Quality Improvement Forum Call
LIMS: The Lab's Secret Superpower

August 25, 2026

LIMS: The Lab’s Secret Power

The Value of Laboratory Experience in LIMS Management with a Detor to Electronic Test Ordering and Reporting

August 25, 2026

Department of HEALTH & HUMAN SERVICES | Division of Public Health

Outline

- A Laboratorian’s Perspective in LIMS Management
  - Journey from the bench to LIMS
  - Value of Lab experience in LIMS Management
- Detor Implementation
  - What is Detor
  - NH PHL Detor Implementation
    - Scope and timeline
    - Outcome including lessons learned

A Laboratorian's Perspective in LIMS Management

Journey from the Bench to LIMS

- PhD In Molecular Virology
  - Arbovirus Surveillance/BT
    - LIMS Superuser
      - LIMS Development Manager

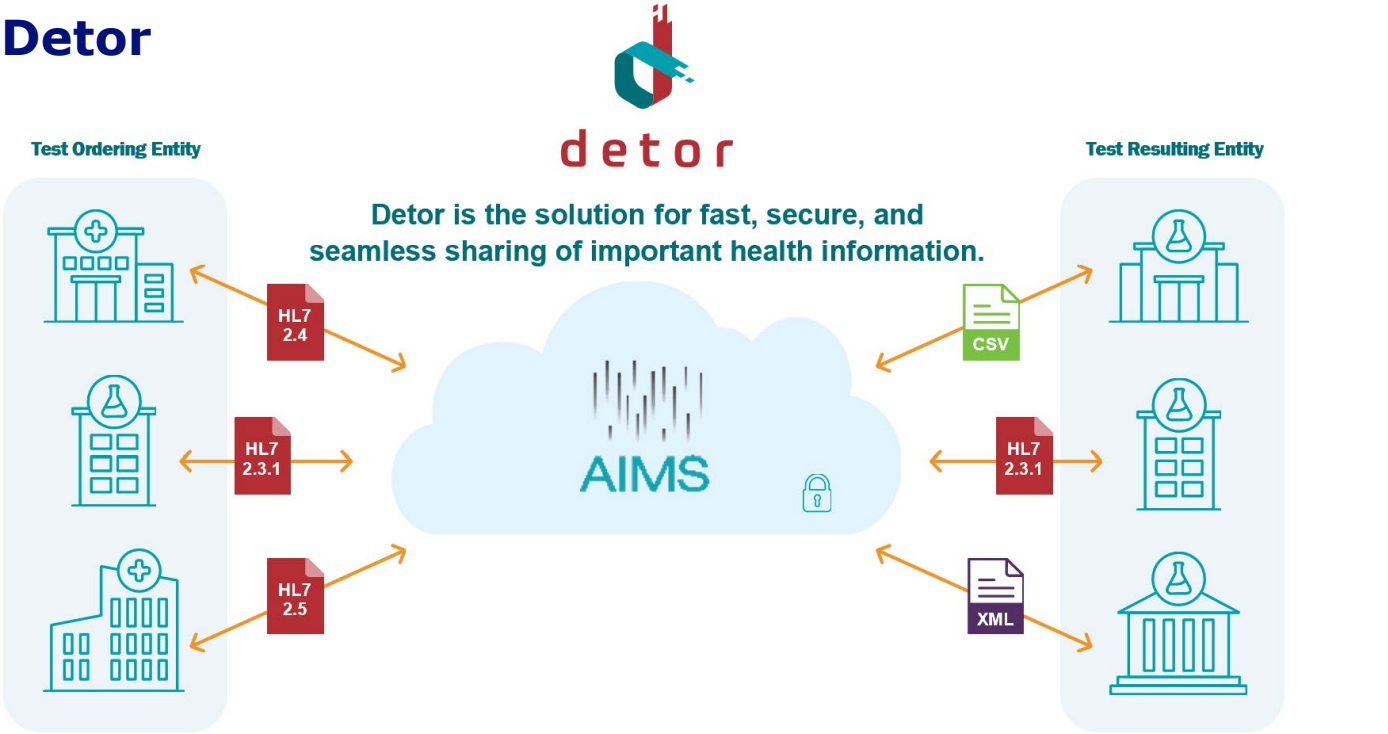
Value of Laboratory Experience in LIMS Management

- Communication
  - Lab with LIMS
    - Translating change requests from Lab-speak to actionable LIMS development
  - Lab with IT

- Development from the bench perspective
  - Laboratory workflow considerations
  - Test case development
  - Ensure consistency across testing
  - Anticipating needs

