

31 MARCH 2021

Prospective Country Evaluation

Senegal

Annual Report 2020-2021

Commissioned by the Technical Evaluation Reference Group (TERG) of the Global Fund



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Acronyms and abbreviations

ANCS	Alliance Nationale des Communautés pour la Santé
APAPS	Agence pour la promotion des Activités de Population-Sénégal
AWA	African Women Against
CAR	<i>Collecte, Acheminement et Rendu des résultats</i>
CCM	Country Coordinating Mechanism
CEPIAD	Centre de prise en charge intégrée des addictions à Dakar
CLNS	Conseil National de Lutte contre le SIDA
CRS	Catholic Relief Service
CSOF	Comité de suivi des opérations financières
CTA	Centre de Traitement Ambulatoire
DAGE	Direction de l'Administration Générale et de l'Équipement
DCMP	Direction Centrale des Marchés Publics
DGS	Direction Générale de la Santé
DL	Direction des Laboratoires
DLM	Disease Control Directorate (<i>Direction de lutte contre la maladie</i>)
DLSI	Division de la Lutte contre le SIDA et les Maladies Infectieuses
DPRS	Directorate of Planning, Research and Statistics (<i>Direction de la Planification, de la Recherche et des Statistiques</i>)
DSIS	Division des Statistiques et de l'Information Sanitaire
HRG-Equity	Human rights, gender, and equity
IHME	Institute for Health Metrics and Evaluation
ISED	Institut de Santé et Développement
KII	Key informant interviews
KP	Key populations
LBV	Laboratoire de bactériologie et de virologie
LIS	Laboratory information system
LNR	national reference laboratory
MSAS	Ministère de la Santé et des Affaires Sociales
MSM	Men who have sex with men
NFM2	New Funding Model 2 (Global Fund 2017-2019 allocation cycle)
NFM3	New Funding Model 3 (Global Fund 2020-2022 allocation cycle)
NSP	National Strategic Plan
OCASS	Observatoire Communautaire d'Accès aux Services de Santé
PAAR	Prioritized Above Allocation Request
PALT	TB Acceleration Plan
PCE	Prospective Country Evaluation
PLHIV	People living with HIV
PNA	<i>Pharmacie nationale d'approvisionnement</i>
PNLP	Programme National de Lutte contre le Paludisme
PNT	Programme National de lutte contre la Tuberculose
POC	Point-of-care diagnostics
PR	Principal Recipient
PU/DR	Progress update/disbursement requests
PWID	People who inject drugs
RCA	Root Cause Analysis

RDT	Rapid diagnostic tests
RSS	<i>Renforcement du Système de Santé</i>
RSSH	Resilient and sustainable systems for health
SR	Sub-recipient
TERG	Technical Evaluation Reference Group

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Executive Summary

The Prospective Country Evaluation (PCE) is an independent evaluation of the Global Fund commissioned by the Global Fund's Technical Evaluation Reference Group (TERG). The goal of the PCE is to help identify barriers and facilitators to the implementation of Global Fund grants model in order to generate timely evidence that will inform global, regional and national stakeholders and accelerate progress towards meeting the Global Fund Strategic Objectives. During the 2020 evaluation phase, the evaluation approach was informed by the TERG's interest in understanding how the Global Fund grant cycle has facilitated or hindered the achievement of grant objectives during implementation within the 2018-2020 grant cycle, including around RSSH, sustainability and equity, and whether lessons learned during the current grant have informed the next funding cycle.

In 2020, the PCE in Senegal conducted a grant cycle analysis focusing on two investments areas intended to further advance Global Fund strategic objectives of equity, sustainability and resilient and sustainable health systems (RSSH): the *Health Information System (DHIS2)* and the *diagnostic capacity* of the three diseases (TB, malaria and HIV/AIDS). These focus topics were used as a lens through which to evaluate the grant cycle and to better understand how the Global Fund business model plays out in-country. A mixed methods approach was applied using data triangulation across interviews, budget variance analysis along the grant cycle, analysis of health system investments as strengthening vs. supportive, document review, and meeting observations. We examined how and why grants were modified along the grant cycle, successes and bottlenecks to implementation, and results achievement against grant performance targets. Five major findings emerged from the grant cycle analysis.

Key message 1: During grant making, the overall country allocation for TB remained the same but there were numerous shifts within budget modules and interventions, which resulted in a 34% decline in TB/RSSH funding for diagnostic capacity and a 42% higher budget for HMIS/M&E.

While some intervention budgets increased, others decreased as a result of negotiations between the PR and Global Fund during grant making. Despite concerns and recommendations raised by the TRP, changes in funds for laboratory systems were not made during grant making because TRP recommendations included actions to be resolved during grant implementation. In comparison, the TB/RSSH budget for the HMIS/M&E module increased 42% between the funding request submission and approved grant making budget

Key message 2: During NFM2 implementation, there was poor integration and coordination of diagnostic strategies and systems between disease programs, which undermined efforts to strengthen diagnostic capacity and value for money.

For diagnostic capacity, national programs face difficulties related to the availability of human resources, diagnostic equipment, and laboratory reagents. Global Fund investments in multi-disease testing systems such as the GeneXpert has the potential of optimizing limited human and financial resources at health facilities while increasing access to rapid testing. However, diagnostic strategies have continued to operate vertically during NFM2 in spite of efforts to facilitate coordination between programs and support the development of an integrated laboratory strategy. This has led to challenges such as inequitable distribution of GeneXpert, frequent stock outs, non-optimal use of the sample transportation system, and lower testing coverage for key and vulnerable populations.

Key message 3: Complex grant implementation arrangements and poorly functioning coordination mechanisms for RSSH resulted in the non-implementation of many cross-cutting RSSH activities.

Overall, the financial performance or absorption of RSSH investments tended to be lower than absorption for the overall grant, especially for the earlier semesters (S1-2) partially explained by challenges related to coordination of RSSH cross-cutting activities, transition of programmatic PRs (PNT) to a more centralized entity (DGS/DAGE), and use of RSSH platform.

Key message 4: Non-optimal use of DHIS2 during NFM2 put sustainability of the platform at risk. Several technical, financial and political barriers have prevented uptake of the platform across disease programs and at multiple levels of the health system (particularly at the community-level).

Consistent use and improved reporting of DHIS2 data, supplemented by surveys estimating the size of key populations, would enable better identification of vulnerable populations, informed prioritization, and target setting for equity. Since implementing DHIS2 in Senegal in 2014, both the Malaria and TB programs have transitioned to the platform (in January 2020 and late 2020/early 2021 respectively). However, the sustainability of DHIS2 is compromised by the existence of parallel information systems, especially as it relates to reporting for the HIV program due to sensitive data collection occurring at the community level. Also DHIS2 presents technical challenges as users - often health care workers - struggle to extract relevant indicators once data is imputed into the system. Limited investments in DHIS2 in NFM2 could not address the broader issues to optimize use of DHIS2 and transition it to the national data platform.

Key message 5: Unresolved issues during NFM2 regarding diagnostic capacity, DHIS2, and RSSH implementation arrangements, risk undermining the efforts of the PRs to change the trajectory of Global Fund investments.

The PCE assessed evidence of 'change of trajectory' for diagnostic capacity and DHIS2 in terms of: 1. changes in allocation levels and intervention scale/scope; 2. application of NFM2 lessons learned in the design of NFM3 strategies; and 3. changes in focus on equity, RSSH and sustainability compared to previous grants. For diagnostic capacity, there appeared to be a change in trajectory as NFM3 efforts have focused on fostering country ownership by supporting the coordination of laboratory activities across programs under the DL and conducting an assessment of Human Resources for Health to meet staffing gaps. Similarly, investments in DHIS2 are intended to change the trajectory as the funding is much larger and dedicated to harmonizing all program reporting on the national platform. However, country ownership around coordination and programmatic integration are required to optimize the use of diagnostic and health information resources.

Recommendations

Diagnostic Capacity: Point-Of-Care technologies, such as the GeneXpert, can improve accessibility to timely diagnosis of TB, HIV, HPV, and most recently COVID-19. However, poor coordination has led to inequitable distribution and under-utilization of GeneXpert. Coordination related to sample transportation, equipment maintenance and quality assurance, and cross-training technicians can help build a resilient diagnostic capacity. Recommendations include:

- Harmonization in the procedures for acquiring and deploying GeneXpert machines that is focused on systems and not programs (Government of Senegal)
- Continue to support the transition of the management of the GeneXpert network from the TB program to the Directorate of the Laboratories (Government of Senegal, the Global Fund)
- Structure Global Fund budgets to account for delays in when government co-financing resources are made available (the Global Fund)
- Develop an approach for health facilities and laboratories to pool resources between disease programs (Government of Senegal)

DHIS2: Since 2014, health facilities in Senegal have used the DHIS2 platform to collect health information with support from the Global Fund for its nationwide rollout. Acceptability of DHIS2 as a national platform has improved over time, but challenges with accessing data for disease-making and reporting from DHIS2 puts the sustainability at risk. NFM3 investments for data reviews and increased capacity to collect community-level data has helped address lessons learned during NFM2. Recommendations include:

- Continue to support efforts around interoperability, in partnership with PNA and AIRIS (DLSI, the Global Fund)
- Improve the accessibility of DHIS2 as well as connectivity at the community levels (DLSI)
- Train staff to assess and improve DHIS2 data quality (DLSI)
- Work with programs to exclusively enter data into DHIS2 and identify reasons for non-use (DLSI)
- Promote DHIS2 as the national reference tool for tracking national indicators (Government of Senegal, DLSI)

RSSH and country ownership: In NFM2, MSAS continued to centralize the coordination of Global Fund investments by establishing the DGS as the PR for the TB/RSSH grant, which was expanded to include the malaria grant in NFM3. However, in the absence of a clear set of activities and disease program (HIV and malaria) buy-in, the DGS could not use RSSH platform to coordinate cross-cutting RSSH investments during NFM2. Furthermore, delays in procurement led the Global Fund to campaign for the use of GDF and Wambo. PNA's low purchasing and inventory management capabilities threaten the country's ability to strengthen their national systems. Recommendations include:

- Continue to centralize RSSH funds and ensure disbursement during the grant period (the Global Fund)
- Ensure that the RSSH entity in MSAS works beyond program goals to strengthen the system (the Global Fund, MSAS)
- Strengthen staffing related to health systems strengthening and RSSH (MSAS)
- Empower the CCM to work with programs to boost their commitment and involvement under the leadership of DGS (MSAS)
- Establish RSSH indicators to encourage accountability (the Global Fund, MSAS)
- Revitalize the RSSH platform by implementing more specific action plans proposed in NFM3 (MSAS)
- Strengthen the PNA to enable the entire health system benefiting from a safe, regular, and good quality supply. (the Global Fund, Government of Senegal)

