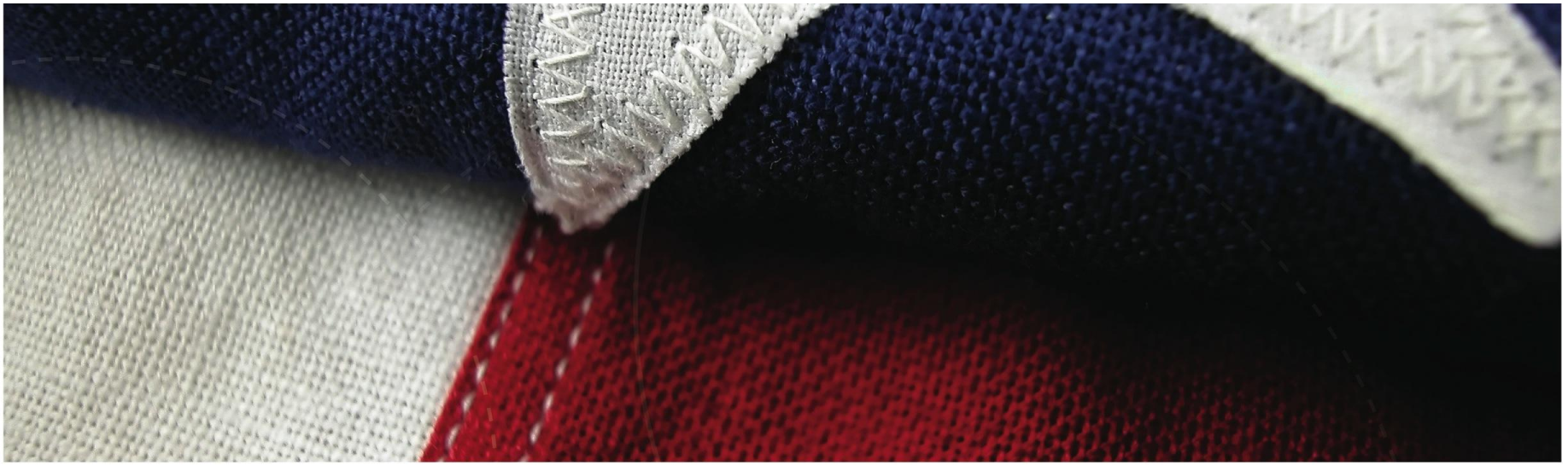


Usability Present and Future

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

October 21, 2011

VA HEALTH CARE Defining EXCELLENCE in the 21st Century

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 + 1.1million 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 Health***e***Vet 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

