Chapter 5.7
Use of Handheld Computers in Nursing Education

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ABSTRACT

The use of mobile technologies in nursing education is rapidly increasing. Handheld computers are the most frequently used of these technologies as they can provide students with information for point of care clinical reference, such as diagnostics, medical terminology, and drug references. Integrating the management and processing of information into clinical practice is an effective learning approach for students and reflects a changing paradigm in nursing education. Traditionally, nursing programs have the tendency to separate the acquisition of academic knowledge from clinical practice, and the process of integrating academic information into the decision making processes in the clinical area has been difficult for student nurses. This chapter will provide an overview of the use of handheld computers in nursing and medical education, including a brief synopsis of current use in clinical practice. It will discuss the advantages and disadvantages of their use, barriers to implementation and future directions.

INTRODUCTION

Healthcare in the developed world is characterised by a rapidly increasing use of mobile technologies to deliver effective and quality patient care.

Handheld computers or personal digital assistants (PDAs), have the potential to change how healthcare is taught and delivered in the future as they have the ability to merge and integrate distinct functionalities in one device that is versatile, customizable, and portable (Baumgart, 2005). Research and anecdotal evidence suggest that PDAs can be used in clinical practice to deliver valuable decision-making information at the patient's bedside. This significant improvement in the delivery of information results in improvements in patient safety and quality of care. PDAs provide instant access to diagnostics, references, and clinical decision support systems, as well as e-prescribing, patient information and dictating notes (Blair, 2006; Colevins, Bond & Clark, 2006; Choia et al., 2004; Fisher, Stewart, Mehta, Wax & Lapkinsky, 2003; George & Davidson, 2005; Lewis, 2001; Ruland, 2002).

Educational processes in healthcare have also become increasingly complex. Students require timely access to resources. Organisational constraints in both technology and personnel may further limit students' access to teaching resources. Having access to information at the bedside in real time with patients has the potential to improve the quality and safety of care by reducing adverse events and improving patient health outcomes; a solution to the problem of constrained resources. The National League for Nursing, the American Association of Colleges of Nursing, and the Institute of Medicine, to name a few, recommend the incorporation of technology into the curriculum of nursing education (George & Davidson, 2005). The incorporation of PDAs into daily practice by medical staff is far more advanced than in nursing, however this is changing and nurses are now adopting this technology in nursing practice and education. To encourage change in practice technology must be harnessed to revolutionise the design, delivery and evaluation of nursing education (Jeffries, 2005). Increasingly there is an educational shift to provide students with more learning opportunities to create innovative

teaching practices and to promote current, accurate information retrieval systems for clinical nurses.

As learning and teaching adapts to the demands of the 21st century, both educators and students in the nursing profession are finding that the most effective learning approach integrates the management and processing of information into both their practice area and their personal growth and development. In higher education, there has been a shift from the notion of content to a focus on 'process based education' and this is occurring more rapidly in the healthcare arena and in nursing programs in particular. The focus will be increasingly on teaching students how to learn rather than what to learn. There is considerable evidence that suggests PDAs have the potential to improve nursing education and practice through connecting people, unifying the education process and enhancing learning. Patient safety is one of the most important aspects of nursing care and these devices can promote the quality and immediacy of bedside information and improve the accuracy of record keeping (Bates, 2000; Celler, Lovell, & Basilakis, 2003). This chapter will provide a review of PDA usage in nursing and medical education, including the advantages and disadvantages, barriers to implementation, and future perspectives.

PDAS IN CLINICAL PRACTICE

PDAs have been adopted by healthcare professionals (predominately physicians) in clinical practice and this adoption has led to a number of different uses including clinical decision support, education, and accessing or collecting data. The literature reveals that the information on usage is usually descriptive rather than evidence based, although some preliminary impact studies are indicating improved patient outcomes with regards to PDA usage. Specialty areas are prominent in the use of PDAs.

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