NFM3 funding request and grant making process: The funding request and grant making processes were transparent, inclusive and was driven by country priorities. Major challenges involved changes in required documentation and selection of PRs during grant making. Recommendations include:

- Avoid template changes during the different submission phases (the Global Fund)
- Improve communication and transparency with stakeholders participating in funding request development regarding the PR selection process and role during the funding request development. (the Global Fund)
- Explain major changes and strategic shifts (such as grant implementation arrangements) to country stakeholders well in advance of grant making to avoid misunderstandings. (the Global Fund)
- Give SRs more legitimacy, including a seat at the table during grant negotiations when budgetary decisions are made. (the Global Fund)

1. Introduction

The Prospective Country Evaluation (PCE) is an independent evaluation of the Global Fund commissioned by the Global Fund's Technical Evaluation Reference Group (TERG) in eight countries, including Senegal. The PCE aims to evaluate the Global Fund business model, investments and impact to generate timely evidence to inform global, regional and national stakeholders and to accelerate progress towards meeting the Global Fund Strategic Objectives.⁽¹⁾ The Institute for Health Metrics and Evaluation (IHME) and PATH oversee the PCE in partnership with the Institut du Santé et Développement (ISED) and PATH Senegal Country Office conducting the country-level data collection and analysis. With guidance from the TERG, the 2020 evaluation focused on how the Global Fund grant cycle has facilitated or hindered the achievement of grant objectives during implementation within the 2018-2020 grant cycle, and if lessons learned from the current grant have been applied to the next funding cycle.

Grant cycle approach for PCE 2020

The objective of the grant cycle analysis was to understand what, when, why and how grant investments change over time, including significant factors that influenced the implementation of and changes to the original grant. Specifically, the evaluation aimed to evaluate:

- How and why the 2018-2020 grants have been modified along the grant cycle (during grant making, implementation, and grant revision);
- How the Global Fund business model facilitates or hinders modifications along the grant cycle;
- Whether and how grants are contributing to achieving progress towards (or away from) equity, sustainability and/or health systems strengthening objectives.

In addition, the 2020 funding request and grant making process for the Global Fund New Funding Model 3 (NFM3) was assessed on five themes: (1) Differentiation: tailored review and program continuation vs full review application; (2) Transparency, inclusion, and country ownership; (3) Moving beyond 'business as usual' to change in trajectory for achieving impact; (4) Data use and target setting; and (5) Value for money (VfM). The Grant Cycle framework (Figure 1) provided by the Global Fund TERG was used as the primary evaluation framework for organizing PCE work in 2020. The Global Fund grant cycle begins with the funding request development leading to grant making and signing. This process takes approximately eight to nine months and is followed by a three-year implementation period during which funds are disbursed, activities are implemented, grants are modified through revision processes, and progress is monitored. During the third year of implementation, the next funding request development and grant making process begins for the upcoming grants and these should be informed by lessons learned from the current grants.

Focus topic rationale, intersection with Strategic Objectives

To understand how the grant cycle framework plays out in-country and ensure a deeper understanding of the changes that are made, the PCE identified two focus topics that were applied as a lens through which to evaluate the cycle: *diagnostic capacity* and *District Health Information System 2 (DHIS2)*. Within the topics, the PCE assessed how equity, sustainability and RSSH are addressed throughout the grant cycle; the focus topics were chosen because of their linkages to these strategic themes, among other reasons.

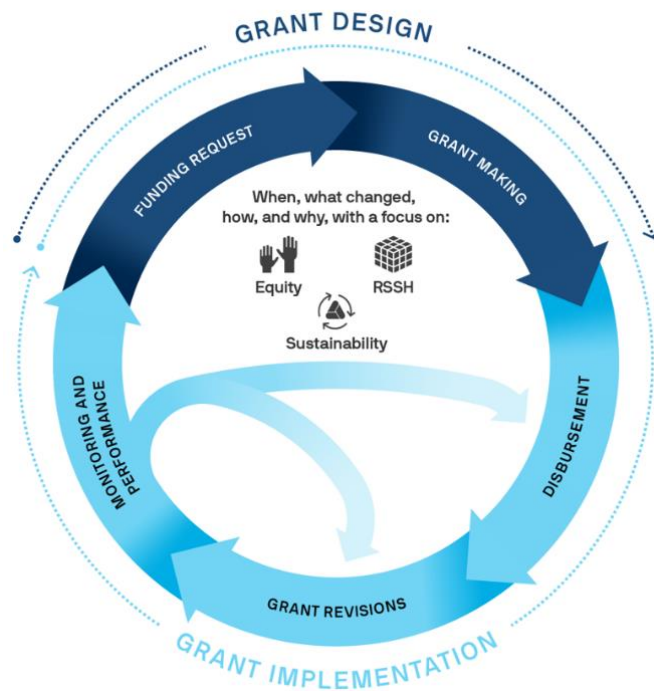
Topic 1: Diagnostic capacity

The ability to make progress toward disease control and elimination relies heavily on diagnostic capacity and the necessary systems and infrastructure to support diagnosis, surveillance and detection of drug resistance. Global Fund investments in diagnostic capacity, including laboratory systems, pertain to each disease area and the health system more broadly. Adequate laboratory services are critical for ensuring people living with HIV (PLHIV) know their status and for ensuring that those on treatment are virally suppressed. Similarly, TB treatment success and malaria elimination also require diagnostic and laboratory services that are capable of producing reliable results in a timely manner. In Senegal, the national strategic plans (NSPs) for each of the three diseases reveal challenges related to the availability of diagnostic equipment for HIV and TB. Improving the coverage rate of diagnostic equipment, such as the GeneXpert for TB, Hepatitis, and now COVID-19, is one of the key NFM2 priorities to help improve the low screening rates. In addition, GeneXpert machines are being used for viral load testing by the national HIV program (CNLS) in collaboration with other partners. The introduction of multi-disease testing systems such as GeneXpert brings opportunities for collaboration and integration, which can lead to significant system efficiencies and cost-savings, increase access and reduce inequities, and ultimately improve quality of care.

Topic 2: DHIS2

Since 2014, health facilities in Senegal have used the DHIS2 platform to collect health information with support from Global Fund for its nationwide rollout. In NFM2, the Global Fund invested over €5.5 million, or 8% of all funds, in the Health management information system and monitoring and evaluation budget module (HMIS/M&E).¹ Despite improved completeness and promptness of the data in DHIS2, accuracy issues limit wider use of the data. Although there has been an increasing commitment at the highest level of the MoH, optimal use of DHIS2 remains challenging as donor requirements for prompt, accurate and quality data drives disease programs to use parallel systems to compensate for delays in reporting through DHIS2. In 2020 only the malaria program transitioned

Figure 1. The Global Fund Grant Cycle Framework



¹ This module includes investments which are (1) cross-cutting and intended to strengthen the national health information system and (2) disease-specific DHIS2 investments for the national programs. We are limited in presenting absorption data at the intervention-level but a breakdown by these categories based on the activities related to DHIS2 is presented in Chapter 3 (Figure 4) and Chapter 5 (Figure 17).

entirely to DHIS2, while other programs continue to use parallel information systems that are inefficient and put the sustainability of DHIS2 at risk.

2. Methods

The PCE employed a mixed methods approach to assess how Global Fund business model factors influence performance of grants throughout the different stages of the grant cycle. Relying upon analyses using both quantitative and qualitative data, the PCE assessed changes in planned resources and activities throughout the grant making process, revisions and performance during grant implementation, and changes to the next grant window. Triangulation of data across multiple sources and analytic approaches was used to ensure robustness of findings, and interpretation of findings was commonly based on more than one analysis.

Primary data were collected through document review, meeting observations and key informant interviews (KIIs) to explore issues in-depth, as well as fact-checking interviews to fill information gaps and validate preliminary findings. KIIs elicited stakeholder perspectives and allowed the PCE to better understand grant cycle processes, including barriers and facilitators. Interviews also supported data triangulation, interpretation and validation of results generated through quantitative analyses and document review. Interview transcripts and meeting notes were coded according to key themes using an online qualitative data analysis software (Nvivo).

The COVID 19 Pandemic required some adjustments to the how data was collected for the PCE. The team was no longer able to conduct in-person interviews and so quickly shifted to conducting KIIs on virtual platforms. This also meant that the PCE team had greater access than previous years to country dialogue meetings (funding request process and grant making) that were held virtually. Thus, the PCE established in-country evaluation platform that allowed evaluation activities to continue despite travel restrictions and other disruptions due to COVID-19.

Table 1. Process evaluation data sources

Process	No	Description of data sources
Document Review	81	<ul style="list-style-type: none"> • Grant agreements, supporting documents • Letters from the Global Fund Secretariat to PRs • Letter confirming grants • National Strategic Plans • PU/DR 2018, 2019
Key informant Interviews	25	<ul style="list-style-type: none"> • TB PR (MSAS, DGS/DAGE), TB SRs (PNT, Plan International, RAF), HIV PR (CNLS, ANCS), HIV SRs (DLSI), Malaria PR (PNLP), PNA, CCM, DSIS, PMI, Global Fund Country Team
Fact checking/validation	7	
Meeting Observations	93	<ul style="list-style-type: none"> • Weekly TB/RSSH coordination meetings • CCM meetings • PRs meetings and Technical Working Groups

The PCE obtained detailed budgets for all active and planned grants from the Global Fund Secretariat for all funding requests, approved grants, awarded for grant making, and official revisions (with corresponding Implementation Letters). In addition to detailed budgets, LFA-verified progress update/disbursement requests (PU/DRs) were obtained for each grant up to the most recently available as of November 24, 2020. Country-level DHIS2 and programmatic data for HIV, TB and Malaria were used for key analyses.

Resource tracking analyses

The PCE conducted detailed financial analyses of Global Fund budgets throughout the grant cycle for active NFM2 grants as well as available budgets from NFM3 funding requests. All budgets were analyzed through the grant cycle by recipient, disease, module, intervention and focus topics. Observed changes in financial resources and prioritization between activities were triangulated using qualitative data collected during KIIs, document review, and additional interviews. To identify modules, interventions and activities that supported the focus topics of DHIS2 and Diagnostic Capacity, a keyword search was conducted. Using a series of relevant keywords, a systematic process was developed to search descriptions of modules, interventions and activities within detailed budgets to identify any funds that are related to the focus topics. Additional qualitative information collected by the PCE informed the final list of activities and interventions that were identified as related to the focus topics (appendix 4).

