VistA Laboratory Enhancement Proposals

Wish List of Improvements and Enhancements to Laboratory Package Functionality
Overview

- Improving Existing Functionality
- Implementing Enhancements
- Support New Functionality
- Core Database Redesign
- Support External User Interface
Long-term goal

- Correct Existing Defects/Deficiencies
- Support Functionality Needed by Non-Governmental Sector
- Support Current and Emerging Legal and Clinical Requirements
- Implement and Support Data Standardization and Interoperability with External Systems
The Present Situation

- Current Database Design based on original requirements.
  - Single Laboratory Model
  - Slow/Incremental Technological Change
  - Limited Laboratory Testing Compendium
  - Adjunct to Paper Record System
  - Simple Customer Model – Ordering Provider
Development up to present

- Defect Correction Limited to Fixing Defects
- No Refactoring to Reflect Current Knowledge/Conditions
- Enhancements When Necessary Usually Limited to Immediate Requirement
- Loss of Domain Experts
- Maintenance Minimized in Anticipation of New Replacement System
Development up to present

- Laboratory Technology Continues to Advance at Rapid Rate
- Historical Categorizations Changing
  - Boundaries of Classical Laboratory Areas are being redrawn/eliminated by new technology
  - Test performed previously in “Microbiology” may now be performed in “Chemistry”
Potential Alternatives

- Continue Current “Band-Aid” Approach
  - Small Incremental Fixes
  - Leave Current Database/File Structure in Place
- Refactor Current System to Support New Functionality and Phase In Database Design Changes with Existing Database
- Redesign Existing Database to Support Existing and New Functionality
Areas for Enhancement

- Refactor existing functionality in areas of normal ranges, units and abnormality determination.
  - Normal ranges based on multiple age/sex/race
  - Normal ranges based on other factors – gestational age, therapy.
- Support normal ranges for non-numeric results – negative (normal)/positive(abnormal)
- Support additional abnormal flags - “normal”, “abnormal”, “significantly worse”
Areas for Enhancement

• Auto-verification of Automated Instrument Testing
  – Accept auto verified results from middleware/automated instrument
  – Develop auto-verification functionality within VistA based on specified business rules when no external system

• Support Linking Images to All Areas of Laboratory Package.
  – Link/store images and binary documents for Chemistry/Hematology/Microbiology areas
  – Linking images at multiple levels – specimen, test, component.
Areas for Enhancement

- **Support Phlebotomy Collection System**
  - Transmit Orders
  - Process Request for Collection
  - Transmit Collection/Accession Information
- **Adjunct/Replacement of Lab Data File (#63)**
  - Support Multiple Standard Code Systems – LOINC, SNOMED, CPT at multiple levels
  - Support Textual/Word Processing Results
  - Support Comments/Notes and Supporting Information (User, Date/time, etc.) at Analyte Level
  - Support for Semi-Quantitative Results (Titers, Structured Numeric).
Areas for Improvement

- Urgency File
  - Allow inactivation of existing urgencies
- Label Printing
  - Print label to multiple printers
  - Allow printing to all members of a “hunt” group
- Delta Checks
  - Allow days back at test level
  - Override system setting
- Record Date/Time Order Placed
- Record Date/Time Order Requested For
Areas for Improvement

• Historical Tests/Results
  – Flag that they belong to an “Active” panel for Display/Lookup purposes.
  – Would not be Orderable

• Audit Trail Capability
  – Maintain a formal structured record of changes
  – Who, What, When, Why

• Expand Lab Universal Interface
  – Support Microbiology Instrumentation
  – Support Anatomic Pathology Processing and Transcription Systems.

• Expand Point of Care Interface
  – Support Existing Orders on VistA