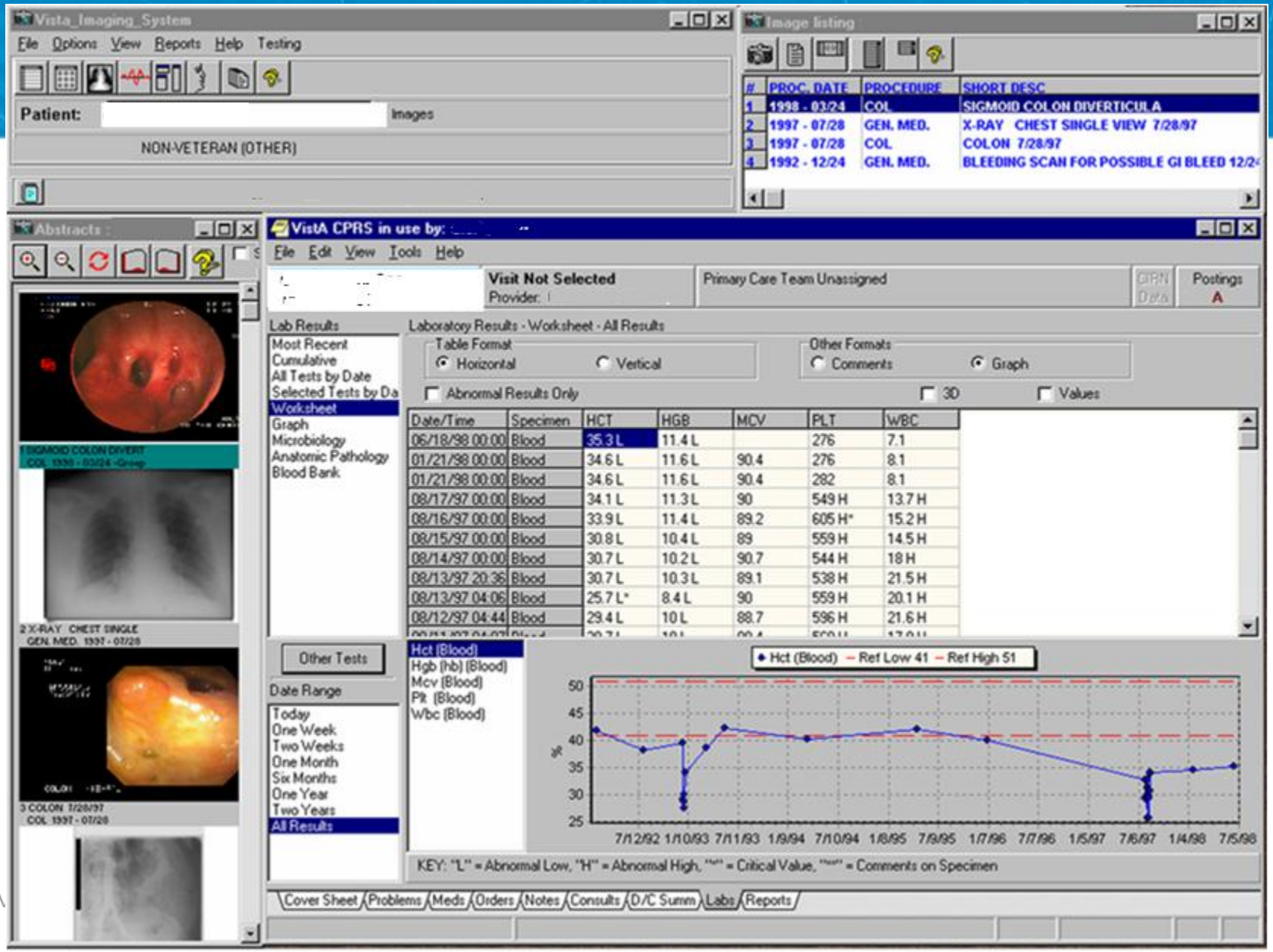
VistA / CPRS TODAY

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

PRINCIPLES OF HEALTH INFORMATICS REDESIGN

Robert L. Jesse, MD, PhD, Principal Deputy Under Secretary for Health

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

IMPROVING USABILITY: PRINCIPLES OF COGNITIVE SUPPORT

- 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

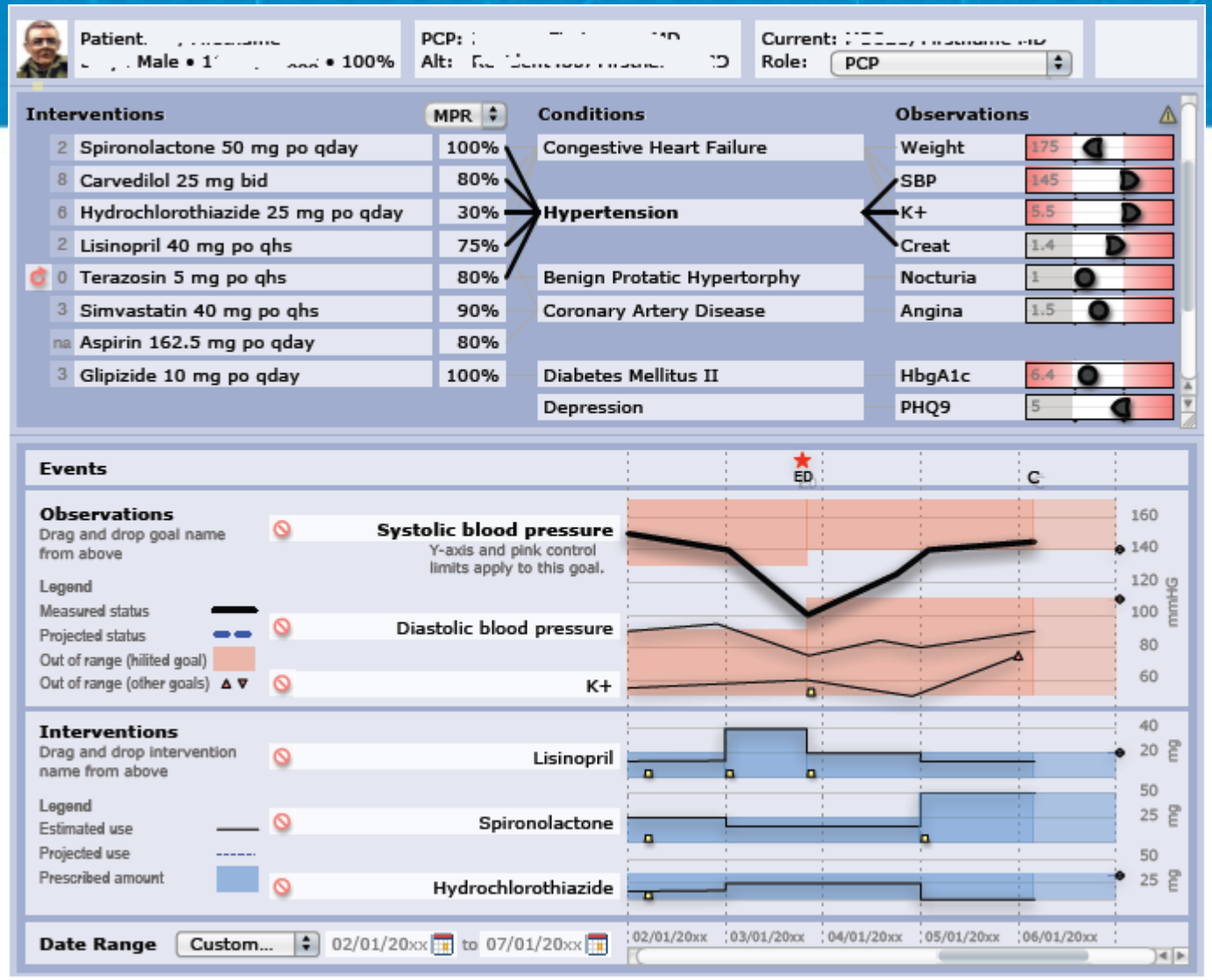
USABILITY: WHERE WE GO FROM HERE

- 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

USABILITY: WHERE WE GO FROM HERE cont.

- VA Major Transformation Initiative: Transforming Health Care Delivery through Health Informatics Initiative (hi^2)
  - 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?

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