Using the Global Fund's modular framework, the PCE tracked resources for RSSH and human rights, gender, and equity (HRG-Equity) related activities. HRG-Equity modules and interventions were identified using Global Funds' disease-specific technical briefs on gender, human rights, and key populations; gender technical briefs; and validated based on conversations with the Global Fund Secretariat and Community, Rights and Gender team.(2–4) A complete table of modules and interventions included in the PCE analysis of HRG-Equity is Available on request.

An analysis of financial absorption (expenditure as a percentage of budget) within and across grants was conducted using PU/DRs. As each grant's PU/DR contains reported absorption at the module and intervention level by semester, the PCE can observe trends in absorption by semester and intervention. Based on the keyword search of activity descriptions, interventions which were identified as having a majority of funds (>50%) related to the focus topics were tracked to indicate absorption related to focus topics throughout the grant cycle. Similarly, absorption for RSSH and HRG-Equity related modules and interventions were tracked throughout the grant cycle.

Performance indicator analyses

Indicator achievement against targets are reported within the LFA-verified PU/DRs during grant implementation.(5) These data were also compiled and tracked over the grant cycle to understand changes in performance and guide KIIs and fact checking interviews. Grant performance ratings are determined during each semester of implementation to inform continued funding decisions. It is determined in part by quantitative measures of absorption and target achievement, and qualitative assessment of programmatic performance by the Country Team.(6) Ratings for each semester of implementation were obtained from the Global Fund Data Explorer.(7)

Root cause analyses

The PCE used root cause analyses (RCA) to further explore, analyze and understand the root causes underlying observed challenges or successes identified through a variety of triangulated data sources (KIIs, secondary data analysis, document review). Findings from the RCA support proposed actions/solutions.

RSSH Support vs. Strengthening: "2S" analysis

The PCE analyzed RSSH activities in NFM2 and NFM3 according to whether they contributed to "systems support" or "system strengthening", drawing on definitions from Chee et al. (2013).(8) A coding methodology, aligned to Global Fund's RSSH modules in the modular framework, was used to designate each RSSH activity in the budget as either predominantly support or strengthening. Three parameters—scope, longevity, and approach—were examined for each RSSH intervention/activity

pair, adapting upon the methodology previously used by the Technical Review Panel’s examination of RSSH in the 2017-2019 funding cycle(9), per these considerations:

Table 2. RSSH Support vs. Strengthening “2S” analysis

Parameter	System Support	System Strengthening
Scope	May be focused on a single disease or intervention	Activities have impact across health services and outcomes; and systems may be integrated into the overall health sector
Longevity	Effects limited to period of funding	Effects will continue after funded activities end
Approach	Provide inputs to address identified system gaps	Revise policies and institutional relationships to change behaviors and resource use to address identified constraints in a more sustainable manner

Two coders independently applied a determination of support or strengthening after reviewing each intervention and activity description, and any relevant text in the funding request narrative, and cost category.

3. NFM2 Funding Request

Our evaluation of the Global Fund grant cycle started with an examination of the NFM2 funding request development, including alignment with NSPs and changes made between the submission of the funding request and grant making. Most evidence presented in this chapter draws from document review and budget analysis since the Senegal PCE was not fully operational in late 2017 when the funding request and grant making processes were underway for the 2017-2019 funding cycle.

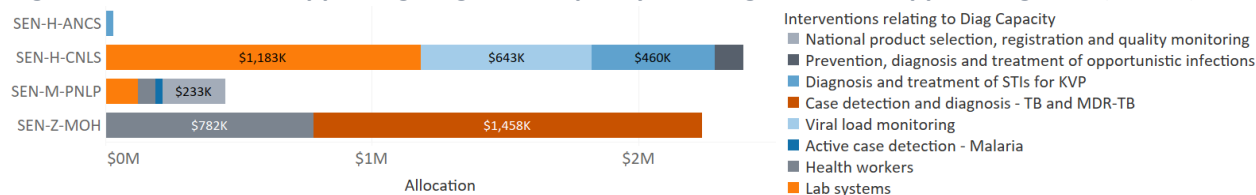
The differentiated approach to funding requests, which was introduced by the Global Fund in the 2017-2019 funding cycle, was utilized by Senegal to improve the overall efficiency and timeliness of the 2017 application process. Senegal submitted a Program Continuation funding request for HIV and malaria and a Full Review funding request for TB/RSSH. We compared the intervention strategies, budgets and performance indicator targets for both focus topics and found that they were well-aligned with their respective NSPs (Appendix 1).

Funding request investments by focus topic

Diagnostic Capacity. As part of the Global Fund investments, 11% (€2,423,000) of the HIV grants and 20% (€2,240,084) of the TB grant are intended for the diagnosis activities. Malaria diagnosis activities have a small budget share (1.0%, €449,121) since Global Fund investments in malaria are primarily focused on vector control (Figure 2), as contributions from other donors mainly cover diagnostic and treatment of malaria cases. NFM2 investments related to strengthening HIV and TB diagnostic capacity were supported by priority interventions from the national strategic plans, including: support for the availability of rapid diagnostic tests (RDTs); reinforcement of equipment and reagents to increase the functionality of GeneXpert machines; funds to transport samples from collection areas to sites with GeneXpert machines; and reinforcement of equipment to increase the HIV testing rate in key populations. Improving coverage of diagnostic equipment such as GeneXpert for TB and HIV emerged as one of the priorities of these two programs, particularly in their strategic plans to increase detection and diagnosis rates. For the TB program, only 66% of TB cases and 21% of TB-MDR were notified in the country, with significant regional variation (6 regions account for 82% of notified cases and 81% of missing cases).(10) For the HIV program, key NFM2 priorities included reinforcing the

national laboratory network for better quality testing and patient monitoring, sample transportation, and viral load testing.

Figure 2. Investments supporting diagnostic capacity in Senegal in NFM2 approved grants (€ Euro)



Source: Global Fund detailed budgets

DHIS2. Analysis of NFM2 funding requests and approved grant making budgets shows that investments in the Health Management Information System/Monitoring and Evaluation module (HMIS/M&E) make up the largest proportion of the budget for reinforcing RSSH (Figure 3). Over half of all RSSH investments were related to HMIS/M&E and each of the grants prioritized this module in a similar way. NFM2 investments in HMIS/M&E were supported by the Digital Health Strategic Plan 2018-2023 which includes the following four strategic objectives: (1) boost and promote access to quality care through telehealth; (2) promote the management and prevention of diseases through greater information dissemination and digitalization of universal health coverage; (3) strengthen health care worker performance through the use of information technology; and (4) improve health governance through greater data availability at all levels of the health system. (11) RSSH interventions, including those for HMIS/M&E, were composed of both cross-cutting and disease-specific investments. Implementation of these investments was divided across the three disease programs while the TB/RSSH Principal Recipient, *Direction Generale de la Santé/Direction de l'Administration Générale et de l'Équipement (DGS/DAGE)*, was responsible for monitoring and reporting on cross-cutting RSSH performance indicators. Each disease grant also included investments to support the multi-sectoral health system strengthening platform (*Renforcement du Systeme de Sante; RSS*) that was put in place by the DGS during NFM1 to improve coordination and harmonization of RSSH activities. Funds wholly devoted to the DHIS2 platform were minimal in NFM2, less than 6% of the total HMIS/M&E module budget. Investments directly related to strengthening the national HMIS system included funds for equipping health facilities with tablets to collect DHIS2 data, training staff on the use of the system, and organizing malaria DHIS2 data validation meetings (Figure 4). There are additional funds for disease-specific patient level data also tracked in DHIS2 or as part of M&E programming in NFM2 (Figure 4).

Since Senegal's Program Continuation funding requests for malaria and HIV did not include detailed budgets we could only analyze budget changes between the funding request submission and grant making for TB.

Figure 3. HMIS/M&E and other RSSH Investments in Senegal

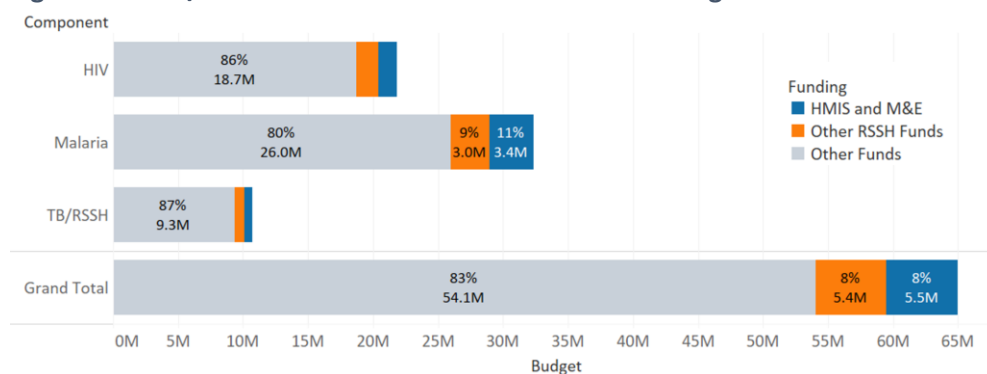
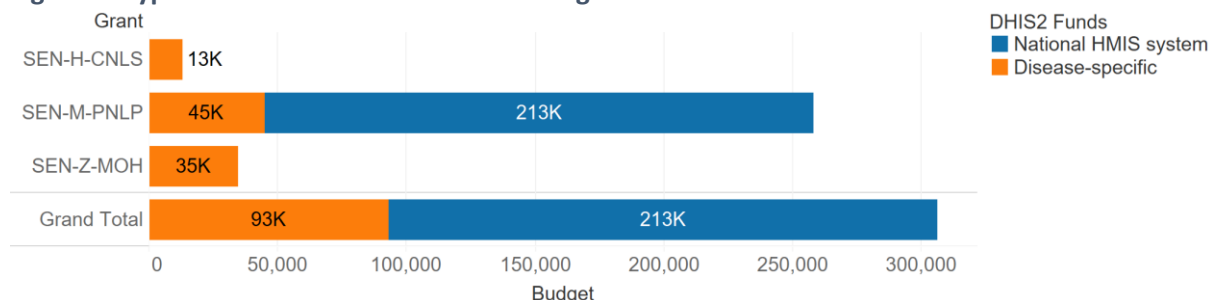


Figure 4. Types of DHIS2 investments in NFM2 grants



Source (Figures 3 & 4): Global Fund detailed budgets, NFM2 approved budgets from grant making

Key message 1: During grant making, the overall country allocation for TB remained the same but there were numerous shifts within budget modules and interventions, which resulted in a 34% decline in TB/RSSH funding for diagnostic capacity and a 42% higher budget for HMIS/M&E.

