

## **K4Health/Nigeria Web-Based Continuing Medical Laboratory Education (CMLE) Program**

*MLSCN's Continuing Professional Development (CPD) Policy's Contribution to the Improvement of Medical Laboratory Service Delivery*

*Full Report from the Online Survey and Supervisor Interviews*

**4 December 2014**

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## Executive Summary

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This summary report highlights the endline evaluation findings from an online survey distributed to Medical Laboratory Scientists (MLS) as well as results from in-depth interviews with supervisors of MLS. The goals of the endline evaluation were to examine to what extent the newly instituted Continuing Professional Development (CPD) Policy of the Medical Laboratory Science Council of Nigeria (MLSCN) is meeting its stated objectives, how the accredited eLearning courses compare with the other accredited activities, and what is (if any) the contribution of the CPD Policy and its program of accredited activities to improvements in medical laboratory service delivery. As one of the first accredited, Web-based CPD initiatives funded and implemented in Nigeria, this information is critical to identify the project's successes as well as areas for improvement.

The vast majority of survey respondents reported being aware of the new CPD Policy and accurately identified the number of credits required to renew license. However, the majority of survey respondents reported having questions about the CPD Policy and searching for answers, revealing the importance of MLSCN and AMLSN working together to adopt and implement a unified multi-prong approach to communicating with MLS regarding the Policy.

The majority of survey respondents and supervisors believed that 10 credits was the right amount needed for license renewal, but the majority of supervisors thought that the allocations per CPD type needs to be changed. The vast majority of survey respondents earned CPD credits through the completion of the AMLSN-authored, MLSCN-accredited eLearning courses, revealing continued high demand for the eLearning courses. Among survey respondents who participated in both eLearning courses and other CPD-accredited activities, the majority thought that eLearning was more valuable. This differed from the interview respondents who reported that the face-to-face CPD-accredited workshop activities were of more value than the eLearning courses – largely due to the ability to practice what one is learning and interact with colleagues.

The survey respondents noted 78 different organizations from which they learned the most in participating in their CPD-accredited activities. AMLSN should consider approaching these organizations as potential future course authors of eLearning courses that can supplement and/or complement their already popular and effective face-to-face training activities. In addition, interview respondents suggested AMLSN survey members to learn what new topics are necessary and important to improve practice, suggesting the following topics:

- Laboratory management
- Current viral diseases, such as Ebola
- Mycology
- Chemical pathology
- Quality assurance
- Legal issues
- Patient safety

- Bioinformatics
- Instrumentation
- Phlebotomy
- Work assessment development
- Laboratory automation
- Biomedical engineering

These should be considered when AMLSN selects YR4 course topics.

The majority of survey respondents and supervisors believed that the CPD Policy and CPD-accredited activities were positively impacting MLS job performance. However, survey respondents and supervisors both lamented that in some cases knowledge gained at CPD-accredited activities could not be applied to the job due to external circumstances, such as lack of appropriate facilities, equipment, or staff.

Although the majority of those surveyed thought that the CPD Policy was meeting its intended goal of improving the technical skills and proficiencies of MLS, a number of suggestions for how it can be improved were provided and should be carefully considered by MLSCN and MLSCN's Board. Suggestions largely fall into the following categories:

- 1) Improve the accreditation process
- 2) Better regulation of CPD-accredited workshops as well as improving the cost, accessibility, and organization of CPD-accredited workshops
- 3) Diversification of CPD activity types, topics, and authors
- 4) Increase the credit point allocation and no maximum restrictions (i.e., equal number of credits for workshops and eLearning courses)
- 5) Improve current accredited activities
- 6) Offer incentives (e.g., highlight MLS who have demonstrated a willingness to take advantage and learn from the CPD-accredited activities in MLSCN circular or website)
- 7) Improve access to licenses once MLS have successfully renewed and consider licensure renewal every two years instead annually

This report along with key highlights will be shared at a stakeholder dissemination meeting at the next quarterly AMLSN eLearning Advisory Board (tentatively scheduled for 11 December 2014) and subsequently at an upcoming MLSCN Board Meeting. These findings will help inform AMLSN's course selection process as well as MLSCN's review of the CPD Policy.

## Introduction

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The K4Health/Nigeria Web-Based Continuing Medical Laboratory Education (CMLE) Program (also referred to as the Continuing Professional Development (CPD) project) focuses on continuously improving the knowledge of Medical Laboratory Scientists (MLS), updating and improving their skills, and acquiring new skills. The CPD project began in September 2011 as a two-year Associate Award from the USAID Mission in Nigeria and was awarded additional funding to continue through September 2015. The two primary interventions of the K4Health/Nigeria CPD project are:

- The revitalization, launch, and institutionalization of a CPD Policy, making CPD credits a requirement of licensure renewal
- Developing, managing, and hosting Nigerian-authored and accredited eLearning courses

The Johns Hopkins Bloomberg School of Public Health's Center for Communication Programs/Knowledge for Health Project (JHU-CCP/K4Health) implements these interventions in close collaboration with the Medical Laboratory Science Council of Nigeria (MLSCN) and the Association of Medical Laboratory Scientists of Nigeria (AMLSN). Both of these interventions include significant technical and organizational capacity building of MLSCN and AMLSN to ensure that they will be able to continue these activities beyond the project-funded period.

The CPD Policy was launched in 2012, making it a requirement to earn 10 CPD credits for annual re-licensing starting in 2014. However, in May 2014, the new MLSCN Board declared 2014 a year of continued awareness-raising to ensure that the CPD Policy is more broadly understood and institutionalized. As a result, any MLS who renewed their licenses in early 2014 presented the CPD credits that they had earned; however, those renewing their licenses later in the year may or may not have.

