Audit Report

Global Fund Grants in the Republic of Mali

The Global Fund

Office of the Inspector General

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Audit Report

OIG audits look at systems and processes, both at the Global Fund and in country, to identify the risks that could compromise the organization's mission to end the three epidemics. The OIG generally audits three main areas: risk management, governance and oversight. Overall, the objective of the audit is to improve the effectiveness of the Global Fund to ensure that it has the greatest impact using the funds with which it is entrusted.

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1. Executive Summary

1.1. Opinion

Mali has made significant progress in the fight against the three diseases despite a challenging operating environment. The supply chain is able to distribute medicines, but significant efforts are needed to automate inventory management to reduce expiries, stock-outs and delays as well as to ensure consistency of data. Hence, this area is rated as **partially effective** by the OIG.

The quality of program data and services has also improved. However, gaps remain with material data inconsistencies noted across various levels of data collection and reporting; non-adherence to treatment guidelines; and delays or non-provision of testing or treatment. Although most of these gaps have been identified by related assurance mechanisms, the current processes to follow up and address them are considered only **partially effective**.

Following the identification of extensive financial irregularities in 2010 (See section 3.2), the Secretariat put in place significant measures, including replacing the Principal Recipients and instituting a zero cash policy at the sub-recipient levels. These measures have significantly reduced the financial risks and irregularities in the programs. As a result financial systems and processes are generally functioning **effectively**.

1.2. Key Achievements and Good Practices

Progress in reducing disease burdens. Total Global Fund investments of over US$314.4 million in Mali since 2003 have contributed significantly to a reduction in malaria mortality and the number of people with HIV on antiretroviral treatment. Malaria deaths decreased from 20 per 100,000 in 2010 to less than 10 per 100,000 in 2015.[1] About 10.5 million mosquito nets were distributed in Mali between 2013 and 2015,[2] with the support of the Global Fund and the US President's Malaria Initiative (PMI). Similarly, antiretroviral treatment coverage of people living with HIV increased from 40% to 58%[3] between 2014 and 2016. The Global Fund finances approximately 36% of malaria needs[4] and about 90% of Mali's HIV program[5].

Improved financial controls through additional measures instituted by the Secretariat. The Principal Recipients put in place for HIV and tuberculosis (TB) grants after the financial irregularities in 2010, have generally effective financial management and procurement processes and controls. This includes advances; bank reconciliations; segregation of duties; automated procurement and payment systems; and approvals on price revisions. They also properly document and archive financial data.

Measures underway to improve supply chain as well as data and service quality on the portfolio. Mali has progressed significantly with the implementation of inventory and logistics management and district health information systems, with support from the Global Fund and other development partners. These systems have already improved the quality and timeliness of information available from health facilities and regions, with some gains in reducing stock-outs, drug expiries, treatment disruptions, and better compliance with treatment guidelines. Supply, distribution and treatment guidelines have been largely embedded and coordination mechanisms have been introduced throughout the health systems, which have contributed to these related gains. Furthermore, sufficient storage capacity, cleanliness and good distribution arrangements generally exist in the supply chain.

The assurance mechanisms have been generally effective in identifying programmatic data and quality of service challenges. For example, HIV data quality audits had reported all or similar issues to those identified by the OIG. Similarly, the sites visited received satisfactory integrated supervision

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[1] World Malaria 2016.
[2] http://apps.who.int/iris/bitstream/10665/252038/1/9789241511711-eng.pdf?ua=1
[3] Acitivity report CSLS (Year 2016)
[4] http://apps.who.int/iris/bitstream/10665/252038/1/9789241511711-eng.pdf?ua=1
[5] Concept note 2015

from national and regional levels. The supervision reports had already identified all the main gaps. An automated health information system, DHIS 2, has recently been rolled out, and program data for both malaria and HIV programs has been migrated to this new system.

1.3. Key Issues and Risks

Further improvements needed in supply chain. National quantification and forecasting for HIV drugs by the relevant implementer coordinating committee should be more systematic with regular meetings including all stakeholders. This is necessary to avoid emergency orders of antiretroviral drugs (as noted in 2017) and to include supplies from partners like UNICEF. Furthermore, quantification and inventory management should include all levels, not just the central warehouses, to avoid the risk of health commodity overstocking or overbudgeting. Delays in the distribution of commodities should be avoided in future to avoid negative programmatic impact as was the case in 2017 when three million mosquito nets were distributed eight months late in the Mopti region. The districts reviewed in the audit have had an average stock-out level of 34% for malaria products since January 2017. Despite a lack of training or staffing support, distribution managers handle inventories, manage financial records for commodities that are sold, and enter data in the logistics information system, with resulting data quality issues. Furthermore, 77% of health products sampled during the audit had material differences between physical quantities and manual registers. Drugs reordering is not fully compliant with distribution guidelines, leading to irregular ordering and distribution, and contributing to supply chain challenges. Also, fire and temperature controls need significant improvement in warehouses at all levels.

