

# UW Family Medicine Residency Network PDA Resource Guide

updated January 2006

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Author's disclaimer: The recommendations and information in this guide are the opinions of the author and do not necessarily represent those held by the University of Washington School of Medicine or the Department of Family Medicine. The guide is intended to be used as a reference for UW faculty, residents, and student who wish to learn more about PDA's or want information about PDA medical software. I have attempted to make sure the information in this guide is accurate, and that web site URL's are correct, please contact me if you feel there are errors. Neither the University of Washington Department of Family Medicine nor I endorse any of the vendors listed in this guide. I have received no financial compensation for this guide and have no financial interest in any of the companies listed in this guide.

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## PDA websites for hardware and software

### Palm OS devices:

Palm One™ (Tungsten, Zire, Treo): <http://www.palmone.com/>  
(Compare models at <http://www.palm.com/us/products/compare/>)

Samsung SPH-i500: [http://www.samsungusa.com/cgi-bin/nabc/product/b2c\\_product\\_detail.jsp?prod\\_id=SPH-I500](http://www.samsungusa.com/cgi-bin/nabc/product/b2c_product_detail.jsp?prod_id=SPH-I500)

Kyocera Smartphone: <http://tools.kyocera-wireless.com/phoneshowcase.do>

Accessories: Palm Gear at <http://www.palmgear.com/>

### Pocket PC devices:

Dell: <http://www1.us.dell.com/content/products/compare.aspx/pda?c=us&cs=19&l=en&s=dhs>

HP: <http://h10010.www1.hp.com/wwpc/us/en/sm/WF02d/215348-64929-215381.html>

ASUS: <http://usa.asus.com/products1.aspx?l1=8>

Accessories: Palm Gear at <http://www.palmgear.com/>

### PDA Software online “stores” (Palm OS and Pocket PC):

#### 1) GENERAL INTEREST SOFTWARE:

<http://www.palmbld.com>, <http://www.handango.com>, <http://www.tucows.com>,  
<http://www.palmgear.com/>

#### 2). MEDICAL SOFTWARE:

<http://www.handheldmed.com>, <http://www.pdamd.com>, <http://www.medpda.net/>,  
<http://www.collectivemed.com/pda/>

### Individual PDA software Sites (Palm OS and Pocket PC unless noted):

#### 1) GENERAL SITES

- Adobe Acrobat Reader (document reader for Adobe files).  
<http://www.adobe.com/products/acrobat/readermain.html>
- AvantGo (news, sports, etc): <http://avantgo.com/frontdoor/index.html>
- BackupBuddy (backup palm applications and data– Palm OS PDA):  
[http://www.bluenomad.com/bb/prod\\_backupbuddy\\_details.html](http://www.bluenomad.com/bb/prod_backupbuddy_details.html)

- Communication Intelligence Corp. (Jot & WordComplete – software to facilitate entering text into a Palm OS PDA ): <http://www.cic.com/products>
- Documents To Go (convert MS Word, Excel, and Powerpoint files for Palm OS PDA) <http://www.dataviz.com>
- Fire Viewer (graphics viewer for Palm OS PDA): <http://www.firepad.com>
- HanDBase (data collection and database manager):  
<http://www.ddhsoftware.com/>
- ISILO (document reader used by many medical texts): <http://www.isilo.com/>
- Jfile (database manager for Palm OS PDA): <http://www.land-j.com/jfile.html>
- Missing Sync (synchronize Palm OS and Pocket PC PDAs with Macintosh computers): <http://www.markspace.com/>
- Pendragon Forms (advanced data collection and database manager):  
<http://www.pendragonsoftware.com>
- PocketMirror and KeySuite (synchronize Palm PDA with Microsoft Outlook – Palm OS only), [http://www.chapura.com/pm\\_ks\\_compare.php](http://www.chapura.com/pm_ks_compare.php)
- StyleTap (run Palm OS programs on a Pocket PC – Pocket PC only):  
<http://www.styletap.com>
- SwitchSync (synchronize with both Palm Desktop and Microsoft Outlook – Palm OS PDA): <http://www.livepim.com/switchsync/>
- Tealpoint (document readers, printer software, etc for Palm OS PDA):  
<http://www.tealpoint.com>
- Vindigo (city specific info): <http://www.vindigo.com>

## 2) MEDICAL SITES

- Anticoagulation Advisor (anticoagulation dose calculator and guidelines for palm OS only): <http://www.medical-data-solutions.com/>
- Apprisor (clinical guidelines – NOTE – can use ISILO to read documents, but Apprisor reader will also categorize the guidelines): <http://www.apprisor.com/>
- Clinical Medicine Consult (excellent and complete medical textbook, very inexpensive considering the amount of information included):  
<http://clinicalmedconsult.com/>
- Collective Med (medical software “store”): <http://www.collectivemed.com/pda/>
- ePocrates Rx (clinical drug database): <http://www.epocrates.com>

