

Optimizing quality testing in Nigerian laboratories through participation in the Nigerian National External Quality Assessment System (NNEQAS)



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Background

The Nigerian National External Quality Assessment System (NNEQAS) was launched in 2017 to consolidate the efforts of Nigerian external quality assessment (EQA) providers. This collaborative model of EQA aims to establish a sustainable, cost-efficient and reliable EQA scheme for laboratories across Nigeria, through the use of a single informatics system for the management of EQA.

Methods

We studied the Nigerian EQA landscape to identify the key providers in the country (Fig. 1) and assess EQA needs in terms of laboratory discipline and test volumes. Routine tests such as Chemistry and Hematology, as well as HIV and CD4 tests were found to be the most relevant, as they were already being offered by various providers.



Figure 1. Key EQA providers in Nigeria prior to 2015

The EQA providers were met, along with funding agencies such as Global Fund, with the goal of agreeing on the fundamentals of a national EQA scheme. The laboratories across the country that have previously participated in EQA through a funded group must now enroll under the NNEQAS umbrella to participate in one or more of the 12 programs offered. These are: Chemistry, Hematology, HIV, CD4, TB microscopy, TB rapid testing, Malaria microscopy, Malaria rapid testing, Hepatitis B (HbsAg), Hepatitis C, hCG, and H. pylori (Fig. 2).

While the Medical Laboratory Science Council of Nigeria (MLSCN) has undertaken the management of NNEQAS, the National EQA Laboratory (NEQAL) in Zaria, Kaduna state, has been identified as the EQA production center for samples sourced locally.

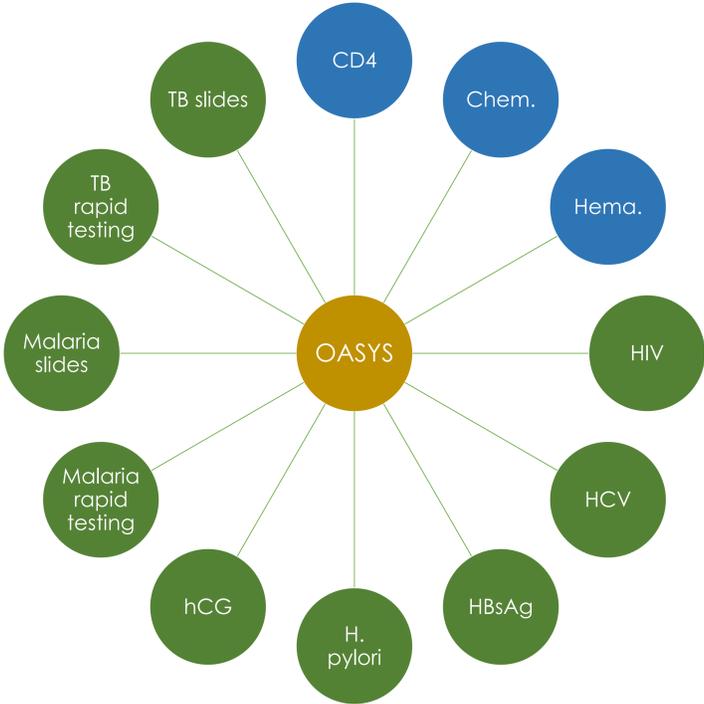


Figure 2. EQA programs offered through NNEQAS
 In green, samples sourced and manufactured locally at the NEQAL facility in Zaria; in blue, samples shipped by Oneworld Accuracy.

Results

Since the launch of NNEQAS in 2017, the EQA scheme has shown increasing success, with the number of laboratories and subscriptions rising each test event (Fig. 3). As of November 2018, over 900 labs are enrolled in 1 or more programs offered by NNEQAS, totalling almost 1,900 subscriptions. The enrolled labs are overseen by groups that were previously individual EQA providers, such as the Institute of Human Virology, Nigeria (IHVN), Family Health International (FHI), Walter Reed Program Nigeria (DoD WRP-N) as well as funding agencies like Global Fund.

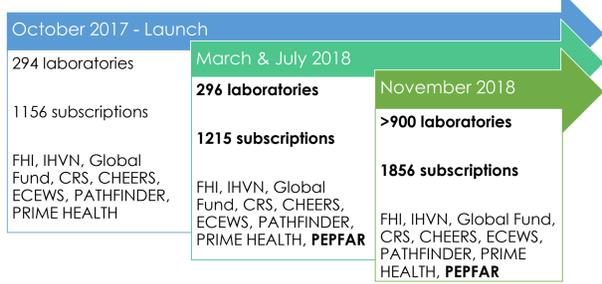


Figure 3. Progress of laboratory enrollment in NNEQAS EQA programs

Most importantly, the consolidation of the multiple Nigeria EQA schemes has resulted in considerable savings in shipping costs, as all samples shipped from Oneworld Accuracy (1WA) are sent to a single location, NEQAL. Other costs for the management of EQA are also decreased:

- ✓ **1 Informatics system (OASYS)** – NNEQAS benefits from reduced informatics fees provided to all laboratories enrolling under its umbrella.
- ✓ **1 Support team** – MLSCN has dedicated a technical team to support laboratories in their use of OASYS, allowing a centralized assistance for troubleshooting and follow-up with EQA evaluation reports.
- ✓ **1 aggregated country report on EQA** – oversight groups in Nigeria may now have access to consolidated data on their laboratories, which in turn feed into EQA performance monitoring and trending at the national level.

Discussion and Perspectives

As the single informatics system used by all laboratories in Nigeria for their EQA needs, OASYS is on the way to become a powerful tool for the management of laboratory quality in the country. So far, excellent performance has been observed across the country for EQA test results, notably in HIV and Hepatitis B (>90% acceptable results) (Fig. 4). This view of national performance has been facilitated by having centralized EQA and responsibility for oversight. For other EQA programs, recommendations have been offered even when the score was satisfactory, as an incentive to cultivating continuous quality improvement.

As the subscriptions volume is set to increase in 2019, the need for collaboration and coordination across supporting groups will undoubtedly multiply. 1WA will continue to use its coaching and expertise to support the local team and empower laboratories to improve their testing accuracy.

EQA Programs	Number of Participating Laboratories	Percentage of Acceptable Results
Chemistry	118	55%
Hematology	200	66%
CD4	200	66%
HIV serology	222	99%
Hepatitis B (HbsAg)	37	94%
Hepatitis C (HCV)	32	83%
H. pylori serology	33	40%
hCG – pregnancy test	28	73%
Malaria rapid testing	14	51%
Malaria slides	62	72%
TB rapid testing	1	33%
TB slides	28	72%

Figure 4. Overall EQA performance of NNEQAS laboratories in November 2017
 Performance was measured by the percentage of acceptable results.

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For More Information

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