

Use of PDAs in Orthopaedic Practice

Perfect Information System

- Portable to point of care
 - Office/clinic/OR/home/meetings
 - Usable wherever you need information
- Secure access to needed information
 - Literature/drugs/email/to-do list/calendar
 - Internet
 - Images
 - Phone/Dictaphone
- Easy input – generates Operation and Consultation reports
- Makes your life simpler
- Cheap

PIM vs PDA

Personal Information Manager (PIM)

- Calendar
- Contacts
- To Do
- Email

Does away with bits of paper

Synch with office computer

Personal Digital *Assistant* (PDA)

- PIM plus
 - Look up information
 - Protocols & Pathways
 - Documentation
 - Standardized care
 - Wireless communication

The real difference is not in the hardware but in the programs and data you load and the way you use the device

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2 terms often used with reference to PDAs

Synchronization	Beaming
<ul style="list-style-type: none">• Connect PDA & desktop<ul style="list-style-type: none">– Cable connection, Infra-Red or wireless• Activate Synchronization program• All files on both devices will be made equivalent<ul style="list-style-type: none">– Clocks– Latest changes to a file– Two way	<ul style="list-style-type: none">• Using the Infra Red or wireless capability to send a file from one PDA to another<ul style="list-style-type: none">– “Business Card” – contact info– Picture– Updated database

The question we are addressing

Can the PDA device actually assist you to improve your practice?

Put another way; can Information Technology (IT) improve the practice of Orthopaedics?

If so, is the PDA an important player?

Potential Impact of IT

- Convenience
 - Reduce stress
- Documentation
 - Prompt for information
 - Standardised data sets
 - Legible
- Information Resources
 - Texts/Protocols/Scoring systems
 - Internet

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Convergent Technology

Phone/Laptop/Dictaphone/address book/pager/camera. One device to do all this.

But you need –

A good PDA

- Operating system compatible with sophisticated uses
- Speed
- Storage
- Connectivity
- Wireless potential

A good camera

- Flash
- Macro
- Adjustable focus/exposure

A good Cell Phone

- Can hook up to your current provider
- Talk on phone and use PDA together
- Use a PDA in areas where Cell Phones are not allowed

Currently convergent devices fall short in several of these areas

Operating Systems

- Very little to choose between them
- Palm
 - Earliest
 - More integrated systems
- Pocket PC
 - Microsoft product
 - Integrated with MS Windows/Office
 - Camera/phone/dictation not available yet

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Obsolescence

- Storage/speed gets higher
- More add-on gizmos
 - Wireless systems
 - IR
 - Bluetooth
 - WiFi
 - Removable Storage
 - Keyboards
 - Projectors

Desiderata for Orthopaedics

- Excellent image display & connectivity
 - Xrays
 - Arthroscopic images
 - Video
 - Operative images (macro)
 - Get these images on and off PDA easily
- Database functionality
 - Forms
 - Templates
 - Easily uploaded
- Run PowerPoint from PDA
- Wireless connection to the Internet
- Built in encryption
- ?Keyboard
- Price \$500 Canadian

Hardware Choices

- Do nothing
- Wait until convergence achieved (1–2 years)
- Gain experience with current all-in-one device
- Obtain powerful dedicated PDA

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Examples

- A good Palm device with camera
- A good Pocket PC
- Latest in convergent technology

SONY Clie PEG-TH55

- Speed ?
- Storage 32 mb
- Wireless Connection LAN 802.11b
- Phone None
- Camera 320 X 480 pixels
- Operating System
 - Palm
- Cost \$500

HP 2215

- Speed 400MHz
- Storage 56Mb
- Wireless Connection Bluetooth & expansion slot
- Camera/Phone None
- Operating System
 - Pocket PC
- Cost \$500

Treo 600

- Speed 144MHz
- Storage 24 mb
- Wireless Cell Phone
- Camera 640X480 pixels
- OS Palm
- Cost \$866

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Software

Built In Software

- Organizer
 - Addresses
 - Calendar/Appointments
 - To Do list
 - Email
- Connection/synchronization software
- Notes/short Word Processing files
- Character recognition

Free Software

- Avantgo Channels
 - News
 - Custom Channel to specific website
- JournalToGo
 - Arthritis & Sports Medicine Channels
 - No orthopaedic surgery channel

Free eBooks

- Use MS Reader on the Pocket PC
- 1300 titles in Free section of the Microsoft Reader Catalog of eBooks
<http://www.mslic.com>
 - Dictionary
 - Rough Guide to Paris
 - Oliver Twist

eBooks on sale

- 130 Titles in the Medical section of MS Reader Catalog of eBooks
- None found under search for Orthopaedic

Medical Reference Books

- These need a “Reader” program such as iSilo (\$20 US)
- Clinical Medicine Consult (\$60 US)
 - Reference work for the whole of clinical medicine.

