Chapter 4.9
Tele-Medicine:
Building Knowledge-Based Tele-Health Capability in New Zealand

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ABSTRACT

This chapter reviews the strategic planning of health information systems in New Zealand. This step is deemed necessary to identify the main accelerators and/or impediments that influence technology adoption and diffusion in health organisations in New Zealand. This research introduces the tele-medicine technology as one possible solution to provide continuous, quality, and immediate medical care to rural patients and to encourage networking among the different hospitals in New Zealand. This research suggests that in order to realise tele-medicine benefits in health care delivery in New Zealand, certain issues need to be addressed such as implementing comprehensive cost-benefit analysis and identifying the benefits sought from adopting the tele-medicine technology. The New Zealand context is unique and this perspective with respect to tele-medicine adoption and success is addressed in this research.

INTRODUCTION

Information systems (NZHIS, 1995a; NZHIS, 1995b; NZHIS, 1996; Neame, 1995; Austin, Trim & Sobczak, 1995; Conrad & Shorttel, 1996), information technology (IT) (Bomba, Cooper & Miller, 1995) and technology (Little & Carland, 1991) have been emphasised as strategic tools for enhancing health care delivery and for improving performance, leading to optimised services and efficiencies. However, the New Zealand studies (NZHIS, 1995a; NZHIS, 1995b; NZHIS, 1996; Neame, 1995) indicate that the sector is "relatively devolved," with purchasing contracts being the main mechanisms to drive sector-wide change at the provider level. Much of the information needed is unavailable in the form needed or at the time that it is needed most. This in part is related to gaps in the conceptual understanding of service delivery, which is in this sector is a very complex business, spanning what has been an extensive range of relatively autonomous functional areas. But it is also due to a lack of reliable information about outcomes, effectiveness and actual costs on which improvements can be based. Because of

this lack of empirical data, the tools for dealing with this complexity, and understanding what happens and why, are deficient (NZHIS, 1996). Various organisational issues and the lack of coordination at the national level were also identified. Expertise in health information management and systems is limited. Currently few health and disability sector personnel have the knowledge and skills to understand the issues or to make informed judgements about the validity of the advice they obtain.

New Zealand is not alone in this situation and different countries are facing similar difficulties although the severity of this situation varies from one country to another (Austin, 1992; Bakos & Tracy, 1986; Shortell, Morrison & Friedman, 1990; Topping & Hernandez, 1991; Conrad & Shortell, 1996). This literature points to different organisational, technological, and environmental impediments in adopting and in making use of IS/IT in organisations (Austin, 1992; Austin, Trimm & Sobczak, 1995; Ward, Griffiths & Whitmore, 1990). The 23 Health and Hospital Services (HHSs)[1] that exist all over New Zealand are no longer in competition with each other or paid in principal according to the number of people they care for. The competition from the few private hospitals has no effect on them. Ever-lacking government funds (Neame, 1995) are faced with further reduction on the medical portfolio by reducing or eliminating less priority and less life threatening services for the sake of introducing important new ones. The various gaps that exist between the various stakeholders and the lack of a leader (e.g., the government) to coordinate between the different HHSs result in having 23 different information systems that eventually do not interact with one another.

Diminishing funds from the government and cost control mechanisms have led to the need for alternative and more cost-effective means of providing care (Edelstein, 1999; Neame, 1995). In many cases, this has become necessary for survival (Edelstein, 1999) in order to sustain the increased competition among health care providers. The business of health care has become so competitive in different countries that many small rural hospitals are trying to align themselves with larger tertiary care centres in a community health-information network, a tele-medicine network, or some other type of partnership in order to survive and to retain their local patients (Huston & Huston, 2000). Within these challenges, tele-medicine emerge as one possible solution to New Zealand health providers in reaching out to rural patients (Charles, 2000; Harris, Donaldson & Campbell, 2001), to areas where patient volumes for certain services are limited (Edelstein, 1999), to conduct administrative and clinical meetings, and to conduct different training courses to patients (smoke treatment centres), doctors, nurses, and other medical staffs (Perednia & Allen, 1995; Wayman, 1994).

Tele-medicine means medicine from a distance where distant and dispersed patients are brought closer to their medical providers through the means of telecommunication technologies (Charles, 2000; OTA, 1995; Noring, 2000; Perednia & Allen, 1995; Wayman, 1994). Noring (2000) provided an interesting comparison between the former definition for tele-medicine and tele-health. This researcher defined the term tele-health as expanding the capacity of tele-medicine to provide the full continuum of care, from health promotion and disease prevention through curative treatment and terminal care. This term also implies including non-physician-based health care providers.

Tele-medicine covers a wide spectrum of benefits through the use of video conferencing (VC) technology in areas such as consultations, diagnostics, therapeutic, transfer of patient-related records, case management, training, and meetings. Researchers envision tele-medicine to be an important building block in the strategic plan of many health care organizations (Charles, 2000). In a rural setting, tele-medicine could help New Zealand health providers in supplying quality, fast, and economical medical services to rural