- FPPda (good collection of free or low cost medical software):  
<http://www.fppda.com>
- HandheldMed (medical texts): <http://www.handheldmed.com/>
- Healthy Palmpilot (another good collection of free or low cost medical software):  
<http://www.healthypalmpilot.com/>
- InfoRetriever: (suite of medical information for PDA – drugs, texts, etc.):  
<http://www.info poems.com/productInfo/infoRetrieverDetails.html>
- Johns Hopkins Antibiotic Guide (infectious disease guidelines - Palm OS only):  
[http://www.hopkins-abxguide.org/download\\_center/download\\_center.cfm](http://www.hopkins-abxguide.org/download_center/download_center.cfm)
- MD on Tap (NLM PDA Medline software):  
<http://archive.nlm.nih.gov/proj/mdot/mdot.php>
- Medical Eponyms (list of 1,580 common and obscure medical eponyms):  
<http://eponyms.net/eponyms.htm>
- MedRules (Medical guidelines and clinical prediction rules - Palm OS only but runs on a Pocket PC with StyleTap <http://www.styletap.com>):  
<http://medicalpda.net/medrules.html>
- MeisterMed (CodeMeister, AsthmaMeister, etc – mostly free ISILO documents):  
<http://www.meistermed.com>
- *MobileMerckMedicus* (free Merck Manual, journal abstracts):  
[http://merckmedicus.com/pp/us/hcp/hcp\\_mobile\\_medicus.jsp?t=H0157](http://merckmedicus.com/pp/us/hcp/hcp_mobile_medicus.jsp?t=H0157)
- *mobileMICROMEDEX* (suite of medical information for PDA – drugs, texts, etc, free for UW faculty – NOTE: this link is for the UW HSL off campus library access and you will have to have your UW NetID and password. Click on "Formulary & Handheld" tab, and select "mobileMICROMEDEX System."):  
<http://www.thomsonhc.com.offcampus.lib.washington.edu/hcs/librarian>
- MobilePDR (PDA PDR): <http://www.pdr.net/>
- MMSE 1.0 (Mini Mental Status Exam – Palm OS only)  
[http://www.medschool.louisville.edu/palm/Software/MMSE\\_free\\_32K.exe](http://www.medschool.louisville.edu/palm/Software/MMSE_free_32K.exe) -  
NOTE: this will download a self extracting compressed file to your computer. If you prefer to view the source, go to  
<http://www.medschool.louisville.edu/palm/Medical.htm> and look for the MMSE 1.0 link.

- National Heart, Lung, and Blood Institute (NHLBI) several guidelines are available for the PDA including asthma, obesity, hypertension (JNC-7) – follow links to specific guideline for PDA version:  
<http://www.nhlbi.nih.gov/guidelines/index.htm>
- PatientKeeper (abbreviated medical records program – patient tracking, billing, etc.): <http://www.patientkeeper.com>
- Pepid Handheld (suite of medical information for PDA – drugs, texts, etc.):  
<http://www.pepid.com/>
- PocketPractitioner (abbreviated medical records program – patient tracking, billing, etc.): <http://www.pocketinformatics.com>
- Redi-Reference (medical texts): <http://redi-reference.com/>
- Riley Kidometer (pediatric norms calculator - Palm OS only but runs on a Pocket PC with StyleTap <http://www.styletap.com>): <http://www.kidometer.com/>
- Shots 2006 (immunization guidelines – STFM sponsored):  
<http://www.immunizationed.org/anypage.aspx?pagename=shotspalm>
- Skyscape (medical texts, Archimedes [clinical calculator] ):  
<http://www.skyscape.com>
- STAT E&M Coder, Cardiac Risk calculator, others (medical calculators – many are free – Palm OS only but all run on a Pocket PC with StyleTap <http://www.styletap.com>): <http://www.statcoder.com>
- Unbound Medicine (medical texts):  
<http://www.unboundmedicine.com/store/ub?>
- USBMS (Tarascon Pocket Pharmacopeia, Sanford Guide): <http://usbmis.com/>

## **PDA software & hardware reviews, education, links, etc. - websites**

- AAFP Customized PDA Program (order a PDA “built” to your specifications- AAFP members only): <http://members.aafp.org/members/x13567.xml>
- About>Palmtops/PDAs (general software & hardware reviews, links to vendors and software, tutorials): <http://palmtops.about.com/>
- DocMD.com (links to PDA medical software vendors)  
<http://www.docmd.com/pdasoftware/>
- DotPocket (run a Pocket PC on your desktop computer! A must to teach others about Pocket PCs – Pocket PC only): <http://www.dotpocket.com/>
- Ectopic Brain (MedRules and links to medical PDA software. A good overall guide to Palm medical products - but no longer maintained as of 1-1-06 - Palm OS only): <http://medicalpda.net/index.html>
- FPPda (good collection of free or low cost medical software):  
<http://www.fppda.com>
- Handheld Computer Resources for Medicine by Peter J. Embi, MD, MS:  
<http://www.embi.net/handheld.html> with a nice 90 min slide show presentation (from April 2005 ACP annual meeting) at  
<http://palmone.breezecentral.com/p26464173/>
- Healthy Palmpilot (another good collection of free or low cost medical software):  
<http://www.healthypalmpilot.com/>
- infofest 2005 (medical software reviews, links to vendors – authored by UW medicine faculty): <http://faculty.washington.edu/cknight/pda/>
- MedicalPocketPC (medical software reviews, links to vendors and software – Pocket PC only): <http://www.medicalpocketpc.com>
- Medpda.net (medical software reviews, links to vendors and software, tutorials):  
<http://www.medpda.net/>
- Mobile Tech Review (formerly PDA Buyers Guide - general software & hardware reviews, links to vendors and software): <http://www.mobiletechreview.com/>
- Palm Info Center (general software & hardware reviews, links to vendors and software – Palm OS only): <http://www.palminfocenter.com/>
- Palm Graveyard (humorous stories, often illustrated with pictures, of how PDAs can meet with an untimely end): <http://www.palminfocenter.com/graveyard.asp>