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A Relational Database Program organizes data into related tables

- Enter data once
- Use many times
- Flexible reporting

Database Programs

- Free
 - Many Demos
- Cheap
 - HandBase Professional (\$40 US)
 - With Forms designer
 - Huge free selection of databases. Including Orthopaedic databases on the ICL disk

- Expensive
 - Visual CE + Report CE (\$200 US)

Comprehensive Orthopaedic Solution

- Orthostar
 - Surgical Documentation (coding)
 - Accounts Receivable (\$199 pa)
 - Surgical Scheduling
 - Consults
 - Superbill (\$499 / \$250 pa)
 - Operative Report Templates
 - Day Notes (\$499 / \$250 pa)

Free Databases (available from mylesclough@shaw.ca)
- On the disk
 - Organizers/logs
 - Scoring systems
 - Information
 - Templates

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- On the Internet
 - Thousands at www.ddhsoftware.com

To use these databases

You have to buy and install HanDBase Professional

The databases are free; the program to run them is not. However you can download a free demo program and use it for a month.

Organizers/logs

- Ward Rounds
 - ID/Demographics, To Do, Medication, IV, Lab results, Imaging Procedures, Operations, Billing
- Messages
- Operation List/Billing Codes
- Trainee Surgical Log

Daily Activity Database

- Not for everyone ☺
 - You may prefer bits of paper
- Integration with billing/office data processing
- Potential for integration with hospital systems
 - If they ever grow up ☹

Scoring Systems on disk

- Trauma Score
- Trauma Assessment
- Mini Mental Status Evaluation
- Hip Score
- Knee Score
- SF 8

Information on disk

- Drug Databases
- Classification systems in Orthopaedics and Trauma – video
- Developmental Milestones

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Reporting is the limiting step

- Simple database programs have simple reporting facilities
- We need insertion of data entries into text documents
 - “The patient is <age> years old”
- Export to desktop and merge with WP document
- Custom Report writer (expensive)

Templates

- PDA is small enough to take to point of contact
- Enables standard documentation
 - Examination
 - Scoring
 - OR reports
 - Progress
 - Outcomes

DIY Templates (on Desktop)

- MS Word supports templates & macros
 - Write a standard report as a form
 - Insert checkboxes, free text boxes & dropdown menus
 - Save as database
 - Merge database with form document
 - Save/distribute

Conversion to PDA

- Pocket PC Word does not support forms
- PDA Database programs fill the gap
- Export the results to the Desktop as Excel file, Access file or CSV file
 - Integrated Report Writer preferable

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Where are we?

- Job Definition
 - IT device powerful enough and small enough to use at the point of care
 - Greatest effect on care will be standardization of documentation using templates for assessment and OR reporting

Hardware

- The hardware is powerful enough
- Issues around connectivity and integration with hospital procedures & IT systems
- Convergence of all portable electronic devices is here, but single use devices are more powerful

Software

- Data collection software is adequate and cheap
- Reporting is either expensive or cumbersome

Template design

- Biggest task
 - Think of all the things you might need to report about every operation you do
 - Should be done only once
- Not for geeks
 - Need expertise in surgical reporting not in computer usage
- National collaboration
 - If the purpose is standardized data collection
 - More than one template per procedure is undesirable
- Do a deal with OrthoStar

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Why are Standardised Data Sets important?

- Common problems – eg wrist fracture
 - Usually well treated – need huge patient collections for analysis
 - Multi-centre/multiple participant studies
 - Standardised data collection very difficult

IT Solution

- Device small enough to be used at the point of care
- Prompt for complete set of information
- Assist with or eliminate current documentation
 - Not an add-on

On the Ward

- Synch your PDA to upload test results & your patient list with new nursing notes
- Check your To Do list. Add to it as you make rounds
- Re Synch to leave a list of orders and plans
- Wireless makes this easy
- (Nursing administration may make it difficult)

Is this a Revolution?

- No – it won't change the way individual patients are treated
- Perhaps – may improve documentation standards
- Yes – should transform routine hospital care
- Eventually – patient care databases should have an effect. Ontario implementation of the Joint Registry is on PDAs

Summary

- PDAs have the potential to bring potent IT to the point of care
- Hardware is adequate
- Software is available
- Major issues are
 - Template design
 - Integration with hospital systems
- Everyone can contribute