Achieve faster, more streamlined operations with Instrument Manager using Autoverification

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Introductions

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Laboratory Solution Consultant, VA LIM for 17 years and AV beta-site LIM

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Laboratory Solution Consultant

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Laboratory Solution Consultant, VA LIM for 11 years and National AV Innovator
Challenges within the VA lab

Currently, every result must be individually reviewed by certified laboratory personnel and manually validated by keystroking initials in software before the information can be released to hospital clinicians (physicians and nurses).

This labor-intensive system is ultimately unsustainable due to several critical constraints:

- Insufficient and decreasing supply of Medical Technologists
- Increasing demand for laboratory work caused by a growing & aging veteran population
- Expanding laboratory test choices driven by technological advancements
- Recurring regulatory requirements
- On-going budgetary and cost containment pressures
What is Autoverification?

• Auto-verification uses software logic (rule algorithms or Boolean Logic (If...Then statements) to define “normal” and “abnormal” result criteria. The software automatically approves and instantly routes normal results to the clinician.

• The exclusion of normal results from the medical technologist’s workload, he or she can concentrate exclusively on abnormal results and provide diagnostics to the clinician more quickly.

• In both cases, results are released to clinicians with greater speed and efficiency, and with less potential for error.
Autoverification rates commonly seen at VA sites

- Chemistry: 90%
- Hematology: 80%
- Coagulation: 95%
- Molecular: 90%
Current Workflow in many VA Labs

CPRS

Manual Verification
100% of Results

Med Tech

Instrument Printout

Autoverification
0% of Results

VA Middleware

Patient Results
VistA Autoverification Workflow

1. CPRS
2. Validated Patient Results Posted
3. Med Tech Review Stations
4. Review Workspace
5. Manual Verification 10% of Results
6. Decision Point in IM
7. Autoverification 90% of Results
8. VA Middleware
9. Patient Results
How did Autoverification Originate in the VA

• Grass roots effort by Med Techs
• 2013: Kansas City VA developed AV as a Class 3 solution
• 2014: Kansas City VA won the All Employee Innovations Competition to pilot the solution (similar to the new Shark Tank)
• Many LIMs in the nation gave support for the project and expressed their need for the solution. Thank you!
• 2015: Beta-sites tested AV Class 1 solution
• 2016: AV became part of the Core VistA package
Why do you need AV?

- Shortage of Med Techs- USA Jobs currently has 77 Med Tech positions nation-wide
- Increase patient safety by standardizing the workflow
- Decrease TAT and move patients through the system
- Decrease send out costs by increasing in-house test menu availability
- Increase value added tasks- participation in validation, procedure writing, CAP preparedness, employee education
- Increase Med Tech student programs
- Greening the Government- Executive Order 13514 and GEMS Committee
How is AV Accomplished?

- Evaluate current IM server capacity, upgrade server and IM if needed. IM/Vista Test systems are required.
- Conduct discovery of workflow using Data Collection Tools
- Development of Decision Rules in IM
- Configure VistA Auto Release patch
- Validate rules
- Train staff
- Go-live
What does AV Look Like in Instrument Manager?
Rules with Value Lists
IM Specimen Management Workspaces

- No longer review specimens in VistA using EA or EM
- Turn off automatic report printing
- Held specimens presented to technologist with continuous updating
- Only review held specimens
- Critical notification documented directly in the Workspace with provider contact information captured from test order
- Color coding for review prioritization- STATs, Critical, reflex, delta checks and integrity checks
- Automatic ordering of dilutions, repeats and reflex testing using rules.
Techs using IM Workspaces instead of VistA EA/EM Chemistry:
Chemistry Dilution Handling
<table>
<thead>
<tr>
<th>Test Name</th>
<th>Test Status</th>
<th>Result</th>
<th>Reference Ranges</th>
<th>Test Comments</th>
</tr>
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<td>MCHC</td>
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<td>14.5</td>
<td>11.5-15</td>
<td></td>
</tr>
</tbody>
</table>

**Patient Information**

- Name: NOOOFLILUZELLUDT
- Date of Birth: 11/1/1979
- Sex: M
- ID: 101-10-2786
- Location: Facility: F/6
- Ordering Physician: RENETHUICLACNO
- Label No: 1
- Collection Date/Time: 11/12/2016 10:29:11
- Test Comments:

**Last Updated:** 11/21/2016 12:23:09 PM **Last Action/Performed Report Run:** 5
# Integrated Cell Counters

The document appears to be a screenshot of a software interface for integrated cell counters. The interface includes a worksheet with patient information, specimen details, and a run worksheet. The worksheet contains columns for test names, previous results, instrument 1, test data, and more. The interface also includes various data entry fields and options for specifying patient IDs, specimen IDs, and run sheets.