- Palm Emulator and Simulator (run a Palm Pilot on your desktop computer! A must to teach others about Palm OS PDAs – Palm OS only):  
<http://www.palmos.com/dev/tech/tools/emulator/> and  
<http://www.palmos.com/dev/tools/simulator/>
- PDA MD (medical software reviews, tutorials, links to vendors and software):  
<http://www.pdamd.com/>
- PocketPCcity (general software links and reviews, nice Pocket PC hardware comparison pages – Pocket PC only):  
<http://www.pocketpccity.com/hardware/pocketpc.html>
- Pocket PC Freewares (general software links for Pocket PC – most are free Pocket PC only): <http://www.pocketpcfrees.com/en/index.php>
- Tanker Bob's PDA Page (general software links and reviews, nice tutorials):  
<http://www.tankerbob.com/palm/>
- University of Connecticut Health Center Lyman Maynard Stowe Library PDA resources page (extensive list of links to PDA resources):  
<http://library.uhc.edu/pda/>
- UW Health Sciences Library (good summary of medical PDA resources available from UW HSL): <http://healthlinks.washington.edu/howto/pda/>

## PDA software by price (vendor web site in parentheses)

Everyone likes something for nothing. But is there a “free lunch” in the PDA world? Fortunately, there are many free or low cost applications for both Palm OS and Pocket PC devices. The list below is a brief guide to medical PDA software by price range, with the application name followed by the web site where it can be found. Happy hunting!

### Free software

- Archimedes medical formulas and calculator (<http://www.skyscape.com>)
- Apprisor clinical guidelines – NOTE: can use ISILO to read documents, but Apprisor reader will also categorize the guidelines: <http://www.apprisor.com/>
- Asthma, electrolyte, PAP, STD guidelines (<http://www.meistermed.com>)
- Cardiac Risk calculator, JNC 7 guidelines, Cholesterol calculator, Stroke and A-fib guidelines (<http://www.statcoder.com>)
- ePocrates Rx drug database (<http://www.epocrates.com>)
- Eponyms (<http://eponyms.net/eponyms.htm>)
- Johns Hopkins Antibiotic Guide ([http://www.hopkins-abxguide.org/download\\_center/download\\_center.cfm](http://www.hopkins-abxguide.org/download_center/download_center.cfm))
- MD on Tap (NLM PDA Medline software):  
<http://archive.nlm.nih.gov/proj/mdot/mdot.php>
- MedRules clinical prediction rules calculator  
(<http://medicalpda.net/medrules.html>)
- Merck Manual  
([http://merckmedicus.com/pp/us/hcp/hcp\\_mobile\\_medicus.jsp?t=H0157](http://merckmedicus.com/pp/us/hcp/hcp_mobile_medicus.jsp?t=H0157))
- *mobile*MICROMEDEX disease, drug, diagnosis, and toxicology information, free to UW faculty, residents, student, and staff with UW Net ID login  
(<http://www.thomsonhc.com.offcampus.lib.washington.edu/hcs/librarian/> )
- MMSE 1.0 (Mini Mental Status Exam – Palm OS only)  
[http://www.medschool.louisville.edu/palm/Software/MMSE\\_free\\_32K.exe](http://www.medschool.louisville.edu/palm/Software/MMSE_free_32K.exe) -  
NOTE: this will download a self extracting compressed file to your computer.
- OB Wheel, newborn hyperbilirubin calculator (<http://www.fppda.com>)
- Obesity, hypertension, asthma guidelines  
(<http://www.nhlbi.nih.gov/guidelines/index.htm>)
- PDR (<http://www.pdr.net/>)



- Shots 2006 immunization guidelines

(<http://www.immunizationed.org/anypage.aspx?pagename=shotspalm>)

Be sure to look at **Healthy Palmpilot** (<http://www.healthypalmpilot.com/>) for more free titles. There are also several free guidelines and medical texts in ISILO format (all require ISILO reader -<http://www.isilo.com/>) that have been cataloged on the MeisterMed web site (<http://www.meistermed.com/isilodepot/index.htm>). If you are using HandBase (<http://www.ddhsoftware.com/>), There are hundreds of free medically related databases you can download

(<http://www.ddhsoftware.com/gallery.html?UID=20050523191904207.225.232.131>).

### **Low cost software - \$10 to \$30**

- ISILO document reader (<http://www.isilo.com/>)
- HandBase database manager (<http://www.ddhsoftware.com/>)
- Fire Viewer picture and graphics viewer – for Palm OS only, not needed for many of the newer Palm OS devices (<http://www.firepad.com>)
- BackupBuddy (Palm OS) backup software  
([http://www.bluenomad.com/bb/prod\\_backupbuddy\\_details.html](http://www.bluenomad.com/bb/prod_backupbuddy_details.html))
- StyleTap luncher for running Palm OS programs on a Pocket PC  
(<http://www.styletap.com>)
- SwitchSync for Palm OS PDA synchronization with both Microsoft Outlook and the Palm Desktop (<http://www.livepim.com/switchsync/>)
- Kidometer pediatric norms calculator (<http://www.kidometer.com/>)
- Anticoagulation Advisor (<http://www.medical-data-solutions.com/>)

