Determinants of Telemedicine Utilization in Rural America: Application of the Dynamic Capability Theory

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ABSTRACT

Health organizations in rural America are often unable to fulfill local demands due to shortages of physicians and medical facilities. Telemedicine has emerged as a promising technology to compensate these inadequacies by means of virtual care. Yet, acceptance towards telemedicine varies, as administrators are unsure the costs and benefits of this new technology for their respective organizations. Previous research has analyzed empirical data to account for variations in telemedicine utilization but often without interpreting the findings with a conceptual lens. This paper analyzes a set of preliminary data with the dynamic theory framework borrowed from management scholars. The analysis will help health administrators make better sense of variations in telemedicine utilization and better utilize this technology to address the problem of unequal access in the rural health sector.

Keywords: Health Administrators, Health Organizations, Rural Health, Technology, Telemedicine, Virtual Care

INTRODUCTION

In the United States (US), recent health policies such as the Patient Protection and Accountable Care Act (often abbreviated as ACA for short) emphasized increasing access to care for underserved populations, such as residents in rural areas (Bashshur et al., 2013). Lack of access to health care in rural America is due partly to increasing cost of medical technology (Kohli et al., 2001) and partly shortage of physicians (Thomas et al., 2009).

To remedy these problems, telemedicine—defined as the provision of medical services that involves the exchange of medical information from one site to another via electronic communications for purposes of improving patients’ health status (American Telemedicine Association 2012)—is one promising new technology. Most importantly, telemedicine enables physicians to provide virtual care to patients without being physically located in the area. This can be of great value to rural patients, as they can avoid traveling to urban facilities to receive...
care (Paul et al., 1999). Significant time and financial costs may be saved.

Yet, the provision of telemedicine requires coordination between physicians and the respective health organizations. Hospitals, clinics, medical homes and other health organizations play a particularly important role. Specifically, they can facilitate the delivery of telemedicine by offering Internet equipment and access, assistance from a nurse or primary care physician, booking and follow-up reservation services (Bergmo 2000). Nonetheless, health organizations may or may not be enthusiastic about telemedicine. The use of a new technology entails changes in workflow and even cultural adjustment (Michea et al., 2002). As such, even though telemedicine can in principle increase the organization’s capacity, adoption of this new technology in rural health organizations is uncertain.

Given this possible resistance to telemedicine, it is useful to provide an analytical perspective that identifies the determinants of telemedicine utilization. The analysis can help administrators implement this new technology more effectively, and with actionable plans for future development. In this context, this paper applies the dynamic capability theory (Eisenhardt & Martin, 2000; Helfat & Peteraf, 2003; Teece, Pisano, & Shuen, 1997; Leung 2013) to analyze a set of preliminary data regarding the utilization of telemedicine in a rural American state. Dynamic capability theory emphasizes organizations’ “fit” with the organization, and is quite suitable for analyzing health organizations in rural America—many of them are facing changing environmental pressures, and need to realign their strategies to handle these pressures.

RESEARCH CONTEXT

Though sadly, American health care can be characterized as “high in cost, unequal in access, and average in outcomes” (Shi & Singh 2013). In 2008, American people spent $7,538 for health expenditures on average annually. This translated into 16% of the country’s gross domestic product (GDP). Not surprisingly, the cost of health care in the US is highest among all other countries in the world. Nonetheless, high costs do not necessarily lead to desirable outcomes. Based on various indicators, the US has only attained “average outcomes”. For examples, the mortality rate among children between ages 1-19 was the second highest among other OECD (Organization for Economic Cooperation and Development) countries as of 2010 (Centers for Disease Control and Prevention 2010).

President Obama has been a strong proponent of health care reforms. In his so-called Obamacare package, health information technology (HIT) is a central component to reduce cost, increase access and improve outcomes in American health care. New policies including the Health Information Technology for Economic and Clinical Health Act (HITECH) (part of Title XIII of the American Recovery and Reinvestment Act) of 2009 and the Patient Protection and Affordable Care Act (ACA) of 2011 emphasized the use of health information technology such as telemedicine (Bashshur et al., 2013; Myers and Lieberman 2013).

Rural America is supposed to benefit from telemedicine and other HIT. As health statistics suggests, there is often a shortage of physicians—both specialists and primary care doctors—in rural America (Nobline et al., 2012). For some rural patients, specialists such as psychiatrists, cardiologists and dermatologists are hard to find; in some rural areas, even primary care physicians are in short supply. An aging population in rural America has aggravated the problem (Glasgow 2000; Ziembroski 2006).

If these trends continue, they will also reduce the provision of preventive care, leading to a general unhealthy population in many parts of rural America. Telemedicine can be utilized to handle aging and other new environmental demands in rural America. Conceptually, health organizations need to develop capabilities to handle environmental pressures so that they can remain “fit” and competitive (Teece et al., 1997; Zajac, Kraatz, & Bresser, 2000). Yet, without a
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