Innovation in Quality Public Health Laboratory Practice
CLIA Training Grants Final Report:

Submitted June 11, 2014 by Erin Bowles

Project Description:

The Wisconsin State Laboratory of Hygiene (WSLH) proposed to enhance the quality of molecular and emerging technology testing in Wisconsin clinical laboratories that perform microbiology testing by sponsoring a one day workshop for Wisconsin clinical and public health laboratories. Clinical Laboratory Standards Institute (CLSI) documents on topics related to molecular testing were also provided as an additional resource to Wisconsin clinical and public health laboratories that requested them.

Project Objectives:

1. **First Objective:**
   Each year the WSLH meets with representatives from the Wisconsin clinical laboratories that comprise our Wisconsin Clinical Laboratory Network (WCLN) Laboratory Technical Advisory Group (LabTAG). One of the primary reasons for the meeting is to discuss the education needs of Wisconsin laboratorians and to determine what educational events the WSLH should provide for them. At the November 2013 meeting, it was determined that one of the major challenges that clinical laboratorians in microbiology are facing is in navigating the change from performing culture based assays to performing molecular and other emerging technology assays to identify microbial organisms. LabTAG members felt that a workshop to share information on how to obtain and implement the new assays, complimented by discussion of the issues related to quality performance of these new assays, would be very valuable for the clinical laboratories and would help them ensure the quality of their molecular and other emerging technologies diagnostics.

   Actions Taken:
   A survey was sent out to WCLN members asking which molecular platforms and assays laboratories were using and which molecular platforms and assays did laboratories want to learn more about. Based on the survey responses and working closely with LabTAG members to pinpoint the most relevant topics, we developed the final agenda for the workshop. WSLH staff, LabTAG members and laboratorians from laboratories with experience using the various platforms/assays were targeted as workshop speakers.

   - **How many participants attended the training?**
     On Wednesday April 23, 2014, 109 clinical and public health laboratorians gathered for the "*Performing Quality Molecular and Emerging Technology Testing*" workshop. 65 Wisconsin laboratories sent one or more employees to participate in the workshop and learn more about molecular and other emerging technologies for microbiology testing.

While this is less than ½ of the total laboratories in our WCLN, this is representative of the consolidation of services that is occurring among healthcare systems in Wisconsin. Many of the laboratories in various healthcare system partnerships have consolidated their microbiology testing at one site within the healthcare system. This is in part due to the expense of these new technologies and the uncertainty of reimbursement for laboratory services with the advent of the affordable care act. There is also an expectation within these healthcare systems that knowledge gained by anyone attending a training event will be shared within the system, so in some cases, only one laboratory within a healthcare system was allowed to attend the workshop.

2. **Second Objective:**

It is essential for clinical microbiology laboratories to obtain resource documents that can help provide guidance in performing quality molecular testing. These documents are costly and many laboratories find it difficult to purchase these necessary resource documents. Funding for education and resource materials is often minimal or nonexistent. Our second objective was to provide Wisconsin clinical laboratories with resource documents that would reinforce the training provided at the workshop and enhance the clinical laboratories ability to perform quality molecular and other emerging technology testing.

Actions Taken:

The WSLH collaborated with LabTAG to review available Clinical Laboratory Standards Institute (CLSI) documents related to molecular testing and came up with a short list of 4 resource documents that we felt would be most useful to the Wisconsin laboratories. Because the laboratories are at very different stages in implementing molecular and other emerging technology testing, there was not a single document that was appropriate for all laboratories. Therefore, we offered laboratories a choice of up to 2 documents from the following list:

- CLSI Document MM13-A "*Collection, Transport, Preparation, and Storage of Specimens for Molecular Methods*"
- CLSI Document MM14-A2 "*Design of Molecular Proficiency Testing/External Quality Assessment*"; Approved Guideline – Second Edition
- CLSI Document MM17-A "*Verification and Validation of Multiplex Nucleic Acid Assays*"
- CLSI Document MM19-A "*Establishing Molecular Testing in Clinical Laboratory Environments*"; Approved Guideline

- **How many participants used the product?**

  78 of the 144 laboratories in our Wisconsin Clinical Laboratory Network (WCLN) requested the purchase of the following documents:
  - 37 copies of the CLSI document MM13-A
  - 26 copies of CLSI document MM14-A2
  - 32 copies of CLSI document MM17-A
  - 50 copies of MM19-A

  The WSLH negotiated with CLSI to purchase the documents at a 25% discount off the member price. To save on mailing costs, laboratories that requested documents were

notified that they were expected to send at least one employee to the workshop, as the documents would be distributed at the workshop. (See Table 1 for details.)