Also one can purchase a single copy of selected medical texts (typically a “pocket guide”) from various vendors (**HandHeldMed, Skyscape, Unbound Medicine, USBMS – see section on PDA Websites for web links**)

### **Moderate cost software - \$30 to \$75**

- Clinical Medicine Consult medical textbook – well referenced, very complete, and up to date (<http://clinicalmedconsult.com/>)
- ePocrates Rx Pro version with drug database, alternative meds, tables, and infectious disease treatment recommendations (<http://www.epocrates.com>)
- Missing Sync software to synchronize Palm OS and Pocket PC PDAs with Macintosh computers (<http://www.markspace.com/>)

Single copy of medical text from various vendors (**HandHeldMed, Skyscape, Unbound Medicine, USBMS** – see section on PDA Websites for web links)

**Expensive software - more than \$75**

- ePocrates Rx Essentials – includes all of ePocrates Rx Pro as well as Griffith's 5 Minute Clinical Consult and a manual of lab tests (<http://www.epocrates.com>)
- Pepid disease reference, drug database, clinical calculators (<http://www.pepid.com/>)
- InfoRetriever disease reference, EBM guidelines and POEMs, clinical calculators (<http://www.infopoems.com/productInfo/infoRetrieverDetails.html>)

Expensive single text and multiple medical text “bundles” from various vendors (**HandHeldMed, Skyscape, Unbound Medicine, USBMS** – see section on PDA Websites for web links)

## **Palm OS software installation instructions**

To download free or demo versions of software applications (using a MS Windows PC) from the web to your Palm OS device just follow these 4 steps:

1- Select and download applications from any Palm related web site (e.g., <http://www.handango.com>). Save the file(s) to your hard drive (eg. C:\temp)

2-Using My Computer or Explorer go to the directory where you saved the software (eg. C:\temp). If the downloaded application is a Zip (compressed) file, “unzip” its contents (if you are using Windows 2000 you need WinZip -free from [www.winzip.com](http://www.winzip.com) – WinZip-like software is part of Windows XP) and copy the files to the add-on folder in the Desktop Software directory (e.g., C:\palm\add-on). It's a good idea to read the readme.txt file if one is available.

3- Run the Install program by:

- Opening the Palm Desktop software and clicking the Install button or
  - Clicking on Start>Programs>Palm Desktop>Install Tool or
  - Running Instapp.exe from the Desktop Software directory (e.g., C:\palm) or
  - Opening Windows Explorer or My Computer and double clicking on the application.
- Many Palm OS programs now have an executable installation Wizard which will guide you through the installation process.

When the Install Tool window appears click Add. Select the applications you want to install. Click Open, and then Click Done. If the program you are installing uses its own installation wizard, you probably will not see this option.

4- Perform a HotSync® operation to transfer your new applications to your handheld.

Note: If you have an expansion card you can elect to install the software onto the card by clicking on the “Change Destination” button on the Install Tool window. Be aware that many programs will not run from an expansion card, and some applications (such as texts and eBooks) may require that the “reader” be installed on the Handheld while the text may reside on the card. Applications installed on the card are stored in the /Palm/Launcher folder. Data and text files installed on the card will not be “visible” without the appropriate corresponding reader.

If you have purchased a program most will require you to enter a license code or registration code, or connect your Palm PDA to your computer while the computer is connected to the Internet to verify ownership. Most software you purchase will provide good tech support or FAQ's (Frequently Asked Questions) to assist with installation and registration. In general, software you purchase is not transferable to another PDA, or if it does transfer, it will be the “locked” demo version and require the new user to buy a separate license to use the full version.

See also <http://www.pdamd.com/vertical/tutorials/guides/installsoftware.xml>

## **Pocket PC software installation instructions**

To download free or demo versions of software applications (using a MS Windows PC) from the web to your Pocket PC device just follow these 4 steps:

1- Select and download applications from any Pocket PC related web site (e.g., <http://www.handango.com>). Save the file(s) to your hard drive (eg. C:\temp)

2-Using My Computer or Explorer go to the directory where you saved the software (eg. C:\temp). If the downloaded application is a Zip (compressed) file, “unzip” its contents (if you are using Windows 2000 you need WinZip -free from [www.winzip.com](http://www.winzip.com) – WinZip-like software is part of Windows XP). It's a good idea to read the readme.txt file if one is available.

3- Run the Install program by:

•Opening Windows Explorer or My Computer and double clicking on the application.  
NOTE: You must first connect your Pocket PC to your computer

4- Follow the onscreen instructions from the installation Wizard. You may be asked if you want to install the program to the default directory (“Installing applications” dialog box). If you want the program to be installed on a memory card, click “No.” When you see the “Select Destination Media” dialog box pick “Storage Card” or “Memory Card” from the dropdown list and click “OK.” The software installation wizard will continue, occasionally you will have to check the device for further installation instructions.

See also the notes on purchased software at the end of the previous page.

To move applications from the main memory to the card see:

[http://www.pocketpcmag.com/forum/topic.asp?TOPIC\\_ID=15328](http://www.pocketpcmag.com/forum/topic.asp?TOPIC_ID=15328)

## Notes on comparing and buying PDAs

Before purchasing a PDA, ask your self “how will I use it?” Features to consider in this decision are: do you want an integrated cell phone? MP3 player? Camera? Keyboard? Wireless? How much can I afford? The notes below may help in making this decision. Also, be sure to check the manufacturer’s web sites as many have device comparison charts and decision tools or “wizards” to help the prospective buyer select the appropriate model.