The automated inventory and Logistics Management Information System (LMIS) presents a significant opportunity to address many of the issues noted above. While inventory data for most malaria and some HIV commodities is already available in this system, it is not yet being aggregated into national inventory positions and drugs consumption. Nor is it being analyzed for effective decision-making. This could help prevent stock-outs or overstocking such as those noted in 2017. For example, in May 2017, there was a national stock-out of government-financed third-line antiretrovirals for a month as well as over-stocking of other supplies in regional warehouses. At the same time, some facilities in the same region had stock-outs in Q1 2017. There has also been a stock-out since February 2017 of HIV testing reagants at the central warehouse in Bamako, the Pharmacie Populaire du Mali. Similarly, aggregated drugs consumption based on supply chain data can be compared against total patients treated from health systems to identify anomalies, inaccuracies or supply chain leakages. Comparative analyses conducted as part of this audit indicated apparent significant data anomalies.

Effective follow-up and remediation are needed to address known data and service quality weaknesses. Program data and service quality continue to show weaknesses, although automation is progressing and effective assurance mechanisms are now actively identifying the issues. Material data deficiencies were identified throughout the reporting chain, including in primary health care records/ registers, monthly reports from health facilities, and at the national data level. Due to the lack of systematic follow-up, the integrated supportive supervision visits have limited effectiveness in resolving the identified data issues. A lack of quality assurance on data submissions and the absence of a national codification of HIV patients also contribute to data issues.

Testing and treatment gaps also exist in disease programs, including some cases of malaria treatment without proper testing, HIV treatment without CD4 or viral load testing, or failure to provide treatment because testing could not be performed. Stock-outs of essential health commodities and breakdown of testing equipments contribute to these gaps.

1.4. Rating

- **Objective 1. Effectiveness of the supply chain internal control systems and assurance mechanisms to deliver and account for medicines procured under the Global Fund programs.**

The supply chain internal control systems and assurance mechanisms are currently **partially effective**. The roll-out of automated inventory and logistics information systems as well as supply and distribution guidelines have improved the supply chain of drugs. However, recurring stock-outs and data inaccuracies continue to exist, contributing to emergency orders and testing/ treatment disruptions. Useful information generated by the automated systems need to be analysed and used effectively for pre-empting supply chain issues.

- **Objective 2. Effectiveness of the program supervision and other internal controls in providing accurate program data and appropriate services to the patients.**

The assurance and supervision mechanisms have successfully identified the issues of material inconsistences in primary data records/ registers, health facilities/ treatment center reports and national disease statistics. However, due to weak follow-up of supervision findings, there is limited effectiveness in rectifying the identified weaknesses. The lack of national codification of HIV patients adds to the risk of data inaccuracies.

Treatment facilities for both malaria and HIV exist at all levels, while treatment protocols and guidelines have also been developed and are widely disseminated. However, stock-outs of essential drugs or equipment breakdowns have also resulted in instances of non-adherence to treatment protocols, treatment delays or failure to treat. Overall, the controls on program services and data were found to be **partially effective**.

- **Objective 3. Design of financial controls and assurances in identifying and treating financial issues.**

Since the change in grant implementation arrangements and the introduction of additional safeguards after 2010, financial management and procurement processes and controls for both grant recipients were found to be generally **effective**, with limited operational financial issues identified during the audit, or reported through other assurance arrangements.

1.5. Summary of Agreed Management Actions

The Secretariat will work with the national programs and development partners to complete inventory management automation and data migration. The automation benefits will be maximized by embedding standard processes ensuring use of additional data in decision-making. This will include aggregation of inventory positions and drugs consumption, and their triangulation with health data. Efforts will also made to enhance coordination among all stakeholders, and address staffing/ training needs of inventory management staff.

For data and service quality, the Secretariat will work with the national programs to: a) develop and implement tools for more effectively tracking supervision findings and recommendations; b) strengthen data quality assurance and review prior to reporting to next levels; and c) explore national codification of HIV patients.

