PDA's for Oncologists

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What do next-generation PDA's offer the medical community?

The first PDA's (personal digital assistants) to roll out in the mid 1990s were based on the Palm operating system (OS) (Palm Inc, Sunnyvale, California). Although revolutionary at the time, they functioned largely as personal information managers. Current evolution is characterized by

connectivity. The original popularity of stand-alone devices is giving way to PDA's that can wirelessly link to other PDA's, to wireless networks, and directly to the Internet. Devices combining PDA and cellular phone functionality are sometimes known as *smartphones*.

What are the different types of PDA wireless technologies?

- Infrared—PDA's, laptops, TV remote controls, and other electronic devices commonly use infrared technology. It has been superseded by other technologies and now has limited value.
- Bluetooth—This short-range technology (Bluetooth SIG Inc, Bellevue, Washington) is used for file sharing or synchronization between two PDA's or a computer and a PDA. It also is used to "pair" third-party accessories, such as compatible headsets, with a PDA.
- Wi-Fi—Short for wireless fidelity, Wi-Fi allows a PDA to join a wireless network, typically one comprising interconnected home or office computers, or a public access point (eg, a Wi-Fi "hot spot") to share files or access the Internet.
- Cellular—Smartphones use cellular technology for voice calls, text messaging, and Internet access. Carrier-specific and mutually incompatible wireless networks are the two most prevalent types—CDMA (Code Division Multiple Access) is largely restricted to the United States, and GSM (Global System for Mobile Communications) is in widespread use in Europe and elsewhere. Some smartphones are now capable of using high-speed wireless networks, such as the EV-DO (Evolution-Data Only) network from Verizon Wireless (Verizon, Basking Ridge, New Jersey), with Internet access at near-broadband speeds.

What factors should a physician consider before purchasing a PDA?

First, decide whether you will use your PDA primarily to manage personal information, in which case, a low-cost stand-alone device would work, or to perform more complex

tasks, such as accessing Microsoft Office (Microsoft Corp, Redmond, Washington) documents. Then decide what types of connectivity you'll need. Bluetooth-enabled headsets can connect you to your PDA without the headache of cords and wires, and Wi-Fi mobility can be particularly valuable in clinical practice if such a network is available at the point of care. Then consider whether you would want a smartphone, with the greater power and connectivity partially offsetting the added cost, complexity, and weight.

What are the limitations of current PDA's?

- Memory—PDA's have a fraction of the storage capacity of a desktop computer, limiting the ability to save multiple large files or certain file types (eg, graphics) to the main memory. Look for a PDA with an expansion slot for a flash memory card, such as the Secure Digital memory card. However, remember that memory cards cannot run all file types and applications.
- Input—Depending on the type of PDA, the user enters text with a stylus, using proprietary handwriting-recognition software, such as Palm's Graffiti, an on-screen keyboard, or an integrated, compact keyboard. However, even for a power user, entering large amounts of text is frequently slow, clumsy, and fraught with errors.
- Screen size—This is often a compromise, as the more versatile devices may have smaller screens, though the resolution tends to be higher.
- Data loss—This is best avoided by regularly synchronizing with your PC to back up files. Most data are stored in the PDA's RAM (random access memory) and are lost if the batteries die.
- Case dents/screen scratches—To ward off dings and scrapes, use a device case and a stick-on screen protector.

Are Palm OS-based devices the only useful ones for physicians?

Not at all. Devices based on Palm OS and Microsoft Windows OS (called Windows Mobile) have comparable features and functionality these days. However, there are more medical applications available for the Palm OS. Some find the Palm OS more intuitive than Windows Mobile. Furthermore, Pocket PC devices using Windows Mobile cannot synchronize with Macintosh computers (Apple Computer Inc, Cupertino, California) without third-party software. Few applications with medical functionality are available for BlackBerry PDA's (Research In Motion, Waterloo, Ontario, Canada) and smartphones, though these devices remain popular for their superior e-mail features and ability to synchronize with corporate e-mail servers.

What third-party applications are of value to oncologists?

Since the first Palm devices were marketed, PDA's have been customized with third-party software that greatly expands

their functionality. Applications include databases, calculators, algorithm/predictive models, and document readers/editors, among others. Independent developers, including academic institutions, government sources, and individuals, have all created useful products for the medical community. Many are freeware (free) or shareware (low cost) and available for download from a variety of sites. A few examples include:

- Haemoncrules—a clinical algorithm calculator (palmdoc.net/?page_id=1099).
- Hopkins Opioid Program (Johns Hopkins University, Baltimore, Maryland)—a tool to aid in the conversion of one opiate drug to another (www.hopweb.org).
- Nomograms (Memorial Sloan-Kettering Cancer Center, New York, New York)—clinical prediction tools for outcomes in several different tumor types (www.mskcc.org/mskcc/html/5794.cfm).
- MD on Tap (US National Library of Medicine, National Institutes of Health, Bethesda, Maryland)—an application to access the PubMed database from a wireless browser (archive.nlm.nih.gov/proj/pmot/pmot.php).

Apart from the previously mentioned software, commercial vendors such as Skyscape Inc (Marlborough, Massachusetts) publish PDA versions of several popular oncology texts, which can be stored on a memory card.

What are ASCO's PDA resources?

ASCO's PDA services are available online (www.asco.org/pda). There, you can download its membership directory, as well as abstracts and editorials from the *Journal of Clinical Oncology*, available through HighWire Press. You can install the ASCO PDA Portal, a stand-alone application that allows access to a variety of content, including newsfeeds, a list of ASCO departments, a calendar of upcoming scientific meetings, and medical illustrations. There also is a version of ASCO.org optimized for the PDA browser at pda.asco.org.

Should physicians who use PDAs be concerned about security and patient information?

Patient names and other identifiable information on the PDA are considered protected health information under HIPAA

(the Health Insurance Portability and Accountability Act). PDAs can be lost or stolen, putting the stored information at risk of being accessed by an unauthorized third party. While most PDAs can be password protected, requiring a password for every access can severely limit the device's usability. Most PDAs can be set to lock after a user-defined interval. A program called Butler (www.hobbyistsoftware.com; Hobbyist Software) allows the user to send a text message with a given word in its title to a Palm Treo smartphone, which will cause the device to lock or to erase all data when the message is received.

What are your three top PDA tips for physicians?

1. Use your PDA for what it is best suited—point-of-care applications, mobile information that changes frequently, and calendar and to-do lists. Use your personal computer for everything else, such as word processing or anything requiring a significant volume of data entry, routine e-mails, Web browsing, and so on.
2. Synchronize your PDA frequently with your PC so they mirror each other. For extra security, invest in a backup utility, such as BackupBuddyVFS from Blue Nomad (www.bluenomad.com; Santa Monica, California), which can restore all of the data stored on your PDA from the memory card should your device crash.
3. Use a secure database program, such as SplashID from Splash Data (www.splashdata.com; Los Gatos, California), with strong encryption to store all of your passwords, account numbers, personal identification numbers, and so forth on your PDA. Having all of these data on your PDA means you will have access to important information wherever you are.

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Disclaimer: The authors are not recommending any particular type of software or service.

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