Detor Implementation

What is Detor

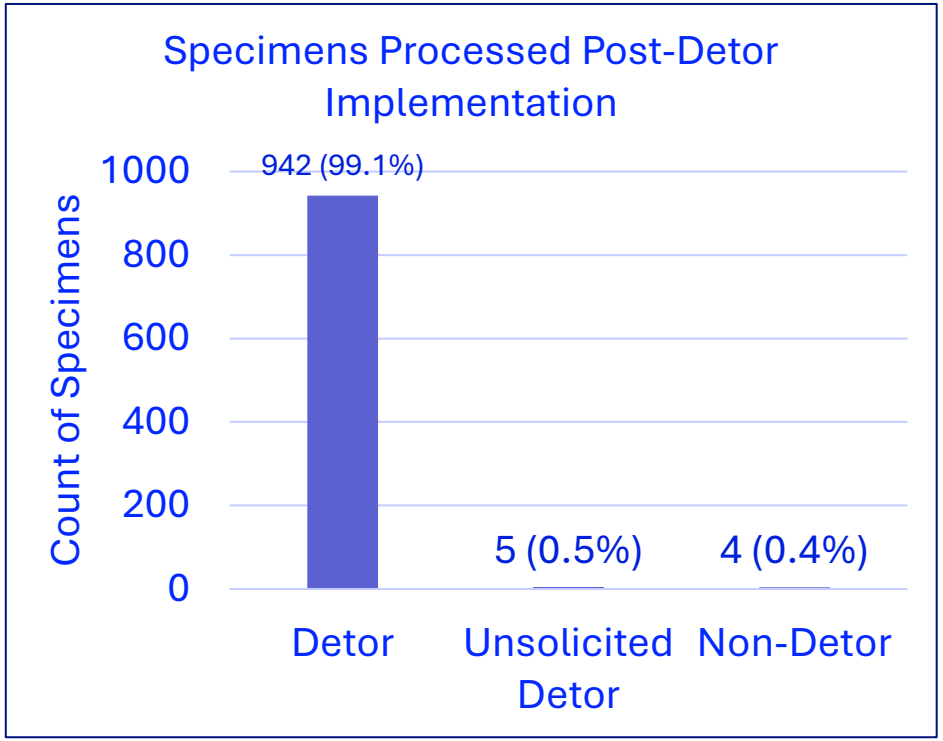


Built on the AIMS platform, and supported by the CDC, Detor enables real-time Electronic Test Orders and Results to be shared with public health laboratories. No matter what information systems they use, Detor makes sharing data effortless, accurate, and secure.

https://aphlinformatics.atlassian.net/wiki/spaces/DR/pages/1978433561/Solution+Description

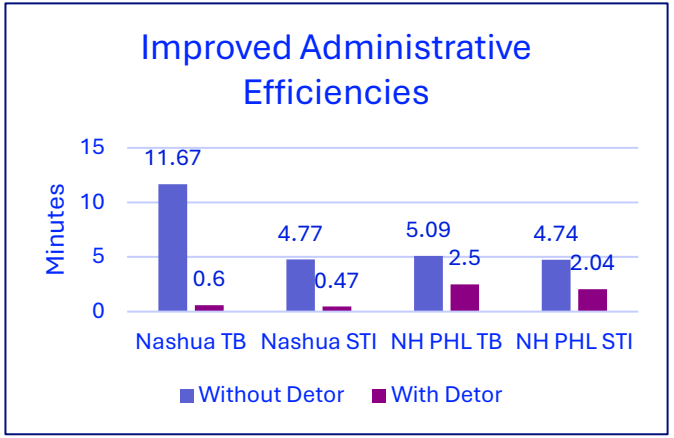
NH PHL Detor Implementation

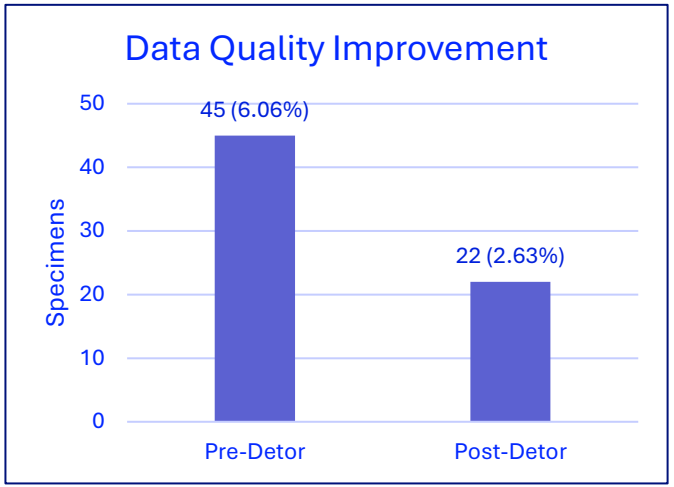
- Timeline
  - Pre-Implementation work late 2024 into early 2025
    - Identify potential ETOR partners via outreach to ideal candidates
      - Relatively large volume of standard testing
  - Project kickoff was Mid-May 2025 and Go Live was early December 2025
- Scope – TB, STI, and HCV testing
- Outcome



NH PHL Detor Implementation

- Challenges/Lessons learned
  - Start legal agreements early
  - Line up external IT resources
  - Keep physical process in mind
    - Specimen packaging for shipment and handling in receiving area
  - Successes





Acknowledgements

NH PHL

- Mamta Dua
- Joyce Cotnoir
- Dan Devine
- Jacob Feinberg

NH DoIT

- Jamie Ratliff

Clinisys

- Jordan Bintrim

Nashua Community Health

- Flavia Martin
- Sascha Stroms

CureMD

- Tim Reed

APHL Detor

- Kerri Gajewski
- Alok Mehta
- Ruslan Ali-Zade
- Jennifer Smith

APHL Detor Resource Center: https://aphlinformatics.atlassian.net/wiki/x/-QWBrQ

Or email: detor@aphl.org

Thank you.

