

Preface

Have you ever wanted to calculate the predicted peak flow for one of your asthmatic patients without spending valuable minutes searching for that confounded little slide rule gizmo? How about being able to enter your patient's risk factors and cholesterol number, and have the goal LDL cholesterol level spit out for you without having to read the latest version of the National Cholesterol Education Program's guidelines in their entirety—let alone remembering how to use them in your busy daily practice? Wouldn't it be great if you could somehow remember all Mrs. Jones' medications when the nursing home calls to see if it's OK to treat her acutely elevated blood pressure with some atenolol? What would you give to be able to look up the dosing instructions for that newly released medication in seconds, without lugging out the 10-pound PDR (would it even be in there if the medication was just released)?

All these medical tasks and many, many more can be easily accomplished using the current models of handheld computers. While earlier generations of handheld computers suffered from clumsy interfaces, short battery lives, and poor software, the latest models available from Palm®, Handspring, TRG, Sony, Hewlett-Packard, Toshiba, Casio, and others come very close to being the ideal information tool for clinicians at the point of care.

In handheld computer user circles, the following quote is often used to highlight the trepidation with which most physicians view computer technology: "That it will ever come into general use, notwithstanding its value, is extremely doubtful because its beneficial application requires much time and gives a good bit of trouble, both to the patient and to the practitioner because its hue and character are foreign and opposed to all our habits and associations." Just look at the abysmal 5% of physicians who currently use electronic medical records in their practice despite widespread availability for more than two decades.¹ However, this quote was actually made in an

1834 edition of the *London Times*, and was referring to the stethoscope, and not handheld computers. If the handheld's future is as bright as the stethoscope's was in 1834, watch out!

These handheld computers are coming to be known as "Medical Digital Assistants" or MDAs instead of the frequently used "Personal Digital Assistant" or PDA acronym of the business world. Nearly a quarter of physicians report using an MDA² and the numbers are growing rapidly, with more than two-thirds of family practice residencies reporting that they are using handheld computers in their training programs.³ These devices are becoming so popular that physicians like Chris Vincent, MD, a clinical associate professor of family medicine at the University of Washington and Swedish Family Medicine Residency, proclaimed, "We think the PDA is the stethoscope of tomorrow. Within five years, everyone is going to have one."⁴

Will these technological marvels improve the quality of care? Do they hold the promise of making physicians more efficient, informed, and less error-prone? Can they help patients and physicians manage chronic diseases more effectively? These provocative questions, and many more, are currently the subjects of researchers' inquiries across the country and throughout the world. While MDAs are rapidly gaining acceptance in medical practice, designing the best interfaces (interfaces are how we interact with the computer) and eliminating error-prone or buggy devices and software will be critical. Additionally, designing handheld-based systems that patients can use to keep their physicians up-to-date on their latest peak flow readings or blood glucose trends may change the way we treat chronic disease.


This book is not intended to be an exhaustive review of all available hardware and software options. Rather, it should serve as a brief overview of how practicing physicians can use these tools in their practices. The book is written by practicing physicians with handheld computer expertise and will illuminate various unique and useful ways to employ handheld computers in your practice. It is designed to be helpful for all kinds of users, from the novice through the computer wizard. In Section I, we will take you through choosing your first handheld, its basic uses, and how to download and install software on your new machine.

In Section II of this volume, the various types of medical software are introduced, including where to find them and how you can use them on a daily basis to enhance your practice. Types of software covered range from keeping track of your patients to medical references and calculators. Creating simple tools for tasks such as tracking your CME hours is also covered. Finally, the ever-important task of capturing your patient charge information deserves a chapter. Although the focus is on tools for practicing physicians in this section, we will also learn how nurses and physician assistants use handheld computers in practice.

Finally, Section III contains some food for more advanced users, so keep it for later if you are a beginner handheld enthusiast, or you might want to

skip to this section if you are a *Star Trek* fan trying to emulate Dr. McCoy, carrying a handheld since the introduction of the Apple Newton in 1992! Here we cover advanced topics, including wireless networks, creating your own databases, and programming your own software. This section also has a chapter for the academics in the group who want more information on how to teach about the use of handhelds in their “ivory towers,” and a chapter on server synchronization reviews advanced deployment and retrieval of information over networks and servers.

This is the first book of its kind devoted to healthcare professionals, and we realize that this is a rapidly evolving field. Every effort to bring you the latest, most up-to-date information was made at the time of printing, but the details will change very fast. The framework for the book should be an excellent guide through this dynamic topic, and it is our intention to provide Web updates of certain tables and text and to produce future editions on a timely basis. Please go to www.handheldsinmedicine.com for updates.

The book is also organized so that if you learn by doing things you can skip to the “hand-on” exercises in nearly every chapter denoted by the icon . There are also “power users” tips throughout the book for advanced handheld users.

It is our hope that using a handheld computer in medical practice will improve your efficiency while enhancing the quality of care at the same time. Sharing the small handheld screen to illustrate a medical concept for your patient, showing them how quitting smoking will improve their cardiac risk profile, and quickly looking up a medication dose give you precious additional seconds in the exam room, improve the quality of care, and show your patients that you are on the cutting edge of medical technology.

Scott M. Strayer, MD, MPH

Peter L. Reynolds, MD

Mark H. Ebell, MD, MS

References

1. Stringer J. Broken Records. Red Herring. Retrieved from the World Wide Web at <http://www.redherring.com>, December 11, 2003.
2. HarrisInteractive. Physician's use of handhelds increases from 15% in 1999 to 26% in 2001. Harris interactive poll results. Vol. 1, Issue 25. Retrieved from the World Wide Web at <http://www.rnpalm.com/harris.htm>, August 15, 2001.
3. Criswell DF, Parchman ML. Handheld computer use in U.S. family practice residency programs. *J Am Med Inform Assoc* 2002;9(1):80–86.
4. Connaughton D. “Stethoscope of tomorrow” puts medical information at your fingertips. *FP Report*. October 2000.