This research activity was undertaken in the interest of examining to what extent the CPD Policy is meeting its stated objectives, how the accredited eLearning courses compare with the other accredited activities, and what is (if any) the contribution of the project activities to improvements in medical laboratory service delivery. As one of the first accredited, Web-based initiatives funded and implemented in Nigeria, this information is critical to identify the project's successes as well as areas for improvement.

The local partners will take over the management, implementation, and monitoring and evaluation of all project activities by mid-September 2015. The study findings will be used by the local partners to ensure that the implementation of CPD-accredited activities are improving the technical skills and proficiencies of MLS, which in turn we hope will improve medical laboratory service delivery and the overall care of patients in Nigeria.

## Aims of the Study

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The main objective of the study is to solicit feedback from Nigerian MLS on their knowledge, perceptions, and perceived impact of the CPD Policy.

Specific research questions include:

- **Awareness.** Are MLS aware of the CPD Policy, the credit load required, and the activities allowed for CPD credits? What accessibility issues did MLS have, if any? What suggestions for improvements do MLS have?
- **Usefulness.** What accredited activities did MLS find to be the most useful for improving their knowledge and skills? How do the accredited online courses compare to accredited face-to-face workshops? How satisfied are MLS with the accredited activities overall? What is the perceived benefit of the accredited activities? What would make the accredited activities more relevant and useful?
- **Knowledge use.** How have the accredited activities increased MLS knowledge and skills? How has the knowledge gained from the accredited activities been used? What have been the results of that use (if known)?

## Study Design

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A self-administered online survey questionnaire and in-depth interviews were used to collect information related to the above objective and research questions from MLS in Nigeria.

### *Online Survey*

The purpose of the survey was to solicit feedback from MLS to inform the review of the CPD Policy and make improvements to future accredited eLearning courses. It collected some demographic information (e.g., state of residence, organization, level of facility in which they work, job title, gender) of respondents, but no personal identifiers were collected. There were 43 questions and some of them were mandatory to answer.

The survey was delivered using Survey Monkey, an online assessment tool. An initial invitation was sent by email to all registered MLS in Nigeria in the eLearning Learning Management System (LMS) on July 1, 2014. One reminder was sent on July 15 along with invitations to new registrants of the platform. Altogether 6,905 people received the survey invitation. The survey was open for two months until July 31. We aimed to achieve 8-10% response rate (yielding between 552 and 690 responses) based on previous online surveys that K4Health had conducted globally.

### *In-Depth Interviews*

The purpose of the in-depth interviews was to triangulate findings from the online survey, and more specifically to compare what MLS self-reported as changes in their job performance as a

result of participating in CPD-accredited activities with responses from their potential supervisors as to any changes that they have noticed as a result of staff participating in CPD-accredited activities.

All respondents who completed the online survey were asked if they supervise MLS. If they answered yes, they were then asked if they would be willing to participate in a follow-up in-depth interview. The MLS supervisors were invited to submit contact information (name, e-mail address, and telephone number) to participate in the interview at a later date. This information was kept separate from the online survey responses. For those who volunteered and participated in the in-depth interview, the identifying information (name, e-mail address, and telephone number) was used only to contact them and was not linked to their responses. Taking a variety of lab specialty areas, lab types (e.g., both private and public sectors), and locations into consideration, the study team aimed to interview at least 30-40 supervisors.

## Results - Online Survey

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### *Response Rate*

The total number of respondents to any given question varies slightly because not all questions were mandatory. In addition, some questions were asked to only a subset of respondents based on the skip patterns within the survey; and in these cases, the total number of responses is noted. The overall response rate was 10.2% (n=700), surpassing our intended target.

### *Characteristics of Survey Respondents*

**Sex:** More than half (57%) of survey respondents were male; 43% were female. This proportion slightly differs from the registration records from the LMS, in which 51% of registered users are male and 49% are female.

**States in which respondents work:** Respondents came from 35 of the 36 states except for Yobe. Four percent of respondents worked outside of Nigeria.

The following five states contributed nearly half of the survey responses (48%).

| Table 1: Top five states contributing survey respondents | Percent |
|--|---------|
| Lagos  | 23.7%   |
| Rivers   | 7.2%    |
| Enugu  | 7.0%    |
| Oyo  | 5.0%    |
| Edo  | 4.8%    |

**Location:** Most reported working in a state capital or other major urban city (73%).

| <b>Table 2: Laboratory or organization location</b> | <b>Percent</b> |
|---|----------------|
| State capital or other major urban city             | 72.6%          |
| Semi-urban (i.e. local government headquarters)     | 19.7%          |
| Rural   | 7.7%           |

**Sector:** Most reported working in public laboratories (65%).

| <b>Table 3: Laboratory or organization sector</b> | <b>Percent</b> |
|---|----------------|
| Public  | 65.5%          |
| Private   | 34.5%          |

**Facility category:** Most reported working in hospitals (62%).

| <b>Table 4: Laboratory or organization category</b> | <b>Percent</b> |
|---|----------------|
| Hospital  | 62.1%          |
| Public Health                                       | 20.0%          |
| University  | 11.8%          |
| Research  | 11.0%          |
| Health Center                                       | 9.3%           |
| Environment   | 1.7%           |
| Veterinary  | 1.0%           |
| Food Control  | 0.8%           |