**Palm OS or Pocket PC:** Choosing the device operating system (OS) or “platform” tends to be one of the biggest decisions for buyers, as it affects most other issues below. Many have expounded on this subject and there are passionate proponents for each platform. For physicians five years ago the discussion was mute, as almost all of the “good” medical software was written exclusively for the Palm OS. But Microsoft and Bill Gates were not to be outdone, and today’s Pocket PCs are a huge improvement over their predecessors. Added to this is a decline in the number of companies making Palm OS PDA’s, an increase in the number of vendors who write medical software for the Pocket PC, and Pocket PC software that emulates the Palm OS, so that today’s “playing field” is much more level. For physicians, Palm OS seems to still have a very slight edge, but the race is very close. For more information on this see the pair of articles by Dobrousin and Wilderman that appeared in recent issues of the Canadian Family Physician (see page 3 above under References), or go to the following web sites:

[http://palmtops.about.com/cs/pdafacts/a/Palm\\_Pocket\\_PC.htm](http://palmtops.about.com/cs/pdafacts/a/Palm_Pocket_PC.htm)

<http://asia.cnet.com/reviews/handhelds/0,39001709,39169529,00.htm>

<http://www.medpda.net/archives/000021.html>

[http://www.mobiletechreview.com/tips/palm\\_to\\_PPC\\_and\\_back.htm](http://www.mobiletechreview.com/tips/palm_to_PPC_and_back.htm)

[http://www.mobiletechreview.com/editorials/winds\\_of\\_change.htm](http://www.mobiletechreview.com/editorials/winds_of_change.htm)

**Price:** Price will vary considerably with the features. Palm OS devices are slightly less expensive than Pocket PC’s (\$100 – \$500 for Palm, \$200 - \$600 for Pocket

PC). In general, the price quoted on the manufacturer's web site is similar to that advertised in major electronic stores. An Internet search may yield some savings (about 10% to 20% off MSRP) from mail order companies, however shipping charges often negate some of the savings, and mail order companies may be less reliable.

Remember, most PDAs have a useful life of about 2 years. Newer models continue to eclipse older ones in terms of speed, memory, screen, operating system, and features. Expect to replace your PDA within 1 to 4 years, so think twice about getting the most expensive device unless you are absolutely certain you need all the features. On the other hand, the cheapest device may not be the best value, as it will quickly be obsolete.

**Connection and synchronization to a computer:** All current devices connect or “synchronize” to computers via USB (Universal Serial Bus) “cradle” or cable. The cradle or cable usually recharges the PDA's batteries as well. Computer software is needed (HotSync for Palm, ActiveSync for Pocket PC) and will come with the device or can be downloaded for free from PalmSource

(<http://www.palmsource.com/palmos/downloads.html>) for Palm or Microsoft

(<http://www.microsoft.com/windowsmobile/downloads/default.mspx>) for Pocket PC –

Note: these are general links and you will still have to navigate a bit to find the correct software for your PDA.

USB is much faster than serial, but requires a Macintosh or a PC running Windows 98 Second Edition or higher. If you are using Windows 95 you will have to purchase a serial cradle or (more likely) upgrade your operating system to Windows 2000 or XP.

All devices (Palm and Pocket PC) let you synchronize with two or more computers, (eg. home and work). Usually this communication is seamless and newer information (appointments, addresses, To Do lists, etc.) replaces the older

regardless of the location (PDA vs. computer) of the older information.

Synchronization is also the usual method for installing software and backing up the PDA. If you are connecting to more than two computers or if you are using a blend of Macintosh and Windows PCs, you may get duplicate entries which can be a headache to resolve. If you are using a Macintosh computer you may have to purchase Missing Sync software to synchronize a Palm OS or Pocket PC PDA (<http://www.markspace.com/>).

If you regularly synchronize at two computers, you may want to buy an additional cradle or cable for the second computer. These are relatively inexpensive (\$20 - \$50) and are sold by the manufacturer as well as in electronic stores and on the Internet. The price is often the highest if bought from the manufacturer and lowest from Internet retailers. So called "travel" kits that contain a synchronization cable and AC and/or car charger may be less expensive than a second cradle and more versatile.

All devices let you use Microsoft Outlook on your computer as your Personal Information Manager (PIM). MS Outlook is a must for the Pocket PC and a version will be supplied with the PDA when you purchase it if you don't already use it. Palm PDAs give you another option – the Palm Desktop which looks and works very similar to Outlook. Palm PDAs require additional software to synchronize with MS Outlook, but this software will be supplied with the Palm PDA. If you are using a Macintosh computer you may have to purchase additional software such as Missing Sync (<http://www.markspace.com/>) to synchronize a Palm OS or Pocket PC PDA to Macintosh's PIM (iCal, Address Book, etc.).

Computer-to-device connectivity can be the most frustrating and difficult part of owning a PDA. Unfortunately, both Palm and Pocket PC devices have their problems. In general, ALWAYS install the computer software before you try to connect your PDA to a computer, and read in installation instructions. Computer connectivity is a necessary evil as it is almost impossible to install software and

create backup files of your appointments and contacts without it. Help and support is available at <http://www.palmone.com/us/support/palmdesktop.html> for Palm and <http://www.microsoft.com/windowsmobile/help/default.mspx> for Pocket PCs. If there is a FAQs (Frequently Asked Questions) page, look at this first as frequently the problem you are experiencing is a common one and has probably been addressed already.

