

## Chapter 3.9

# The Evaluation of Wireless Devices Used by Staff at Westmead Hospital

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### ABSTRACT

This chapter reports on a study to research and evaluate the use of latest generation wireless devices—typically personal digital assistant devices (PDAs)—by clinical staff at the large Westmead Hospital located in the west of Sydney, Australia. Currently, medical reports in this and other hospitals are primarily recorded on paper supported by personal computers at nursing stations. However, there is very little or no access to medical reports and decision-making tools for medical diagnosis at the patient's bedside—the precise location at which most medical decision-making occurs. Delays in access to essential medical information can result in an increased time taken for accurate diagnosis and commencement of appropriate medical management of patients. This chapter discusses the application of hand held devices into more powerful processing tools connected to a centralised hospital data repository that can support medical applications.

### INTRODUCTION

Currently, personal digital assistant (PDA) devices are used by most junior hospital staff to view formulary information. A short survey carried out showed that almost 90% already own a PDA device and use it for drug and medication referencing. Access to drug information databases on PDAs provides a fast and easy way to reference medication details including interactions. Hospital staff members also use PDA devices for day-to-day calendar and appointment notification (Carroll & Cristakis, 2004). But it is just recently, due to the evolution of PDA devices, that it has become possible to take the next step and utilise the full capacity of the PDA devices in a hospital environment.

The study was conducted with a variety of staff members in the hospital; these included senior clinical staff, specialist staff, and junior staff. This was from across the hospital—from general wards, special units, and the emergency department. The duration of this trial was for nine months, with a rotation of staff members. Staff members were assessed before becoming part of

the trial as to how long it takes the individual to carry out a particular task without the assistance of a PDA device; these tasks were timed. Then a complete instruction booklet was given to the hospital staff with the PDA device to make use of as they found it necessary in their daily duties.

After a certain period when the staff members were comfortable in using the device, time was again measured for different tasks with and without PDA devices. This set the background for the trial. To evaluate the social accepts of the trial, a survey was conducted to gather the thoughts of the users on the functionality and the useability of the device in a hospital environment.

## **THE EVOLUTION OF PDA DEVICES**

Over the last few years, the PDA has evolved in ways originally unimaginable. One of the first PDAs to enter the market was the Palm Pilot (now more commonly known as the Palm). When first released, the Palm came with a monochrome screen and had a limited amount of onboard memory. Since then the Palm evolved into a PDA that featured expandable slots for additional memory and expandability options (i.e., modems, printers, and other peripherals). In addition, Palm PDAs now feature high-resolution colour screens which are continuously improving. Furthermore, the Palm also comes with built-in wireless access that permits it to connect to various types of devices and networks, allowing it to be truly portable (as originally intended).

Pocket PCs entered the market shortly after Palm PDAs were introduced; however, unlike Palms the Pocket PC is more of a PDA standardisation rather than a brand name. Pocket PCs are made by several companies, for example Dell, Toshiba, and HP/Compaq; however, the core operating system is written by Microsoft. On the other hand, the Palm PDA operating system (Palm OS) is maintained by Palm itself, which ensures that all features of the operating

systems are fully functional. Small distinctions such as this have allowed both devices/brands to compete for the same market space and are still considered independent niche markets.

Since Palm has been on the market for a considerably longer period of time, there is a remarkable amount of software support found throughout the Internet. Palm PDAs now have the ability to operate seamlessly with Windows, Linux, UNIX, Novell, Macintosh, and practically any type of network. There is a considerable amount of open source development done within the communities that make featured software available for Palms. Similarly, Pocket PCs are supported through a large number of Internet sites. Since standards are maintained, which include desktop and server operating systems, these have the ability to ensure that their operating systems designed for Pocket PCs will meet the same quality control and compatibility assurance. Nevertheless, with the rivalry between these two PDA vendors, it is possible to see further improvements such as superior screen resolution, improved standard of expandability options, inclusions of newer wireless technology such as 802.11g, and most importantly reduced costs, allowing more people to access such technology. Since their evolution, PDA devices can now interact with the latest available wireless technology and can be used in a hospital environment. The two PDA devices used in this case study are the Palm Tungsten T3 and the Toshiba e800 Pocket PC.

## **Palm**

The Tungsten T3 is selected for this study because of its flexible features. At the time of the study, the T3 was the most highly developed Palm device, with built-in Bluetooth wireless technology, 64 MB memory, and moderate screen resolution. To reduce screen scrolling, the T3 has a stretch screen display as well as portrait and landscape modes.

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