**Facility level:** Most reported working in tertiary facilities (40%).

| <b>Table 5: Laboratory level</b> | <b>Percent</b> |
|----------------------------------|----------------|
| Tertiary                         | 39.9%          |
| Secondary                        | 29.9%          |
| Primary                          | 16.5%          |
| Not applicable                   | 13.7%          |

**MLS classification:** The vast majority of respondents classified themselves as Senior MLS Associates (75%).

| <b>Table 7: MLS classification</b> | <b>Percent</b> |
|------------------------------------|----------------|
| Senior MLS Associate               | 74.6%          |
| Senior MLS Fellow                  | 22.9%          |
| Intern                             | 2.5%           |

**Specialty:** The specialty of respondents was dominated by Clinical Biochemists (29%), Microbiologists (29%), and Hematologists (26%).

| <b>Table 6: Medical laboratory science specialty</b> | <b>Percent</b> |
|--|----------------|
| Clinical Biochemistry                                | 29.3%          |
| Microbiology   | 28.6%          |
| Hematology   | 26.3%          |
| Bacteriology   | 5.9%           |
| Parasitology   | 5.3%           |
| Virology   | 2.3%           |
| Immunology   | 2.1%           |
| Coagulation  | 0.2%           |

## ***Awareness of CDP Policy***

### **Knowledge about the CPD Policy**

Approximately 90% of respondents reported that they were aware of the new CPD Policy. Of those who reported knowing about the new CPD Policy, the vast majority (93%) accurately identified the number of credits (10) that are required to renew their licenses.

A majority (59%) felt that 10 credits were the right amount of credits that should be required for license renewal, while 38% reported that 10 credits were too many.

| <b>Table 8: Views on the number of required credits (10)</b> | <b>Percent</b> |
|--|----------------|
| 10 is just right   | 59.2%          |
| 10 is too many   | 38.2%          |
| 10 is too few  | 2.6%           |

Among those who thought 10 was too many, most of them (62%) of them indicated that five to nine was the right amount for annual license renewal, and the rest (38%) said less than 5 credits.

## Channels of promotion

Of those who had heard about the CPD Policy (n=445), over one-third (37%) heard about it from talking with a colleague. Almost a quarter (24%) heard about the CPD Policy at the AMLSN Annual Meeting.

| <b>Table 9: Channel which first made respondent aware of the CPD Policy</b> | <b>Percent</b> |
|---|----------------|
| Word-of-mouth from a colleague  | 37.0%          |
| AMLSN Annual Meeting  | 23.6%          |
| MLSCN website   | 13.5%          |
| AMLSN eLearning Facebook Group  | 10.6%          |
| MLSCN announcements/monthly bulletin  | 8.3%           |
| Face-to-face event (other than at the AMLSN Annual Meeting)                 | 3.8%           |
| Sensitization meeting held by MLSCN in Abuja                                | 3.2%           |

The majority (57%) of respondents had questions about the CPD Policy and searched for answers by conversing with a colleague (61%). The MLSCN website (38%) and AMLSN eLearning Facebook Group (23%) were other places from which large percentages of respondents sought answers.

| <b>Table 10: Channel used to answer questions about CPD Policy</b> | <b>Percent</b> |
|--|----------------|
| Conversed with colleagues  | 61.4%          |
| Visited the MLSCN website  | 28.6%          |
| Visited the AMLSN eLearning Facebook Group                         | 26.3%          |
| Emailed or called the MLSCN's headquarters                         | 5.9%           |
| Read the MLSCN announcements/monthly bulletin                      | 5.3%           |
| Attended the AMLSN National Executive Council Quarterly Meetings   | 2.3%           |
| Emailed or called the MLSCN's zonal offices                        | 0.2%           |

\*Note: MLS could select multiple answer options for this question

## Usefulness of CPD

### Earning CPD credits and renewal of license

In contrast to the percent of respondents reported earning CPD credits (89%), only 57% reported renewing their license in 2014 at the time of the survey, July 2014.

Of the respondents that did not renew their licenses, 62% reported that they intend to renew their license but did not get around to it yet. Two reasons were noted by these respondents: 1) being part of a group such as an AMLSN Branch or laboratory that renews licenses together and the group has not yet done so and 2) in the past they had paid for license renewal but never received it, which discouraged them from making a payment again.

## How credits were earned

The vast majority (75%) of respondents earned CPD credits through the completion of eLearning courses. Attendance at in-person training events was a close second (66%) and a distant third was through organizing a CPD activity (24%).

| <b>Table 11: Method of earning CPD credits</b>   | <b>Percent</b> |
|--|----------------|
| Completed an eLearning course  | 75.1%          |
| In-person training events and workshops  | 66.2%          |
| Organized a CPD activity   | 24.4%          |
| Obtained a higher level certification  | 6.1%           |
| Authored publications  | 5.2%           |
| Participated as an invited lecturer/part-time teacher  | 4.2%           |
| Authored an eLearning course   | 3.5%           |
| Participated as internal and external examiner, assessor, coordinator or facilitator of council examinations | 2.6%           |
| Participated in journal clubs/discussion groups  | 2.1%           |
| Participated in the role of on-site inspector for accredited programs or laboratory inspections for MLSCN    | 1.9%           |

\*Note: MLS could select multiple answer options for this question.