Laboratories that did not request documents were contacted, to confirm that they were not interested in receiving any resource documents. The reason most often cited for not requesting guidance documents was either that they did not have any plans or the ability to implement molecular, or any other emerging technology testing.

- **Was the project changed in any way from the initial proposal, please explain why these changes occurred and what impact, if any, did they have on the project?** Even though the request form for ordering the CLSI documents clearly stated that laboratories ordering CLSI documents were expected to attend the workshop to pick up their documents, 23 laboratories that requested documents did not attend the workshop. Documents had to be mailed to 21 laboratories that were unable to send someone to attend the workshop. The remaining 2 laboratories picked up their documents.

  Laboratories unable to send someone to the workshop to pick up their documents were asked to provide a written reason for their absence. The primary reasons given for not attending the workshop were issues with short staffing, or conflicts with other projects/meetings that had a higher priority. Only 3 laboratories did not provide a reason for their absence. (See Table 1 for reasons cited for non-attendance.) This change did not impact the project significantly, other than in the extra time required and the minimal cost to mail out documents.

Project Evaluation:

To evaluate the success of this project we used 3 different methods:

1. We used a pre-test/post-test (See Attachment A).

2. We also used a workshop evaluation form (See Attachment B). At the end of the workshop, those in attendance were asked not only to evaluate the workshop, but also to provide information regarding how they would be applying the information they learned, at the workshop and from the supportive resource documents, in their laboratories. A summary of the 73 evaluations that were completed and returned at the workshop follows:

   Evaluation Summary:

   - **Environment:**
     - 97.3 % of evaluators agreed/strongly agreed that the workshop environment helped them to learn.
     - 93.2% of evaluators agreed/strongly agreed that there were no major distractions that interfered with their learning.

- **Objectives:**
    - 97.3% of evaluators agreed/strongly agreed with the statement “I can compare and contrast the various molecular platforms available for diagnostic testing in microbiology”.
    - 100.0% of evaluators agreed/strongly agreed with the statement “I can identify parameters that I can use to determine the best molecular platforms for my laboratory”**.**
    - 91.8% of evaluators agreed/strongly agreed with the statement “I can explain what information should be included in a business plan for implementing molecular or emerging technology in the microbiology laboratory”.
    - 95.9% of evaluators agreed/strongly agreed with the statement “I can discuss what needs to be done if the laboratory modifies an FDA approved diagnostic test”.
    - 98.6% of evaluators agreed/strongly agreed with the statement “I can summarize how to prepare for an inspection of the molecular testing performed in my laboratory”.
    - 98.6% of evaluators agreed/strongly agreed with the statement “I can describe some of the molecular and emerging technologies that are available for rapid identification of organisms from positive blood culture”.
- **Relevance:**
    - 97.3% of evaluators agreed/strongly agreed with the statement “the material covered will be helpful for my future success.
    - 89.0% of evaluators agreed/strongly agreed with the statement “I will be able to immediately apply what I learned to enhance the quality of testing performed in my laboratory”.
- **Delivery:**
    - 97.3% of evaluators agreed/strongly agreed with the statement “I was well engaged with what was going on during the workshop”.
    - 68.5% of evaluators agreed/strongly agreed with the statement “The i-clicker interactive activity aided in my learning”. (**Note:** The i-clickers were only used during the workshop to conduct the pre-test and post-test. This may explain the low score of 68.5%. Use of the i-clickers didn’t really add to the learning experience.)
- **Overall:**
    - 100% of evaluators agreed/strongly agreed with the statement “The workshop met my expectations”.

- 97.3% of evaluators agreed/strongly agreed with the statement “I am clear on how to apply what I learned on the job”.
- 98.6% of evaluators agreed/strongly agreed with the statement “I would recommend the “Providing Quality Molecular and Emerging Technology Testing” workshop to my co-workers.

- **From what you learned, what will you be able to apply on the job?**

  Responses to this question were varied and touched on all the workshop topics. Many people mentioned an increased awareness of the wide range of molecular platforms that were available, which would be very helpful as they begin to incorporate molecular testing into their laboratory workflow, while others mentioned that the information on how to create a business plan would be very useful. Those people interested in a specific platform/assay mentioned that they were glad to have someone to contact that was experienced with the platform/assay they were considering using in their laboratory. A few people mentioned that they were preparing for their CAP inspection and found that information of value and a few others commented that they felt more prepared to perform verification and validation studies.