Contact us:
J. Trevor Lester
LIMS Development Manager
jonathan.t.lester@dhhs.nh.gov

August 25, 2026

Department of HEALTH & HUMAN SERVICES | Division of Public Health

The Fellowship of the Lab

Leveraging LIMS to connect multi-disciplinary lab operations

Wyoming Department of Health | PUBLIC HEALTH DIVISION | WYOMING PUBLIC HEALTH LABORATORY

One LIMS to Find the Data, and in the Database Bind Them

The Wizard's Origins

- Bachelor's degree from the University of Wyoming, 2005
- Started at the Wyoming Public Health Laboratory in 2011
  - Vaccine-preventable diseases and syphilis
- In 2012, WPHL transitioned to StarLIMS version V10.08
  - A LIMS apprentice was born out of ignorance and necessity
  - Long hours of watching and documenting processes
- The LIMS Administrator role was formally established in 2021

The Lore of the Realm's

- Diagnostic and Public Health testing
- Purchased StarLIMS in 2009
- Connected to LWP in 2020
- Primarily regulated by CLIA

- Drinking water testing for E. coli and Total Coliforms
- First section to go completely paperless
- EPA regulated

- Toxicology and Breath Alcohol testing
- Moved to StarLIMS and LWP in 2025
- Working toward ISO 17025 certification

Our Grand Quests

Tales of Renown

- HL7 interfaces
  - CDC (PHLIP-FLU, NERVSS), LRN, ARLN (CRO & Candida), DOH
- Laboratory Web Portal (LWP) implementation
  - Forged out of COVID
- Modernized result delivery pathway

Chronicles in the Making

- DETOR
  - 28 Public Health Nursing offices
- Instrument interfacing
  - Data Innovations
- Inventory management
  - LIMS upgrade & LWP Integration

Perils of the Wild

- State & Partner Coordination
  - HIE connections are slow
- Financial Turbulence
  - Unpredictable funding streams
  - Sustainability of projects
- Procurement Timelines
  - State processes vs expectations
- Technical debt
  - Legacy systems
  - Knowledge silos
  - Ad-Hoc Workarounds
- Workforce development and training
  - Overcoming, comfortable, familiar habits

The Strength of the United Realms

- Pooled operational resources
  - Shared licensing and infrastructure
- Support services
  - One unified support team servicing all three labs
  - Reduction of staffing and knowledge silos
- Elimination of technical debt
  - Replacing one-off solutions, custom spreadsheets, and workarounds
  - Standardized digital workflows
- Compliance and Quality
  - Standardized reporting and traceability
  - Visualization of system-wide analytics

The Quest Is Completed. The New Age Begins.

“Three Guilds. One Banner. Bound by technology and shared purpose, we step forward into a laboratory built for the age ahead.”

Thank You!

Wyoming Department of Health | PUBLIC HEALTH DIVISION | WYOMING PUBLIC HEALTH LABORATORY

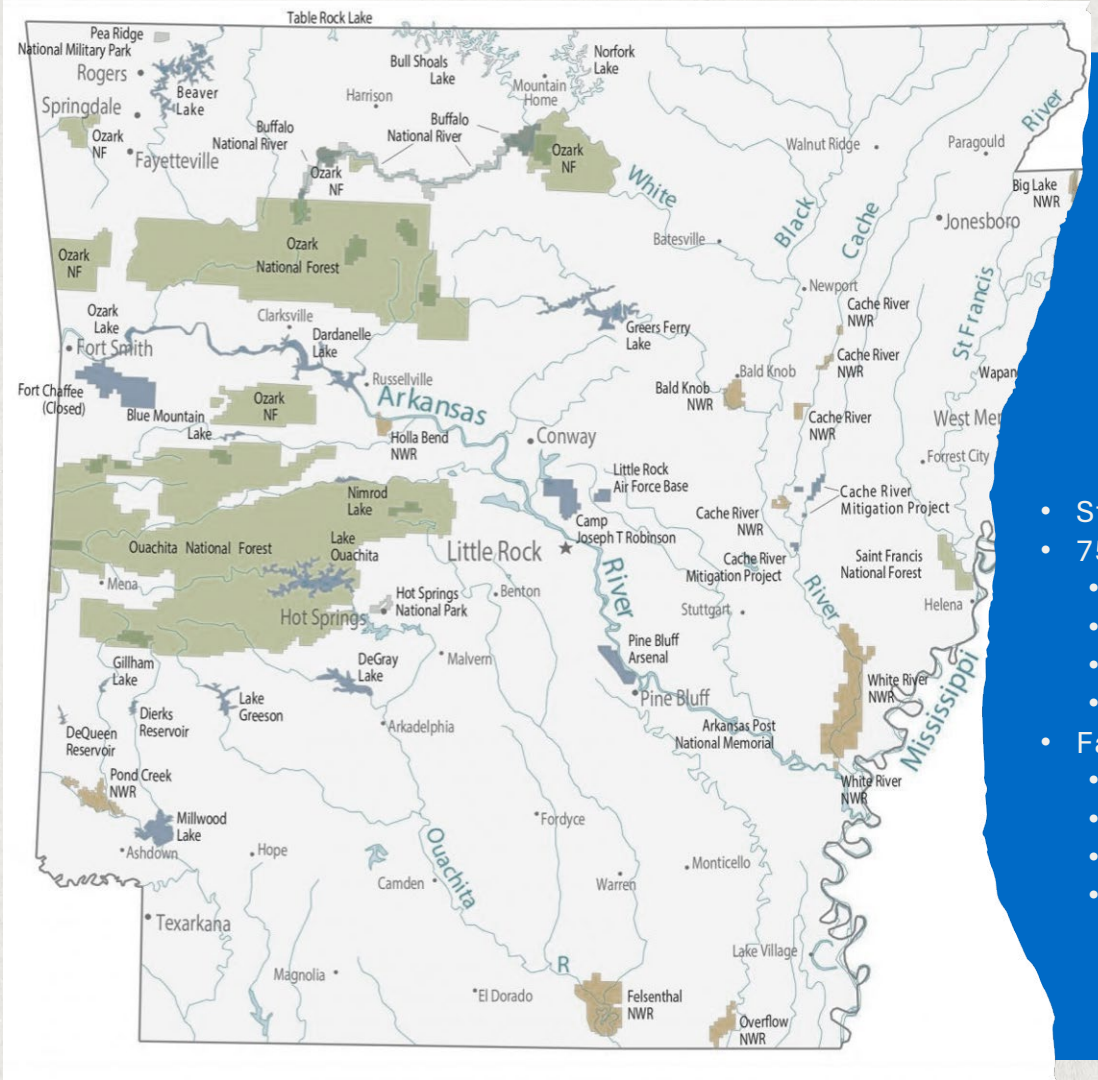
Presented by Charles McGee & Genie Davis

LIMS– The Lab's Secret Superpower

Glen F. Baker Public Health Laboratory - LIMS Validation Checklist

Disclaimer:

None of the presenters have any financial disclosures. All opinions are of the presenters and do not represent the Arkansas Department of Health.