## eLearning courses as source of CPD credits

Of the eLearning courses that respondents took, 90% reported successfully completing the AMLSN-authored *Good Medical Laboratory Practices* course.

| <b>Table 12: eLearning courses completed</b>               | <b>Published by</b> | <b>Percent</b> |
|--|---------------------|----------------|
| Good Medical Laboratory Practices                          | AMLSN               | 89.7%          |
| Update on Malaria Diagnosis                                | AMLSN               | 75.2%          |
| Update on HIV Diagnosis                                    | AMLSN               | 73.5%          |
| Update on TB Diagnosis                                     | AMLSN               | 62.4%          |
| TB/HIV Co-Infection  | AMLSN               | 50.4%          |
| Introduction to Medical Laboratory Supply Chain Management | AMLSN               | 46.2%          |
| CD4 Enumeration  | CCGHE               | 10.3%          |
| Specimen Management  | CCGHE               | 6.8%           |
| HIV Basics Part 1  | GHeL                | 5.1%           |
| PBMC Cryopreservation                                      | CCGHE               | 4.3%           |
| Malaria  | GHeL                | 4.3%           |
| TB Basics  | GHeL                | 4.3%           |
| Western Blot Procedure                                     | CCGHE               | 3.4%           |
| Self-Study Modules on Tuberculosis 1 – 5                   | CDC                 | 1.7%           |
| Cytology   | IFBLS               | 1.7%           |
| TB Advanced Concepts                                       | GHeL                | 1.7%           |
| Hematology   | IFBLS               | 0.9%           |

|                             |       |      |
|-----------------------------|-------|------|
| Ultrasound [Carotid Artery] | IFBLS | 0.9% |
| Urine Sediments             | IFBLS | 0.9% |
| Ultrasound [Adult Heart]    | IFBLS | 0.0% |

\*Note: MLS could select multiple answer options for this question.

### Non-AMLSN authored eLearning courses

Overall, courses authored by organizations other than AMLSN were not well-utilized. Among non-AMLSN authored eLearning courses, the top of the list was the CD4 Enumeration eLearning course published by the Center for Clinical Global Health Education (CCGHE), which was completed by 10% of the respondents. As a group, the courses authored by CCGHE did better than the other groups of courses.

### Reasons for choosing eLearning courses

In response to an open-ended question, respondents gave four main reasons for taking the courses they did. The top reason was to update their knowledge. Others included:

- Special interest/related to work
- To earn CPD credits
- Convenience of online learning

### Popularity of eLearning courses

The eLearning course that respondents reported liking the best was *Good Medical Laboratory Practices* (48%), followed by *Update on Malaria Diagnosis* (17%), and *Update on HIV Diagnosis* (13%). The four other AMLSN-authored courses were chosen by 4 to 8% of the respondents.

### eLearning vs. other activities

Among respondents who completed both eLearning courses and other CPD-accredited activities and were asked to compare the two groups of activities (n=52), the majority thought that eLearning was better (n=25).

eLearning was preferred because of the following reasons:

- More convenient and efficient
- Richer content relevant to the job
- Cheaper

However, 17 respondents did not have a preference and 5 respondents preferred face-to-face CPD workshops because of the opportunities to socialize and interact with colleagues.

## **Organizations hosting CPD-accredited activities**

Altogether, there were 78 organizations that hosted the activities which respondents reported learning the most from. Many of them were mentioned only once.

The organizations mentioned multiple times were as follows:

- AMLSN including national office and local branches
- K4Health/eLearning
- MLSCN
- Guild of Medical Laboratory Directors (all chapters)
- CDC
- FHI 360
- Blood Transfusion Society (all chapters)
- USAID
- Klinchex Nigeria Limited
- Sickle Cell Society (all chapters)
- IHVN
- Aminu Suleman, USG/DOD

## **CPD Policy and its goals**

Almost three-quarters (73%) of respondents reported that they feel that the CPD Policy is meeting its intended goal of improving the technical skills and proficiencies of Medical Laboratory Scientists.

The respondents who stated that the CPD Policy was not meeting its goals noted the following reasons:

- Some MLS are cheating in order to simply earn credits but not actually participating and learning from the accredited activities: People may ask their colleagues who had completed an eLearning course to take the same course for them or pay to attend a workshop and then ask someone else to collect their certificate for them.
- No direct linkages between many of the eLearning courses and one's work or specialty.

## *Use of Knowledge Acquired from CPD-Accredited Activities*

### **AMLSN-authored eLearning courses impact on job performance**

The vast majority (93%) of respondents reported that completing the AMLSN-authored eLearning courses impacted their job performance overall.

More specifically, large majorities reported that their job performance improved in the following areas:

| <b>Table 11: Areas in which respondents reported job performance improving as a result of completing eLearning courses</b> | <b>Percent</b> |
|--|----------------|
| Ability to provide appropriate information to clients  | 97.3%          |
| Ability to conduct diagnosis safely  | 97.2%          |
| Ability to work with supervisors and colleagues  | 95.8%          |
| Ability to provide accurate diagnosis  | 95.8%          |
| Understanding of biological and environmental factors that lead to disease   | 95.7%          |

\*Note: MLS could select multiple answer options for this question.

### **Other CPD-accredited activities impact on job performance**

The vast majority (87%) of respondents reported that *other* CPD-accredited activities also impacted their job performance overall.

More specifically, large majorities reported that their job performance improved in the following areas:

| <b>Table 12: Areas in which respondents reported job performance improving as a result of completing other CPD-accredited activities (non-eLearning activities)</b> | <b>Percent</b> |
|---|----------------|
| Ability to provide accurate diagnosis   | 98.6%          |
| Ability to conduct diagnosis safely   | 98.4%          |
| Ability to provide appropriate information to clients   | 97.8%          |
| Understanding of biological and environmental factors that lead to disease  | 95.5%          |
| Ability to work with supervisors and colleagues   | 94.9%          |

\*Note: MLS could select multiple answer options for this question.