2. Background and Context

2.1. Overall Context

Mali is a low income country with a population of 17.6 million.[6] About 49% of its population live below the poverty line, making it one of the 25 poorest countries in the world.[7] It is ranked 175th out of the 188 countries in the United Nations Development Program (UNDP) 2016 Human Development Index report.[8] Transparency International's 2016 Corruption Perceptions Index ranks the country 116th out of a total of 176.[9]

Mali is also considered to be at a high risk of failed state according to the non-profit organization Fund for Peace's Fragile State Index. Civil war affects the three northern regions (Tombouctou, Kidal and Gao), constituting approximately 60% of the country's geographical area but comprising less than 10% of its population.[10] In the remaining southern regions, which make up 40% of the country's territory but where 90% of the population lives, the security situation is rated high[11]. In addition, Mali has weak institutional and poor physical infrastructure. All these factors affect health service delivery.

Mali ranked 42nd among the 49 low-income countries that have been prioritized for improvements under the UN Global Strategy for Women's and Children's Health. The country has a low ratio of health care workforce with an average of three health staff per 10,000 people; this low staff capacity affects the health service delivery.[12]

2.2. Differentiation Category for Country Audits: Mali

The Global Fund has classified the countries in which it finances programs into three overall portfolio categories: focused, core and high impact. These categories are primarily defined by size of allocation amount, disease burden and impact on the Global Fund's mission to end the three epidemics. Countries can also be classed into two more categories: Challenging Operating Environments and those falling under the Additional Safeguard Policy. Challenging Operating Environments are countries or regions characterized by weak governance, poor access to health services, and manmade or natural crises. The Additional Safeguard Policy is a set of extra measures that the Global Fund can put in place to strengthen fiscal and oversight controls in a particularly risky environment, generally used in Challenging Operating Environments.

Mali is:

Focused: (Smaller portfolios, lower disease burden, lower mission risk)

X | **Core: (Larger portfolios, higher disease burden, higher risk)**

High Impact: (Very large portfolio, mission critical disease burden)

X | **Challenging Operating Environment**
X | **Additional Safeguard Policy**

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[6] World Bank Country Profile, http://data.worldbank.org/country/Mali
[7] World Bank: http://povertydata.worldbank.org/poverty/country/MLI
[8] http://hdr.undp.org/sites/default/files/2016_human_development_report.pdf.
[9] https://www.transparency.org/news/feature/corruption_perceptions_index_2016.
[10] Figures based on Mali Fourth Genera Census of Population and Housing 2009.
[11] Mali security risk is rated as high as per Bureau of Diplomatic Security, United States Department of State (OSAC) (https://www.osac.gov/Pages/Home.aspx).
[12] http://www.who.int/hrh/workforce_mdgs/en/

2.3. Global Fund Grants in the Country

Since initiating operations in Mali in 2003, the Global Fund has committed over US$262 million and disbursed US$236 million to accelerate the end of the epidemics of AIDS, TB and malaria in the country. There are currently four active grants in the country.

Table 1: Active Global Fund grants to Mali – July 2016

Active grants	Principal Recipient	Disease component	Grant period	Signed amount US$
MLI-H-UNDP	United Nations Development Programme	HIV/AIDS	January 2016-December 2018	46,567,914
MAL-H-Plan	Plan International	HIV/AIDS	January 2016-December 2017	7,522,109
MLI-M-PSI	Population Services International	Malaria	January 2016-December 2018	59,459,425
MLI-T-PLAN	Catholic Relief Services	Tuberculosis	January 2016-December 2017	7,796,999
				121,346,445

These grants also include some health system strengthening activities.

The active grants are managed by three international non-governmental organizations - Population Services International (PSI), Plan International and Catholic Relief Service- and one UN agency– UNDP. The four Principal Recipients currently work with 10 sub-recipients which include the national disease programs under the Ministry of Health, international non-governmental organizations and United Nations Agencies. Six more sub-recipients are budgeted for the malaria grant, although there have been delays in engaging them. Overall, 76% of total grants in Mali are budgeted at the level of Principal Recipients. However, some key non-cash activities of health services provision and storage are implemented at sub-recipient level and through the national programs.

Approximately 51% of Global Fund grants are allocated for the procurement of medicines and health products, 17% to human resources, and 11% to administrative costs. Other cost categories include technical assistance, equipment, trainings, monitoring and evaluation and living support. Mosquito nets and malaria medicines are procured by the headquarters of PSI USA. Most other HIV medicines and health products are procured through UNDP. The Pharmacie Populaire du Mali manages the central storage of medicines and other health products (except mosquito nets, which are managed directly by PSI), with onward distribution through eight regional warehouses and across the country.

2.4. The Three Diseases

HIV and AIDS: Mali has a generalized HIV epidemic but with higher concentration among key populations (pregnant women, men who have sex with men and female sex workers). The country has recently adopted the "test and treat" policy, with the intention of starting treatment for all cases that are tested positive for HIV.