**Models:** Models change rapidly. It is not unusual for a model to be on the market for 12 months or less, so review the manufacturer's web site before buying to see what models are current. Most manufactures will have a web page devoted to comparing the various models they make. There is also a considerable market for "pre-owned" and "factory refurbished" models, but bear in mind these will likely have slower processors, less memory, poorer screen resolution, and older operating systems than current models. In general, it isn't possible to upgrade the processor, memory, screen, or OS in a PDA, so what looks like a "great deal" might be a great disappointment. *Caveat Emptor!*

**Memory:** The total memory (MB or Mega Bytes RAM) listed in the PDA may differ from actual available memory for software. Much of the total RAM may already be used by the manufacturer's proprietary software that is "added on" to the operating system software. Read the fine print before buying, as you may be getting substantially less memory than is advertised. See also notes on Expansion Slots below.

**Screen and size:** A color screen is easier to read than a gray scale (B&W), but consumes more power decreasing the battery life considerably. With a full charge, a color unit will last an average of 1 - 2 weeks (using about 30 min per day), while the battery life for most gray scale units is 1 - 2 months. Most of the currently manufactured devices use rechargeable batteries. If you use your PDA for other things (camera, phone, MP3 player), expect to charge it every day or two.



Most color units support high resolution (320 X 320 pixels), and some offer even higher resolution (320 X 480 and 480 X 640 pixels), which is better for viewing digital photographs. Before buying a device, try to compare the various PDAs at a store that carries several models. Screen size and brightness, resolution, and device size/weight varies considerably. Be sure to pick a unit that feels comfortable in your hand and that you can read. Try to find out how easy it is to see the screen in both low light (darkness) and high light (bright sunlight) conditions.

**Expansion slots:** In general, it is a good idea to purchase a device that has expansion capabilities. Almost all models on the market today have expansion slots. The most common expansion “module” adds additional memory, though other devices such as, books, games, wireless adaptors (Bluetooth), etc. are available for many of the Palm PDA’s on the market today. Note – if you are planning to use the expansion slot for anything other than additional memory, make sure the slot is capable of doing this – that is, you may need an “I/O” (In/Out) slot (eg. SDIO or Secure digital In/Out).

Memory cards allow the user to store additional information on the PDA, with the caveat that not all software will run from the memory card, and some programs will be noticeably slower when running from a memory card. With this in mind, it is prudent to consider buying a device with at least 32 MB (for Palm OS) or 64 MB (for Pocket PC) of available INTERNAL (also referred to as “main”) memory (RAM) as you may end up running several programs from the internal memory. The size of memory card you buy depends on how you use a PDA. Medical texts require 2 to 8 MB per book, pictures, videos, MP3s also use a lot of memory. Fortunately memory cards are relatively inexpensive – about \$1 - \$2 per 10 MB, so a 512 MB card may be only \$50 - \$100. For medical applications, I would not recommend buying a card with less than 64 MB of memory. Prices for memory modules do vary by type of card and manufacturer. Secure Digital (SD) and Compact Flash (CF) cards are generally a bit less expensive than the proprietary MultiMedia Cards (MMC), and SONY Memory Sticks.

**OS Version:** The most current Palm PDA Operating System (OS) is 5.4 (also called Garnet), and the latest version for the Pocket PC is Windows Mobile 2003 - Second Edition. In general, the higher version OS's offer more features and fewer "bugs." If you currently use a Palm or Pocket PC PDA, you may have to install a newer version of the Palm Desktop (PC or Macintosh) or ActiveSync (PC) software to take advantage of these features.

**CPU:** Numbers listed in table are Central Processing Unit (CPU) speeds in MHz. In general, the higher the number the faster the processor. This can make a big difference when running applications from expansion cards. In my own experience, upgrading from a Sony with a 33 MHz and Palm OS 4.1 to one with a 200 MHz CPU and Palm OS 5.2 reduced the time needed to load a program from the expansion memory card from 20 seconds to about 1 second. Applications running from the main internal memory (RAM) are less affected by processor speed.

**Phone:** several devices have integrated cell phones. Purchase may require cellular service activation, and therefore price and available model may vary by contract and service provider. Some models have integrated (tiny) QWERTY keyboards ("thumbboards"), which may be easier to use if you are entering lots of data or are an experienced typist. Others require you to use Graffiti (handwriting recognition) or the pop-up keyboard, still others employ a flip-up screen and integrated telephone keypad.

**Audio/video options:** Several PDA's have built-in MP3 audio players and/or voice recorders for playing MP3 songs or for recording short voice memos. Some PDA's also have integrated digital cameras. Camera resolution is limited compared to an inexpensive digital camera (eg. 1 Megapixel for a \$300 PDA vs. 3 Megapixel for a \$100 digital camera). The lower resolution may be adequate for viewing on a computer screen or printing a 5" X 7" photos, but don't expect to win any Pulitzer awards. Some camera models can record low resolution videos, most models with

MP3 player capacity will play videos, but these videos may have to be formatted for the PDA before they will play.