### **How job performance improved**

In an open-ended question, respondents (n=154) described how their job performance improved as a result of participating in CPD activities in the following areas: 1) laboratory management, 2) client interaction, and 3) technical skills. Below are some examples.

### **1) Laboratory management**

- *I now document activities I didn't previously. Like accidents and (other) occurrences.*
- *I improved greatly in the better understanding of medical laws governing both the practice and the profession as a whole.*

### **2) Client interaction**

- *Ethically, I understand how to deal/interact with my clients.*
- *I believe this exercise has been undoubtedly showcasing the good image of our profession to the populace.*

### **3) Technical skills**

- *(I have) better capacity to do molecular detection of viral diseases, proper safety measure while working in the lab, writing of new SOPs.*
- *Meeting up to international standards and skill acquisition.*

## ***Other Comments and Suggestions***

### **Limitations to CPD Policy**

When asked if there were any problems with the CPD Policy, the respondents (n=244) identified a range of limitations relating to the following areas: 1) types of CPD activities, 2) monetary, 3) frequency, 4) accessibility, and 5) applicability to bench work. Below are illustrative examples related to each area.

#### **1) Types of CPD activities**

- *Other platforms like publications, international conferences and one acquiring additional degree are not well understood by many lab scientists on how they can earn credit through that.*

#### **2) Monetary**

- *(It) doesn't consider the economy of the country and the fact that most new graduates are unemployed or working in places that pay very little salaries.*

#### **3) Frequency**

- *It shouldn't be annual but for 2 or 3 years.*

#### **4) Accessibility**

- *Major problem is on the venue and location; I think it should spread also to other major towns in a state.*
- *No availability of Internet; expensive charges at cybercafé.*

## **5) Applicability to bench work**

- *Most of the online CPD developed by (AMLSN accredited by) MLSCN are not useful for on the job performance improvement because they are too theoretical and not related to bench work. The list of accredited courses is so limited. We are all not working on TB and HIV programs so should be allowed to take other online courses accredited abroad. The foreign providers of CPD programs are more experienced and the courses they provide should be respected when confirmed they are from credible sources.*

## **Suggested changes**

When asked how the CPD Policy could be improved, respondents (n=217) identified a range of potential solutions including: 1) better regulation of CPD-accredited workshops, 2) diversification of CPD activity types, topics, and authors, 3) increase of credit point allocation, and 4) offering of incentives. Below are specific suggestions.

### **1) Better regulation of CPD-accredited workshops**

- *Constant and regular contacts with employers of MLS, to sensitize them on the need for MLS to attend workshops/conferences.*
- *There should be an oral test/interview of the participants on the courses claimed to have been taken and passed.*
- *Regulate the charges proposed by organizers.*

### **2) Diversification of CPD activity types, topics, and authors**

- *The topics discussed should be clinically oriented with various clinical case histories and the online CPD courses should be frequently updated to give room for more courses which cut across various departments in the laboratory.*
- *Other areas like Genomics and Forensic Science should be covered too.*
- *It should create a forum for case reports of trends or diagnostic findings which haven't been published to account for some credits.*
- *Young scientists that are articulated and good in writing should be given platforms to show what they have, as these will never be invited for any paper presentation/journal write-up, because of their "yet-to-be acquired" advanced degrees.*
- *CPD Policy should be targeted towards meeting individual hospital(s)/workplace needs.*

### **3) Increase of credit point allocation**

- *The cost of the CPD and the point allocations should be improved upon.*
- *Liberalize carrying over excess credits.*
- *Reduce the cost for workshops and accredit more points to online e-courses.*

### **4) Offering of Incentives**

- *Incentive or motivations should be given to participants who have demonstrated serious willingness to learning.*

## Results - Interviews

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### *Characteristics of Interviewees*

Twenty-seven supervisors of MLS working in 33 different facilities were interviewed. Respondents work in 16 states/territories; eight from Lagos, four from FCT, and three each from from Abia and Imo States. The remaining states respondents work in are: Anambra, Bauchi, Benue, Borno, Enugu Gombe, Kaduna, Kwara, Ogun, Ondo, and Onitsha.

**Facility setting:** The majority of respondents work in state capitals (54%).

| Facility setting                        | Percent |
|---|---------|
| State capital or other major urban city | 57%     |
| Suburban fringe                         | 36%     |
| Small town                              | 7%      |

**Facility level:** Most reported working in secondary facilities (49%).

| Type of facility | Percent |
|------------------|---------|
| Secondary        | 49%     |
| Tertiary         | 36%     |
| Primary          | 9%      |
| not applicable   | 6%      |

**Average working years:** The average length the respondents worked at the facilities they are at is 8.6 years. They supervise an average of five medical laboratory scientists.

**Title of respondent:** Their title was most frequently Medical Laboratory Scientist (17%).

| Title of respondent                    | Percent |
|--|---------|
| Medical Laboratory Scientist           | 17%     |
| Senior Medical Laboratory Scientist    | 12%     |
| Chief Medical Laboratory Scientist     | 12%     |
| Head of Laboratory                     | 10%     |
| Principal Medical Laboratory Scientist | 10%     |
| Quality Assurance Officer              | 8%      |
| Assistant Chief/Director               | 6%      |
| Other                                  | 24%     |

\*Note: Some respondents had more than one title.