The Global Fund is the largest donor for HIV in Mali, constituting approximately 75% of total HIV funding.[13]

38,000 people currently on antiretroviral therapy[14]

HIV prevalence (adult population): 1.3%[15]

Number of people living with HIV: 110,000[16].

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[13] Mali Concept Note for HIV and TB for 2016-17. Figures based on total funding for years 2015-17.
[14] Progress Update March 2017
[15] UNAIDS: http://www.unaids.org/en/regionscountries/countries/mali (2015)
[16] UNAIDS: http://www.unaids.org/en/regionscountries/countries/mali(2015)

Malaria: The disease is endemic in Mali, with 90% of the population in high transmission zones. There were an estimated 6.1 million – 9.1 million cases and an estimated 16-25,000 deaths in 2015, constituting approx. 4% of global malaria deaths[17].

The Global Fund and PMI are the largest donors for malaria in Mali. The Global Fund contributes 36% of total malaria investments in Mali, while PMI contributes 43%.[18]

Six million insecticide-treated nets distributed in 2015[19]

3.7 millions artemisinin combination based therapy treatment courses delivered in 2015.[20]

TB: Mali's TB burden incidence (annual new cases) is estimated at 10 per 100,000 population, and constitutes 0.1% of the global disease burden. Prevalence is 92 per 100,000 population, with approximately 16,000 total patients in Mali.

The Global Fund and the government fund most TB interventions in the country.

7015 new smear-positive TB cases detected and treated.

Treatment success rate for new and relapse cases : 73%[21]

Treatment coverage :67%

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[17] http://www.who.int/malaria/publications/world-malaria-report-2016/report/en/
[18] http://www.who.int/malaria/publications/world-malaria-report-2016/report/en/
[19] http://apps.who.int/iris/bitstream/10665/252038/1/9789241511711-eng.pdf?ua=1
[20] http://apps.who.int/iris/bitstream/10665/252038/1/9789241511711-eng.pdf?ua=1
[21] htps://extranet.who.int/sree/Reports?op=Replet&name=%2FWHO_HQ_Reports%2FG2%2FPROD%2FEXT%2FTBCountryProfile&ISO2=ML&LAN=EN&outtype=html

3. The Audit at a Glance

3.1. Objectives

The audit sought to provide reasonable assurance on whether grants to the Republic of Mali are adequate and effective in supporting the achievement of impact in the country. The audit particularly focused on:

- the effectiveness of internal controls and assurance mechanisms over the supply chain for medicines procured under the Global Fund programs;
- the adequacy of controls over program data and the effectiveness of the program supervision process; and
- the design of financial controls.

The audit also reviewed and assessed ongoing improvements towards resolving identified issues.

3.2. Scope

The audit covered the period from January 2016 to June 2017. Its scope included grants implemented by two Principal Recipients – PSI USA at both Principal and sub-recipients levels (for malaria), and UNDP at sub-recipients level only (for HIV). For both grants, the audit covered operations up to the final provision of services, including national programs' health facilities, and storage and distribution networks. The OIG visited the two Principal Recipients for malaria and HIV, the sub-recipient for malaria, one out of five sub-recipients for HIV, and a sample of 22 sites across the country; these sites included central and regional warehouses, hospitals and health facilities. The audit covered four regions (Segou, Sikasso, Koulikoro, Bamako), which account for 63% of Mali's population, 71% malaria positive cases tested and 85% of people living with HIV under treatment in 2016.[22] Based on risk assessment and the agreements recognizing the single audit principles for international entities by their internal audit functions, the OIG did not cover procurement by UNDP and PSI. The TB and HIV grants implemented by Catholic Relief Services and Plan International were not covered by the audit due to their lower materiality compared to the other grants. The OIG did not perform detailed expenditure verification for the grants thanks to the strong financial controls identified at the Principal Recipients. These account for 76% of the budgeted grant expenditures. Additional financial controls are also applied at the sub-recipient level through low-cash policies.

3.3. Progress on Previously Identified Issues

An OIG audit of the Mali portfolio started in 2010, however, due to extensive financial irregularities, the audit was canceled and replaced by an investigation. The investigation identified banking fraud, misappropriation of funds, expenditure fraud, procurement irregularities, and a lack of oversight. The issues were largely attributable to weaknesses in the financial management capacities of the Principal Recipients. Subsequently, new recipients were engaged, with the national programs continuing to implement the health services, while functioning as sub-recipients. The Global Fund also instituted mitigation measures such as zero cash policy at the sub recipient level in response to the high fiduciary risks on the portfolio. This has subsequently evolved into low cash use by sub-recipients. Under these arrangements, the Principal Recipients make most of the payments to suppliers. Sub-recipient expenditure is less than US$10 million, which is under 15% of total expenditures from 2013-2016.[23]

> **Previous relevant OIG Investigations**
>
> Investigation of grants in Mali GF-OIG-11-002,
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> Investigation of grants in Mali GF-OIG-14-015

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[22] Mali Fourth Genera Census of Population and Housing 2009.
[23] Based on the available Enhanced Financial Reports for the Malaria and HIV grants for the years 2013-16.

