

Invasion of the Handhelds

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Our Projects

- Sporadic projects using PDA type devices since the Apple Newton (1993-1998)
- Gradually increasing number and complexity
- Spring 2004 – half dozen simultaneous clinical “pilot projects” in various areas

Original Intentions (Ours)

- Charge Capture/Coding
- Prescription Writing
- “Rounding” aid

To support these “intentions” pilot projects were linked to central systems in simple ways – ADT messaging, batch files

Original Intentions (Vendors – my interpretation)

- To develop a market here. “When our pilot is successful, how fast can we deploy our solution throughout Johns Hopkins?”
- “Our product has additional capabilities. How soon can we deploy them to make a more compelling package?”

Intentions Grow

- Virtually all projects discover that when users begin to carry a device, they want the device to do more things. And most of the vendors have more functions to offer.
- Requests abound for more “displayable” data: laboratory results, clinic appointment schedules, documents

Intentions Collide

- Yes, your PDA application has scheduling capability (to its own mini-database, but not connected to the existing scheduling systems)
- The initial sponsor cannot speak for deployments outside their own domain
- Wide deployments always entail customization, training, user support – they become big projects

Is there such a thing as a clinical pilot project?

- Clinical use demands that everything must be built and tested to a high standard before it is employed at all.
- Expanding “deployment scope” can appear to be very easy. “Just give them access to the application”.

Pilot Projects (really)

- Scale of Servers (small)
- Training (specific to the pilot)
- Customization/Configuration (narrow domain)
- LIMITED DURATION
- LIMITED DEPLOYMENT
- EVALUATION PLAN
- DECISION POINT

PDA Unique Issues

- Many Form Factors: Palm, Windows CE, Blackberry, Smart Phones, Tablets
- Convergence? Phone, PDA, pager, clinical applications?
- Data movement? Wired Sync, cell network (sync or interactive), 802.11b network (sync or interactive).
- Where are the batteries/re-chargers?
- One per person or per function?

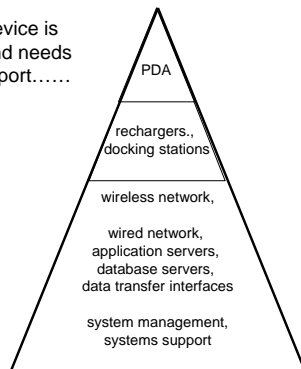
PDA vs. Large Screen

- Wildly different data display and navigation characteristics.
- Large Screen (PC) clinical applications are designed to display as much data and relevant context as possible. And to allow navigation in many directions.
- PDA screen size forces extreme precision in selecting data to be shown, and offering navigation options.

Display device is different, and needs special support.....

But

everything else is just like every other system we have deployed in the last twenty years



Motivated to Increase Scrutiny

- Ongoing Patient Safety Focus
- Maturation of many “Pilot Programs”
- Increasing demand for copies of clinical data
- HIPAA Security regulations
- HIPAA Privacy regulations

Examples of Problems Found (Laboratory Data)

- Clinical data screens with no patient context
- Laboratory results without units or reference ranges
- Problems displaying laboratory “comments”
- Confusing flags/indicators of abnormality

Examples of Problems Found (Interface Design/Management)

- Matching interface records on Medical Record Number only
- Inadequate coordinated testing with other systems
- Lack of “post-live” test environment
- Lack of processes for failed interface transactions

Policy Development

Medical Board, Johns Hopkins Hospital

Administrative Committee of the Medical Board

Medical Care Evaluation Committee (MCEC)

Clinical Data and Documentation
Committee (CDDC)

CDDC Scope

- “Review and evaluate the quality, content, format, clinical pertinence, accuracy, and accessibility of the medical record. The medical record includes electronic as well as paper data and documentation. As necessary, provide recommendations for modifications and improvements of current or proposed formats or documents”

CDDC Policy Background

- “The format in which clinical information is displayed can affect how it is interpreted.”
- “Standards for the display of clinical information are essential”
- “Variations in formatting could contribute to errors in patient care (oversight or misinterpretation)”

CDDC Policy “Display of Patient-Specific Clinical Information”

- Specifies Adherence to:
 - Interface and Security Standards
 - Display Standards
 - conformance with Reference Systems’ data format
- Requires Approval from “Data Sources”
- Permits Temporary Deviations

CDDC Policy Interface and Security Standards

- Patient Record Matching
- Timely Interface Processing
- Processing of Corrections/Amendments
- Test-Dictionary Synchronization
- Pre-Production Testing
- Post Live Testing Environment
- Security (confidentiality, integrity, availability)

CDDC Policy Display Standards

- General
 - Patient context
 - Date and time
 - Abbreviations
 - Text Documents
 - Status Flags
 - Use of Color
 - Clinical Images
- Laboratory Data
 - Component names and test codes
 - Units and reference ranges
 - Comments
 - Pending results
 - Result formatting
- Medications
 - Required elements
- Nursing Documentation

Reference Systems

- Consistency and repeatability are powerful tools to achieve quality outcomes
- Niche systems should conform to the standards established by systems in wide scale use.
- CDDC identifies reference systems by type of data (i.e. EPR for laboratory display, CPOE for physician orders)

Review Cycle

- Projects must obtain approval from Information Sources, regarding the use or display of data.
- Interface and Security standard compliance will be subject to review.
- Temporary Deviations may be permitted

The Upside

- Clear expectations for systems operating in our institution
- Consistency of data presentation for the clinicians
- Gradual adaptation to the increasing regulation of healthcare information

Final Word

- PDAs are a GOOD thing. Portable windows onto the world. They will become permanent features of the environment.
- But in healthcare, they are the data viewing and capture portion of LARGE and highly integrated systems.