

PDA survey of medical residents: e-books before e-mail

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Abstract: *Introduction* – Increasingly, database vendors are allowing downloads of their products to personal digital assistants (PDAs). The Hospital Library at Capital Health in Halifax, Nova Scotia, has the opportunity to provide PDA versions of resources to our users. The purpose of this survey is to find out the current environment of PDA use among the medical residents as a basis for developing library training and support for this technology. *Question* – Are medical residents using PDAs, and if yes, what type of PDA are they using, what experience do they have using them, how do they think they will use them in a clinical setting, and what products do they think they will find valuable in their practice? *Methods* – A Web-based survey was developed using PollDaddy software. A message was sent to all the medical residents on rotation at Capital Health on 12 November 2008; the survey closed 12 December 2008. *Setting* – The survey was developed by the Health Sciences Library of Capital Health. Capital Health is an academic health centre in Nova Scotia, Canada. The medical residents are affiliated with Dalhousie University Medical School. *Participants* – The participants were medical residents currently working in Capital Health hospitals. There were 55 respondents. *Results* – The majority of respondents own a PDA and have more than 1 year of experience using the device. They use PDAs to look up drug information, for messaging, and to consult e-books. More than 90% of those surveyed use PDAs in their clinical practice. The Palm platform is used by 64% of respondents while the iPhone is used by 24%. *Conclusion* – Medical residents are using PDAs with a preference for the Palm platform. They are used for clinical decision making, and 61 different sources were listed as currently used by the medical residents. Implications for the library are to provide training for the Palm and to concentrate on resource-specific training, rather than basic training on how to use a PDA. *Limitations* – There are approximately 300 medical residents on rotation at any one time. We received 55 responses. We realized, too late, that people could select only one item for question 7 (“Which resources do you use?”). However, most respondents provided lists of titles of PDA resources for question 8.

Summary of survey results

Medical students are early-adopters of technology, and the use of personal digital assistants (PDAs), especially by medical residents, has been increasing [1]. Medical schools are encouraging students to use PDAs:

70% of all U.S. Medical Schools are currently enrolled in the ePocrates student discount program which enables students to obtain 50% off a 1 yr. subscription to ePocrates Rx Pro [2].

PDAs fit in your coat pocket, go wherever you go, and can be personalized with the programs you like to use and information you frequently need [3].

Of the 57 who answered the question² “Do you own a PDA?”, 51 respondents or 89% said “yes”. Of the 51 medi-

cal residents who own a PDA, 96% of them have owned their device for longer than 12 months.

Eighty-five percent of users owned a PDA before they started their residency, and 91% agreed that they will use the PDA in a clinical setting.

Sixty-four percent of users are using a Palm device. Considering the relatively high cost of the iPhone and its only recent availability in Canada, the authors were surprised to find that 24% of respondents used iPhones. We speculate that there will be more iPhone users as this technology increases in availability and prices decline.

We were interested to find that 6% used BlackBerry and 6% used “other” smart phones. Combined with the number of respondents using the iPhone, 36% of users had some kind of smart phone.

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²Two of the respondents were library staff testing the survey.

The Palm Pilot (Palm) platform is still the leader for the number of available medical software programs [4]. However, although Palm currently has the majority of downloadable databases, there are challengers to its prominence. Both the basic version of Epocrates, Epocrates Rx (the free drug software), and the RxPro (priced) version are now available for the BlackBerry (see <http://www.epocrates.com/products/rxpro/blackberry.html>), as are several e-books including *Current Consult Medicine* (see <http://www.usbmis.com/store/home.php?cat=24>). Epocrates Rx is available for the iPhone (<http://www.epocrates.com/gomobile/find-your-perfect-device.html>). Skyscape supports the iPhone (<http://www.skyscape.com/intro/iphoneintro.aspx>) and several medical textbooks are now available for the iPhone (see <http://www.unboundmedicine.com/store/iphone>).

Some schools are supporting the iPod Touch as the PDA of choice for medical students: "The Ohio State University College of Medicine is the only college currently using the iPod Touch to give to all its students for educational purposes" [5].

PDA's were most often consulted for drug information and doses (49 users or 65.3%). This may relate to the availability of Epocrates Rx as a free resource. We note that electronic text books were rated as being used more often than e-mail, contrary to our expectation that messaging features such as calendar, telephone, and e-mail would be cited as the most-used features.

The fact that drug information ranked highest, and electronic text books came in fifth place and ahead of e-mail strengthens the hypothesis that medical residents rely on PDA resources as a clinical tool (Table 1).

Respondents listed 61 different resources that they currently use on their PDA's. Products named more than once are shown in Table 2. Epocrates is the most used, followed by several versions of Lexi-Comp. These survey results show that drug information is the most-used PDA software, followed by medical calculators.