- **How confident are you that you will be able to apply what you have learned on the job?**

  Evaluators were asked to respond using a scale of 0 to 10, with 0 being not at all confident and 10 being extremely confident. 84.9% responded with a score of 7 or greater. The 15.1% who responded with a score of ≤ 6 primarily felt that they had other higher priorities, or they didn’t have the necessary skills or resources to apply what they learned on the job.

  Although the workshop was marketed as being the most beneficial to individuals who had the ability to make decisions regarding the implementation of new technology and equipment, it appeared that a few bench level technologists with little work experience were sent to the workshop just to pick up the documents the laboratory requested. Their comments about the workshop clearly voiced that they felt the discussion was over their heads and that they did not have the skills or authority to apply what they learned at the workshop on the job.

- **How committed are you to applying what you learned to your work?**

  Evaluators were asked to respond using a scale of 0 to 10, with 0 being not at all confident and 10 being extremely confident. 86.3% responded with a score of 7 or greater. The 13.7% who responded with a score of ≤ 6 felt that they had other higher priorities, or that they lacked the necessary resources or management support to commit to applying what they learned at the workshop on the job.

- **What barriers do you anticipate that might prevent you from applying what you learned?**

  Responses to this question were varied, but by far the most common barriers that were continually mentioned were the great expense of the new technologies combined with a lack of funding and unknown reimbursement for the testing. Lack of administrative support and not being taken seriously were other frequently identified barriers.

- **What might help you to overcome those barriers?**

  There appears to be hope from many who attended the workshop that preparing a great business case/plan for administration will win them the support necessary to acquire some of the developing molecular technology. Gaining the support of clinicians or other departments within the hospital was also seen as being beneficial for the laboratory.

- **What topics do you suggest for future educational events?**

  This question is asked on every program evaluation to help the WSLH plan future educational events. It is disappointing that 78.1% of individuals who completed the evaluation didn't complete this question. It is interesting that those who did respond express a desire for continued molecular training, but also for more training in areas that are typically considered to be administrative, such as more training in how to develop a successful business plan and in how to have a more active role on the hospital administrative planning team.

3. The final method we used to evaluate the effectiveness of training was to ask the workshop attendees, a few weeks after the workshop, to send a short note explaining how they planned to use the CLSI documents that were purchased for them. A summary of the their responses follows.

Summary of Responses:

Laboratories plan to use the documents they received to help them with the following:

- For guidance on verification/validation studies for molecular assays they plan to implement
- As a reference when performing a CAP inspection of another laboratory and to prepare for a CAP inspection of their laboratory, particularly regarding laboratory modified testing
- As a reference for strategic planning to decide whether molecular testing is feasible in their laboratory and to help implement any new testing
- As a guide to implement molecular testing when they move into their new hospital
- To learn more about proficiency testing for the various molecular technologies
- To evaluate test options in the coming months/years
- As a training tool for new molecular technologists who are studying for their board certification
- To help with the more complex validation of multiplex molecular assays

- As a guide for standardizing molecular protocols and quality assurance plans.

Concluding Statement:

The “Providing Quality Molecular and Emerging Technology Testing” workshop was a great success. The feedback on the evaluation forms and from personal comments expressed to WSLH staff was extremely complementary. We are proud of the commitment that so many of the laboratorians in Wisconsin made in sharing their expertise and knowledge by actively participating in this workshop. There is a great sense of community and connectedness among our WCLN members.

We do have concerns that despite our continued effort to help smaller laboratories keep pace with the technical changes that are rapidly occurring in microbiology, that there is still a small subset of laboratories that feels there are no options for them to enter the molecular diagnostics arena. They seem to feel that their location in a rural area with lower testing volumes and no strong proponent for the microbiology laboratory precludes them from acquiring any new technology. They are very reluctant to attempt to make any changes. It is like encouraging an ostrich to pull its head out of the sand.

Only time will tell what will happen to laboratories that cannot adapt to the changes in technology that are coming to microbiology diagnostic testing. We will continue to encourage laboratories to share their experiences and to sponsor events to help the Wisconsin laboratories navigate the changes. We want to lead the discussion and partner with the clinical laboratories, as the changes in technology will have an impact on public health surveillance and our ability to detect microbial outbreaks and emerging infectious diseases. By leading the discussion, we can be proactive and instrumental in finding solutions to any problems that may arise.

The WSLH and the Wisconsin clinical laboratories are grateful for the funding we received through this CLIA grant and we want to express our thanks to APHL for supporting this project.