Introduction: Arkansas – The Natural State

- State population of 3.1 million residents (2025)
- 75 counties
  - Ozark Mountains
  - Buffalo National River
  - Delta Farmland
  - Crystal Bridges Museum
- Famous for:
  - Agriculture – Rice and Poultry
  - Diamond Mining – Murfreesboro
  - Walmart
  - Southern Cuisine

Glen F. Baker Public Health Laboratory

- Opened November 2005
- The only state public health laboratory in Arkansas
- Clinical Testing
- Environmental Testing
- Office of Chemical Testing
  - Office of Alcohol Testing
  - Chemical Terrorism

PHL Regulations

What goes into adding a new method in LIMS?

01.
Background and Rationale

02.
Functionality

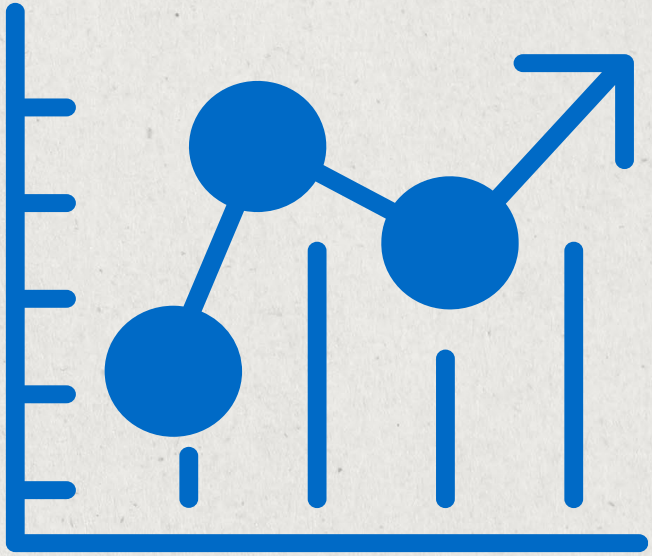
03.
Testing

04.
Validation

Phases of software development as a design model

Functional requirements, testing, and validation

- Identifying required steps in specimen lifecycle
- Iterative testing
- Scripted use cases for documented validation



Functionality Checklist:

Consider each LIMS step listed below as it applies to your lab's methods scheduled for LIMS implementation. All processes that involve data processing and storage should be considered. We will assist you by showing you how a typical configuration works for each of these steps. Look for requirements that need to be incorporated in the new configuration. Look for ways to improve lab workflow. Document any of your requirements that need to be incorporated in the configuration and notify the Informatics team as soon as possible. If a step meets all your requirements, sign that you approve the configuration for that step. Note that this does not lock you in or prevent the creation of necessary changes that might be identified during the LIMS testing phase. By thoroughly reviewing these steps, we can avoid having to add significant programming changes during the testing and validation stages of LIMS implementation. If a step is not applicable, simply mark it as NA. **Target completion date:** __/__/__

1. Sample receiving (Common Customer) _____
   (test requests from private submitters and health units via paper or web-based form)
2. Batch receiving process _____
3. Instrument interface, as required _____
4. Material Management _____
5. Run creation _____
6. Run worksheet _____
7. Results entry _____
8. Results Calculation _____
9. Run edit list _____
10. Peer Review _____
11. Run approval _____
12. Release final reports _____
13. Routine queries _____
14. Content of Test Request form _____
    (paper requisition or online form)
15. Identify required Reports _____
    (Monthly Report, Grant reports, etc.)

Validation Checklist Page 1: Functionality

Testing Checklist:
Create dummy samples, log them into the system, and perform each step to verify that it meets your requirements. COMMUNICATE any needed changes to the Informatics group and repeat the process. Create dummy samples for as many specimen types, test methods, rejection scenarios and results as possible so that any bugs or missing functionality is found (e.g. Are calculations correct? Are reflex tests being ordered correctly? Do approval steps occur at the proper place? Is report content correct?) DURING THIS TIME PERIOD, LAB ANALYSTS SHOULD BE INVOLVED IN TESTING. The Informatics team will assist initially in analyst training, but it is the lab's responsibility to become familiar with the system and determine method and SOP revisions. If a step below is not applicable, simply mark it as NA. **Target completion date:** __/__/__

16. Sample receiving (Common Customer) _____
17. Batch receiving process _____
18. Instrument interface as required _____
19. Material management _____
20. Run creation _____
21. Run worksheet _____
22. Results entry _____
23. Results Calculation _____
24. Run edit list _____
25. Peer Review _____
26. Run approval _____
27. Release final reports. _____
28. Routine queries _____
29. Required Reports _____
    (Monthly Report, Grant reports, etc.)
30. Analyst training as required _____
31. begin SOP revisions, as required _____
32. Amendments _____
33. Proficiency Tests _____

Validation Checklist Page 2: Testing

Validation Checklist:

The documentation from the validation process will be kept on file as evidence of successful LIMS validation. Before beginning the formal validation process, make sure you are satisfied with the results of the testing phase. Work flow or process changes and isolation of system bugs should have occurred during the Testing phase. If exhaustive testing was done, the validation process should be free of problems.

