The Importance of Data Quality Assurance in Improving Grant Implementation: An Example from Nigeria.

Roland Clement Abah

National Agency for the Control of AIDS, Ralph Shodeinde Street, Central Area, Abuja, Nigeria

E-mail: rolann04@yahoo.com

Abstract

This paper presents the outcomes of Data Quality Assurance exercises conducted in health facilities in three states in Nigeria. This was done to demonstrate the importance of Data Quality Assurance in improving grant implementation. Using the Routine Data Quality Assessment Tool and an Internal Data Verification checklist, HIV data management and data quality in these facilities were assessed. The management of HIV data in most the facilities visited was below expectations and incomplete or discrepant data were found in some facilities and organisations. The paper finds that conducting Data Quality Assurance exercises are very useful in improving grant implementation. This paper recommends regular data auditing and supervisory activities for HIV programmes.

Keywords: HIV, Data Quality Assurance, Grants Implementation, Nigeria

1. Introduction

Nigeria has benefited from several grants from international partners and donor organisations from 2001 to 2010. Most of the grants received are from international partners and donors such as the United States Government (USG), the USG President's Emergency Plan for AIDS Relief (PEPFAR), United States Agency for International Development (USAID) and Department of Defence (DoD). Others are the United Kingdom's Department for International Development (DFID); the Canadian International Development Agency (CIDA), and the Global Fund for AIDS Tuberculosis and Malaria (GFATM). These grants have contributed tremendously to the efforts of the Government of Nigeria to reverse the trend of HIV in Nigeria.

The HIV response in Nigeria has benefited from four major grant streams from the Global Fund for AIDS Tuberculosis and Malaria (GFATM) including Round 1, Round 5, Round 8, and Round 9. The objectives of the Round 5 grants were to scale up comprehensive HIV/AIDS services in 37 states of the country over 5 years. To increase capacity of the private sector to implement workplace programmes in 12 states, and to strengthen capacity of implementing institutions for effective programme management, coordination, monitoring and evaluation. Health System Strengthening was the focus of Round 8 which involved the development of health infrastructure and capacity building for more efficient HIV service delivery at GFATM supported facilities. The Round 9 grant is aimed at scaling up antiretroviral therapy, provision of antiretroviral (ARV) drug prophylaxis for pregnant women and co-trimoxazole prophylaxis for both adults and children.

Importantly, GFATM grant programmes are designed based on a 'Cluster Model' that involves developing a network or cluster of secondary and primary health facilities that provide comprehensive HIV and AIDS treatment, care and support. This approach aims at strengthening capacity and links between General Hospitals, Primary Health Care (PHC) facilities and community-based efforts to ensure a continuum of sustained HIV service delivery.

The National Agency for the Control of AIDS (NACA) is one the Principal Recipients of the GFATM grant in Nigeria which then sees to the transmission of grant subsets to implementing organisations known as sub-recipients. These sub-recipients implement the specific projects from the approved plans in selected health facilities around the country. In the course of service delivery, data is generated on a number of approved indicators under the grants. The generated data is recorded regularly at health facilities using registers and forms and summarised on a monthly basis. This data is used to monitor progress and performance of the grants, as well as to improve service delivery and quality of care.   The summarised data form is reported to NACA monthly.

It is important to check the quality of data received from facilities to ensure quality. To achieve this, a team from NACA conducts an internal Data Quality Assurance (DQA) exercise quarterly at these health facilities. This paper examined the outcome of the internal Data Quality Assurance exercise conducted in health facilities in three states in Nigeria namely Cross River (South South Region), Adamawa (North East Region) and Ebonyi (South East). This is for the purpose of promoting the importance of conducting Data Quality Assurance exercises in the implementation of grant programmes. It is no longer news that the global economic meltdown in several countries has greatly contributed to donor fatigue and thinning of resources. It has therefore become

imperative that grants received be monitored to ensure that utilisation yields maximum results even as countries begin to look inwards for more resources for HIV. This paper therefore has good lessons for other countries especially in resource limited settings.

