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To Share or Not to Share: Optimal Value of Insurance Rewards for Sharing Data Generated from Wearable Devices for Hypertensive Patients

TREO Talk Paper

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Abstract

Wearable devices (smart electronic devices that are worn on the surface of the skin) have the potential for better management of various health conditions, thereby improving health outcomes and reducing health-related costs. Hospitals and clinics are moving towards integration of personal health data from wearable devices with EHR. For example, EPIC, a cloud-based EHR system currently support connecting data from various wearable devices (Dinh-Le et al. 2019). As of October 2018, there were 565 hospitals and 14,427 clinics that support integration of data from wearable devices into EHR. By integrating data from wearable devices into EHR, patients can experience better levels of controls over their health and, therefore, better health outcomes. Wearable devices can be particularly valuable to hypertensive patients by means of monitoring blood pressure without causing major disruptions in patients’ daily life. There currently exist various wearable devices that can help patients monitor their blood pressure: Heart Guide, ViTrack, Vivo Watch BP, and others.

Despite the benefits of sharing data from wearable devices, patients are generally unwilling to share their personal data. A recent study indicates that perception of privacy, security, and economic incentives determine patients’ willingness to share their data from wearable devices (Soliño-Fernandez et al. 2019). Some insurance companies do provide patients with incentives in the form of the reward programs for sharing data from wearable devices (e.g., Oscar Health, United HealthCare, Humana, and John Hancock), yet it is not clear if current incentive programs provide enough net value to motivate patients to share their data.

The purpose of this study is (1) to explore the current state of net benefits for sharing and accepting data from wearable device for patients and insurers, respectively, and (2) to propose changes to the incentive programs to enhance data sharing among patients. Eventually, the following research question will be answered: What is the optimal value of insurance financial incentives for hypertensive patient’s sharing of data from wearable devices?

The first purpose will be explored by means of semi-structured interviews with insurers and extensive literature review. The second purpose will be explored by means of a game theory optimization in which benefits and losses from sharing/accepting, identified in semi-structured interviews and literature review, will be estimated as parameters. The multi-objective function will be used to maximize the net value of sharing (for patients) and accepting (for insurers) data, given the range of parameters and various constraints.

References