Create dummy samples, log them into the system, and walk through each step in the testing life cycle (from sample receipt to generation of final report, including the amendment process). Validate that all information processed by the system is correct. COMMUNICATE any bugs to the Informatics team. Repeat until error-free validation is achieved. Any programming changes made after the validation is started will require restarting the validation process. The process should be exhaustive. Save all documentation of the validation process for inclusion in a QA packet for the LIMS. This should include things like original test request forms, any run worksheets or edit list that were created and copies of the final reports. Make note of who did the validation, the expected and actual observed results, and the date of the validation. The lab supervisor retains the signed validation packet for any future reference.

Target completion date: __/__/__

34. SOP approval _____

35. Content of final reports is 100% correct _____
for every sample in the validation study.

31. QA Packet completed _____

By signing here, you are satisfied that the system meets your requirements, and you agree that the system functions satisfactorily and is ready to "go live".

Lab Supervisor_____
(signature and date)

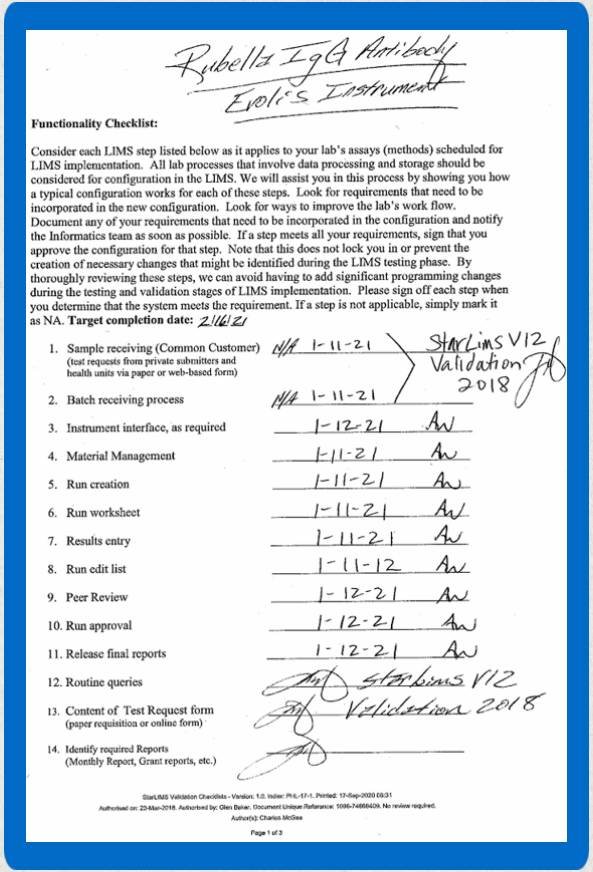
Section Director_____
(signature and date)

QA _____
(signature and date)

Lab Director _____
(signature and date)

Validation Checklist Page 3: Validation

Example of a Completed Validation Checklist



Rubella IgG Antibody
Evolis Instrument

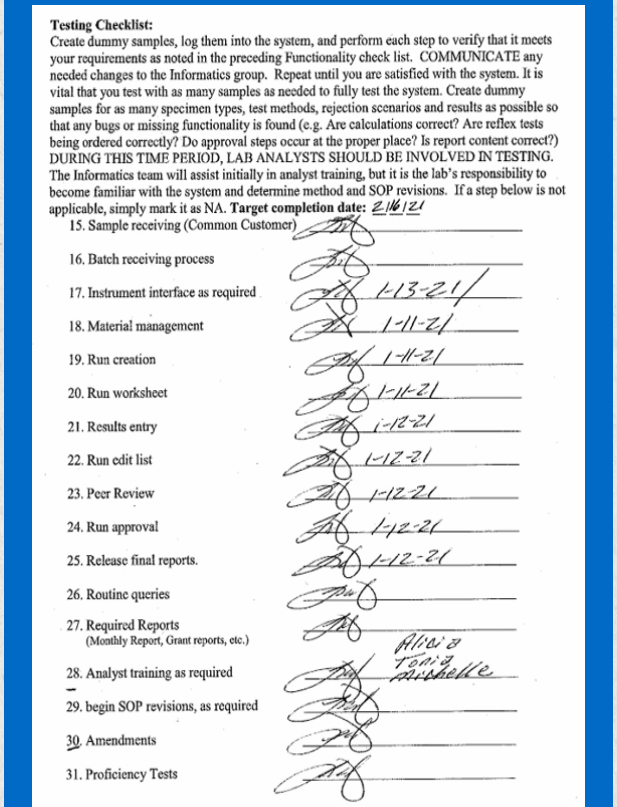
Functionality Checklist:

Consider each LIMS step listed below as it applies to your lab's assays (methods) scheduled for LIMS implementation. All lab processes that involve data processing and storage should be considered for configuration in the LIMS. We will assist you in this process by showing you how a typical configuration works for each of these steps. Look for requirements that need to be incorporated in the new configuration. Look for ways to improve the lab's work flow. Document any of your requirements that need to be incorporated in the configuration and notify the Informatics team as soon as possible. If a step meets all your requirements, sign that you approve the configuration for that step. Note that this does not lock you in or prevent the creation of necessary changes that might be identified during the LIMS testing phase. By thoroughly reviewing these steps, we can avoid having to add significant programming changes during the testing and validation stages of LIMS implementation. Please sign off each step when you determine that the system meets the requirement. If a step is not applicable, simply mark it as NA. **Target completion date:** 2/16/21