2. Methodology
Objectives of HIV Data Quality Assurance (DQA) in Nigeria are as follows:
- To validate reported data with the source documents at the facilities
- To ascertain that the source documents from which the data are collected is available and in good condition
- To ensure that ART and PMTCT program data reported are available, consistent and valid
- To ascertain the technical capacity of the service delivery point to carry out quality services.
- To strengthen the monitoring and evaluation system at the facility level
- To ensure that quality data is maintained and reported to the next level
- To provide on the spot Technical Assistance where necessary

A DQA was carried out in Cross River (October, 2009), Adamawa (August, 2011) and Ebonyi (December 2011). In each of the facilities and organisations visited, the status of HIV data management was assessed based the availability of electronic equipment, staffing, record keeping, client details, training, and office space. The quality of HIV data generated was assessed for availability, consistency and validity. According to Kruse and Mehr (2008), possible sources of data error could include inaccurate equipment; poorly designed forms; illegible, inaccurate, or incomplete data recording; errors or omissions in data transfer; inadequate training; intentional fraud; undocumented changes; programming errors; and misuse of statistical software.

The tool used for the DQA in Cross River state is a global computer based tool called the Routine Data Quality Assessment Tool (RDQA). The tool was designed in Microsoft Excel environment and asks structured questions on data verification, cross–checking of reported results, and data management systems. Based on the answers inputted, a dashboard is presented at the end revealing the gaps that exist in that facility or organisation. The Routine Data Quality Assessment (RDQA) tool was developed with input from a number of people from various organizations. Those that were most directly involved in the development of the tool included Ronald Tran Ba Huy of the Global Fund to Fight AIDS, Tuberculosis and Malaria, David Boone, Karen Hardee, and Silvia Alayon from MEASURE Evaluation, Cyril Pervilhac and Yves Souteyrand from the World Health Organization, and Annie La Tour from the Office of the Global AIDS Coordinator (MEASURE, 2008). The tool was used for the first time in Nigeria in 2009. Two health facilities and one care giving organisation were assessed using the RDQA tool. In addition, Data Quality Assessment was carried out on the Ministry of Women Affairs and State Agency for the Control of AIDS in Cross River State. The quality of data for four HIV indicators were assessed namely; number of patients newly initiated on antiretroviral treatment; number of people counselled and tested and results collected; number of pregnant HIV-Positive women receiving Antiretroviral Prophylaxis; and number of Orphaned and Vulnerable Children (OVC) in dire need and given Psychosocial and Educational Support.

The DQA exercise in Adamawa and Ebonyi were conducted using a structured internal verification checklist to compare the data collected at the facilities with what was submitted to the Nigeria National Response Information System (NNRIMS) database, to assess the systems generating data at the facility level, and the process of transference from the facilities to the states and the national database. The checklist was used to assess data availability for gaps; data consistency for errors of transference; and data validity for calculation errors during aggregation. The checklist has a total weighted score for each of the data categories and selected indicators with which the facilities visited were rated. Two indicators were assessed for antiretroviral treatment, and one for Prevention of Mother-to-Child Transmission (PMTCT). Table 1 provides the names and locations of the facilities visited.

In carrying out the DQA in each of the facilities, the presence of a monitoring and evaluation officer from the State Agency for the Control of AIDS and the implementing organisations had to be present. This added quality to the exercise and enabled the state agencies and implementing organisations to become aware of the challenges and gaps revealed during the exercise. A debriefing session was held with the management of the health facilities and the State AIDS Control Agencies after each DQA exercise. Since the exercise is conducted quarterly in Nigeria, future DQAs follow-up on the progress made on the issues identified in previous exercises. This contributes to the continuous improvement of programme implementation, service delivery and data integrity.

3. Principal Findings
Quality of data is essential to maintain good health records. Regular analysis of content to ensure accurate

documentation is necessary for good health care and this has received the attention of several scholars (Orfanidis et al, 2009; Kahn et al, 2012; Adeleke et al, 2012).

The quality of data generated depends on the effectiveness of the data management system in place in any facility. The issue of having proper data management systems in place cannot be overemphasized especially when programmes are working with limited resources to meet national targets. Table 2 presents the status of data management systems in the facilities visited. The table clearly shows how deficient data management is in the facilities. None of the facilities and supervisory organisations had electronic equipment to enter, store and transfer data. Less than 40% of the facilities had adequate staff, satisfactory record keeping, and complete client details. Only half of the organisations visited had adequate office space.

