Chapter 1.9
Mobile E–Health:
Making the Case

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ABSTRACT

Health care is an industry with a diverse set of stakeholders: governments, private health care providers, medical practitioners (physicians, nurses, researchers, etc.), home health care providers and workers, and last but not least, clients/patients and their families. Overlapping and interacting environments include hospitals, clinics, long-term care facilities, primary care providers, homes, and so forth, involving acute, emergency, chronic, primary, and outpatient care. Patient transitions between these environments are often unnecessarily difficult due to an inability by providers to access pre-existing patient records. Mobile/wireless solutions can play an important role in supporting health care by providing applications that access health care records and reduce paperwork for clinical physicians, nurses, and other workers, community health care practitioners and their patients, or mobile chronically ill patients such as diabetics. This chapter makes the case for mobile health care and its solutions in the non-acute community health care environment, where critical issues include usability, adoption, interoperability, change management, risk mitigation, security and privacy, and return on investment. A proposed community health care application demonstrates how these issues are addressed.

INTRODUCTION

Many individuals receive their care from more than one caregiver or other provider: individual physician, group practice, hospital, long-term care facility, laboratory, pharmacy, walk-in clinic, urgent care center, work-site clinics, school clinics, and so forth. When and where choice is available, clients can select caregivers or other providers based on their proximity, bedside manner, quality and capability, cultural aptitude, or other factors. Clients/patients also must move among health care providers as their state of health changes, creating a need for their health records/histories to move with them, so each provider does not need to prepare a totally new patient history at admission (see Figure 1). Without the general existence of digital health records and some means of integration or

Figure 1. Information flows in patient-centred health care (adapted from Krull-Naraj, 2004)
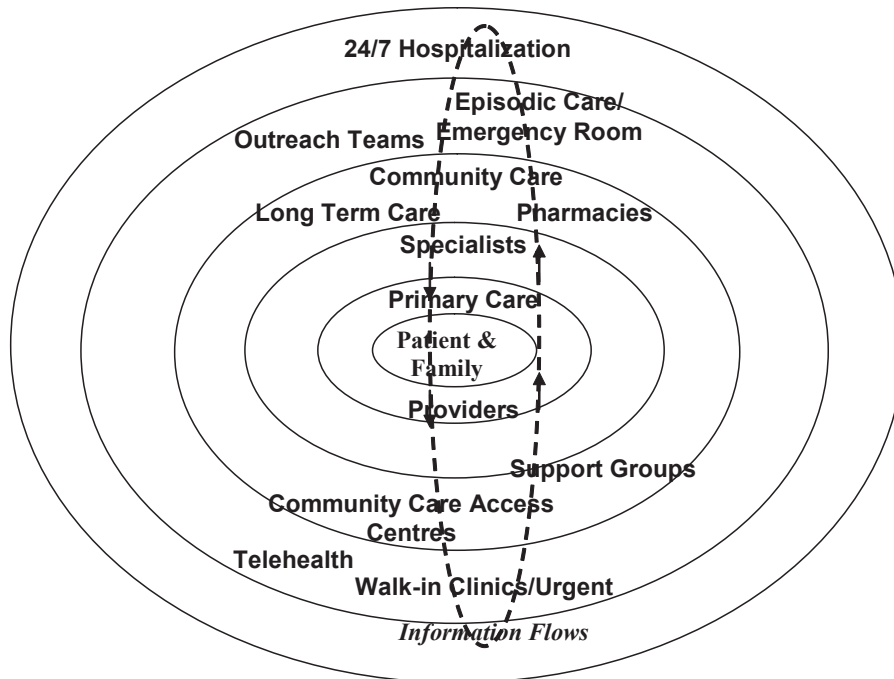
interoperability, individual choice and movement leads to fragmentation of the individual's health care experience. Typically, this means that client record transfers are accomplished from one or more sources via paper, scanned digital records, and/or fax. The result is that client records may be stored on paper at a number of caregiver institutions or re-keyed into institutional databases, with no possibility of version control or compatibility. This fragmentation of records often leads to errors, duplication, lack of coordination (Brailer, 2005), conflicting approaches to a patient's health care, service and/or resource duplication and many other problems including reduced quality of care, reduced effectiveness, and increased cost to society.

Integration mechanisms have been tried in the past, although none has delivered lasting benefit. These include horizontal and vertical mergers of providers, state-sponsored networks of community care services, and so forth. How-

ever, there is theoretically no technical barrier to establishing a network of providers that would use information in an interoperable manner for integrated support of patient care, and this would not require a massive integration of physical assets and the bureaucracy required to operate it. In the U.S. alone, the potential savings from such an approach have been estimated at U.S. $77.8 billion per year (Walker, Pan, Johnston, Adler-Milstein, Bates, & Middleton, 2005). This does not include the substantial clinical and quality of life benefits from this approach. Unfortunately, it has been virtually impossible in most jurisdictions to get broad agreement on a standard and portable electronic health record (EHR) that would support this interoperability. Although the standardized EHR has a continuing focus of the health care community (Berner, Detmer, & Simborg, 2005), the process of adopting a standard would still require large investments in the database conversion process and the necessary secure communications

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