Chapter 20
Doctor–Patient Social Networking to Improve Specialist Care Coordination

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ABSTRACT

Effective communication and coordination among medical doctors, specialists, and other caregivers could mean the difference between life and death for patients. This chapter presents a new digital health technology paradigm based on social networking that improves care coordination and communication among medical specialists. This technology integrates data across diagnostic modalities to simplify the process of accessing information, and reporting medical interpretations and treatment recommendations. This model can help care providers improve patient outcomes by facilitating initial risk stratification and remote consults with experts, thereby reducing admissions and readmissions, and making patient care more effective. Additionally, this technology can address the lack of specialists in underserved areas, and ease accessibility for aging populations.

INTRODUCTION

Effective communication and coordination among medical doctors, specialists and other caregivers could mean the difference between life and death for patients. This chapter presents a discussion on the implications of the current pitfalls in health care coordination with a review of key technological attempts to address them and introduces a new technology paradigm to resolve their shortcomings. Medical diagnostic technologies have made advances in recent years ranging from consumer devices and smartphone monitoring apps to artificial intelligence and more accurate imaging systems for hospitals. However, the availability of specialists to wade through all this data, interpret the results, and translate all of this information into actionable patient treatment plans has not increased. As fewer doctors specialize and

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as populations age, more patients need to travel more often and over longer distances to see already overloaded and overworked specialists. Furthermore, health literacy declines with age, and decision-making processes change (Finucane et al., 2002; Kutner et al., 2006).

Tools to communicate effectively across settings and providers are lacking, as health care systems around the world are fragmented, with many providers, settings, and clinical and nonclinical staff involved with each patient's episode of illness. Fragmentation on its own may not be harmful, if clinical information is communicated across settings and providers. However, there is significant evidence that communication across providers and settings is poor (Bodenheimer, 2008). Important instructions are often not received before patients have their first visit with the care provider. For example, one study found that two-thirds of physicians treated a patient for the first time after being discharged from the hospital but before the physician received the hospital's discharge summary (Kripalani et al., 2007).

Similar incompleteness was found in transfers between primary and specialty physicians and between community physicians and hospital-based physicians (Forrest et al., 2000; Gandhi et al., 2000; Schoen et al., 2005). Even providers with robust information technology systems are often unable to use them to communicate easily with other providers because their systems are not interoperable (Elhauge, 2010). Communication between primary care physicians (PCPs) and specialists regarding patient referrals and consultations is required in order to improve patient outcomes. Communication inter-specialty is increasingly important because increasing medical sub-specialization and technological advances further split care across numerous physicians in a variety of settings. Yet, inter-specialty communication occurs inconsistently (O'Malley et al., 2011). Lack of effective clinical coordination leads to poor quality of care and inefficiency and is a health policy priority. As patients experience transitions in care, there is an even more acute need to share information between care providers in an accurate and timely manner (Health Quality Ontario 2013). Research has found that the tools that contribute most to clinical coordination are those that allow doctors to exchange information and communicate (Aller et al., 2017).

Patients who suffer from chronic disease often have multiple concurrent chronic conditions and complications that require regular visits with a number of different specialists in addition to their primary care physician (PCP). They also may have intermittent interactions with emergency rooms and other care settings. This puts them at increased risk for severe adverse events if information does not flow between health care settings in timely and accurate ways.

Aging populations add another level of medical complexity as patients are taken in charge by a continuously increasing number of different care specialties. The resulting quantity and variety of information generated are exploding. Distribution of consolidated patient information between departments is therefore a critical point and sets a new challenge for information systems. We can expect that better information in terms of quality and quantity will provide new perspectives: it will ultimately improve the outcome for the patient, and it will foster a collegial approach among clinicians (Bandon et al., 2005).

Telemedicine offers promise to improve care for aging populations, chronic patients and remote regions. Using internet technology, specialty medical outsourcing where a licensed doctor performs an existing medical practice over a distance using technology is gaining traction. Around the world, specialists are now increasingly available to interpret diagnostic images for even the smallest hospitals on a fee-per-study basis - skills that they would not be able to recruit or otherwise afford. The impact can be enormous, as telemedicine becomes a multibillion-dollar industry worldwide.

In the November 2017 Report on EU State of Play on Telemedicine Services and Uptake Recommendations, the Joint Action Group found "countries are using telemedicine, mainly with local or regional scope, comprising interactions provider-to-patient and provider-to-provider and linking the different