According to Mate (2009), data collected and reported in the public health system in high HIV-prevalence districts in South Africa were neither complete nor accurate enough to track process performance or outcomes for PMTCT care. Mate was of the view that systematic data evaluation can determine the magnitude of the data reporting failure and guide site-specific improvements in data management. The issue of data accuracy has also received some attention from Qayad (2009) and Mahmood and Ayub (2010).

The results obtained from the data verification exercises are summarised in table 3. The DQA exercises allowed for crosschecking of data submitted to the national database from the facilities through the State Agencies. It can be observed from table 3 that data for PMTCT had no issues for all the facilities and organisations visited. However, data for ART in some facilities and organisations were either incomplete or discrepant. The data for Orphaned and Vulnerable Children at the Ministry of Women Affairs was not reconcilable at the Cross River State Agency for the Control of AIDS at the time of the exercise.

The reasons attributed to the incomplete or discrepant data were the late submission of data from facilities and the frequent hiring of new staff. The issue of frequent hiring of new staff was prominent because of the high transfer rate of government health workers. It was discovered during the exercise in the three states that the State Agencies for the Control of AIDS were not carrying out supervisory visits to HIV service delivery facilities regularly.

The issues observed during the verification exercise were brought to the attention of the management of the various health facilities and the State AIDS Control Agencies during debriefing meetings. At these meetings, the responsibilities of recommended actions are delegated to focal persons with timelines. This ensures the facilities continue to improve data management and service delivery activities.

4. Conclusion

Internal data verification exercises are important in assessing the quality of data being generated at HIV service delivery facilities. Using the Routine Data Quality Assessment tool and Internal Data Verification Checklists, very useful observations that would add value to HIV programme implementation services were made at the facilities visited. Generally, data management in the facilities and organisations visited was inadequate. The exercise was able to highlight the deficiencies in electronic data management, inadequate record and client information management and human resource gaps. Incomplete or discrepant data were observed for some indicators in four of the facilities visited. It is hoped that issues observed would be addressed by relevant managers with sincerity of purpose in order to make sure that HIV programmes provide accurate and valid data for effective and efficient planning purposes. This paper recommends regular data auditing and supervisory activities for HIV programmes. This would contribute to effective grant utilisation and quality programme outcomes.

References

Adeleke I.T., Adekanye A.O., Onawola K.A., Okuku A.G., Adefemi S.A., Erinle S.A., Shehu A.A., Yahaya O.E., Adebisi A.A., James J.A., Abdulghaney O.O., Ogundiran L.M., Jibril A.D., Atakere M.E., Achinbee M., Abodunrin O.A., Hassan M.W. (2012). Data quality assessment in healthcare: a 365-day chart review of inpatients' health records at a Nigerian tertiary hospital. *Journal of the American Medical Informatics Association* [Epub ahead of print – July 14, 2012].

Kahn M.G., Raebel M.A., Glanz J.M., Riedlinger K., Steiner J.F. (2012). A Pragmatic Framework for Single-site and Multisite Data Quality Assessment in Electronic Health Record-based Clinical Research. *Med Care*. 50 Suppl: S21-9.

Kruse R. L., Mehr D. R. (2008). Data management for prospective research studies using SAS® software. *BMC Medical Research Methodology*. Vol 8:61. http://www.biomedcentral.com/1471-2288/8/61.

Mahmood S., Ayub M. (2010). Accuracy of primary health care statistics reported by community based lady health workers in district Lahore. *Journal of Pakistan Medical Association*. Vol. 60, No. 8, 649 - 53.

Mate K.S., Bennett B., Mphatswe W., Barker P., Rollins N. (2009). Challenges for Routine Health System Data Management in a Large Public Programme to Prevent Mother-to-Child HIV Transmission in South Africa. *PLoS ONE* 4(5): e5483. doi:10.1371/journal.pone.0005483.

MEASURE Evaluation (2008). Routine Data Quality Assessment Tool (RDQA) - Guidelines for Implementation. http://www.cpc.unc.edu/measure/tools/monitoring-evaluation-systems/data-quality-assurance-tools/RDQA%20 Guidelines-Draft%207.30.08.pdf

Orfanidis L., Bamidis P.D., Eaglestone B. (2009). Data Quality Issues in Electronic Health Records: An Adaptation Framework for the Greek Health System. *Health Informatics Journal*. Vol. 15 no. 4 305-319.