Various changes in the TB budget occurred during grant making, including overall a 34% budget reduction for interventions supporting diagnostic capacity (from €3.4 million to €2.2 million). While some intervention budgets increased, others decreased as a result of negotiations between the PR and Global Fund during grant making. For example, funding for health workers and multidrug-resistant TB (MDR-TB) case detection saw modest increases but there were larger reductions in funding for TB case detection and diagnosis (Figure 5). Changes in funds for laboratory systems were not made during grant making despite concerns and recommendations raised by the TRP around the proposed investments in the TB/RSSH funding request.(12) The lack of change during grant making could be because TRP recommendations included actions to be resolved during grant implementation, such as developing first-year strategic planning for the expansion of the laboratory network and transitioning to using GeneXpert for universal testing of suspected TB cases nationwide to ensure more equitable access. Similar guidelines however have since been included in the national Plan to accelerate the fight against TB in Senegal.(13)

Figure 5. Change in interventions relating to diagnostic capacity between NFM2 funding request and grant making in the TB/RSSH grant (€ Euro)

	Budget Version		Change
	NFM2 Funding Request	Approved from Grant making	
Retention and scale-up of health workers, including for community health workers	702,276	782,073	11%
Case detection and diagnosis	2,508,426	1,233,956	-51%
Case detection and diagnosis: MDR-TB	190,453	224,055	18%

Figure 6. Change in interventions under the HMIS/M&E module between NFM2 funding request and grant making (€ Euro)

	Budget Version		Change
	NFM2 Funding Request	Approved from Grant making	
Analysis, review and transparency	262,797	448,392	70%
Routine reporting	108,707	163,947	51%
Surveys	60,923	1,372	-2%

Source (Figures 5, 6): Global Fund detailed budgets

In comparison, the TB/RSSH budget for the HMIS/M&E module increased 42% between the funding request submission and approved grant making budget (from €432,427 to €613,711) (Figure 6). Within this budget module the largest increases were in the ‘analysis, review and transparency’ and ‘routine reporting’ interventions. In addition to the factors discussed above, budget changes between the funding request application and final grant making budget were also necessary to correct errors in the categorization of budget line items.

4. NFM2 Grant Implementation

In this section, we will provide a holistic picture of the implementation of NFM2 grants, and explore the root causes associated with challenges in the implementation of investments in diagnostic capacity and DHIS2.

Overall/holistic picture

The overall implementation of the NFM2 activities has experienced delays caused by, among other things, relatively heavy and/or poorly understood Global Fund procedure, citing challenges related to the governance of the Global Fund grants and acquisition through Wambo. Certain actors also found local procedures cumbersome, long and inflexible to programmatic needs. Many of the challenges, stemming from the lack of clarity of roles and responsibilities in decision-making and lack of communication between programs, are described in the National Plan to Accelerate the Fight Against TB, but their impact on the grant are described further below.

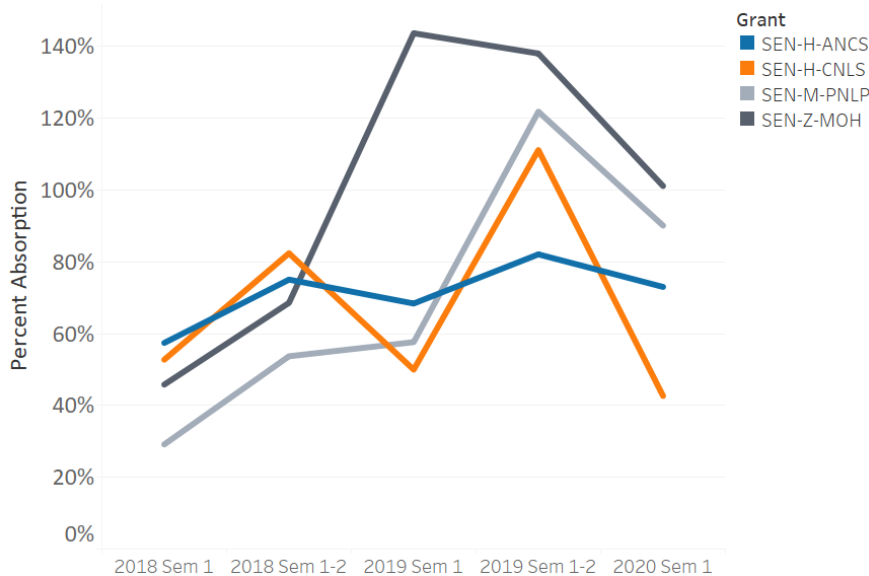
Disbursement. Delays in disbursement from PRs to SRs were mostly due to procedural bottlenecks related to validating sub-recipient (SR) expenditures. Many of the actors involved - such as DGS/DAGE, which was a first-time grant recipient in NFM2 - were unfamiliar with Global Fund procedures because of inexperience implementing Global Fund grants. In anticipation, the Ministry of Health and Social Affairs (MSAS) had proactively put strategies into place to overcome these difficulties, including the recruitment of regional accountants and the creation of a unit to monitor financial operations - the *Cellule de Suivi des Opérations Financières* (CSOF) – to ensure proper preparation of receipts, expenditure justifications and other accounting documentation. However, according to stakeholders, CSOF did not appear to help with streamlining the process and inconsistencies in expenditure justifications persisted.

Delays in disbursement from PRs to SRs led to: 1) unplanned or unexpected execution of activities, as there is a trickle down of bottlenecks from first disbursement and activity implementation, to subsequent disbursements, 2) lower absorption rates as disbursements are deferred, especially during the first semester of implementation due to delays in contracting of SRs and difficulties in establishing work plans between PRs and SRs, 3) delays in re-programming, and 4) lower performance on indicators. In 2019, findings from the PCE’s RCA of bottlenecks impacting the TB/RSSH grant implementation were used by MSAS to take corrective measures.⁽¹⁴⁾ Examples of corrective measures that were implemented include a new TB Acceleration Plan (PALT) and enhanced coordination for the TB/RSSH grant with the involvement of the Disease Control Directorate (*Direction de lutte contre la maladie; DLM*) and the Minister's office at coordination meetings to facilitate decision-making.

Absorption. To-date all grants have absorbed between 75-85% of their funds. The absorption rate improved in all grants in later semesters except for the most recent reporting period (Semester 1 2020), which can be explained, in part, by the impact of the COVID-19 pandemic (Figure 7). Absorption for RSSH modules was lower than average in early semesters. At the start of implementation, funds for Procurement and Supply Chain Management and Integrated Service Delivery were the RSSH

modules with the worst absorption but both improved in subsequent reporting periods. Absorption of funds for HIV key populations has been more variable: in the first few semesters of implementation, absorption of funds for HIV prevention for men who have sex with men (MSM) and people who inject drugs (PWID) was low compared to prevention for sex workers or other vulnerable populations. In May 2019, catalytic funds were added to the grants that enabled the HIV program to include Pre-exposure prophylaxis (PreP) in preventive treatment for key populations. The addition of the catalytic funds may have contributed to the low absorption rate (only absorbing between 10-30%) of the human rights-related investments.

Figure 7. Trends in the grant- and PR-level absorption rate between 2018 and 2020



Source: PU/DRs

COVID-19. COVID-19 significantly impacted the implementation of NFM2 activities during 2020. From the outset of the pandemic, the Government of Senegal declared a state of emergency and implemented a curfew. As a result, MSAS suspended all activities in the field. Attendance at the health facilities was greatly reduced, as the public feared being infected especially given increased fear among PLHIV experiencing comorbidities. Reduced attendance led to a reduction of TB screening by 80% between February and May 2020.(10) Furthermore, closures led to (1) less data collection and lower completeness of DHIS2 data; and (2) delays in the deployment of GeneXpert in the field, particularly in healthcare facilities. These disruptions however coincided with a positive development related to greater programmatic synergy as the HIV and TB programs began developing an integrated plan for GeneXpert use. Moreover, the national Laboratories Directorate (*Direction des laboratoires*; DL), which has oversight across disease areas, was planned to take over the management of GeneXpert machines from PNT, taking another step towards more integrated use of this diagnostic tool. However, the DL has requested that the PNT manage the GeneXpert network until the end of 2021, after which both parties will work through a transition phase to improve coordination and coverage for HIV, Hepatitis and TB.

Grant revisions. All grants in Senegal have undergone at least one official grant revision (Figure 8). The earliest changes were modifications to the HIV grants in April and May of 2019 to add matching funds to reach key populations (KPs) and remove human rights related barriers. Matching funds revisions had a small impact on RSSH funds in the HIV grants (Figure 9). The most recent revisions, finalized in 2020, involved reprogramming or addition of funds to respond to the COVID-19 pandemic. The COVID-19 related revisions to the HIV (SEN-H-ANCS) and malaria grants did not change the overall grant budget but rather reallocated unspent funds and cost savings to COVID-19 activities. In the malaria grant, this resulted in a reduction of several RSSH modules including HMIS/M&E interventions which

decreased by €1.4 million (41% reduction). In the SEN-H-ANCS grant, COVID-19 related changes benefited the RSSH module of institutional capacity building which increased by over €300,000. Matching funds had contributed to increased investment to reach KPs, however some of those gains were reprogrammed as part of COVID-19 related revisions in ANCS to respond to the pandemic and reach the same population groups as specified by the Fund Portfolio Manager.

Revisions were initiated by PRs themselves, under Global Fund guidance, to address the problems identified as necessary for reaching the program’s objective. Although flexibilities are in place to initiate revisions every three months, in practice, PRs initiated major reviews every 18 months based on the implementation status of their grants and the parameters of the activities validated by the TRP. For budget revisions, the Global Fund provided instructions for budget lines and expenses that could potentially be reprogrammed. Although two budget revisions were planned by PNLP, only one was eventually implemented and took up to 18 months to complete due to challenges in gathering required financial data. In contrast, CNLS and ANCS were able to implement revisions within 5 months, attributed to their strong financial teams that follow budgets and identify cost savings, as well as their process for negotiating which program activities would be funded. For the TB/RSSH grant, although DGS experienced start-up difficulties and delays in the implementation of the grant, parties involved (CCM, DGS and the Global Fund) held off on revisions to see whether efforts to strengthen coordination (through the CSOF) would improve absorption. Lastly, the Global Fund mechanisms helped expedite the reprogramming of cost savings across all grants to address COVID-19.

The grant revisions are made in accordance with the Global Fund guidance depending on the flexibility criteria. For each case, the revision is done in close partnership with all stakeholders according to the flexibility allowed by Global Fund.