4. Findings

4.1. Supply chain improvements

Improvements have been made to inventory management but more are needed to further reduce expiries, stock-outs, delays, and to ensure data consistency.

Supply chain has consistently been identified as a high risk in the Mali portfolio for both malaria and HIV commodities as well as the assurance and information mechanisms. Local Fund Agent reports in 2015 and 2016 highlighted various supply chain weaknesses, including stock-outs, drug expiries, and quantification gaps. Similar systemic issues were also identified in reports from other development partners and agencies.

There are ongoing efforts to address the systemic gaps and the extent and severity of supply chain issues have been gradually decreasing. However, improvements need to be extended to effectively address the following issues:

Quantification and forecasting

National supply and distribution guidelines (known as SDADME) were developed and finalized as early as 2010. They have been regularly revised and improved to standardize and improve supply chain practices. A coordination committee was set up in 2013, with sub-committees for both the malaria and HIV programs, to improve coordination on quantification and forecasting, inventory monitoring, supervision and logistics management. These committees include all stakeholders (the Principal Recipients, the national disease programs, the national agency responsible for storage of health commodities - the Pharmacie Populaire du Mali, and major donors. The malaria coordination sub-committee meet every quarter, and also perform national quantification.

For HIV, systematic and regular national quantification has not taken place. The sub-committee has not been effectively used to ensure structured coordination between all stakeholders. UNDP has largely taken care of quantification and forecasting, although pharmacists from national institutions[24] have also coordinated with UNDP outside the committee structures. Furthermore, the committee meetings are held on an ad-hoc basis with no defined schedule. As a result, the quantification exercise for 2017 was delayed, resulting in an emergency order of antiretroviral drugs of approximately US$165,000.[25] In November 2015, quantification did not take into account stock on hand available at national and lower levels as well as ongoing orders. This led to over-budgeting of drugs by approximately US$1.9 million. However, the calculations were corrected at the time actual orders were placed therefore avoiding over-stocking. Consequently the related budget was under-absorbed.

Furthermore, although the Global Fund contributes most of the HIV drugs in Mali, commodities funded by other smaller partners were not included in quantification calculations. For example, UNICEF finances approximately 150,000 anti-malaria drugs and 43,000 test kits, as well as some drugs for HIV. However, these were not accounted for when determining future requirements[26].

Distribution and availability of drugs

Besides the related guidance in the national supply and distribution guidelines, malaria programs have monthly/ quarterly distribution and delivery plans, developed by the national programs and shared with the Principal Recipients and the Pharmacie Populaire du Mali. The distribution of HIV commodities are also well-coordinated between national programs and the Pharmacie Populaire du

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24 These include Haut Conseil National de Lutte Contre Le SIDA (HCNLS), Cellule Sectorielle de lutte contre le SIDA (CSLS) et la Direction de la Pharmacie et des medicaments (DPM).
25 UNDP procurement planning documents and email confirmation from the Secretariat.
26 The estimated numbers of drugs provided by UNICEF were discussed in Coordination Committee meeting of August and December 2016, as identified in meeting minutes, but not included in calculations.

Mali. However, some distribution and inventory management issues persist. For example, for malaria, the distribution of approximately three million mosquito nets in the Mopti region was completed in August 2017 although the nets had already arrived in January 2017. The delay was due to multiple factors, including planning for the distribution, avoiding cash payments at sub-recipient level, security challenges and labour strikes. Furthermore, the five sample district drugs depots visited by the audit team have experienced on average 34% of stock-outs for malaria products since January 2017. Stock-outs last on average 20 days. The impact on quality of services is detailed in Finding 4.2. For malaria, UNICEF distributes drugs and test kits directly to health care centers, without going through the Central Drugs Store at the Pharmacie Populaire du Mali or sharing a distribution plan. UNICEF also does not participate in coordination sub-committee meetings. This contributes to the risk of stock-outs or expiries.

For HIV, the OIG audit interviews and document reviews highlighted strong overall technical capacity and understanding of pharmaceuticals management for the staff managing inventories. However, for all five drugs depots tested, distribution managers also handle the financial records of sold commodities as well as the logistics data in LMIS. This is in addition to their routine roles of managing inventory records. Only six out of nineteen drug managers had received training since January 2016. None of the training concerned financial management or using automated LMIS. This contributes towards the inventory data quality issues detailed below.