Qayad M.G., Zhang H. (2009). Accuracy of public health data linkages. Maternal and Child Health Journal. 13(4):531-8.

Rodriguez-García R., Gaillard M.E., Lissi A.S., Condarco P.M. (2012). Methodology for the Assessment of Data Quality: Application to HIV and AIDS Programs in Latin America. Health, Nutrition and Population. Number 5653. http://elibrary.worldbank.org/content/subject/healthnutritionandpopulation

Table 1: States and Facilities visited for DQA

State	Facilities	Local Government Area	HIV Thematic Focus
Cross River	Dr. Lawrence Henshaw Memorial Hospital	Calabar	ART, HCT
	General Hospital Sankwala, Obanliku	Obanliku	ART, PMTCT
	Our Lady of Fatima Foundation	Akampka	OVC Care and Support
	Ministry of Women Affairs	Calabar	OVC Coordination
	Cross River State Agency for Control of AIDS	Calabar	HIV Coordination
Adamawa	General Hospital Mubi	Mubi	ART, PMTCT
	Yola Specialist Hospital	Yola	ART, PMTCT
	Numan General Hospital	Numan	ART, PMTCT
Ebonyi	Onueke General Hospital	Ezza south	ART, PMTCT
	Presbyterian Joint Hospital	Ohaozara	ART

ART - Antiretroviral Treatment   PMTCT - Prevention of Mother-to-Child Transmission

Table 2: Status of Data Management System in the facilities visited for Data Quality Assessment

State	Facilities	Electronic Data Entry	Staffing	Record Keeping	Client Details	Training	Office Space
Cross River	Dr. Lawrence Henshaw Memorial Hospital	No Computers for data	Adequate	Good	Good	Adequate	Adequate
	General Hospital Sankwala, Obanliku	No Computers for data	Inadequate	Fair	Fair	Inadequate	Inadequate
	Our Lady of Fatima Foundation	No Computers for data	Inadequate	Fair	Fair	Inadequate	Inadequate
	Ministry of Women Affairs	No Computers for data	Inadequate	Poor	Fair	Inadequate	Adequate
	Cross River State Agency for Control of AIDS	No Computers for data	Adequate	Fair	Fair	Inadequate	Adequate
Adamawa	General Hospital Mubi	No Computers for data	Inadequate	Fair	Fair	Inadequate	Inadequate
	Yola Specialist Hospital	No Computers for data	Inadequate	Good	Good	Inadequate	Adequate
	Numan General Hospital	No Computers for data	Inadequate	Fair	Fair	Inadequate	Inadequate
Ebonyi	Onueke General Hospital	No Computers for data	Inadequate	Good	Good	Inadequate	Adequate
	Presbyterian Joint Hospital	No Computers for data	Inadequate	Good	Good	Inadequate	Inadequate

Source: Internal Data Verification Exercise 2009 and 2011

Table 3: Quality of Data in the Facilities Visited

	Availability				Consistency				Validity			
Facilities	ART	HCT	PMTCT	OVC	ART	HCT	PMTCT	OVC	ART	HCT	PMTCT	OVC
Dr. Lawrence Henshaw Memorial Hospital	NIL	NIL			X	NIL			NIL	NIL		
General Hospital Sankwala, Obanliku	NIL	NIL	NIL		NIL	NIL	NIL		NIL	NIL	NIL	
Our Lady of Fatima Foundation				NIL				NIL				NIL
Ministry of Women Affairs				NIL				NIL				NIL
Cross River State Agency for Control of AIDS	X	NIL	NIL	X	NIL	NIL	NIL	X	NIL	NIL	NIL	X
General Hospital Mubi	NIL		NIL		NIL		NIL		NIL		NIL	
Yola Specialist Hospital	X		NIL		X		NIL		X		NIL	
Numan General Hospital	NIL		NIL		NIL		NIL		NIL		NIL	
Onueke General Hospital	NIL		NIL		NIL		NIL		NIL		NIL	
Presbyterian Joint Hospital	NIL				NIL				X			

NIL – No Issues   X – Incomplete or Discrepant

Source: Internal Data Verification Exercise 2009 and 2011