Future surveys should ask the respondents which software products they get for free and for which they pay. Full comments from those surveyed are shown under question 8 in Appendix A, but two quotes show that cost is a factor for this user group:

I used to have Lexi Comp, which was excellent as it contained a dictionary as well as a great drug program, but it's very expensive.

I would have more if they were less expensive.

The survey asked about three products that the library currently has the ability to support: Natural Standard (a complementary medicine database), Pocket Consult (via MD Consult), and ACP's Pier (via Stat! Ref).

The majority of medical residents (85.7%) said they would use both Pocket Consult and ACP's Pier. Only about half that number, 45.8%, said they would use Natural Standard. This is a new product for the Capital Health Library, so this may reflect a lack of familiarity with this product. Also, residency training focusses predominantly on the procedures of conventional medicine, so a different cohort—perhaps practicing family physicians who will have more patients using complementary preparations—may find greater uses for a complementary medicine product.

Table 1. PDA features most used.

Function	Features most used by respondents (%)
Drug database	65.3 (49)
Calendar	52.1 (48)
Contacts	43.8 (48)
Text/telephone	40.4 (47)
E-textbook	31.9 (47)
E-mail	29.5 (44)

Note: Values in parentheses are the number of respondents ($n = 51$).

Table 2. PDA products currently used.

Products named more than once by respondents	No. of times product named ($n = 36$)
Epocrates	26
Lexi-Comp/Drugs/Interact/Suite	11
Medical calculator	10
5-Minute Clinical Consult	7
PEPID	7
Harrison's	6
Stedman's Medical Dictionary	6
Washington Manual	5
DSM-IV	3
Taber's	3
Tarascon	3
UpToDate	3
PalmEKG	2
Skyscape applications	2
Toronto Notes	2

Implications for library training

- Medical residents will not need basic PDA training because they have owned a PDA for some time and will be accustomed to the features of their PDA's.
- The library should emphasize training using Palm software to meet the needs of the largest numbers of users.
- Smart phone technologies are the tools of choice for 36% of these medical residents. Future training should include smart phone technologies, and regular surveys should be delivered to see which type of technology is the preferred one.

Full survey results follow in Appendix A.

Directions for further research

More research needs to be conducted on evaluating skills levels before and after training in the use of PDA software products.

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Appendix A begins on the following page.



Appendix A. Survey results



Survey Title: PDA

Q.1 Do you own a PDA?		
Answer		Count
No		6 (11%)
Yes		51 (89%)
People who answered question:		57 (100%)
People who skipped question:		0 (0%)






Q.2 How long have you had your PDA?		
Answer		Count
> 12 months		49 (96%)
6 months		2 (4%)
12 months		0 (0%)
People who answered question:		51(89.5%)
People who skipped question:		6(10.5%)

Q.3 What type of PDA do you use?		
Answer		Count
Palm		32 (64%)
Other smartphone		3 (6%)
Blackberry		3 (6%)
iPhone		12 (24%)
People who answered question:		50(87.7%)
People who skipped question:		7(12.3%)

Q.4 Did you own a PDA before commencing your residency?		
Answer		Count
No		8 (15%)
Yes		47 (85%)

Q.5 Do you use OR intend to use your PDA in a clinical setting?		
Answer		Count
Yes		50 (91%)
No		5 (9%)
People who answered question:		55 (96.5%)
People who skipped question:		2 (3.5%)

Q.6 Please rank your use of the PDA where 1 is the most often used feature and 5 is the least often used feature:						
	1 (most)	2	3	4	5 (least)	Count
As a calculator	5 (10.6%)	13 (27.7%)	11 (23.4%)	13 (27.7%)	5 (10.6%)	47
As a medical calculator	9 (19.1%)	18 (38.3%)	9 (19.1%)	9 (19.1%)	2 (4.3%)	47
Calendar	25 (52.1%)	4 (8.3%)	9 (18.8%)	5 (10.4%)	5 (10.4%)	48
Track patient information (log)	2 (4.4%)	3 (6.7%)	5 (11.1%)	6 (13.3%)	29 (64.4%)	45
Drug information and doses	32 (65.3%)	8 (16.3%)	0 (%)	4 (8.2%)	5 (10.2%)	49
Electronic text book	15 (31.9%)	13 (27.7%)	6 (12.8%)	8 (17%)	5 (10.6%)	47
As procedure log	4 (9.3%)	3 (7%)	6 (14%)	7 (16.3%)	23 (53.5%)	43
As MP3 player	7 (15.9%)	3 (6.8%)	8 (18.2%)	4 (9.1%)	22 (50%)	44
Web searching	7 (15.6%)	9 (20%)	4 (8.9%)	3 (6.7%)	22 (48.9%)	45
Text message, telephone	19 (40.4%)	4 (8.5%)	2 (4.3%)	3 (6.4%)	19 (40.4%)	47
Email	13 (29.5%)	5 (11.4%)	3 (6.8%)	3 (6.8%)	20 (45.5%)	44
Other uses (entertainment/games)	2 (4.5%)	6 (13.6%)	13 (29.5%)	1 (2.3%)	22 (50%)	44
Contacts	21 (43.8%)	11 (22.9%)	7 (14.6%)	2 (4.2%)	7 (14.6%)	48
People who answered question:						52 (91.2%)
People who skipped question:						5 (8.8%)