(Quote from a key informant)

Figure 8. Official Grant Revisions in Senegal during NFM2 Implementation (€ Euro)

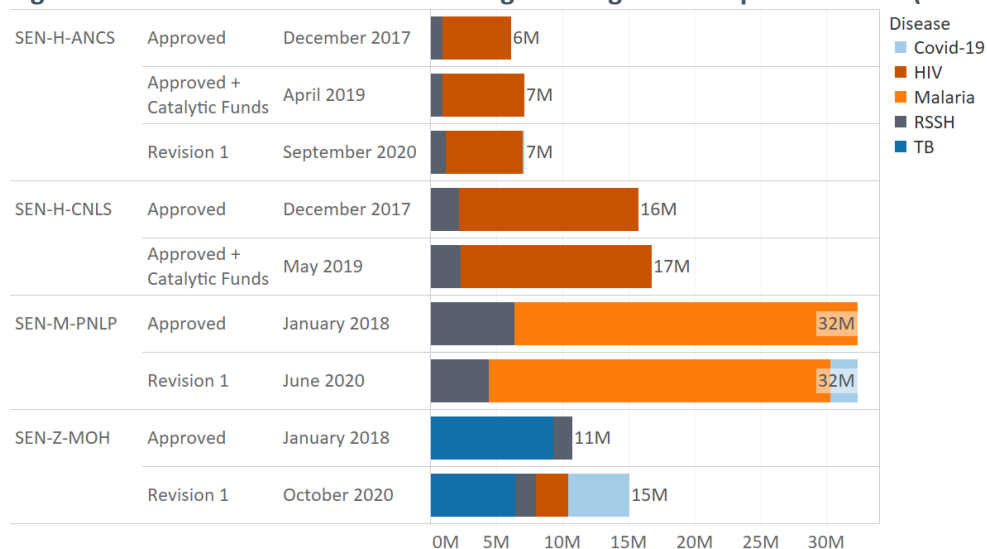
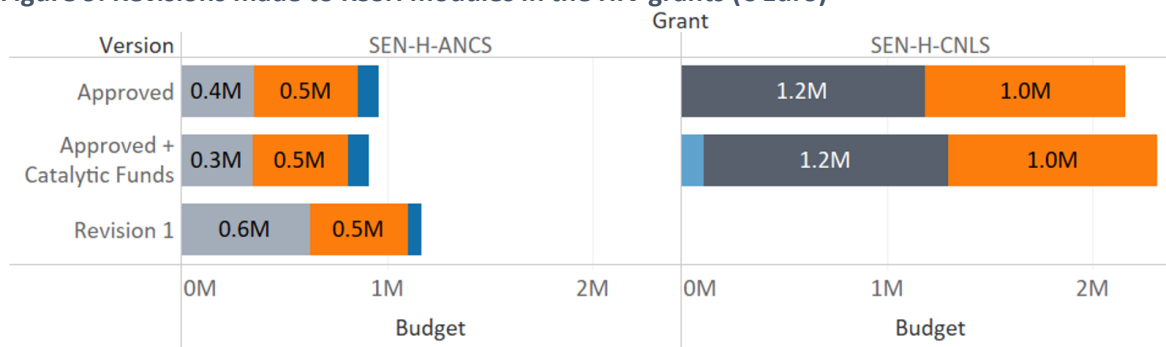


Figure 9. Revisions made to RSSH modules in the HIV grants (€ Euro)



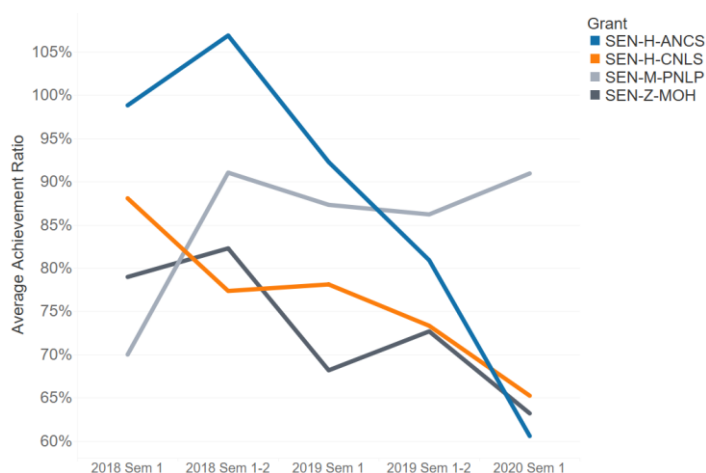
RSSH Funds

- Community-led advocacy
- HMIS/M&E
- Institutional capacity building, planning and leadership development
- Laboratory systems
- Procurement and supply chain management

Source (Figures 8, 9): Global Fund detailed budgets

Grant performance: The majority of grants were rated as “Adequate” (B1) in all semesters of implementation. The TB/RSSH (SEN-Z-MOH) grant was the only one that was rated as “Inadequate” (B2) during the first two semesters, but improved thereafter. Performance of coverage indicators was slightly more variable between grants (Figure 10). The average performance of malaria indicators rose from 70% in the first semester of 2018 to 91% in S1 2020. TB indicators have reached 70% of targets in almost all semesters, except in S1 2020 when the performance dropped to 63%. Similar downward trends occurred in the two HIV grants as well. The ANCS and CNLS grants reported 60% and 65% performance respectively in S1 2020, their lowest average performance since the start of grant implementation.

Figure 10. Trends in average coverage indicator performance across 5 semesters of NFM2 grant implementation



Source: Global Fund PU/DRs

Facilitators and Barriers. Across Global Fund grants, the following were considered **facilitators** to NFM2 implementation:

- Implementation of innovative approaches such as the point-of-care diagnostics (POC) to strengthen diagnostic capacity at the peripheral level.
- Retention of human resources has remained high.

- Establishment of a financial operations monitoring unit that improved grant absorption across all grants and the management of RSSH funds.
- Establishment of the National TB Program (PNT) health districts sponsorship system, which provides an opportunity for the national reference laboratory (LNR) to ensure the implementation of internal quality control and provide real-time data on technicians to address any quality concerns.
- Use of the HIV viral load project (Collecte, Acheminement et Rendu des résultats; CAR) and POC project.
- TB drugs for adults and laboratory supplies have been available in all health facilities, and pediatric medicine for TB are expected in late 2020.

In addition to the challenges to disbursement, absorption, and performance, **barriers** to implementation included:

- Stock outs at the National Supply Pharmacy, in conjunction with long lead times for purchasing laboratory products and GeneXpert cartridges.
- Poor performance of smear microscopy in some laboratories, noted by external quality assurance. This is explained by a lack of internal quality controls, and staff turnover of qualified technicians for TB.
- Underestimation of reagent quantities needed during the planning phase led to stock shortages in laboratories.
- Stock outs of pediatric anti-TB drugs since early 2020 after an unsuccessful purchase.

Key message 2: Poor integration and coordination of diagnostic strategies (and systems) between disease programs have undermined efforts to strengthen diagnostic capacity and value for money.

NFM2 has focused on addressing inequities in diagnosis of TB and HIV, with a particular focus on key populations, including those with specific profiles (MSM); inhabitants of certain areas (mining areas); practicing certain professions (sex workers) or in certain circumstances (prisoners, PWID). Global Fund investments in GeneXpert have the potential to increase multi-disease testing (e.g., TB, MDR-TB, IV viral load and HIV testing in infants) using the same POC platform, with the potential of optimizing limited human and financial resources at health facilities while increasing access to rapid testing. According to the national TB program (PNT), GeneXpert and microscopy are considered first-line testing for TB, with greater recommended use of GeneXpert for diagnosis of MDR-TB and rifampin-resistant TB among close contacts of cases with MDR-TB, health workers diagnosed with TB and inmates with positive smears. (15) These testing tools can also be used to diagnose drug-susceptible TB in vulnerable groups such as children, co-infected HIV/TB patients, extra pulmonary TB and those being re-treated. The national HIV program (CNLS) recommends the use of GeneXpert for viral testing in health facilities.(16)

Despite opportunities for the multi-disease use of GeneXpert, diagnostic strategies appear to operate vertically, with challenges related to integration and strategic coordination stemming from issues in both the design (such as lack of advanced strategies to reach HIV KPs, lack of accurate data to make decisions, data limitations in establishing denominators for targets) and implementation (local contextual issues such as state policies affecting outreach and COVID-19). In the following sections, we will discuss gaps in the performance of the grants, and discuss the impact of siloed strategies on diagnostic capacity for HIV, TB and Value for Money of Global Fund investments.

Performance. During NFM2, there were challenges with the financial and programmatic performance of investments related to diagnostic capacity. In the first semester, absorption was low for investments related to laboratory systems (43%), diagnosis for MSM (37%), diagnosis for PWID (14%)

as well as TB (1%) and MDR-TB case detection (14%) (Appendix 3 on Absorption graphics). During the first semester of 2020, absorption significantly improved for laboratory systems (over 93%), diagnosis for MSM (85%) and TB case detection (over 94%) as of Semester 1 2020. However, absorption for MDR-TB case detection has been highly variable and only about 32% of funds have been spent as of June 2020.

Revisions. Revisions that occurred during NFM2 led to shifts in investments for diagnostic capacity. As part of the revisions to the HIV grants, funding for PWID was removed from the CNLS grant and a portion added to the ANCS budget (Figure 11). This led to expansion of activities by ANCS to Kaolack, Ziguinchor, Kolda, Saint-Louis, Thies, and led to a doubling of absorption in the second year (60%) compared to the first year (26%). Two other interventions supporting diagnostic capacity (Diagnosis and treatment of STI for other vulnerable populations; Prevention, diagnosis and treatment of opportunistic infections) were removed from SEN-H-CNLS grant during the first revision and not re-added. There was also a sizable increase in funds for diagnosis for MSM (181% increase). COVID-19 reprogramming led to 20% reductions in funding for laboratory systems and 63% reductions for community health workers in the malaria grant. Funding for MDR-TB case detection also saw a decrease of 36% while TB case detection funds increased by 16%.

