Usability Present and Future
Current Practice and Future Plans for Usability Experience:
“Industry Perspective” for the Department of Veterans Affairs

SHARPC AMIA Pre-Symposium
W. Paul Nichol, MD
Health Informatics
VHA Office of Informatics and Analytics

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ABOUT THE VETERANS HEALTH ADMINISTRATION (VHA)

- 6 million patients treated in 2010
- More than 1,600 sites of care, including:
  - 152 hospitals
  - 974 outpatient clinics
  - 133 community living centers
  - 288 Vet Centers (VAST Numbers as of 3rd quarter FY11)
- 244,000 employees; more than 20,000 physicians and 53,000 nurses
- More than 75 million outpatient visits in 2010
- Nearly 680,000 inpatient admissions in 2010
- Affiliations with more than 1,200 educational institutions
- More than 100,000 health care students receive clinical training from VA each year
ABOUT VHA

• Patient records: 23.4 million
• Clinical Documents: 1.74 billion + 1.1 million per day
• Physician orders: 2.85 billion + 1.4 million per day
• Average “cover sheet pulls” per hour: 220,932
HISTORY OF COMPUTING IN VHA

- Pre – Graphical User Interface (GUI) Era; Departmental Systems 1978
- Decentralized Hospital Computer Program (DHCP) 1981
- Veterans Health Information Systems and Technology Architecture (VistA) 1994
- Computerized Patient Record System (CPRS) 1995
- CPRS GUI 1997
- Remote Data Views 2001
- Inter-facility Consults 2002
- Department of Defense Federal Health Information Exchange (DoD-FHIE) 2003
- My HealtheVet Personal Health Record (PHR) 2003
- DoD-Bidirectional Health Information Exchange (BHIE), Non VA Med Entry 2004
- VistAWeb 2005
- Remote Image Views 2006
- Remote order checks/ Remote Data Interoperability - Clinical/Health Data Repository (RDI-CHDR) 2007
- Virtual Lifetime Electronic Record (VLER) Pilot 2009
Vista / CPRS TODAY

Computerized Patient Record System

- **Vista** = Veterans Health Information Systems and Technology Architecture
  - 150+ separate business software applications that support day-to-day activities of health care

- **CPRS** = Computerized Patient Record System
  - Graphical User Interface to Multimedia Electronic Health Record

- Delivers an integrated record covering all aspects of patient care and treatment

- Immediately available real time, supports both continuity and longitudinal patient-centric care across continuum

- Includes electronic order entry and management, narrative notes entry, laboratory results display, consultation requests, alerts of abnormal results, and much more

- “Remote Data View” and “VistaWeb” allow clinicians to see health data from any other VA facility where the Veteran has received care
MULTIMEDIA ELECTRONIC MEDICAL RECORD
CURRENT VistA/CPRS USABILITY CHALLENGES

- Electronic representation of paper chart
- Dated infrastructure and technological approach
- Challenges in rapid change
  - Clinical practice
  - Technology advances
  - User demands
- Personalized care orientation – need integration of data from multiple sources, not just VA
- Clinical decision support enhancements
1. **If data is important enough that it is needed to manage the patient and/or the system, then it must be acquired as an integral part of the work process and not through retrospective data collection.**
   - Data should be acquired in real-time, and in concert with the documentation of clinical activities.

2. **Solutions must make the work easier and not impose undue burden or re-work.**
   - Technology must facilitate the workflow, but not drive it.

3. **Real-time visibility into the system must be available, and it must be transparent across the enterprise.**
   - Manage all patient-health system interactions (e.g. location and times, waits and delays); manage patient-staff relationship (e.g. handoffs); manage all tests and procedures in real-time (from scheduling to completion with concurrent documentation)

4. **To deliver evidence-based care we must have evidence-based management.**
   - Clinical and Administrative processes support

5. **To effectively manage the delivery of evidence-based care we must manage complexity**
   - Data>Information>Knowledge>Wisdom
Designing and developing an Electronic Health Record (EHR) that effectively provides cognitive and work process support requires an understanding of the key dimensions of cognition that require support in a busy, healthcare environment.

- Goal-based processing
- Support for both planning and action (Decision-making)
- Supporting an Accurate Situation Model of the patient
- Support for establishing common ground across the team
- Support for adaptive control of information environment
CORE EHR VALUES

- Single points of entry and recording
- Integrated information and context sensitive flexible displays
- Interdisciplinary and team based
- Customizable
- Intuitive and usable
- Technical quality
- Integrates evidence-based information
- Supports task management
USABILITY: WHERE WE GO FROM HERE

• Understand workflow and re-engineering opportunities as components of usability requirements

• Agile development is needed
  – Usability is in the eye of the user
  – Cannot always anticipate the issues
  – Create the collaborative development environment to be more responsive to users

• Attention to infrastructure to support enhanced usability
• VA Major Transformation Initiative: Transforming Health Care Delivery through Health Informatics Initiative (hi²)
  – Provides a succession plan to transition CPRS to the next generation of browser-based EHR
  – Promotes agile development model involving clinical subject matter experts throughout the software development lifecycle
  – Develops the health informatics workforce and enhances organizational informatics literacy through competency, career and community development
• Interagency Electronic Health Record (iEHR)
  – Collaborative Initiative between the Department of Veterans Affairs and the Department of Defense
  – Will create an open standards-based environment for development
A CONCEPTUAL VIEW: MEDICATIONS
QUESTIONS?

Contact Information
Paul Nichol  Paul.Nichol@va.gov

VETERANS HEALTH ADMINISTRATION