Inventory storage

The guidelines stipulate detailed requirements for inventory storage. For both malaria and HIV programs, sufficient storage capacity, cleanliness and well-equipped distribution arrangements (including secure vehicles) exist for the main Bamako warehouse and for three of the seven regional warehouses (Sikasso, Segou, Koulikouro) visited. However for HIV, five out of eight facilities visited did not have fire control systems. For HIV, seven out of eleven structures did not have temperature monitoring systems. In cases where tempature was monitored, there were some instances where the upper threshold of temperature was exceeded. For malaria, only one out of the eight drugs depots and health facilities visited had temperature monitoring systems.

Monitoring and reporting

The malaria program has already completed the roll-out of a new automated inventory and logistics management system called OSPSanté. Data for all malaria health products has been monitored through OSPSanté since January 2014. Inventory data for all levels- central, regional, district and health facilities- is reported for 50 out of 56 districts through this new LMIS. For HIV, some health products (antiretroviral drugs, diagnostic tests, CD4 and viral load reagents) have migrated to OSPSanté; Bamako staff were trained in June 2017, while regional trainings are planned for August 2017. OSPSanté is expected to be used for all HIV inventories as well in the future. The new LMIS presents a significant opportunity to use real-time inventory data from all field levels to address historical supply chain challenges.

However, while malaria inventory data is reported, aggregated and analysed at each level, this aggregated data is not used at the national level to ascertain the consolidated inventory position and consumption to inform future decisions. For HIV, essential drugs are now managed through the new system but OSPSanté has not yet started reporting. As a result, no consumption data is available so far for HIV products in Mali. The excel HIV ordering tool captures inventory data of all health commodities but this information is not yet consolidated into a national inventory position and analysed for decision-making.

Limited use of available data has led to missed opportunities; for example, antiretroviral inventory monitoring has been limited to weekly analysis of the Pharmacie Populaire du Mali central stocks. Thus, despite having data available from regional and care centers, it was not actively analyzed to preempt national stock-out of a third line drug for one month in May 2017. Similarly, in January 2017, the Segou warehouse had significant drugs inventories, while some facilities in the Segou

region faced stock-outs of pediatric drugs in Q1 2017. For malaria, total national consumption and inventory data reported by OSPSanté are not reconciled with patient data reported by the health information system (more details in Finding 4.2). Analytical tests during the audit identified apparent data anomalies; for example for malaria there were 1.3 million treated cases versus 2.7 million treatment courses consumed; similarly there were 3.4 million cases reported as tested through test kits versus 2.7 million test kits consumed. Such data comparisons are not straightforward, and need adjustments for multiple complexities. The audit team was not able to draw firm conclusions due to data unavailability.[27] However, such triangulation can be helpful in ensuring that the data reported is accurate, and optimizing the analytical value of new automated systems now beginning to be available in Mali.

Similarly, no HIV commodities except antiretrovirals are monitored through the procurement plan review process, which has also had consequences. For example, Facscount (CD4) reagent has been out of stock since February 2017 at the central warehouse. Consequently, Hôpital du Point G (the main Bamako hospital) has been unable to perform any CD4 tests since April 2017.

The malaria data reported in OSPSanté also has accuracy issues. For six products tested across five distribution depots, 77% had material differences between the manual registers and the OSPSanté reported data for inventories from February to April 2017. As highlighted earlier, multiple tasks for distribution managers, responsible for data entry, has contributed to these inaccuracies, with improvements likely once the trainings to all field levels are provided.

With the aim of addressing the supply chain issues in a holistic and comprehensive fashion, an in-country supply chain diagnostic will be conducted in early 2018 and a transformative project to improve the supply chain in Mali will be developed with the partners.

Agreed Management Action 1

The Secretariat will work with the national programs and development partners to ensure that:

- inventory data for key, selected HIV and malaria drugs is migrated to the new information system, OSPSanté;
- reports generated by OSPSanté on drug consumption, inventory levels and reconciliations with patients on treatment are provided to the HIV and malaria quantification committees, Principal Recipients and the HIV monitoring and evaluation technical working groups at national and regional levels.

Owner: Head, Grant Management Division

Due date: 31 January 2019

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[27] For example, there have been unknown number of cases of non-adherence to standard regimens (e.g. use of 1 adult dose for 4 babies). Further, OSPSante currently does not cover 3 northern regions while HMIS does.

