

Economics of e-Health: Measuring the Long-term Effect of Telecare

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Telecare is aimed at monitoring the health of the elderly or patients at home via the transmission of health-related data, and is thereby expected to enhance users' health. We previously confirmed that telecare reduced the medical expenditures of users in Nishi-aizu Town, Fukushima Prefecture, Japan, which in 1994 introduced Japan's longest-running telecare. The population of about 8,000 resides in 3,000 households, with a percentage of elderly over 65 years old in 2010 of 41.0%. Telecare used in this town allows patients to measure their health data, send the data to the town's health center, review the data at home, and receive advice from public nurses. This paper aims to examine the long-term effect of telecare (e-Health) in Nishi-aizu Town, Japan from 2002-2010, by comparing medical expenditures and days needed for treatment between two groups, namely users (treatment) and non-users (control) of the system based on the receipt data issued by National Health Insurance. Our previous papers used data of five years from 2002 and 2006, while this paper expands the period of analysis to four more years with respect to respondents who used in the previous analysis. The number of samples for 9 years is reduced sharply, namely 90 of users and 118 of non-users. Using a rigorous statistical method such as system GMM, this paper demonstrates that for all diseases, the relationship between telecare and days spent for treatment and medical expenditures are not found significant, whereas for chronic disease such as heart diseases, strokes, hypertension, and diabetes, long use of telecare reduced days spent for treatment and medical expenditures of chronic diseases by 4.2 days and 64,944 JPY, respectively. In particular, users who have been suffering hypertension reduced significantly two outcomes, which is due to that hypertension is a main disease in this town. Thus, telecare has a possibility to yield the rather larger effect to the users in the longer period.

Keywords: Telecare, medical expenditures, chronic diseases