**Respondent's specialty:** Most reported their specialty is Medical Microbiology, Parasitology, Chemical Pathology, or Hematology (75%).

| Specialty of respondent | Percent |
|-------------------------|---------|
| Hematology              | 23.6%   |
| Medical Microbiology    | 17.6%   |
| Parasitology            | 17.6%   |
| Chemical Pathology      | 17.6%   |
| Histopathology          | 11.8%   |
| Other                   | 11.8%   |

\*Note: Some respondents had more than one specialty area.

**Performance reviews:** The vast majority of interviewees reported that their facility carried out staff performance reviews.

| Responses regarding supervisee job performance reviews | Percent |
|--|---------|
| Conduct regular reviews                                | 81.8%   |
| Conduct reviews informally                             | 18.2%   |
| Don't conduct reviews                                  | 3.0%    |

Among those reported to conduct regular reviews, the frequency varied. Performance reviews were most frequently carried out once or twice a year (36%).

| Frequency of regular reviews | Percent |
|------------------------------|---------|
| Twice a year                 | 24.2%   |
| Once a year                  | 15.2%   |
| Quarterly                    | 15.2%   |
| Monthly                      | 12.1%   |
| Weekly                       | 9.1%    |
| Daily                        | 3.0%    |
| Once every two months        | 3.0%    |

### ***General Impact of the CPD Policy***

The majority of interview respondents reported that the CPD Policy is positively impacting staff. For example, it kept their supervisees up-to-date on the latest developments in the field, strengthened the capacity and quality of the work of their staff, and improved MLS's quality of discussions with co-workers. The CPD Policy also had a positive effect on MLS capacity and interest to learn on the Internet, helping MLS gain understanding about medical laboratory science beyond their direct bench work. Below are some illustrative quotes:

- *CPD makes the job of the supervisor easier because their junior colleagues are able to understand instructions and know what is expected of them.*

- *MLS that have helped organize seminars are developing their skills for conducting and carrying out CPD activities in terms of organization, assessments and writing of reports to the Council.*
- *The Policy has reawakened the need for MLS to improve on their computer skills or even start to learn about the internet.*
- *There is no excuse now as to the right way for things to be done once you have attended a workshop or even studied a course online.*
- *It has equipped MLS to challenge things that are not right for proper diagnosis and patient care. It has made MLS to be more composed.*
- *It has given MLS some form of boldness such that they are able to hold discussions with their other colleagues, especially doctors.*

However, a small number of respondents were not sure if the CPD Policy was impacting their staff because course offerings seemed to focus more on theoretical aspects and therefore implementation/application of knowledge could not be easily observed. In addition, it was noted that staff continue to face the lack of resources and support from the facility administration to implement what they have learned. It was also noted that a potential challenge of the Policy is the fact that some MLS treat earning CPD credits superficially, completing the requirement only because they have to in order to gain renewal of license and not fully internalizing the learning opportunities.

### ***CPD-Accredited Activities and Staff Job Performance***

The respondents generally indicated that they noticed improvements in supervisees' job performance as a result of attending or participating in CPD-accredited activities in two main areas: 1) improved understanding of laboratory procedures as a result of the AMLSN-authored eLearning courses and 2) improved competencies, motivation, and professional culture. Below are some illustrative quotes.

#### **1. Improved understanding of laboratory procedures as a result of the AMLSN-authored eLearning courses**

##### **Good Medical Laboratory Practice**

- *Because of the course on good medical lab practice, they now perform internal quality control every week to ensure their reagents are working fine and producing good quality results.*
- *MLS are more inclined to use control samples along with the patient's samples during analysis and this has helped improve the quality of the results they produce.*
- *MLS are now more aware of the laboratory rules and take them more seriously. They always wear their protective gear once on the bench.*

#### Update on Malaria Diagnosis

- *(They took the) malaria course and since then they have adopted the Giemsa staining method for malaria diagnosis, instead of the Leishman method that was initially being used.*

#### Update on TB Diagnosis

- *They have started to practice procedures revolving around validation for their test procedures, also picked up from the TB course.*
- *After going through the TB course (USAID course) learnt about new methods for diagnosing TB, they approached management, asked for the new equipment and reagents and have since adopted these methods.*

#### Update on Laboratory HIV Diagnosis

- *They recommended certain reagents and machines for HIV diagnosis to the management and lucky enough, management obliged them and so they have adopted these new techniques.*
- *After a CPD course online, they learnt about the algorithm for HIV diagnosis and they have adopted this technique.*

#### TB/HIV Co-Infection

- *After taking the course on TB/HIV diagnosis, they were able to adopt some new, more advanced techniques for diagnosis in their lab and this has really helped the quality of their work.*

#### Introduction to Medical Laboratory Supply Chain Management

- *The supply chain management course has resulted in a marked improvement in the way stock is taken on lab consumables and how they are stored/preserved. The MLS now take this task up because they are aware of what needs to be done rather than just leaving everything up to him, the supervisor.*

## **2. Improved competencies, motivation, and professional culture**

- *MLS are learning the importance of keeping records of whatever lab test they carry out and this is important for practice.*
- *CPD activities open the eyes of MLS as to the reasons why they are carrying out procedures in certain ways and give them a better understanding.*
- *There has been a general improvement in attitude to work.*
- *MLS are more conscious of producing quality results. Also, ethics in the lab is taken more seriously.*
- *MLS are getting better at interacting with the patients as well as clinicians and proper sample handling.*

On contrast, a small number of respondents indicated that they were not sure if the CPD Policy was leading to improvements in job performance and explained that external factors, such as limitations in working environment and restriction of movement, were to blame.

