workers' information gathering, sensemaking, case management, and decision-making.

…

After another half-hour, a nurse called me out of the waiting room to a treatment room. He measured my blood pressure, temperature, and heart rate, and recorded those data points on his clipboard. He walked me through another set of questions, entering answers into a sleek computer terminal hanging from the wall with a clunky keyboard and mouse attached by swiveling mount, the kind that belonged under a desk. He prepared an order for an x-ray and pain medication that the doctor who would soon visit would confirm. His questions retread the stack of forms I had just completed. I answered the questions again. Another clerk arrived and asked me for my insurance information again and my co-pay.

Since working with HIHIT, I had become too interested in health information practices and policies. At my dentist's office a few months before the injury, I had angered a clerk who just wanted my signature indicating that I had read and accepted their health information privacy policy. I explained I did not have the policy. She explained I was holding it. I explained that the form described the conditions of me accepting the policy but not the policy itself. She explained, "Well, that's our policy. Everyone signs it before being treated." I explained, "But see, this form does not contain the policy. Am I missing it?" She replied, "Look, that's our policy." This conversation lasted until the hygienist called me back.

At the hospital, relieved I had not had to wait long and glad for the pain medication, I gave brisk, chatty answers. I repeated them when the doctor visited, adding details about my fall and how I felt. The doctor applied a quick-setting cast, and bid me to visit an orthopedist. I made an appointment the following morning, and saw my new doctor, Dr. Mays, that afternoon.

I arrived. I hobbled inside. The clerk in the Dr. Mays's office handed me a heavy tablet computer in a large, purple case with thick yellow handles, and asked me for my insurance card. I dug the card out of the bag hanging on my neck and dropped the tablet into it. I made it to chairs nearby. Again, I answered the questions.

Dr. Mays removed the temporary cast and ordered another x-ray. Just above my right ankle, I had a clean, angular fracture of my tibia, the second biggest bone in my body and my first broken one. Dr. Mays explained, I would have to visit weekly and then monthly to monitor my progress and to determine if I would need surgery and if the trauma would impact my ankle. I left his office with my leg wrapped and in a tight, grey, air-filled boot. Balancing on one foot with my crutches held in my arm pits, I found my wallet in my neck bag, and I paid at the desk next to the exit. I made my next appointment, and the clerked handed me printouts of my receipt, care instructions, and future appointment. With the tablet, back in the waiting room, I had created an account so that I could access and complete more forms through the clinic's online patient portal. I took the paper copies, too, slipped them in my bag, and left.

The annual meetings of the National Communication Association came two weeks later. I had made plans to stay about a mile from the conference hotel. Thanks to rides from colleagues and family, ride-sharing, and a knee-scooter lent to me by my department head, I made my way to Dallas. I tried to take it easy, but when I returned from the conference, I had picked up an acute pain in my calf just above where the boot I had been wearing stopped. My orthopedist sent me to a laboratory for a sonogram of my entire leg.

I arrived and went inside to find another waiting clipboard. I completed the paperwork again. The sonogram took about 45-minutes in a quiet, darkened, relaxing room. The technician left to forward the imaging to a radiologist offsite, and then returned with the diagnosis: Deep vein thrombosis (DVT) and another trip to the ER. Back in my friend's car, I called the orthopedist's office to ask if I really had to visit the ER. Yes, yes I did.

At the ER, I explained my diagnosis at the front desk, and I took my new clipboard. I completed the paperwork. I landed in a different ER bed. I answered the questions again for a nurse and a resident. Having consulted by phone with the resident, I was informed that the attending hematologist called in a prescription for rivaroxaban, a blood thinner. I left with instructions to follow up with my own hematologist. I made an appointment in a clinic in the floor above Dr. Mays.

Three days later, and a day before the hematologist appointment, I received what the person on the line described as an urgent call from Dr. Mays's office. “Have you been scanned?”

“What?” I asked. I said that I had gone to the lab and the ER days ago. She explained, “Oh. The system marked your file for an emergency follow up.”

“Three days later?” I asked.

I arrived at the hematologist. I scootered inside. The clerk handed me another clipboard. I had thought they might already have my information on file, because they were part of the same overarching organization separated by just a floor. They did not. I turned away and launched my scooter toward chairs. I answered the questions skipping most of them. Finding another privacy policy agreement with no actual policy attached, I pushed my way back to the clerk, and interjected, “Do I get to read the privacy policy I am signing for?” She blinked at me and handed me a laminated copy, and turned back to the people in line for their paperwork. The nurse called my partner, JJ, and I back.

In the doctor’s office, a clerk asked all the questions again. Between answers, I half joked, “What is the point of these forms if I am just going to answer the questions again for you?”

He laughed and blushed, “We want to make sure we get the answers right.”

Laughing too loud, I said, “If you do not have them right by now, you are not going to get them right.” I answered a few more questions.

“Here’s information about our patient portal,” he started.

“I don’t want the portal.”

“I’m sorr—What?—”

“—I don’t want anything to do with your portal.”