Figure 11. Shifts in funds between HIV grants in approved budget, revision introducing catalytic matching funds (Revision 1), and COVID-19 related revisions (Revision 2) (€ Euro)

Grant	Module	Intervention	Budget Version		% change
			Approved	Approved + Catalytic/ Matching Funds	
SEN-H-CNLS	Comprehensive prevention programs for MSM	Diagnosis and treatment of sexually transmitted infections and other sexual health services for MSM	92K	92K	
	Comprehensive prevention programs for PWID and their partners	Diagnosis and treatment of STIs and other sexual health services for PWID	346K	0K	
	Integrated service delivery and quality improvement	Laboratory systems for disease prevention, control, treatment and disease surveillance	1,183K	1,183K	
	Prevention programs for other vulnerable populations	Diagnosis and treatment of STIs and other sexual health services for other vulnerable populations	23K	0K	
	Treatment, care and support	Prevention, diagnosis and treatment of opportunistic infections	108K	0K	
Treatment monitoring - Viral load		643K	529K		

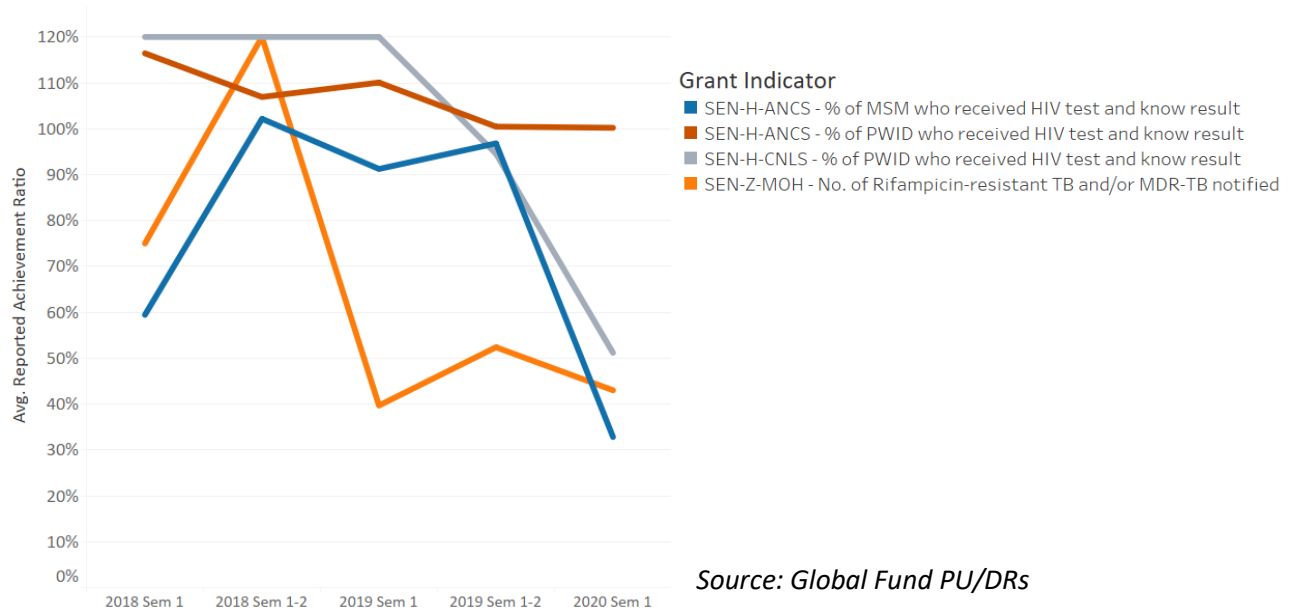
Grant	Module	Intervention	Approved	Budget Version	Revision 2
				Approved + Catalytic/ Matching Funds	
SEN-H-ANCS	Comprehensive prevention programs for PWID and their partners	Diagnosis and treatment of STIs and other sexual health services for PWID	0K	51K	41K
	Comprehensive prevention programs for sex workers and their clients	Diagnosis and treatment of STIs and other sexual and reproductive health services for sex workers	29K	81K	75K

Source: Global Fund detailed budgets

Despite the revisions, PWID and MSM performance indicators show a decline in performance. Figure 12 illustrates that performance indicators for HIV testing and knowledge of test results among PWID populations declined primarily due to challenges with accessing testing services in the CIPEAD facilities. Declines in the notification of rifampin-resistant TB or MDR-TB over time is in part linked to

by stock out of GeneXpert cartridges and the challenges in the procurement and deployment of GeneXpert machines. The proportion of undetectable viral loads achieved remained constant from 2016 to 2018, but was slightly higher among women during the same period.(17) Reasons for target underperformance related to diagnostic capacity challenges are described further in the next section.

Figure 12. Performance of select indicators in NFM2 relating to Diagnostic Capacity



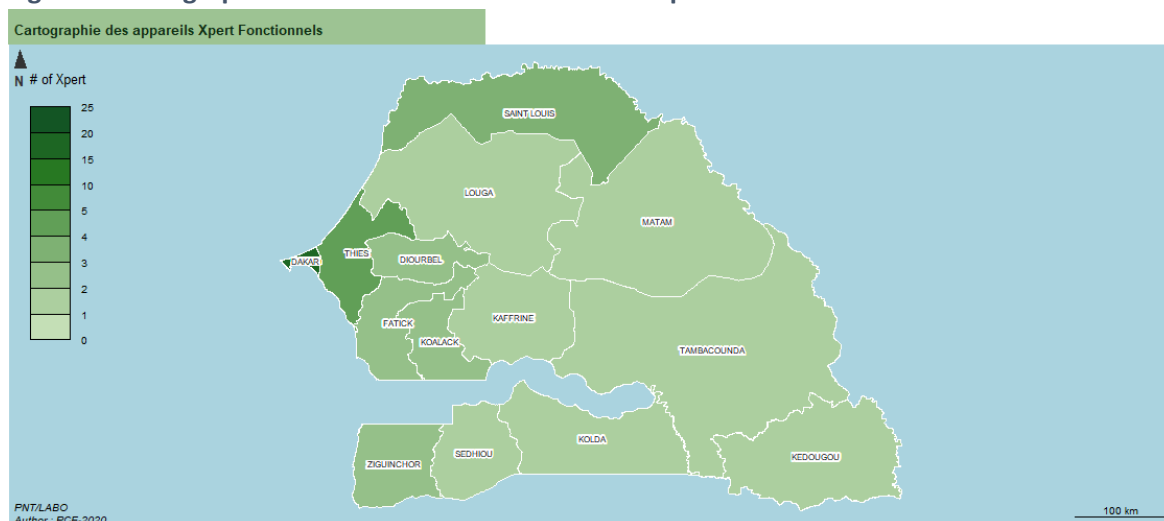
Challenges to Strengthening Diagnostic Capacity

Multi-disease systems such as GeneXpert provide opportunities for pooling resources and coordinated planning for the distribution of GeneXpert devices. However, during NFM2, national programs continued to operate vertically and this may have undermined efforts to efficiently strengthen diagnostic capacity in all regions. Although country team attempted to facilitate collaboration between PNT and CNLS, and encouraged the DL to develop a more comprehensive strategy for the multi-disease use (first TB, then expanded GeneXpert use to HIV, HPV and COVID-19), the resulting laboratory strategy in NFM2 did not take the program needs into account. Below, we highlight how poor integration of diagnostic strategies for HIV and TB may have undermined efforts to strengthen diagnostic capacity and achieve value for money.

1. **Geographic inequities of diagnostic equipment and supplies:** During NFM2, the Government of Senegal acquired 24 GeneXpert machines with support from the Global Fund with the goal of increasing POC testing. For the TB program, GeneXpert systems were placed in regions that accounted for 85% of TB cases. However, prevalence for MDR-TB is more homogenous and HIV is more prevalent in southern regions. Despite the TB program’s ability to expand its coverage in needed areas, mapping of functional GeneXpert systems (Figure 13) indicate that there were several southern regions with minimal to no GeneXpert coverage, and thus missed opportunities to reach those in need of testing for MDR-TB and HIV. GeneXpert purchased through Global Fund grants are localized in the Dakar region, while the regions of Louga, Matam, Tambacounda, Kolda, and Sédhiou do not have devices. Geographic inequities in equipment availability are partially explained by the lack of established laboratories, gaps in trained personnel, inaccessible health facilities, resource limitations, and the complex donor landscape. To address inequities in access to laboratory infrastructure, a sample transportation system should be designed to transport specimens from health facilities to diagnostic centers. However, limited financial and human

resources, as well as poor strategic coordination between disease programs continues to drive inequities in diagnostic equipment and access to a robust sample transportation system. For example, decisions regarding the placement of GeneXpert machines are currently informed by 2016 TB mortality data (18)² that has led to the concentration of GeneXpert in 6 regions (accounting for 82% of TB deaths occur in Dakar, Diourbel, Kaolack, St. Louis, Thies, and Ziguinchor account). This however has led to several labs not having GeneXpert or equipped with non-functional devices. Sharing financial responsibility and planning between TB and HIV programs around joint indicators of availability and use could lead to more equitable distribution of GeneXpert in hard-to-reach areas. Furthermore, pooling of equipment in health facilities and laboratories between disease programs could help the Government of Senegal, the Global Fund and national programs ensure the optimization of investments and resilience of the health system. Finally, expanding the sample transportation system to serve multiple disease programs strengthens the laboratory infrastructure by increasing testing coverage in hard-to-reach remote areas.

Figure 13. Geographic distribution of functional GeneXpert machines



Source: PNT/LABO - October 2020

2. **Stock outs of diagnostic supplies:** Seventy-five percent of the CNLS grant is dedicated to the purchase and supply of medicines, reagents, medical devices, and products. Despite these investments, health products are frequently out of stock, including HIV tests used by Screening and Treatment Centers—according to the most recent PU/DR (Semester 1, 2020), 80% of such health facilities reported stock-outs of HIV tests in the second year of implementation. This is due to recurrent unsuccessful procurement contracts, lengthy procurement procedures, problems with suppliers (either they are uninterested in bidding on small-scale orders or they withdraw their bids), absence of a Laboratory Information System (LIS) to track resource needs, and few domestic and global resources for the purchase of cartridges and other supplies. To add to the complexity, challenges with procurement through the national supply pharmacy (*pharmacie nationale d'approvisionnement*; PNA) have also led to gaps in access to medications and laboratory supplies. As PNA conducts a gap analysis, the Global Fund has recommended a pooled procurement with the use of WAMBO for HIV products and GDF for TB's. During grant-making, discussions emerged about how WAMBO may potentially undermine the country ownership of

² Also note that the application references several of the following data sources: Appendix 4: Senegal TB Country Profiles, WHO 2016, 2017 and 2018; Appendix 5: NTP 2016 Annual Report; Appendix 6: NTP 2019 Annual Report; Appendix 7: Annual Reports of Community Activities 2015-2019

the procurement process through PNA. Ultimately, WAMBO was selected to overcome stock out challenges that occurred in NFM2. The selection of the WAMBO platform by the Global Fund is less satisfying for some stakeholders from the MSAS, however, who are not sure why procurements cannot be made through the PNA.