Q.7 What resources are installed on your PDA?		
Answer		Count
5 Minute Clinical Consult		4 (9%)
Medical Dictionary		4 (9%)
Epocrates		20 (43%)
Harrison's		2 (4%)
Other (please list below)		16 (35%)
People who answered question:		46 (80.7%)
People who skipped question:		11 (19.3%)

Q.8 What other resources are installed on your PDA that are not listed above and what resource do you use most often via your PDA?	
People who answered question:	36 (63.2%)
People who skipped question:	21 (36.8%)

Other: resources:

Pepid

5 Minute Clinical Consult (I need a drug reference!)

Tabers, Harrisons, medical calculator, Toronto Notes

lexidrugs and lexi suite (5 minute clinical consult, infectious dis, etc)

I used to have Lexi Comp, which was excellent as it contained a dictionary as well as a great drug program, but it's very expensive

PEPID, MedCalc, MedRules, Eponyms

medcalc, ABG, I would have more if they were less expensive

All of the above and much more.

Pepid, Emergency Medicine, Med Calc

Lexi, John hopkins Abx, Calculators

UpToDate, Lexi-Drugs, Sanford, 5 min ID, Critical Care Handbook, Vaccine Handbook

Taber's, Tarascon, PepID, CinciACS, CinciStroke, PalmEKG, others

Why does the previous question only allow one answer? Most people have multiple medical apps installed. I have epocrates, harrison's, stedman's dictionary, medmath, lexicomp

Skyscape applications

all of the above, also DSM-IV

tarascon

harrisons, PEPID CRC and dictionary, trying to get uptodate (not working well on palm tx, though), tarascon, torontonotes

skyscape, epocrates, med calculators, netter msk

Lexidrug, lexi interact, DrDrug, A-Z drugs, Washington manual

Lexi-comp

Anatomy interactive, Drug dosing guide,

Pepid

Stedmans, Tabers

med calc and lexi drugs

Netter's Anatomy Flashcards

Medical calculator, uptodate, toronto notes, tarascon

HB fracture, gamuts, stedmans dictionary, 5 min ortho/emerg/sports, washington manual, peds drugs, OCM, anaesthesia drugs -- use epocrates the most

Air Sharing - allows to view almost any document type on iTouch

Lexidrugs

Evidence Medicine calculator, Mobile Differential Diagnosis (MGH), The Washington Manual - Psychiatry Survival Guide

StatRef

I use Epocrates the most. I also have med calc and a series of oncology nomograms, diagnosaurus and an eponym program

Washington manual of surgery

Up to Date, Pepid

Epocrates, MedCalc, Wikipedia

epocrates, lexi drugs, dsm-iv, 5mcc, ferri guide, washington manual, med lab ref, palmekg, psychopharm, i use dsmiv most i think

Q.9 Are you interested in having free access to the following Capital Health Library PDA resources?			
	Yes	No	Count
Natural Standard (free one year subscription) Collection of systematic reviews of alternative and complementary medicine for clinicians; evidence-based, peer reviewed: Palm, PocketPC formats.	22 (45.8%)	26 (54.2%)	48
MD Consult / POCKETConsult (free unlimited timeframe subscription) Access to selected journals in full-text, daily news updates, clinical updates, weekly drug updates, calculators and medical textbook	42 (85.7%)	7 (14.3%)	49
STAT!REF PDA: Pier (ACP Pier's) (free unlimited timeframe subscription) Physician's Information and Education Resource (PIER) evidence-based disease modules, provide quick access to authoritative an	42 (85.7%)	7 (14.3%)	49
People who answered question:			50 (87.7%)
People who skipped question:			7 (12.3%)

Q.10 Please Identify Yourself:		
Answer		Count
Resident		51 (77%)

Q.10 Please Identify Yourself:		
"other"		13 (20%)
Allied Health Professional		1 (2%)
Physician		1 (2%)
Clinical Clerk		0 (0%)
Nurse		0 (0%)
Pharmacist		0 (0%)
People who answered question:		54 (94.7%)
People who skipped question:		3 (5.3%)