Some of the respondents indicated that they had not yet noticed improvements in staff job performance as a result of attending or participating in CPD-accredited activities. These respondents said MLS engage in CPD only because they were compelled to as part of the license renewal process. One interviewee reported that he and his staff have not had many opportunities to participate in CPD-accredited workshops and eLearning courses because of poor Internet services.

## ***Comparison Between Workshops and eLearning Courses***

More people preferred workshops over eLearning courses; however, a considerable number of people noted the benefit of eLearning courses and thought having two options is good.

### **Preference for workshops**

More than half of the interview respondents believed that the face-to-face CPD-accredited activities had more impact than the eLearning courses because workshop was regarded to be more practical and interactive. Below are some illustrative quotes.

#### **More practical**

- *There has been marked improvement in reporting of results seen under the microscope and this has been helpful for clinicians. MLS are more aware of what malaria parasites look like under the microscope and what quantity is present.*
- *In HIV screening, trainings and workshops on this topic has made MLS more strict/cautious in screening patients for HIV, there is no atom of compromise.*
- *(Workshops are better) because it is based on the physical and is sort of practical, and what you practice, you are more likely to adopt.*

#### **More interactive**

- *The seminars and conferences help MLS express themselves better especially because they get to share experiences with their colleagues from other establishments. It increases their confidence and makes them more proud of the profession.*
- *The face-to-face workshops have the advantage of physical presence at the scene and this can really motivate learning. MLS are able to ask questions when they need to and can learn from the questions others are asking. So on job performance, workshops have more impact. The eLearning, on the other hand, brings about individual development; it contributes mainly to knowledge gained on a personal level (this may not necessarily translate into practice).*

Some of the respondents preferred face-to-face workshops because of the limitations for eLearning courses, noting that eLearning courses are theoretical and susceptible to cheating. In addition, MLS might be discouraged to read all materials because of the volume of materials covered in the eLearning courses. Not all MLS have access to the Internet, so they would rather just go for the training workshops.

## **Preference for eLearning courses**

Several respondents indicated that eLearning courses have had more impact than other accredited-CPD activities mainly because of the better accessibility:

- *The online courses have had much more impact on my staff than the workshops because they are readily available and they have Internet services all day at their facility.*
- *There is constant unrest and fear that people don't make journeys or carry out any activities that may draw any form of attention. The online courses are of good quality; I especially appreciated the management course, and the courses serve as refreshers for MLS.*

## **Preference for having both options**

Some of the respondents said they were not sure which type of CPD activity was best and noted the benefits of having both options:

- *The online courses that have been taken have been very beneficial to the lab as well as personally, in my case when I am reading I ensure that I understand so I can pass the exams and this sticks more in my head. Whereas during the workshops, there may be so many distractions or you may not even be able to attend, or go through the materials at a later date and no one is testing you to ensure that you have learnt anything.*
- *MLS tend to prefer to go for workshops than to do the online courses, they probably find it easier and may also not be so computer savvy. But taking the online courses is as good as attending the workshops in terms of impact.*

## ***Suggestions for Improving the CPD Program Implementation***

### **Improve CPD-accredited workshops**

All respondents believe that some aspect of CPD-accredited workshops needs to be improved in order to improve the CPD Program as a whole. Interviewees identified a range of potential solutions related to: 1) costs, 2) accessibility, and 3) organization. Below are specific suggestions.

#### **1) Solutions related to the high costs of workshops:**

- Provide subsidies.
- Use some of the MLSCN CPD fee to pay for workshops.
- Lobby state governments for support.

- De-emphasize the financial rewards for organizers:
  - Reduce the application fee, and
  - Limit the amount that organizers can charge MLS to attend.

## **2) Solutions related to accessibility:**

- Each state/branch/chapter/zone/catchment area should organize its own CPD activity.
- Increase frequency of workshops.

## **3) Solutions related to organization:**

- Send emails, text messages, or online bulletin to remind MLS of upcoming activities.
- Mandate pre- and post-tests.
- Monitor attendance.
- Require content be available in written form (print material and/or PowerPoint slides).
- Limit the number who can attend based on the size of the venue.

## **Improve accreditation process**

Suggestions for improving the accreditation process that were cited included:

- Reducing MLSCN turnaround time.
- Improving the quality of presenters.
- Limiting approval of topics already delivered.
- Tighter vetting of topics and monitoring of workshops to ensure that the CPD-accredited activities are not simply becoming an avenue for CPD providers to generate income.
- Reducing allowable fees that organizers charge so that they focus on quality of training and not income generation.
- Expanding the variety of accredited activities, reaching out to implementing partners informing them of the accreditation process.

## **Improve diversity of CPD topics**

The respondents believed the diversity of CPD topics needed to be improved in order to improve the CPD Program as a whole. For example, one respondent suggested that a survey be carried out to learn what new topics AMLSN members think are necessary and important to improve practice. Respondents suggested the following topics for consideration:

- Laboratory management
- Current viral diseases, such as Ebola
- Mycology
- Chemical pathology
- Quality assurance
- Legal issues
- Patient safety
- Bioinformatics
- Instrumentation

- Phlebotomy
- Work assessment development
- Laboratory automation
- Biomedical engineering

## **Expand types of activities for accreditation**

The respondents also believed that the types of CPD activities that could be accredited needed to be expanded in order to improve the CPD Program as a whole. Some suggestions included:

- MLSCN and AMLSN organize short courses or updates, which could go for as short as one-week to as long as 3 to 6 months.
- Step down trainings/training of trainers.
- Add a practical session to eLearning courses; require MLS to go and practice a procedure and then input their results as part of the exams.
- Provide CPD credits to those who attend clinical presentations in the hospital settings.
- Package many CPD activities together.