4.2. Programmatic Data and Service Quality Improvements

Weaknesses in programmatic data and quality of services identified through assurance mechanisms, but need effective follow-up and remediation.

The Secretariat assurance mechanisms have been generally effective in identifying issues in programmatic data and quality of services in Mali. The data quality audit report for HIV has identified and reported data quality issues, including partial or non-completion of primary data records (patient records and prescriptions), inadequate archiving and filing of records, and variances in data recorded and reported at health facilities, regions and national levels.[28] The sites visited demonstrated a satisfactory quality of integrated supervision conducted from national and regional levels, including the identification of all the main gaps in their supervision reports. However, the gaps were not effectively followed up with actions.

Data Quality

For both the malaria and HIV programs, effective coordination arrangements were observed through quarterly data validation meetings at regional and district level for three regions visited. Program data for both the malaria and HIV programs has been transferred to the new system DHIS 2.

However, the auditors identified deficiencies in primary care records/ registers at health care facilities (CSCOMs), treatment centers and hospitals. For instance, in two of four CSCOMs visited, Rapid Diagnosis Test results had not been reported. Similarly for HIV, some primary records (registers or patient files) were missing in three out of eight hospitals visited.

More than 10% of inconsistencies were also found by the OIG between primary records/ registers and the monthly report sent by one health facility for HIV, and two out of four facilities visited for malaria.

Inconsistencies were also noted between the health facility reports and the final national data compiled for HIV, for three out of 11 facilities' reports tested.These were due to limited assurance mechanisms and oversight, including:

- *Supervision follow-up weaknesses*- Both malaria and HIV programs have integrated supervision visits from the national and regional offices, with participation from skilled malaria or HIV focal points. Supervision record books also existed for all six health facilities and five regional offices visited. Supervision mission recommendations were also recorded in the supervision books maintained at the care centers and regional offices. However, in all six health facilities tested, there was no evidence of a follow-up on progress against those recommendations by the health facilities or subsequent supervision missions. In many cases, supervision mission findings included similar issues as those identified in the audit ;
- *Lack of quality assurance before data submission*- Another contributing factor for these issues is that data from each level is generally submitted from health facilities to regional and national levels without a prior quality assurance or review ;
- *Absence of national codification*- a national codification of patients has not yet been introduced in Mali, which increases the risk of duplication or other inaccuracies in the number of patients and data errors.

Quality of Services

Malaria treatment is overall easily accessible in Mali, up to villages through community health workers, CSCOMS and district care centers (Csrefs). Staff from CSCOMs and CsRefs were found to be trained, and treatment algorithms and malaria care guidelines were available, in all four CSCOMs and eight Csrefs visited. Further, PSI national and regional staff were well integrated into the

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[28] Rapport de la mission de validation des donne**é**s des patients PVVIH sous traitement ARV a Bamako.

national and regional malaria programs respectively. Similarly, for HIV, care centers are also well-organized, with generally sufficient and qualified staffing, and effective development and dissemination of new treatment guidelines.

Both programs had programmatic focal points appointed up to regional and district levels, overseeing program quality. In both cases, the national programs were well-aligned with country-level disease strategies.

However, the auditors found testing and treatment gaps for both the malaria and HIV programs. For example, in the health facility in Waferma region, 161 cases were treated with artemisinin combination therapy without Rapid Diagnosis Tests or microscopy from February-March 2017. In a health facility in Kolebougou region, on the other hand, patients with fever were not tested or treated in February 2017.

For HIV, patients from a main hospital which covers 5% of national treatment, and other care centers outside Bamako, could not carry out the CD4 and viral load tests required by the treatment protocol. Furthermore, except for care centers for one main sub-recipient,[29] weaknesses were found in the patient referral system. For example, patients were found to have been referred to the main hospitals, particularly in complicated and emergency cases, with a simple referral letter which did not include relevant and comprehensive patient history. This increases the risk of patients lost to follow up and delays their treatments.

The main reasons for these weaknesses were as follows:

- *Regular breakdown of testing equipment that should be maintained by the national authorities.* For example, CD4 testing equipment was found to be non-operational at a main hospital accounting for 5% of national testing, since May 2017.[30]
- *Stock-out of essential health commodities.* For example, CD4 reagents were not available for 32 days and SD-Bioline for 26 days at Bamako (managing 55% of active cases of the capital) in Q4 2016. Similarly, 34% average stock-outs of malaria tests were found (as detailed in Finding 4.1) which contributed to the cases of malaria treatment without testing mentioned above.
- *Supervision follow-up weaknesses.* These gaps detailed above also compromised service quality. Many of the issues such as stock-outs, equipment breakdown etc. were identified by the monitoring and supervision teams, but not reported and corrected.