Attachment A

"*Providing Quality Molecular and Emerging Technology Testing*" Workshop
Pre and Post Test Results

Evaluating the Effectiveness of Training:

To evaluate the effectiveness of the training provided at the workshop we asked the workshop attendees to take a pre-quiz at the beginning of the workshop. They were then asked to take the same quiz again at the end of the day. We compared the two results to see if there was improvement in the % of correct answers after the workshop. Questions were provided by the presenters. Improved performance on the post-quiz would indicate attentiveness by the audience and effective training.

The quiz was conducted through the use of an i-clickers system. I-clickers are handheld devices and a software program that allow the presenter to ask questions and the audience to answer the questions via the i-clicker. The presenter can then display a graph of the results to show how the audience responded as group.

Our quiz consisted of 11 questions that were submitted by the speakers. Questions and the possible answers were displayed on the screen for attendees to read to themselves before they answered. They were also read aloud by the moderator. Table B (next page) displays the questions and possible answers, the correct answer, the percent of individuals who answered the question correctly on the pre-test, the percent of individuals who answered the question correctly on the post-test, and whether or not there was improvement in the percent of individuals who answered correctly on the post-test.

Attachment A

Table B

Question and Possible Answers	Correct Answer	Pre-Test % Answered Correctly	Post-Test % Answered Correctly	Improvement from Pre-Test to Post-Test
1.) Which of the following statements is false? **If your laboratory runs the same test method on multiple units of the same instrument or performs the same test method at multiple testing sites, your laboratory must…** A. Demonstrate that multiple instruments produce equivalent test results prior to offering a new test B. Demonstrate that multiple instruments produce equivalent test results at least twice a year after implementing the test C. Perform a complete assay verification on each instrument or at each testing site if the sites operate on the same CLIA certificate D. Demonstrate equivalent performance of each instrument by alternating the quality control material among the instruments E. None of the above	C	22	67	Yes
2.) For an unmodified, FDA-cleared or –approved test the laboratory is required to verify the manufacturer's performance specifications. Which of the following is NOT a specification that requires verification? A. Accuracy B. Sensitivity C. Precision D. Reportable range E. Reference range	B	21	71	Yes

Attachment A

Question and Possible Answers	Correct Answer	Pre-Test % Answered Correctly	Post-Test % Answered Correctly	Improvement from Pre-Test to Post-Test
3.) The verification that a laboratory can repeatedly test the same samples on the same day, and on different days, and get comparable result with several testing personnel performing the test is a measure of…? A. Accuracy B. Sensitivity C. Precision D. Reference Range E. Calibration	C	73	89	Yes
4.) What is CAP's purpose of monitoring the positive rate of a PCR assay? (MIC.63252) A. The prevalence of positives is used to monitor for community outbreaks. B. It is a way to monitor for potential false positive results in your test system. C. It is used to compare to other areas of Wisconsin for epidemiology. D. Using statistics are so fun and it gives you something to do when you have spare time. E. A and C	B	54	93	Yes
5.) I want to run a sample type that has not been validated by the manufacturer, but I only will get this type of sample a couple of times a year. (MIC.64770) A. CAP requires a full validation before reporting the patient result. B. The sample type is so rare that it would take at least 10 years to validate so I can't report it. C. Report out the result with a disclaimer stating that the sample type has not been validated. D. If the sample type is encountered *rarely*, results may be reported without a complete validation. E. C and D	E	27	95	Yes

Attachment A

Question and Possible Answers	Correct Answer	Pre-Test % Answered Correctly	Post-Test % Answered Correctly	Improvement from Pre-Test to Post-Test
6.) I have a C. diff PCR to perform, but the tech scraped out the container for send outs and didn't leave an adequate sample. Now what? (MIC.63322) A. Go to the send out area and scrape some back into the original container so you can run the test. B. Ask for a new specimen as CAP requires no aliquot ever be returned to the original container. C. Since PCR is so sensitive just try testing the residual specimen anyway and hope for the best. D. Use the container from the send out area knowing that other stool samples are being processed there and that the tech never changes his gloves between stools specimens. E. Reject the test as QNS.	B	39	85	Yes
7.) Which of the following are reasons a laboratory should consider implementing molecular testing? A. Demand for greater sensitivity/specificity B. Decrease turnaround time C. PT failure using current methods D. Increase reimbursement/revenue E. All of the above	E	83	100	Yes
8.) Which of the following is not included in a business plan/case? A. The business need or requirement B. The options to best address the business need or requirement and your recommendation for the preferred option. C. Analysis of the benefits and costs of the options D. Implementation Strategy E. A list of how many other labs in the area have the option that you are requesting.	E	75	100	No