Other ideas for improving current activities included:

- Demonstrate the online courses at the beginning of every workshop.
- Quality Systems Management (QMS) essentials should be included in all workshops.
- Have two or three sets of questions for each online course.
- Provide access to databases with recent journal publications in medicine and health to build research potential.
- MLSCN send quality control samples to check that labs are producing accurate results after attending workshops.

## **Improve access to licenses once MLS have successfully renewed**

Supervisors reported many staff complained about the delayed delivery of their licenses. It was suggested that MLSCN allow MLS to print out their licenses online after completing requirements and payment.

## ***Suggestions for Improving the CPD Policy***

### **Equal number of credits for workshops and eLearning courses**

When asked how the CPD Policy could be improved, the respondents believed changes were needed in particular related to how credits can be earned, while earning 10 credits was noted to be the right amount. The CPD Policy now allows for a maximum of four credits to be earned from accredited seminars, workshops, and conferences, while eight can be earned from eLearning courses – four from AMLSN-authored courses and four from non-AMLSN authored courses.

In general, the respondents believed MLS should be allowed to earn more credits from eLearning courses than from workshops because it would reduce the cost of travelling and ensure the balance between theoretical and practical aspects.

### **No maximum restrictions on CPD activity types**

Some of the respondents said that the ways in which MLS can earn credits should not be restricted:

- *It should not specified where one can get CPD credits from, because once the Council insists that credits must be obtained from specific activities, MLS don't focus on the knowledge to be got from such activities but rather on getting credits/certificates by whatever means (including illegal means). If it is left open, scientists can decide what they want to do, which courses/trainings they want to take and the chances of proper participation and impact on job performance may be higher.*
- *It should not be compulsory to get certificates from one activity or the other, MLS should be allowed to decide where they obtain CPD credits for themselves. Since they are making the decision for themselves, they are likely to participate better and more likely to adopt what they have learned both from online courses as well as workshops and trainings.*

### **Other suggestions**

Some respondents believed special exemptions were needed for those in the Northeast because of the security situation. A few respondents suggested making at least one online course required:

- *(The) Council should make online courses a prerequisite and not just an option to earn credits for licensure...(this) will encourage MLS to be more computer literate if they are required to go online.*

### **Limitations**

It was noted that MLS face external limitations when it comes to improving job performance based on knowledge disseminated in CPD activities. These limitations include insufficient support from hospital management and MLSCN in the form of low standard microscopes and poor quality stains.

## Discussion

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The majority of survey respondents and supervisors believe that the CPD Policy and CPD-accredited activities are positively impacting MLS job performance. However, survey respondents and supervisors both lamented that in some cases knowledge gained at CPD-accredited activities cannot be applied to the job due to external circumstances, such as lack of appropriate facilities, equipment, or staff.

Although the majority of those surveyed think that the CPD Policy is meeting its intended goal of improving the technical skills and proficiencies of MLS, a number of suggestions for how it can be improved were provided and should be carefully considered by MLSCN and MLSCN's Board. Suggestions largely fall into the following categories:

- 1) Improve the accreditation process
- 2) Better regulation of CPD accredited workshops as well as improving the cost, accessibility, and organization of CPD-accredited workshops
- 3) Diversification of CPD activity types, topics, and authors
- 4) Increase of credit point allocation and no maximum restrictions (i.e., equal number of credits for workshops and eLearning courses)
- 5) Improve current accredited activities
- 6) Offer incentives (e.g., highlight MLS who have demonstrated a willingness to take advantage and learn from the CPD-accredited activities in MLSCN circular or website)
- 7) Improve access to licenses once MLS have successfully renewed and consider licensure renewal every two years instead annually

Other suggestions for improving the CPD Policy and Program include:

- 1) Better and more regular AMLSN and MLSCN communication with MLS
- 2) Explain the rationale behind the CPD Policy:
  - The value of diversity of types of activities and the credit distribution.
  - The value of activity topics not directly related to an MLS' bench work.
  - How a MLS can obtain credits from activities that are not eLearning or workshops.
  - Explain the CPD activity approval process.
  - Raise awareness of scheduled workshops.
  - Encourage all AMLSN Chapters and Branches to adopt a CPD Liaison as an executive level position to elevate the value of the CPD.

## Study Limitations

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It is our belief that the survey respondents are representative of MLS in Nigeria in terms of sex, geographic distribution, facility category and level, and sector for which they work. However, there are a number of limitations to this study. Given that the sample is a convenience sample, there is the possibility of selection bias. Results and analyses are representative of MLS who have successfully registered with the eLearning platform *and* were willing to spend time

completing the survey. However, since the purpose of this study was to learn more about learners' opinions about the eLearning courses and application of knowledge obtained and how this experience compares to the offline accredited activities, we felt that the sampling strategy was sufficient.

## Next Steps

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This report along with key highlights will be shared at a stakeholder dissemination meeting at the next quarterly AMLSN eLearning Advisory Board (tentatively scheduled for 11 December 2014) and subsequently at an upcoming MLSCN Board Meeting. These findings will help inform AMLSN's course selection process as well as MLSCN's review of the CPD Policy. The presentation and discussion of the results will start another round of dialogue, further improving the project activities and increasing its sustainability.