1. Sample receiving (Common Customer) (test requests from private submitters and health units via paper or web-based form) — N/A 1-11-21 — StarLims V12 Validation 2018
2. Batch receiving process — N/A 1-11-21
3. Instrument interface, as required — 1-12-21 AW
4. Material Management — 1-11-21 AW
5. Run creation — 1-11-21 AW
6. Run worksheet — 1-11-21 AW
7. Results entry — 1-11-21 AW
8. Run edit list — 1-11-12 AW
9. Peer Review — 1-12-21 AW
10. Run approval — 1-12-21 AW
11. Release final reports — 1-12-21 AW
12. Routine queries — StarLims V12
13. Content of Test Request form (paper requisition or online form) — Validation 2018
14. Identify required Reports (Monthly Report, Grant reports, etc.)

StarLIMS Validation Checklists - Version: 1.0, Index: PHL-57-1, Printed: 17-Sep-2020 09:31
Authorised on: 22-Mar-2018. Authorised by: Glen Baker. Document Unique Reference: 5096-74666409. No review required.
Author(s): Charles McGee

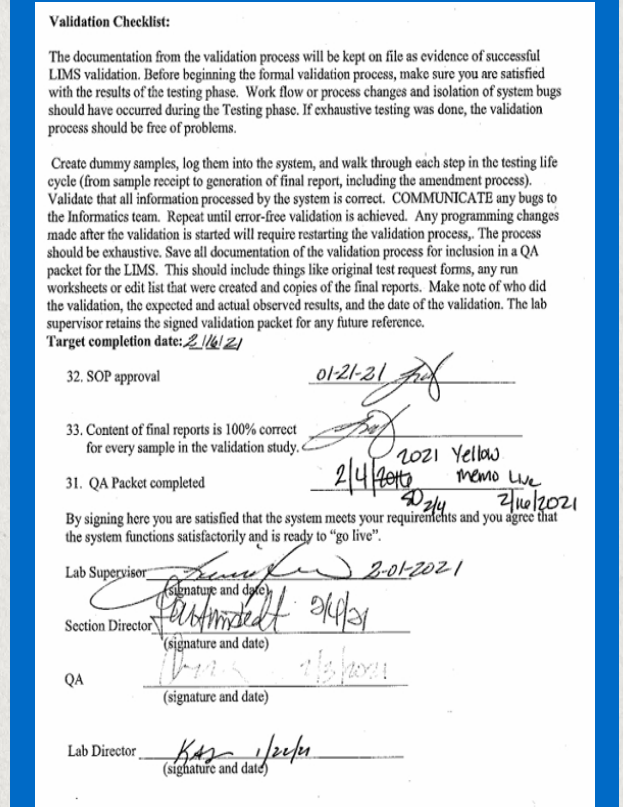
Page 1 of 3



Testing Checklist:

Create dummy samples, log them into the system, and perform each step to verify that it meets your requirements as noted in the preceding Functionality check list. COMMUNICATE any needed changes to the Informatics group. Repeat until you are satisfied with the system. It is vital that you test with as many samples as needed to fully test the system. Create dummy samples for as many specimen types, test methods, rejection scenarios and results as possible so that any bugs or missing functionality is found (e.g. Are calculations correct? Are reflex tests being ordered correctly? Do approval steps occur at the proper place? Is report content correct?) DURING THIS TIME PERIOD, LAB ANALYSTS SHOULD BE INVOLVED IN TESTING. The Informatics team will assist initially in analyst training, but it is the lab's responsibility to become familiar with the system and determine method and SOP revisions. If a step below is not applicable, simply mark it as NA. **Target completion date:** 2/16/21

15. Sample receiving (Common Customer)
16. Batch receiving process
17. Instrument interface as required — 1-13-21
18. Material management — 1-11-21
19. Run creation — 1-11-21
20. Run worksheet — 1-11-21
21. Results entry — 1-12-21
22. Run edit list — 1-12-21
23. Peer Review — 1-12-21
24. Run approval — 1-12-21
25. Release final reports. — 1-12-21
26. Routine queries
27. Required Reports (Monthly Report, Grant reports, etc.)
28. Analyst training as required — Alicia Tonia Maribelle
29. begin SOP revisions, as required
30. Amendments
31. Proficiency Tests



Validation Checklist:

The documentation from the validation process will be kept on file as evidence of successful LIMS validation. Before beginning the formal validation process, make sure you are satisfied with the results of the testing phase. Work flow or process changes and isolation of system bugs should have occurred during the Testing phase. If exhaustive testing was done, the validation process should be free of problems.

Create dummy samples, log them into the system, and walk through each step in the testing life cycle (from sample receipt to generation of final report, including the amendment process). Validate that all information processed by the system is correct. COMMUNICATE any bugs to the Informatics team. Repeat until error-free validation is achieved. Any programming changes made after the validation is started will require restarting the validation process,. The process should be exhaustive. Save all documentation of the validation process for inclusion in a QA packet for the LIMS. This should include things like original test request forms, any run worksheets or edit list that were created and copies of the final reports. Make note of who did the validation, the expected and actual observed results, and the date of the validation. The lab supervisor retains the signed validation packet for any future reference.
Target completion date: 2/16/21

32. SOP approval — 01-21-21
33. Content of final reports is 100% correct for every sample in the validation study. — 2021 Yellow memo Live
31. QA Packet completed — 2/4/2021 2/14 2/16/2021

By signing here you are satisfied that the system meets your requirements and you agree that the system functions satisfactorily and is ready to "go live".