Attachment A

Question and Possible Answers	Correct Answer	Pre-Test % Answered Correctly	Post-Test % Answered Correctly	Improvement from Pre-Test to Post-Test
9.) All of the following manufacturers make FDA cleared rapid positive blood culture identification assays except? A. Biofire B. Nanosphere C. Siemans D. Cepheid E. AdvanDx	C	51	93	Yes
10.) In addition to rapid identification of the bacteria in a positive blood culture what other information can some of these assays provide? A. The time to positivity for the blood culture B. The bacterial load in the patient's blood C. The strain type of E. coli D. If the bacteria is capable of causing necrotizing fasciitis E. Detection of certain bacterial gene(s) associated with antimicrobial resistance	E	72	100	Yes
11.) Which of these systems has the potential to rapidly identify the widest range of bacteria in a positive blood culture? A. Nanosphere Blood Culture –Gram-Negative/Positive B. Bruker MALDI-TOF C. Biofire BCID Panel D. AdvanDx Gram-Negative/*S. aureus* -CNS QuickFISH BC E. Cepheid Xpert MRSA/SA BC	B	65	100	Yes

Analysis of Results:

All of the post-test results did show improvement, with11 of 11 questions showing a larger % of correct answers on the post-test, indicating that the training was effective and learning did occur.

Attachment B

WSLH EVALUATION FORM:

Program Title: "*Providing Quality Molecular and Emerging Technology Testing"* **Date: 4/23/14**

Thinking about the workshop you have just attended, please indicate to what degree you agree with each statement using this rating scale:

1 = Strongly Disagree	2 = Disagree	3 = Agree	4 = Strongly Agree

Please provide comments with your ratings to help us improve future educational events.

Learning Environment:

The workshop environment helped me to learn.	①	②	③	④
There were no major distractions that interfered with my learning.	①	②	③	④

Comments:

Objectives:

I can compare and contrast the various molecular platforms available for diagnostic testing in microbiology.	①	②	③	④
I can identify parameters that I can use to determine the best molecular platforms for my laboratory.	①	②	③	④
I can explain what information should be included in a business plan for implementing molecular or emerging technology in the microbiology laboratory.	①	②	③	④
I can discuss what needs to be done if the laboratory modifies an FDA approved diagnostic test.	①	②	③	④
I can summarize how to prepare for an inspection of the molecular testing performed in my laboratory.	①	②	③	④
I can describe some of the molecular and emerging technologies that are available for rapid identification of organisms from positive blood cultures.	①	②	③	④

Comments:

Relevance:

The material covered will be helpful for my future success.	①	②	③	④
I will be able to immediately apply what I learned to enhance the quality of testing performed in my laboratory.	①	②	③	④

Comments:

Delivery:

I was well engaged with what was going on during the workshop.	①	②	③	④
The i-clicker interactive activity aided in my learning.	①	②	③	④

Comments:

Overall:

The workshop met my expectations.	①	②	③	④
I am clear on how to apply what I learned on the job.	①	②	③	④
I would recommend the workshop to my co-workers.	①	②	③	④

Comments:

Attachment B

From what you learned, what will you be able to apply on your job?

Using a scale of 0 to 10, with 0 being not at all confident and 10 being extremely confident, please list a number to rate **how confident are you** that you will be able to apply what you have learned back on the job? **Rating** _____

If you listed a number ≤ 6, please answer the following question **circling all that apply**.

My confidence is not high because:

a.) I do not have the necessary knowledge and skills

b.) I do not have a clear picture of what is expected of me

c.) I have other higher priorities

d.) I do not have the necessary resources to do it

e.) I do not have management's support to do it

f.) Other (please explain):

Using a scale of 0 to 10, with 0 being not at all committed and 10 being extremely committed, please list a number to rate **how committed are you** to applying what you learned to your work? **Rating** _____

If you listed a number ≤ 6, please answer the following question **circling all that apply**.

My commitment isn't high because:

a.) I do not have the necessary knowledge and skills

b.) I do not have a clear picture of what is expected of me

c.) I have other higher priorities

d.) I do not have the necessary resources to do it

e.) I do not have management's support to do it

f.) I am not required to do this

g.) I am not rewarded or recognized for doing this

h.) Other (please explain):

What barriers do you anticipate that might prevent you from applying what you learned?

What might help you to overcome those barriers?

What topics do you suggest for future educational events?

Workshop Attendance Summary

Table 1 below lists the WCLN laboratories, whether or not they requested CLSI documents, and whether or not someone was able to attend the workshop.

