Chapter 6

The Impact of mHealth on Supply Chain Management of Medical Supplies in Village Clinics:
A Case of Cstock mHealth in Malawi

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ABSTRACT

This chapter reports the results of a study that evaluated the impact of an mHealth system named Cstock on the supply chain management of medical supplies in village clinics of Mangochi district in Malawi. The study found that Cstock was used for requesting health products, supply, and resupply from healthcare facilities. In terms of quality, it was reported that the system was fast, easy to learn, and rarely displayed error reports. Cstock mHealth also yielded positive impacts through time and cost savings, improved communication, and availability of essential medical stocks at all levels of the supply chain and improved data visibility for decision-making. However, poor network coverage, lack of power source for charging phone batteries, absence of monetary incentives, lack of technical support compromised the effective utilisation of the system. The chapter offers insights to policy makers, implementers, and research practitioners on how to build resilience in the management of medical supply chain in a primary healthcare setting through the use of innovative mHealth technology.

INTRODUCTION

Globally, it is recognised that malaria, pneumonia, malnutrition, and diarrheal diseases are the leading causes of childhood morbidity and mortality. In fact, about 70% of these early childhood diseases and deaths can be prevented or treated with access to simple and affordable interventions (WHO, 2011). This situation has become more prevalent in the sub-Saharan African countries, due to limited or no access to health services in rural communities and other factors such as cost of healthcare, geographical location of healthcare facilities, and long distances people have to travel to access healthcare services (Nyaga, 2021). However, with approximately 5.9 billion mobile phone users globally, opportunities for mobile phone technologies to play an important role in the delivery of health services, especially in developing countries are increasingly being recognised (GSMA, 2021; Kallander et al., 2013).

Mobile health (mHealth) describes the use of mobile phones, and other portable electronic devices with software applications to provide health services and/or manage patient information (Malanga, 2017). Previous studies demonstrate the positive impact of mHealth applications on improving child and maternal health outcomes in developing countries (Nyemba-Mudenda & Chigona, 2018; Malanga & Chigona, 2018). Key areas of health systems' improvements as a result of mHealth interventions include adherence to treatment/medication, appointment compliance, data collection and monitoring, point of care services, health promotion and education (Shiferaw et al., 2018). Besides, mHealth applications can also support community health workers (CHWs) to deliver effective community health management services to children whose present symptoms of diarrhoea, pneumonia, and malaria are prevalent particularly in underserved rural locations in low-income countries (Shiferaw et al., 2018).

Despite this evidence, studies also suggest many challenges that affect the adoption and scaling or maintenance of existing mHealth interventions. These challenges include lack of sustainable financing, weak organisation structure, poor ICT infrastructure, lack of technical capacity, lack of interoperability and integration, and security and privacy concerns. However, there is limited evidence on the impact of mHealth applications on supply chain management of medical supplies in low-resourced settings in developing countries. Previous studies (Nyemba-Mudenda & Chigona, 2018; Binyaruka & Borghi, 2017; Njoroge et al, 2017) have looked at mHealth adoption at generic level with little or no attention to the role of mHealth in supply chain management of medical supplies, particularly in developing countries like Malawi.

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