**Wireless:** Several PDA's have built-in WiFi or Bluetooth wireless transmitters/receivers. See

<http://www.palmone.com/us/wireless/ProvidingFluidConnectivity.pdf> or

[http://www.pocketpcmag.com/archives/sep03/wireless\\_tutorial.asp?404=was](http://www.pocketpcmag.com/archives/sep03/wireless_tutorial.asp?404=was) for

more details about Bluetooth and WiFi. In general, if you want to use a PDA to connect to the Internet, you will want one with WiFi. Bluetooth is used to create a "Personal Area Network" (PAN) and is handy if you have several other Bluetooth enabled devices such as a printer or cell phone.

## Troubleshooting and tips

Few things can be as frustrating as a PDA that refuses to operate correctly or connect to a desktop or laptop computer. Fortunately, help abounds on the Internet. Solving a PDA problem successfully requires about 10% aptitude, 80% persistence, and 10% good fortune. Some tips I have learned over the years are the following:

- 1) **Synchronize often and backup regularly.** A dead battery, or worse, a dropped PDA, can ruin your day and quite possibly your week. Pocket PCs use ActiveSync>Tools>Backup/Restore, and newer Pocket PCs have built-in software to backup (and restore) everything using a memory card (another reason to “splurge” and get a big memory card). Some Palm OS PDAs have similar software, but you may need to purchase a third party application such as BackupBuddy ([http://www.bluenomad.com/bb/prod\\_backupbuddy\\_details.html](http://www.bluenomad.com/bb/prod_backupbuddy_details.html)). If you are installing some new software application for the first time and are not sure of its quality, or you must delete some software in order to install a newer version, take a few minutes to make a backup image of your PDA first. You'll rest easier knowing you can restore your PDA's software if something goes horribly wrong.
- 2) **Protect your PDA with a good case,** and don't leave it lying around where it could be damaged. These things are fragile (remember the screen is very thin glass) and easily break. Pocket PC is a misnomer, NEVER put your PDA in a pocket where it could fall out or get sat upon. By the way, PDAs aren't waterproof, shower proof, nor toilet proof, and they can't swim worth a darn. They can withstand airport security x-rays just fine.
- 3) **Pay attention to messages** generated during HotSync or ActiveSync, and review the HotSync log if something is amiss.
- 4) When setting up a PDA for the first time, **read the manual or instructions.** Boring as it sounds, reading the instruction manual first will almost always save time, headaches and sleepless nights.

- 5) When installing software read the “readme.txt” file if available, it may contain important information about device compatibility, known problems, etc.
- 6) If you are having problems setting up your PDA, go to the web site for the manufacturer that makes it. There will always be a “help” or “support” page, and often a “knowledge base” of known problems or FAQs (Frequently Asked Questions) page to assist with problems. **If there is a FAQs page, look at this first as frequently the problem you are experiencing is a common one and has probably been addressed already.**
- 7) **Be cautious of installing or beam-receiving free software applications.** Tempting as it is to download and install a bunch of free programs, or worse, have your PDA-enabled colleagues beam them to you, just say “No.” “Free” programs are rarely supported, are sometimes poorly written, and can cause PDAs crashes. Like humans and STD’s, too much commingling of PDA software is hazardous, and eventually you will regret it. Unless you know for sure a program will run perfectly on your PDA, try to find out more information about it by reading reviews or by looking at the web site where the software resides. Also, if you install software that has been beamed to you, it may not be the latest version. In general, later versions of software have fewer “bugs” and more features.
- 8) If you have purchased software that fails to work as expected, contact the vendor (usually via email). Most PDA medical software vendors are very responsive and accountable. They want to know when their software doesn’t work and most are eager to try to help.
- 9) If you see a cryptic error message like “Fatal Error: Mem Mgr Address AB6F0D0C12” then don’t despair – this may really be a life-save in disguise! Simply copy the error message *exactly as it appears* into your favorite search engine (e.g. Google) and search the Internet. Most of the time you will get links to discussion forums or FAQs that will answer your problem. If you enclose the message in quotation marks you will increase the specificity of answer, at the expense of missing some messages. Try both ways.

10) Lastly, call or email a geek/tech friend, but when you do, please be specific.

If a medical student walked up to you and said “I have a patient with chest pain – any ideas about what I should do?” How would you respond? You need more information. Similarly, there are thousands of reasons why PDAs fail to connect, fail to work, or are just plain stubborn. So be kind to your geek friend and give him/her all the information you have – you are a trained observer and in many ways the quirks of PDAs are no different from the foibles of humans, so pay attention and look for messages, patterns, etc. and “present” your findings to your friend.

## **PDA articles in the medical literature**

- Adatia F. Bedard PL. "Palm reading": 2. Handheld software for physicians. Canadian Medical Association Journal. 2003; 168: 727-34.
- Adatia F. Bedard PL. "Palm reading": 1. Handheld hardware and operating systems. Canadian Medical Association Journal. 2002; 167:775-80.
- Baumgart DC. Personal digital assistants in health care: experienced clinicians in the palm of your hand?. Lancet. 2005;366(9492):1210-22
- Chandrashekhar A. 10 quick tips for a more user-friendly PDA. Family Practice Management. 2003;10:70, 73.
- Dobrousin A. Wilderman I. Which hand-held computer is better for doctors? Part 2: Comparing models with Microsoft operating systems. Canadian Family Physician. 2004; 50:595-8.
- Lewis M. Evidence-Based-Medicine Tools for Your Palm-Top Computer. Family Practice Management. 2003; 10: 73-74.
- Oh RC. An easy way to evaluate software for your PDA. Family Practice Management. 2005;12(6):67, 71
- Nace GS, Willyard KE. PDA Basics. Oncology net guide 2002; 3:5-10  
[www.mdnetguide.com](http://www.mdnetguide.com)
- Pennachio L, Cohen M, Frankel A, Ograd E. To err is human: How to prevent medical errors. Patient Care. 2001; 11:95-104
- Wilderman I, Dobrousin A, Cameron S. Which hand-held computer is better for doctors? Part 1: Comparing models with Palm operating systems. Can Fam Physician 2003; 49:1507-11.
- Willyard KE. A Palm-Top Computer in Every Practice? Family Practice Management. 2000; 7: 59-60