Table 1

Institution Name	City	CLSI Documents Requested	Attended Workshop
1. Amery Regional Medical Center	Amery	None	Yes - 1
2. Langlade Hospital	Antigo	None	No
3. St. Elizabeth Hospital	Appleton	MM13-A, MM14-A2	Yes - 1
4. Thedacare Laboratories	Appleton	MM17-A, MM19-A	Yes - 1
5. Memorial Medical Center	Ashland	None	No
6. Baldwin Area Medical Center	Baldwin	None	No
7. St. Clare Hospital and Health System	Baraboo	None	Yes - 2
8. Mayo Clinic Health System – Northland	Barron	None	No
9. Beaver Dam Reference Lab	Beaver Dam	MM14-A2, MM17-A	Yes - 1
10. Beloit Memorial Hospital	Beloit	MM13-A, MM19-A	Yes - 1
11. Berlin Memorial Hospital	Berlin	MM13-A, MM19-A	No- too busy with lab merger and LIS issues
12. Black River Memorial Hospital	Black River Falls	MM13-A	Yes - 1
13. Ho-Chunk Nation Health	Black River Falls	None	No
14. Mayo Health Clinic System – Chippewa Valley in Bloomer	Bloomer	None	No
15. Gundersen Boscobel Area Hospital and Clinics	Boscobel	MM14-A2, MM17-A	No – short staffing
16. Wheaton Franciscan Healthcare Laboratories - Elmbrook	Brookfield	None	No – part of healthcare system
17. Aurora Memorial Hospital of Burlington (ACL)	Burlington	None	No – part of healthcare system
18. Calumet Medical Center	Chilton	MM17-A, MM19-A	No – short staffing
19. Mayo Clinic Health System – Chippewa Valley in Chippewa Falls	Chippewa Falls	None	No
20. St. Joseph's Hospital	Chippewa Falls	None	No
21. Columbus Community Hospital	Columbus	MM17-A, MM19-A	Yes - 1

Institution Name	City	CLSI Documents Requested	Attended Workshop
22. Aurora St. Luke's South Shore (ACL)	Cudahy	None	No – part of healthcare system
23. Cumberland Memorial Hospital	Cumberland	None	No
24. Memorial Hospital of Lafayette County	Darlington	MM13-A, MM19-A	No – too busy with extra projects to attend
25. Upland Hills Health	Dodgeville	M14-A2	Yes - 1
26. Chippewa Valley Hospital	Durand	None	No
27. Ministry Eagle River Memorial Hospital	Eagle River	None	No
28. Marshfield Clinic – Eau Claire	Eau Claire	MM13-A, MM19-A	Yes - 1
29. Mayo Clinic Health System – Eau Claire – Clairmont Campus	Eau Claire	MM13-A, MM19-A	No – no reason given
30. Mayo Clinic Health System - Eau Claire Hospital	Eau Claire	MM14-A2, MM17-A	Yes -1
31. Sacred Heart Hospital	Eau Claire	MM13-A	Yes - 1
32. Edgerton Hospital and Health Services	Edgerton	MM17-A, MM19-A	Yes - 1
33. Aurora Lakeland Medical Center (ACL)	Elkhorn	None	No – part of healthcare system
34. Consultants Laboratory	Fond du Lac	MM13-A, MM14-A2	Yes - 2
35. Fort Healthcare Inc.	Fort Atkinson	MM13-A, MM19-A	Yes - 1
36. Moundview Memorial Hospital and Clinics	Friendship	MM13-A, MM19-A	No – short staffing
37. Aurora Medical Center – Grafton (ACL)	Grafton	None	No – part of healthcare system
38. Burnett Medical Center	Grantsburg	None	No
39. Aurora Baycare Medical Center (ACL)	Green Bay	None	No – part of healthcare system
40. Bellin Hospital	Green Bay	Mm13-A, MM17-A	No – go live for new LIS
41. Prevea Clinic – Allouez	Green Bay	None	No
42. St. Mary's Hospital Medical Center	Green Bay	None	No – part of healthcare system
43. St. Vincent Hospital	Green Bay	MM17-A	No – other projects with higher priority
44. Aurora Medical Center Washington Co. (ACL)	Hartford	None	No – part of healthcare system
45. Hayward Area Memorial Hospital	Hayward	MM13-A, MM19-A	No – scheduling conflicts
46. St. Joseph's Health Services Gunderson Lutheran	Hillsboro	MM17-A, MM19-A	No – conflict with training for new LIS