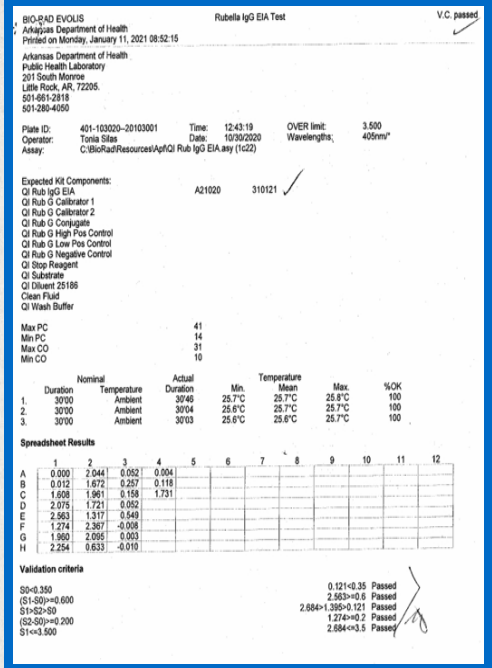
Lab Supervisor _____ 2-01-2021
(signature and date)

Section Director _____ 2/4/21
(signature and date)

QA _____
(signature and date)

Lab Director _____ 2/24/21
(signature and date)

Examples of Supporting Documents



BIO-RAD EVOLIS — Rubella IgG EIA Test — V.C. passed

Arkansas Department of Health
Printed on Monday, January 11, 2021 08:52:15

Arkansas Department of Health
Public Health Laboratory
201 South Monroe
Little Rock, AR, 72205.
501-661-2818
501-280-4050

Plate ID: 401-103020--20103001 Time: 12:43:19 OVER limit: 3.500
Operator: Tonia Silas Date: 10/30/2020 Wavelengths: 405nm/*
Assay: C:\BioRad\Resources\ApfQI Rub IgG EIA.asy (1c22)

Expected Kit Components: A21020 310121
QI Rub IgG EIA
QI Rub G Calibrator 1
QI Rub G Calibrator 2
QI Rub G Conjugate
QI Rub G High Pos Control
QI Rub G Low Pos Control
QI Rub G Negative Control
QI Stop Reagent
QI Substrate
QI Diluent 25186
Clean Fluid
QI Wash Buffer

Max PC 41
Min PC 14
Max CO 31
Min CO 10

	Nominal Duration	Temperature	Actual Duration	Min.	Temperature Mean	Max.	%OK
1.	30'00	Ambient	30'46	25.7°C	25.7°C	25.8°C	100
2.	30'00	Ambient	30'04	25.6°C	25.7°C	25.7°C	100
3.	30'00	Ambient	30'03	25.6°C	25.6°C	25.7°C	100

Spreadsheet Results

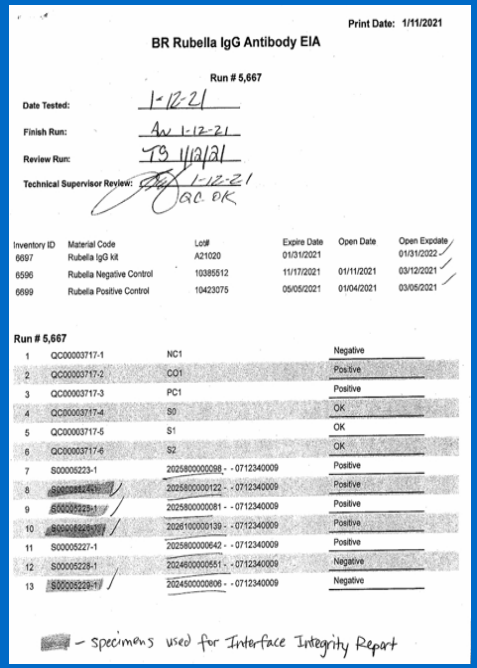
	1	2	3	4	5	6	7	8	9	10	11	12
A	0.000	2.044	0.052	0.004								
B	0.012	1.672	0.257	0.118								
C	1.608	1.961	0.158	1.731								
D	2.075	1.721	0.052									
E	2.563	1.317	0.549									
F	1.274	2.367	-0.008									
G	1.960	2.095	0.003									
H	2.254	0.633	-0.010									

Validation criteria

S0<0.350
(S1-S0)>=0.600
S1>S2>S0
(S2-S0)>=0.200
S1<=3.500

0.121<0.35 Passed
2.563>=0.6 Passed
2.684>1.395>0.121 Passed
1.274>=0.2 Passed
2.684<=3.5 Passed

Evolis Instrument Data



Print Date: 1/11/2021

BR Rubella IgG Antibody EIA

Run # 5,667

Date Tested: 1-12-21
Finish Run: AW 1-12-21
Review Run: TS 1/12/21
Technical Supervisor Review: 1-12-21 QC OK