## PDA (Personal Digital Assistant) Glossary

**802.11b/g:** A wireless (radio wave) technology (See **WiFi** below).

**ActiveSync:** The process in which data is transferred and synchronized between a Pocket PC device and a desktop computer. "ActiveSyncing" also installs applications onto the PDA. (See **Synchronize** below).

**Application:** A software program that performs one of the important tasks for which the PDA is used.

**Beaming:** Transferring data or an application from one Palm OS PDA to another via the infrared port. PDA's must be within 4 feet of each other.

**Bluetooth:** A wireless (radio wave) technology that allows several devices (eg PDA, cell phone, printer) to transmit or receive data within a short range (about 30 feet). See <http://www.palmone.com/us/wireless/ProvidingFluidConnectivity.pdf> for more details.

**Commercial Software:** Software that must be purchased before use. There is usually no "trial" period available before the customer must spend money for the product. Commonly done with electronic medical textbooks.

**Cradle:** The device in which a handheld is placed to synchronize data with a desktop computer. The cradle connects to the desktop computer via a cable and plugs into the serial or USB (Universal Serial Bus) port.

**Database program:** Software used to either collect or view data via the PDA. Common PDA database programs include HanDBase, Jfile, and Pendragon Forms. Users can create a custom database either on the PDA or on a desktop computer and then transfer to the device. Users can view data collected via the PDA on a desktop computer and import into other PC applications such as Microsoft Access or Excel for analysis. Data viewed on the PDA is usually in table format, while data collection on the PDA is usually done via a data entry "form."

**Document reader:** PDA software that allows use to read texts on the device. Document readers are usually used for texts that have been formatted for the PDA, and have "hyperlinked" references similar to web pages making it easier to get at desired information. Common document readers are ISILO and TealDoc. PDA documents are often formatted for a specific reader, so your device must have that reader installed in order to view the document.

**Expansion Module:** PDA hardware "accessory" that increases the handheld's functionality. Common expansion modules include memory cards, games, and textbooks. Module plugs into an expansion slot in the PDA.

**Expansion Slot:** A nook or hole in the PDA that accepts expansion modules.

**Freeware:** Software application distributed free of charge. Caveat - may not be thoroughly tested and may not work on all PDA's.

**Handheld Computer:** See PDA

**HotSync:** The process in which data is transferred and synchronized between a Palm OS device and a desktop computer. "HotSyncing" also installs applications onto the PDA. (See **Synchronize** below).

**Memory Card:** A small rectangular "card" that is inserted into an expansion slot in the PDA to increase the devices total storage capacity. Common memory cards are



Secure Digital (SD), MultiMedia Card (MMC), and SONY memory stick. See also "Expansion Card."

**Operating System/OS:** (eg. the Palm OS) Software that enables a PDA to create an environment to run applications.

**Palm OS:** The operating system used on Palm Pilots, TREO's, SONY CLIE's, and others.

**PDA:** Personal Digital Assistant - a wide variety of handheld and palm-size computers, electronic organizers, and sophisticated pagers and cell phones.

**Platform:** The collective group of hardware, software, and accessories that relate to a particular operating system.

**Pocket PC:** A Windows Mobile PDA – runs Microsoft Windows Mobile operating system

**RAM:** Random Access Memory. Temporary storage for computer applications (typically user-installed programs and data). Data is lost when battery power is removed.

**ROM:** Read Only Memory. Used for static information on computing devices, typically built-in applications and the operating system. Data is preserved even when battery power is removed.

**Shareware:** "Try before you buy" software. Usually either a time-limited demo or a "crippled" version of the product. In both cases, the customer must register (pay for) the product in order to utilize all of its features for an unlimited time.

**Sync, or synchronize** (HotSync – Palm

Active Sync – Pocket PC): The process of sharing PDA data (e.g. addresses, appointments, to-do lists) with a desktop or laptop computer, so that the most up to date information is present on both the PDA and the computer. Requires a cable or cradle, as well as software for the computer. Also the most common method for backing up data from the PDA and installing software.

**Sync cable:** A cable that takes the place of the cradle, may or may not also charge the PDA's batteries. Useful for travel to stay synchronized with a laptop computer.

**Windows Mobile 2003:** The operating system used on Pocket PCs made by Dell, Hewlet Packard, ASUS and others.

**WiFi:** Also referred to as 802.11b or 802.11g. A wireless (radio wave) technology that allows a PDA to transmit or receive data within a range of about 300 feet. Often used to connect to the Internet via a WiFi "Hot Spot." See

<http://www.palmone.com/us/wireless/ProvidingFluidConnectivity.pdf> for more details.

*Glossary adapted from: Nace GS, Willyard KE. PDA Basics. Oncology net guide 2002;3(4):5-10 [www.mdnetguide.com](http://www.mdnetguide.com)*