Institution Name	City	CLSI Documents Requested	Attended Workshop
47. Hudson Hospital	Hudson	None	No
48. Hudson Physician's Clinic	Hudson	None	No
49. Mercy Hospital	Janesville	MM14-A2, MM17-A	Yes-1
50. St Mary's Hospital Janesville	Janesville	None	No
51. Aurora Medical Center –Kenosha (ACL)	Kenosha	None	No – part of healthcare system
52. United Hospital System	Kenosha	MM17-A, MM19-A	No – short staffing
53. Gunderson Lutheran Medical Center, Inc.	La Crosse	None	Yes - 2
54. Mayo Clinic Health System – La Crosse	La Crosse	MM17-A, MM19-A	Yes - 1
55. Rusk County Memorial Hospital	Ladysmith	MM17-A, MM19-A	No – no reason given
56. Mercy Walworth Hospital	Lake Geneva	None	No – part of healthcare system
57. Grant Regional Health Center	Lancaster	MM14-A2, MM17-A	Yes - 1
58. Dean Medical Center	Madison	None	Yes - 1
59. Group Health Cooperative – SCW	Madison	MM17-A, MM19-A	Yes - 1
60. Meriter Laboratories	Madison	MM14-A2, MM17- A	Yes - 2
61. St. Mary's Hospital Medical Center	Madison	MM14-A2	Yes - 1
62. University of Wisconsin Hospital and Clinics	Madison	MM14-A2, MM19 -A	Yes - 5
63. UW Health Medical Foundation – Central Lab	Madison	MM13-A, MM19-A	No – conflict with other mandatory meeting
64. William S. Middleton Memorial VA Hospital	Madison	None	No – part of healthcare system
65. Wisconsin State Laboratory of Hygiene	Madison	MM13-A, MM14-A2, MM17-A, MM19-A	Yes - 6
66. Holy Family Memorial Hospital	Manitowoc	MM14-A2, MM17-A	Yes - 1
67. Bay Area Medical Center	Marinette	MM17-A	Yes - 1
68. Marshfield Labs	Marshfield	MM14-A2, MM19-A	Yes - 4
69. Marshfield Research Foundation	Marshfield	MM14-A2	Yes – 1
70. Mile Bluff Medical Center	Mauston	MM13-A, MM19-A	No- short staffing

Institution Name	City	CLSI Documents Requested	Attended Workshop
71. Memorial Health Center	Medford	MM13-A, MM19-A	Yes - 2
72. Aurora Advanced Healthcare – Menomonee Falls	Menomonee Falls	None	No – part of healthcare system
73. Community Memorial Hospital	Menomonee Falls	MM13-A, MM19-A	No – part of healthcare system
74. Froedtert Health-Menomonee Falls	Menomonee Falls	None	No – part of healthcare system
75. Mayo Clinic Health System – Menomonie	Menomonie	MM19-A	No – unforeseen circumstances
76. Good Samaritan Health Center	Merrill	MM13-A, MM19-A	Yes - 1
77. Aurora Sinai Medical Center (ACL)	Milwaukee	None	No – part of healthcare system
78. Aurora St. Luke's Medical Center (ACL)	Milwaukee	None	No – part of healthcare system
79. Children's Hospital of Wisconsin	Milwaukee	None	Yes - 1
80. Columbia- St. Mary's Hospital	Milwaukee	MM13-A, MM14-A2	Yes - 1
81. Dynacare Laboratories, Inc.	Milwaukee	MM17-A, MM19-A	Yes - 6
82. Milwaukee Health Department Laboratory	Milwaukee	MM13-A, MM14-A2	Yes - 3
83. Wheaton Franciscan Healthcare - St Francis	Milwaukee	None	No – part of healthcare system
84. Wheaton Franciscan Healthcare – St Joseph's	Milwaukee	None	No – part of healthcare system
85. Wheaton Franciscan Laboratories at St. Francis	Milwaukee	MM17-A, MM19-A	Yes - 1
86. Zablocki VA Medical Center	Milwaukee	MM13-A, MM17-A	Yes – 4
87. Marshfield Clinic – Minocqua Center	Minocqua	None	No – part of healthcare system
88. Monroe Clinic	Monroe	None	No
89. Thedacare Laboratory – Neenah	Neenah	None	No – part of healthcare system
90. Memorial Medical Center	Neillsville	MM13-A, MM19-A	Yes - 1
91. New London Family Medical Center	New London	None	No – part of healthcare system
92. Westfields Hospital	New Richmond	None	No
93. Oconomowoc Memorial Hospital	Oconomowoc	None	No – part of healthcare system
94. Community Memorial Hospital	Oconto Falls	MM13-A, MM19-A	No – freeze on travel for education