3. Underuse of diagnostic equipment: Monitoring and performance analysis of the TB program show a low usage of the GeneXpert systems during NFM2 around 45% (10% for 2017 and 9% for 2018).(10) Of the available devices, six are not functional as of October 12, 2020 located in the Dakar region (3 GeneXpert machines), Diourbel (1), Kaolack (1), and Ziguinchor (1). The problem identified at this level is the poor functionality of laboratories and the underutilization of laboratories in TB-MDR, HIV and HPV, and later for COVID-19, mostly at the regional level. As shown in Figure 13, not all devices available in territories are functional due to irregularities in equipment maintenance and lack of safety equipment (inverters) to prevent damage caused by electrical failures and outages.. Also, equipment was underused in 2020 due to the unavailability of GeneXpert cartridges and shortages in other GeneXpert supplies. Lastly, training and supervision gaps for health workers and laboratory staff (biologists, technicians, etc.), may have contributed to the underuse of GeneXpert. Beyond procurement and distribution, plans for equipment maintenance and quality assurance can be optimized by cross-training technicians to conduct proficiency tests for TB, MDR-TB and HIV. Analysis tools such as the Failure Mode and Effect Analysis (FMEA) or the Suppliers, Inputs, Products and Customers (SIPOC) can be applied to identify how to optimize use of diagnostic equipment across programs.
4. Challenges with sample transportation systems: An effective sample transportation network can strengthen diagnostic capacity as it increases access to high-quality laboratory diagnosis, especially needed for MDR-TB diagnosis and HIV viral load testing, but also for other diseases as well. Sample transportation systems can achieve economies of scale by using one set of transport procedures for multiple types of clinical samples (across diseases) and integrating multiple health centers into the same network. However, solutions have been implemented by individual programs, with limited plans for expanding the reach to other national programs. For example through the *Collecte, Acheminement et Rendement des analyses* (CAR project), the HIV program (CNLS) is piloting improvements to the sample transportation system, which have led to successes in certain regions but not others. Additional analyses (RCA and FMEA) will help inform how to maximize resources for sample transportation for the HIV and TB programs.
5. Overall testing trends among key populations: Upstream investments in diagnostic capacity are intended to improve access to testing for KPs, and ultimately reduce the burden of disease in these high-risk groups. Although during the first semester of 2020 testing among many KPs dropped sharply, lowering target achievement, there had been some successes in earlier semesters. Grant performance measures reported in PU/DRs suggest improvements in access to testing for MSM and pregnant women. Among sex workers and PWID, grants have been consistently successful in reaching targets for HIV testing and diagnosis. However, diagnosis among HIV-exposed infants and TB detection among prisoners have struggled throughout grant implementation. As mentioned previously, challenges with testing among PWID reflect limited capacity by CNLS and the CEPIAD facilities to expand services and enroll more people into the methadone program.

Key message 3: The complex grant implementation arrangements and poorly functioning coordination mechanisms for RSSH have resulted in the non-implementation of many RSSH cross-cutting activities.

During NFM2, steps were taken to consolidate financial management and oversight of Global Fund grants by the Government of Senegal through the Financial Shared Service (*Centre de gestion mutualisé*) approach. As part of this approach in NFM2, the financial division of the MoH (DAGE) was

responsible for managing both TB and RSSH grant funds and in subsequent funding cycles, the plan was to gradually incorporate the other disease programs (as is the case for the malaria grant in NFM3). These new implementation arrangements were driven by the CCM based on various factors, including the desire to boost financial resource management, promote integration of services, and reduce the number of PRs from seven to four to address some inefficiencies that emerged in NFM1 and therefore achieve greater value for money. These events led to the CCM's proposal of an institutional arrangement placing the DGS-MSAS as PR, with the National TB Program (PNT) and Plan International as SRs. This created several advantages: 1) DGS-MSAS was a key player in the fight against TB; 2) it strengthened their position for grants management of Global Fund investments; 3) it created a system for managing investments related to health systems strengthening across programs.

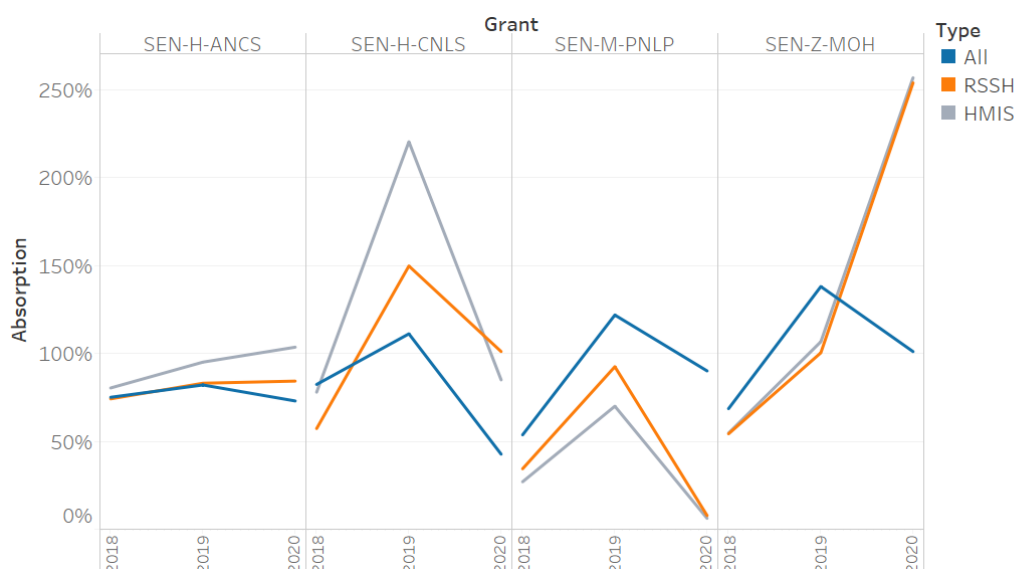
In addition, the multi-sectoral RSSH platform was created in 2016 to improve coordination and harmonization of crosscutting RSSH activities and sits under the *Direction Generale de la Sante* (DGS) who is PR of the TB/RSSH grant. In NFM2, each grant was supposed to contribute 10% of their RSSH budget to support the RSSH platform, however, the HIV and Malaria programs did not contribute 10% as planned because they were unclear about how the funds would be used. Only the TB program allocated a portion of their RSSH funds to the platform, which only contributed to the platform's already weak financial and logistical management capacity. As the PR for the TB/RSSH grant and lead of the RSS Platform, DGS/DAGE was expected to be accountable for overall performance of crosscutting RSSH investments, even though the budgets and implementation responsibilities for certain cross-cutting RSSH activities were divided across the HIV and malaria grants.

Some have been grouped as for example RSS and tuberculosis with the Ministry of Health as PR through the DGS. The integration of the PNL as SR was delayed out of caution since we also had to be careful not to be underperformed because too much grouping is risky. CCM Interview

Overall, the financial performance or absorption of RSSH investments tended to be lower than absorption for the overall grant, especially for S1 (32% vs 44%) and S1-2 (45% vs 63%). As illustrated in Figure 14, the majority of grants ended their first year of implementation with RSSH and the HMIS/M&E modules absorbing less than the grant as a whole. The ANCS HIV grant was one of the only exceptions and HMIS/M&E absorption improved further in subsequent semesters as well. In December 2019, stakeholders noted that most of the TB-RSSH indicators had improved.

For HMIS/M&E funds, the HIV program was not able to carry out planned activities for reinforcing DHIS2 in the first year in large part due to the health workers' strike and the retention of data caused by it. Activities that were not implemented were shifted to the cost category "Supervision/surveys/data collection related per diems/transportation/other costs," which explains the absorption rate of 112.3% during 2019. The malaria grant improved its RSSH and HMIS/M&E budget absorption in the second year, as funds for "routine reporting" were successfully spent although malaria investments were not intended to strengthen DHIS2 but rather for disease-specific M&E activities. For HMIS/M&E interventions in the TB/RSSH grant, the absorption targets were not met for the "routine reporting" intervention until semester 5.

Figure 14. Absorption rate of RSSH and HMIS/M&E modules during 2018, 2019 and 2020



Source: Global Fund PU/DRs

Overall, absorption of HMIS/M&E module funds were slow to improve during the first few semesters of NFM2 implementation. By the end of the first year, only 50% of funds for "Routine Reporting" were absorbed and only 34% of funds for "Analysis, review, and transparency." Despite the improvements seen in the majority of grants in later semesters (Figure 14), absorption for the malaria grant remained low in both 2019 and 2020.

Several coordination difficulties associated with absorption of the RSSH investments were explored in an RCA (available on request). Low absorption of RSSH investments were associated with:

1. Challenges with management and coordination of RSSH crosscutting investments: A major barrier to institutionalizing the management and coordination of RSSH investments within MSAS was the lack of clarity about the roles and responsibilities. Although DGS/DAGE was selected as the PR, other entities within MSAS, such as DPRS and DGES, could have provided more support and allowed for some flexibility in the otherwise lengthy internal procedures. These internal issues may have led to the underperformance of DGS to effectively oversee RSSH investments and pull strategic levers.
1. DGS/DAGE inexperience with the Global Fund: This PR was not familiar with the procedures of the Global Fund, including restrictions around how grant funds can be used, which in turn led to delays in disbursement because documents justifying grant expenditures were not submitted on time, evidenced by delays in implementation of TB/RSSH activities. Furthermore, cumbersome government financial management procedures also led to delays.
2. PNT as SR to DGS/DAGE: The new NFM2 grant implementation arrangements meant that PNT, who was previously a PR in NFM1, became SR. For the PNT, this change created issues of (i) securing the human resources and (ii) losing operating autonomy since the Global Fund is one of its main donors. Frustrations related to PR selection, including the way in which implementation arrangement changes were rolled out and communicated to stakeholders caused some challenges during grant making negotiations on the operating budget and implementation mapping between PNT and DGS, which impacted the start of grant implementation.
3. Gaps in coordination of the RSS platform: There is some evidence to suggest that there was ineffective coordination of the RSS platform. As discussed above, the HIV and malaria

programs did not contribute 10% of their RSSH budget to the platform, as originally planned, which undermined the platform's already weak financial and management capacity. A new coordinator was appointed during NFM2, but overall results have been mixed related to improving the platform's use.

4. Limited monitoring of RSSH investments: DGS could not successfully coordinate RSSH investments and monitor implementation because of the way in which crosscutting RSSH investments were divided across disease grants. For example, DGS lacked visibility on disbursements made by Global Fund to the other PRs, which made it challenging for them to trace financial flows and activities performed. Monitoring of RSSH activities was also not possible through the RSSH platform as the platform was not functional during NFM2.
5. Limited funding for crosscutting RSSH activities: Some key actors have found that Global Fund investments are insufficient for conducting crosscutting RSSH activities. In Senegal, RSSH activities require external and domestic funding that may not be readily available based on the implementation timelines. As a result several planned activities could not be carried out. In addition, gaps in staffing, logistics and equipment continue to be barriers to implementing RSSH.