### Specimen Information
- **Specimen ID:** 3606005391
- **Patient Name:** BLAULUTE
- **Ordering Physician:** KENNETH MD

### Run Worksheet
- **Test Name:** VAD, PLT, MPV, MPN, CD4, CD8, CD25, CD3, CD45, CD45RA, CD45RO
- **Result:** 1.5, 1.5, 1.5, 1.5, 1.5, 1.5, 1.5, 1.5, 1.5, 1.5
- **Test Comment:** Normal

### Patient Information
- **Patient Name:** BLAULUTE
- **Date of Birth:** 3/25/60
- **Ordering Physician:** KENNETH MD
- **Location/Facility:** LABA

The screenshot shows a detailed view of the instrument management software, likely used in a clinical setting for managing and analyzing cell count data.
Is AV Affordable?

• You OWN your Instrument Manager and may only need to add modules. Unlike vendor contracts that expire every 5 years IM will not “walk out the door”. Once modules are purchased it only requires a nominal Maintenance & Support fee.

• AV is typically accomplished one workflow at a time and is implemented incrementally.

• Start small and learn how the entire process works and continually add departments. Contract a consultant to show you the ropes.

• Plan ahead so funding can be evaluated on a yearly basis for additions to your Instrument Manager such as Lab Intelligence, Moving Averages or connections.

• Once you learn how to implement AV there may be departments you want to tackle on your own.
Advantages of IM

- VA owned not leased
- IM software is TRM approved
- IM has VistA interoperability
- Original AV solution
- IM is used in all VA facilities giving you a peer group for support
What about Cerner?

Per Dr. Icardi IM will be a “multiplexer with Cerner”. That means all lab connectivity will continue to go through Instrument Manager interfaced to the Cerner LIS.

How do you prepare for Cerner?
When Cerner begins your facility migration start evaluating your skills in moving IM to the Cerner platform.

- Is Cerner helping you connect IM to the new LIS?
- Do you need help from DI for the migration?
What else can DI/IM do for you?

**Blood Bank** Instrumentation Interfacing with VBECS

**Microbiology** Instrument Interfacing

**EP Evaluator** - Helps make 6-month correlations easier.

**Moving Averages** - the ability to monitor instrument deviations, using daily patient workflow to signal instrument malfunction. Providing increased patient safety and early notification that QC cannot.

**Lab Intelligence** - the ability to gather metrics data directly from IM. Auto updates or real-time data mining.

- TAT; Percent AV; Numbers and draw locations of hemolyzed specimens, QNS, and contaminated specimens;
- Workload, shift and employee productivity counts;
- Critical Value counts- missed notification documentation.
Thank you to VA sites using MA and Lab Intel that contributed screenshots

VAMC Kansas City
Hines
Prescott
Denver
Louisville
Tennessee Valley
Marion, IN
Southeast Louisiana
The Standard for Quality Assurance software designed to evaluate and measure the clinical laboratory performance and provides clear, concise, 'inspector-ready' reports meeting all CLIA, CAP, JCAHO, and COFRAC requirements.

Google EP Evaluator Data Innovations or select the linked icon to the left.
Moving Averages (MA)
Moving Averages (MA)

• Sodium protocol maximized with a date range.
• With the protocol maximized, you have the ability to:
  • View data points plotted outside of your current X-axis time range.
  • Compare data points between two or more instruments.
  • Click a data point to open a window that displays the raw results data.
  • Pause and restart data refreshing.
  • Export point data.
  • Generate a PDF report with a picture of the section of chart you are reviewing, protocol configuration and series details, a list of results used to calculate the data points, and a text box for typing in comments.
MA Protocol Data
Multi Assay MA on Multiple Instruments
Some Laboratory Intelligence pivots require the setup of rules in order to work properly; however, many pivots do not require any rules at all, such as workload and turnaround times.

Test Results/Day/Hour-Widget
Dashboards: Supervisor Reports
Dashboards

Troponin Test Counts with TAT exceeding 60 Minutes in red
MRSA Test Counts with TAT exceeding 180 minutes in red.
Dashboards

Daily and a weekly view of autoverification statistics (the first bar in each includes the go-live date):
Total Laboratory autoverification statistics

This dashboard requires autoverification rules to be in place.
Drill Down on Dept Percent AV
Percent AV Meter- Daily, Monthly and by Department
Finding More About Autoverification, MA, Lab Intelligence

Reach out to the national LIM email group and talk with peers who are already using the solutions.

Visit DI Website- http://www.datainnovations.com/

Contact your Sales Representative via email at northamerica-sales@datainnovations.com
How Can You Present the Topic for Internal Discussions?

Please contact Sales if you need help formulating a proposal. We can provide examples, quotes or further information.
Questions?

Thank you for your time!

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