Institution Name	City	CLSI Documents Requested	Attended Workshop
95. Osceola Medical Center	Osceola	MM14-A2, MM19-A	Yes - 1
96. Aurora Medical Center – Oshkosh	Oshkosh	None	No – part of healthcare system
97. Mercy Medical Center	Oshkosh	MM14-A2, MM19-A	Yes - 1
98. Mayo Clinic Health System – Oakridge	Osseo	MM13-A	No – no reason given
99. Flambeau Hospital	Park Falls	MM14-A, MM17-A	Yes - 1
100. Southwest Health Center	Platteville	MM13-A, MM19-A	Yes - 1
101. Divine Savior Healthcare	Portage	None	Yes - 2
102. Prairie du Chien Memorial Hospital	Prairie du Chien	MM19-A	Yes - 2
103. Sauk Prairie Memorial Hospital	Prairie du Sac	MM19-A	Yes - 2
104. Wheaton Franciscan Healthcare – All Saints	Racine	None	Yes - 1
105. Racine City Health Dept. Lab	Racine	MM14-A2, MM17-A	Yes - 1
106. Reedsburg Area Medical Center	Reedsburg	None	Yes - 1
107. Ministry St Mary's Hospital	Rhinelander	MM17-A, MM19-A	Yes - 1
108. Lakeview Medical Center Laboratory	Rice Lake	MM13-A, MM19-A	No – short staffing
109. Richland Hospital	Richland Center	None	No
110. Richland Medical Center	Richland Center	None	No
111. Ripon Medical Center	Ripon	None	No – part of healthcare system
112. River Falls Area Hospital	River Falls	None	No
113. Shawano Medical Center	Shawano	MM13-A , MM17-A	No – part of healthcare system
114. Aurora Sheboygan Memorial Medical Center (ACL)	Sheboygan	None	No – part of healthcare system
115. St. Nicholas Hospital	Sheboygan	None	No – part of healthcare system
116. Indianhead Medical Center	Shell Lake	MM13-A , MM19-A	No - short staffing
117. Spooner Health System	Spooner	MM19-A	Yes - 1
118. St. Croix Regional Medical Center	St. Croix Falls	MM17-A, MM19-A	Yes - 2
119. Our Lady Victory Hospital	Stanley	MM13-A, MM19-A	Yes - 1
120. St. Michael's Hospital	Stevens Point	MM19-A	Yes - 3

Institution Name	City	CLSI Documents Requested	Attended Workshop
121. Stoughton Hospital	Stoughton	None	No – part of healthcare system
122. Ministry Door County Medical Center	Sturgeon Bay	MM13-A, MM19-A	Yes - 1
123. Aurora Medical Center – Summit (ACL)	Summit	None	No – part of healthcare system
124. SMDC Superior Clinical Laboratory	Superior	None	No
125. Tomah Memorial Hospital	Tomah	MM13-A, MM19-A	Yes - 1
126. Tomah VA Medical Center	Tomah	None	No – part of healthcare system
127. Sacred Heart Hospital	Tomahawk	None	No – part of healthcare system
128. Vernon Memorial Hospital	Viroqua	MM13-A, MM14-A2	Yes - 1
129. UW Health Partners Watertown Regional Medical Center	Watertown	MM13-A, MM19-A	No – part of healthcare system
130. Genprobe Prodesse Clinical Lab	Waukesha	None	Yes - 2
131. Moreland Medical Center	Waukesha	None	No
132. Waukesha Memorial Hospital	Waukesha	MM14-A2	Yes-1
133. Riverside Medical Center	Waupaca	MM13-A, MM19-A	Yes-1
134. Aspirus Wausau Hospital/Reference Lab	Wausau	MM17-A	No – short staffing
135. Marshfield Clinic – Wausau Center	Wausau	None	No – part of healthcare system
136. ACL Laboratories – WI Central Lab	West Allis	MM19-A	Yes - 6
137. Quad Med – West Allis	West Allis	None	No
138. St. Joseph's Community Hospital	West Bend	MM13-A, MM19-A	Yes - 1
139. Diagnostic and Treatment Center	Weston	MM14-A2, MM17-A	Yes - 1
140. Gundersen Tri-County Hospital and Clinics	Whitehall	None	No – part of healthcare system
141. Wild Rose Community Memorial Hospital	Wild Rose	MM14-A2, MM19-A	Yes - 1
142. SMDC Lake Delton Clinic	Wisconsin Dells	None	Yes-1
143. Riverview Hospital Association	Wisconsin Rapids	MM14-A2, MM19-A	Yes-1
144. Howard Young Medical Center	Woodruff	None	No – part of healthcare system