Agreed Management Action 2

The Secretariat will work with the Principal Recipients and National TB, HIV and Malaria programs to:

- Develop M&E plans for the TB, HIV, malaria programs that describe clearly:
  - the data quality assurance processes to be conducted prior to data reporting to next levels, taking into account the new DHIS-2 system;
  - the monitoring system that allows for prompt corrective action when data quality issues are identified, including assignment of accountability for such actions;
  - the tools for tracking progress against findings and recommendations from supervision/monitoring missions.

- Develop an operational plan to improve the availability and use of HIV and TB laboratory equipment and supplies, which addresses distribution and inventory management of supplies (with a rapid alert system), maintenance procedures, recording and reporting of results.

Owner: Head, Grant Management Division
Due date: 31 January 2019

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[29] USAC centers for SR ARCAD. Please indicate full forms, and how many care centers out of total HIV care centers are with SR ARCAD.
[30] Centre Hospitalier Universitaire HU Point G.

5. Table of Agreed Actions

Agreed Management Action (to be agreed with the Secretariat)	Target date	Owner
The Secretariat will work with the national programs and development partners to ensure that: • Inventory data for key, selected HIV and malaria drugs is migrated to the new information system, OSPSanté; • Reports generated by OSPSanté on drug consumption, inventory levels and reconciliations with patients on treatment are provided to the HIV and malaria Quantification Committees, Principal Recipients and the HIV Monitoring and Evaluation Technical working groups at national and regional levels; • With the aim to address the supply chain issues in a holistic and comprehensive fashion, an in-country supply chain diagnostic will be conducted in early 2018 and a transformative project to improve supply chain in Mali is developed with partners.	Head, Grant Management Division	31 January 2019
The Secretariat will work with the national programs to: • Develop and embed tools for tracking progress against findings and recommendations from monitoring and supervision missions and other assurance providers, and linking with accountability and performance appraisal of pertinent staff; • Implement data quality assurance processes prior to data reporting to next levels; • Introduce national codification of HIV patients; • Develop and implement fast and effective mechanisms for reporting data, inventory and equipment issues to national and other levels for timely decision-making.	Head, Grant Management Division	31 January 2019

Annex A: General Audit Rating Classification

Effective	**No issues or few minor issues noted**. Internal controls, governance and risk management processes are adequately designed, consistently well implemented, and effective to provide reasonable assurance that the objectives will be met.
Partially Effective	**Moderate issues noted**. Internal controls, governance and risk management practices are adequately designed, generally well implemented, but one or a limited number of issues were identified that may present a moderate risk to the achievement of the objectives.
Needs significant improvement	**One or few significant issues noted**. Internal controls, governance and risk management practices have some weaknesses in design or operating effectiveness such that, until they are addressed, there is not yet reasonable assurance that the objectives are likely to be met.
Ineffective	**Multiple significant and/or (a) material issue(s) noted.** Internal controls, governance and risk management processes are not adequately designed and/or are not generally effective. The nature of these issues is such that the achievement of objectives is seriously compromised**.**

Annex B: Methodology

The OIG audits in accordance with the global Institute of Internal Auditors' (IIA) definition of internal auditing, international standards for the professional practice of internal auditing (Standards) and code of ethics. These standards help ensure the quality and professionalism of the OIG's work.

The principles and details of the OIG's audit approach are described in its Charter, Audit Manual, Code of Conduct and specific terms of reference for each engagement. These documents help our auditors to provide high quality professional work, and to operate efficiently and effectively. They also help safeguard the independence of the OIG's auditors and the integrity of their work. The OIG's Audit Manual contains detailed instructions for carrying out its audits, in line with the appropriate standards and expected quality.

The scope of OIG audits may be specific or broad, depending on the context, and covers risk management, governance and internal controls. Audits test and evaluate supervisory and control systems to determine whether risk is managed appropriately. Detailed testing takes place at the Global Fund as well as in country, and is used to provide specific assessments of the different areas of the organization's activities. Other sources of evidence, such as the work of other auditors/assurance providers, are also used to support the conclusions.

OIG audits typically involve an examination of programs, operations, management systems and procedures of bodies and institutions that manage Global Fund funds, to assess whether they are achieving economy, efficiency and effectiveness in the use of those resources. They may include a review of inputs (financial, human, material, organizational or regulatory means needed for the implementation of the program), outputs (deliverables of the program), results (immediate effects of the program on beneficiaries) and impacts (long-term changes in society that are attributable to Global Fund support).

Audits cover a wide range of topics with a particular focus on issues related to the impact of Global Fund investments, procurement and supply chain management, change management, and key financial and fiduciary controls.