…

Estimates indicate that doctors spend two hours in medical documentation for every hour in clinical practice (Sinsky et al., 2016). EHRs built to streamline revenue cycle management are cumbersome to use for clinicians, deleterious to patient safety, vulnerable to fraud, unable to share data among providers and patients, inaccessible to patients and their families, and a contributing factor in provider burnout (Jaspers, Cox, & Krumholz, 2017; Schulte & Fry, 2019). Imagine the benefits of autocomplete for EHRs and how such technology could free clinicians and patients to make time for caregiving and empathy while augmenting access to information and diagnostic tools (Nundy & Hodgkins, 2018).

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But, away from the future-gazing, the clipboards, the forms, the screens, the portals—it was all so broken.

Before the doctor entered, JJ said, “You need to calm down. You are being mean.”

“I was joking,” I said.

“You need to calm down. Be nice.”

The doctor knocked, walked in, and shook my hand. “So, I’m betting your pretty tired of answering questions about your leg.”

“Let me explain a few details, if you want to hear them. Okay? And, then I think you will be able to manage this on your own. You can schedule a follow up if you feel you need one.” He explained the risk factors associated with DVT, how my medication worked, how I should manage the DVT, and what to look for and avoid. He answered my questions. He explained how long I should take the medicine, and under what circumstances I could stop.

As we left the room and then the clinic, JJ said, “They warned him about you.”

“Do you think so?” I asked unsure.

“Did you see that you interrupted the woman who was dealing with that long line?” The hematologist shared the office with oncologists and worked primarily with cancer patients. A long line had formed not long after I arrived. JJ had looked around the room, while I had my head down in the paperwork. “They came here because they’re dying.”

…

I never apologized to the staff or doctor or patients I interrupted in the hematologist’s office, but I wish I had. Looking back, I had excellent care, and I could make appointments as I needed them. I had insurance. I could co-pay. I had a flexible job that let me work around my injury. I got to quit the blood thinners. I avoided surgery. I could complete the forms. My leg healed. They had to complete all the same frustrating forms, and they had cancer, not a broken leg.

Data-intensive information technology holds so much promise for healthcare: Clinical decision support systems and other automated health information technologies can alert providers about potentially harmful drug interactions (Sholler et al., 2016), improve adherence to evidence-based practice guidelines (Gupta et al., 2014), algorithmically highlight patients at risk (Roumia & Steinhubl, 2014), encourage providers to talk to patients about important issues (Foraker et al., 2016), and improve patient care (Milani, Lavie, & Dornelles, 2012; Persell et al., 2012). But, the day-to-day experience of most patients and clinicians still does not reflect these innovations (Rajkomar, Dean, & Kohane, 2019; Topol, 2019).

Consider the stark contrast with other industries: As I sat in the ER waiting room the first time, in about five minutes I researched and ordered new crutches to replace the ones I had borrowed with a few swipes using the Amazon shopping app. Lyft carted me around Austin and Dallas with a few taps and the location data in my phone. From my sick bed, I planned our family's meals and ordered groceries at local store's website. Each time, these retailers drew on multiple, complex information systems without any clipboards or recurring paperwork. In contrast, EHRs have created more not less paperwork for patients, clinicians, and administrators. I do not mean to suggest that caregiving should become a retail transaction, but contrasted with the data-driven effectiveness of experiences with other organizations, we must demand more from the healthcare information technologies that we depend on when we are our most vulnerable.

The promise of these technologies notwithstanding, they bring renewed and justifiable anxieties about the hollowing out of the humanity of medicine as well as other industries where automation proceeds apace (Brynjolfsson & McAdam, 2016; Shell, 2018). Automation does not just replace work; it transforms it (Bailey & Leonardi, 2015; Sennett, 2009; Zuboff, 1988). Datafication involves not just the increasing digitization of our lives but also the diffusion of beliefs that life should be digitized (Barbour, Treem, & Kolar, 2018; boyd & Crawford, 2012; Carter & Sholler, 2016; Lycett, 2013). The datafication and automation of healthcare needs study and intervention lest we overlook the most important transformations altogether as they become routine in work (Leonardi, 2012). Changing the technologies of work means changing the work. The challenge for communication scholarship is to understand and empower organizational, professional, and policy deliberations about the nature of work and medicine. Communication research can elucidate the implementation of these technologies (Barrett & Stephens, 2017), and also help inform how healthcare workers design and enact the communication processes that depend on them (Barbour, Gill, & Barge, 2018). This scholarship must generate insights that help us create human-technology partnerships that benefit work and workers, caregiving and clinicians.

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As my leg healed, I also waited to hear about the research proposal focused on the datafication and automation of health and the future of work in healthcare. Drafting it, I read, I drew on my previous research, and I had experienced healthcare organizations firsthand as a patient or family caregiver before, but the crafting of the proposal had still been in principal an intellectual exercise. The proposal and my work with the CHC and HIHIT at the fore of my mind shifted my sensemaking as I managed my broken leg. After the proposal received funding, I came to the work with my hope and concerns for the transformations unfolding in healthcare undiminished, and nonetheless, the experience proved an antidote to the illusions endemic to health information technology future-gazing, the “Sparkling, spotless, and new, the imaginaries and connotations” of artificial intelligence and big data promising “a future that is scientifically perfectible, assuring a pot of gold at the end of a digitally coded rainbow” (Elish & boyd, 2018, p. 58). The experience made clearer the simple and imperative stakes of making healthcare paperwork less terrible.

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