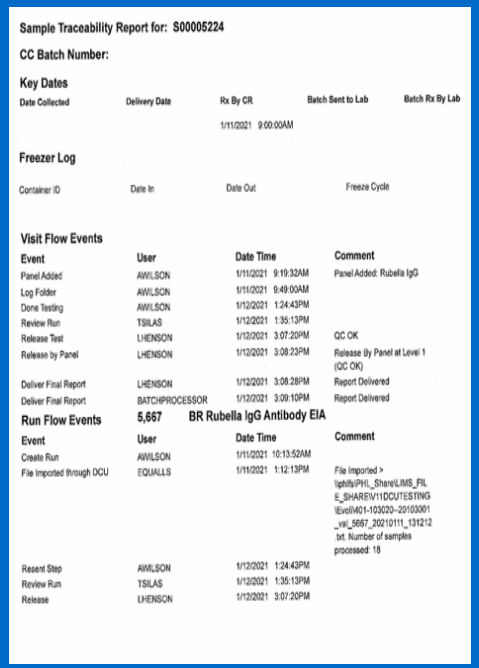
Inventory ID	Material Code	Lot#	Expire Date	Open Date	Open Expdate
6697	Rubella IgG kit	A21020	01/31/2021		01/31/2022
6596	Rubella Negative Control	10385512	11/17/2021	01/11/2021	03/12/2021
6699	Rubella Positive Control	10423075	05/05/2021	01/04/2021	03/05/2021

Run # 5,667

1	QC00003717-1	NC1	Negative
2	QC00003717-2	CO1	Positive
3	QC00003717-3	PC1	Positive
4	QC00003717-4	S0	OK
5	QC00003717-5	S1	OK
6	QC00003717-6	S2	OK
7	S00005223-1	2025800000098 - - 0712340009	Positive
8	S00005224-1	2025800000122 - - 0712340009	Positive
9	S00005225-1	2025800000081 - - 0712340009	Positive
10	S00005226-1	2026100000139 - - 0712340009	Positive
11	S00005227-1	2025800000642 - - 0712340009	Positive
12	S00005228-1	2024600000551 - - 0712340009	Negative
13	S00005229-1	2024600000806 - - 0712340009	Negative

[redacted] - specimens used for Interface Integrity Report

Test Run



Sample Traceability Report for: S00005224

CC Batch Number:

Key Dates

Date Collected	Delivery Date	Rx By CR	Batch Sent to Lab	Batch Rx By Lab
		1/11/2021 9:00:00AM		

Freezer Log

Container ID	Date In	Date Out	Freeze Cycle

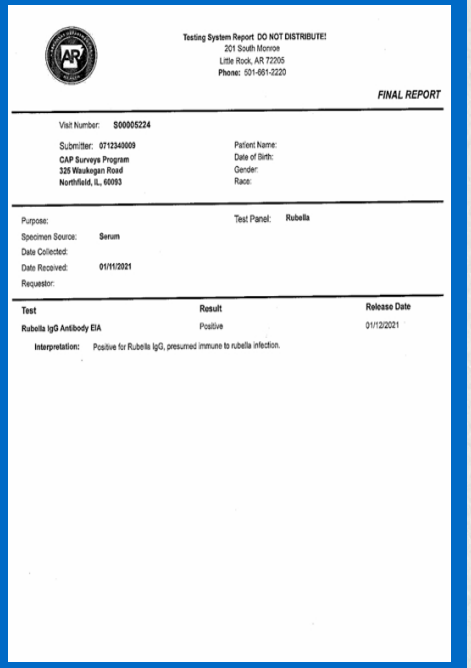
Visit Flow Events

Event	User	Date Time	Comment
Panel Added	AWILSON	1/11/2021 9:19:32AM	Panel Added: Rubella IgG
Log Folder	AWILSON	1/11/2021 9:49:00AM	
Done Testing	AWILSON	1/12/2021 1:24:43PM	
Review Run	TSILAS	1/12/2021 1:35:13PM	
Release Test	LHENSON	1/12/2021 3:07:20PM	QC OK
Release by Panel	LHENSON	1/12/2021 3:08:23PM	Release By Panel at Level 1 (QC OK)
Deliver Final Report	LHENSON	1/12/2021 3:08:28PM	Report Delivered
Deliver Final Report	BATCHPROCESSOR	1/12/2021 3:09:10PM	Report Delivered

Run Flow Events 5,667 **BR Rubella IgG Antibody EIA**

Event	User	Date Time	Comment
Create Run	AWILSON	1/11/2021 10:13:52AM	
File Imported through DCU	EQUALLS	1/11/2021 1:12:13PM	File Imported > \phifs\PHL_Share\LIMS_FILE_SHARE\V11DCUTESTING\Evoll\401-103020--20103001_val_5667_20210111_131212.txt. Number of samples processed: 18
Resent Step	AWILSON	1/12/2021 1:24:43PM	
Review Run	TSILAS	1/12/2021 1:35:13PM	
Release	LHENSON	1/12/2021 3:07:20PM	

Sample Traceability Report



Testing System Report DO NOT DISTRIBUTE!
201 South Monroe
Little Rock, AR 72205
Phone: 501-661-2220

FINAL REPORT

Visit Number: S00005224

Submitter: 0712340009
CAP Surveys Program
325 Waukegan Road
Northfield, IL, 60093

Patient Name:
Date of Birth:
Gender:
Race:

Purpose: Test Panel: Rubella
Specimen Source: Serum
Date Collected:
Date Received: 01/11/2021
Requestor:

Test	Result	Release Date
Rubella IgG Antibody EIA	Positive	01/12/2021

Interpretation: Positive for Rubella IgG, presumed immune to rubella infection.

Final Report

IT versus Informatics

- Multidisciplinary
- IT
- Statistics
- Epidemiology
- Biology
- Chemistry
- Public Health

Questions?

Thank you very much!

Thank you!

Please complete the short poll prior to departing

Presenter Information

In Order of Appearance

1. Trevor Lester, NH PHL, Jonathan.T.Lester@dhhs.nh.gov
2. Beth White, WY PHL, elizabeth.white@wyo.gov
3. Genie Davis, Glen F. Baker PHL, eugenia.davis@arkansas.gov
4. Charles McGee, Glen F. Baker PHL, Charles.McGee@arkansas.gov