Because of these challenges, coordination of RSSH investments was poor and led to delays in reporting, collection of supporting documents, and consequently disbursements from S1 to S3. Changes and corrections during implementation helped improve the absorption in the semesters 4 and 5. Development of the COVID-19 multi-sector emergency plan is expected to draw renewed attention to health systems strengthening efforts, including support for RSSH financial and technical structures and RSSH positioning within the overall system. Through prior PCE work, including past RCAs, we have strongly drawn the attention of stakeholders to the risks and bottlenecks that this RSSH situation could have on the sustainability of health system strengthening strategies.(14)

Key message 4: Limited use of DHIS2, despite Global Fund investments, puts the sustainability of the system at risk.

DHIS2 is increasingly accepted by PRs as the national platform for collecting health information. The Global Fund has strengthened the program through both programmatic coordination and financial contributions, but certain limitations persist. In 2019, only 79% of health facilities reported HMIS data on time and only 63% in 2020. Investments in DHIS2 as part of NFM2 was minimal and not prioritized by the CCM. Here, we present technical, financial, and political challenges that continue to hinder the optimal use of DHIS2 (RCA of challenges with the use of DHIS2 available on request).

1. Technical challenges: One challenge affecting data completeness is that some information entered into the system at times cannot be used to generate relevant programmatic indicators. Thus programs resort to using parallel systems to ensure indicators are not "lost." Also, interoperability with existing systems is a challenge as programs cannot upload their pre-entered data into DHIS2 easily. The Directorate of Planning, Research and Statistics (*Direction de la Planification, de la Recherche et des Statistiques*; DPRS) is working on this issue in collaboration with some organizations such as the PNA and AIRIS, a private business for human resources. Finally, DHIS2 is not set up to integrate data collected at the community-level. Delays in digitizing this information also delay entry into DHIS2. After PNLP transitioned exclusively using DHIS2 in January 2020, it had to prioritize working with community-based actors, including by providing tablets, in order to avoid parallel data systems.
2. Financial barriers: Key actors consider funding for DHIS2 as insufficient for building optimal use of the platform. Therefore, actors have to seek out other sources of funding. Additionally, necessary activities such as data harmonization meetings and data reviews are not funded by

the Global Fund Grants.

3. Gaps in human resources: Health care workers must fill multiple roles; in addition to their responsibilities for providing clinical care, they must also manage data entry for multiple programs. As a result, data entry is often deprioritized and leads to incomplete data or delays in entry. Additionally, not all health workers are trained in how to use DHIS2 because of frequent turnover.
4. Political challenges: The Government of Senegal could help to better encourage actors to use DHIS2 as the national reference tool. For example, stronger political leadership is needed to insist that programs are calibrated with the national indicators. This line of action should be encouraged to ensure that health programs align with the country's indicators.

On a broader level, absorption of the HMIS/M&E budget module was slow to improve in the first few semesters of NFM2 grant implementation. After the first year, only 50% of funds for “routine reporting” had been absorbed, and 34% of funds for “analysis, review, and transparency.” Although improvements were seen in most grants in later semesters (Figure 14), the malaria grant has had low absorption in HMIS/M&E interventions in both 2019 and 2020.

5. 2020 Funding Request and Grant Making

In line with Global Fund’s 2019 investment case for the Sixth Replenishment to fund NFM3, which made a case to ‘do things differently’ in order to meet its Strategic Objectives (19), the PCE’s evaluation of the 2020 funding request and grant making processes examined what changed between the 2017 and 2020 funding request processes, and considered how commitments to strengthening RSSH and HRG-equity have evolved. As such, the PCE examined how well the funding request and grant making processes reflected Global Fund’s commitments to differentiation, transparency, inclusion and country ownership. Through the lens of the two focus topics, the PCE considered the extent to which data was used more effectively in setting targets and whether NFM3 investments in the focus topics demonstrated a ‘change in trajectory’ as opposed to ‘business as usual.’ The PCE assessed evidence of ‘change in trajectory’ in terms of (1) changes in allocation levels and intervention scale/scope; (2) application of NFM2 lessons learned in the design of NFM3 strategies; and (3) changes in focus on equity, RSSH and sustainability compared to previous grants.

The 2020 funding request development process for the 2020-2022 allocation period began in early 2020, after the CCM received the 2020-2022 allocation letter from Global Fund, dated December 17, 2019. The changes in application type and disease allocations between the 2017-2019 and 2020-2022 allocation periods are presented in Table 3. The HIV and TB allocations increased by 18% and 62%, respectively and while malaria continued to receive the largest proportion of the total country allocation, its relative allocation dropped by nearly 10%.

Table 3. Summary of Senegal 2017-2019 and 2020-2022 allocation amounts and application type

Component	2017-2019 Allocation (€)	2020-2022 Allocation (€)	% change	2017-2019 Application type	2020-2022 Application type
HIV	€ 21,868,293	€ 25,877,687	18.3%	Program continuation	Full review
TB	€ 6,743,845	€ 10,927,513	62.0%	Full review	Program continuation
Malaria	€ 36,360,808	€ 32,816,206	-9.7%	Program continuation	Full review
Grand Total	€ 64,972,946	€ 69,621,406	7.2%		

Source: 2017-2019 and 2020-2022 Allocation letters

Transparency, inclusion and country ownership

For NFM3, the PCE found that there was greater involvement of civil society in the funding request development process compared to 2017. Development of the HIV funding request included participation from community-based organizations in all decision-making bodies, particularly in strategic thinking, policy development, and project and program implementation. The funding request process also elevated the role of civil society partners to participate in other national discussions including the development of national AIDS strategies. The CCM affirmed its central place in coordinating the funding request and grant making process by providing leadership in organizing the discussions, facilitating all virtual meetings (including working groups on technical issues and interventions), negotiating budget allocation decisions, and supporting the selection of the PRs. The Global Fund and the CCM encouraged equitable representation of government and civil society PRs in the grant making process.

Flexibility in the submission process facilitated greater country ownership. Senegal considered submitting its funding request in the first window (i.e. March 23, 2020) but the malaria and HIV programs needed additional time to work on finalizing the new NSPs and operational research. The submission date was therefore established for window 2b (May 31, 2020) but instead submitted in window 2c (June 30, 2020) due to COVID-19 disruptions. The Global Fund Country Team also requested and was granted COVID-19 flexibilities, including deferring until grant making the submission of certain documents such as the health product management template, implementation arrangements maps, and co-financing documentation. With the COVID-19 situation, the country proceeded through the funding request and grant making processes with frequent and lengthy virtual meetings.

Differentiation of application process

In contrast to NFM2, the CCM submitted a Full Review funding request for HIV and malaria and was invited to submit a Program Continuation funding request for TB/RSSH. According to key informants, this differentiated approach to funding requests has guaranteed the rationalization and effectiveness of investments based on prioritization of needs, integration of interventions and complementarity of funding sources. The entire process was carried out in a systematic, comprehensive and participatory manner.

Implementation arrangements

The CCM worked with MSAS, partners and civil society organizations to select four PRs, including two civil society (ANCS and Plan International) and two government (CNLS and DGS) PRs. Overall the selection of the PRs is driven to improve accountability, efficiency, and greater centralization under MSAS. As a result, the implementation arrangements changed from NFM2 in two major ways. First, the malaria, TB and RSSH components were merged under one grant to the government PR, DGS. This was in line with the strategy to consolidate and streamline the management of the Global Fund grants, through the 'shared service approach' under the MoH. The decision was also in line with the GLOBAL FUND-CoLink evaluation, released in April 2020, which recommended streamlining grants within the MoH (TB, malaria, RSSH).(20) Second, there was an additional grant issued to the civil society PR, Plan International, for implementation of the community-based TB and malaria activities. Plan International was a former PR for the TB grant in NFM1, but became SR to the DGS and PNLP government PRs in NFM2, which created challenges and inefficiencies during implementation. The CCM's decision to make Plan International a PR in NFM3 was intended to resolve these challenges by reducing the burden associated with the government PR's management of NGO contracts and the transaction costs associated with the separate SR contracts for TB and malaria components. Table 4 shows the NFM3 PRs and final budgets approved at grant making for each grant.

Table 4. NFM3 Grant budgets approved during grant making

Grant	SEN-Z-MOH	SEN-Z-PLAN	SEN-H-CNLS	SEN-H-ANCS
Principal recipient	DGS/DAGE	Plan international	Conseil National de Lutte contre le SIDA	Alliance Nationale des Communautés pour la Santé
Components	TB, Malaria	TB, Malaria	HIV	HIV
NFM3 Grant Making Budget	€ 34,712,016	€ 11,619,471	€ 17,277,030	€ 7,100,868

Source: NFM3 GAC-approved detailed budgets

The disease-specific submission process allowed the CCM to make the changes in the PRship without altering the content of the application, as it was at the end of the funding request process that the PRs were selected. According to the CCM, the PRship application process did not require potential PRs to be involved in the drafting of the programmatic and budgetary aspects of the funding request. However, this created some challenges during grant making because the national malaria program led the design and development of the malaria funding request but did not know that Plan International would be subsequently chosen to implement the community-based activities. This created some misunderstandings at the beginning of the grant making process and meetings were held between the national malaria program and Plan International to harmonize activities and agree on budgetary issues. It should also be noted that several of the CCM bureau members were new to the funding request development process, which may have contributed to some of the misunderstandings and challenges related to implementation arrangements and PR selection.

There were several other recommendations proposed by the CCM and the PRs in NFM3 to boost coordination efforts. Based on its experience of coordinating the TB/RSSH grant during NFM2, it was decided that the Financial Operations Monitoring Committee (*Comité de Suivi des Opérations Financières*; CSOF), an ad hoc body, would be maintained for NFM3. The *Observatoire Communautaire d'Accès aux Services de Santé* (OCASS), a civil society monitoring mechanism is also being co-opted into the mechanism, and the 'shared services center' (*Centre de Gestion Mutualisée*) will be recognized as a central coordinating body. In this way, there will be multiple coordinating bodies rather than only one coordinator, though this arrangement will need to be confirmed.

Key message 5: Unresolved issues during NFM2 regarding diagnostic capacity, DHIS2, and RSSH implementation arrangements, risk undermining the efforts of the PRs to change the trajectory of Global Fund investments.

The PCE assessed evidence of 'change of trajectory' for diagnostic capacity and RSSH/DHIS2 in terms of: 1. changes in allocation levels and intervention scale/scope; 2. application of NFM2 lessons learned in the design of NFM3 strategies; and 3. changes in focus on equity, RSSH and sustainability compared to previous grants.

Diagnostic Capacity

Allocations for interventions to support diagnostic capacity are expected to remain stable or slightly increase between NFM2 and NFM3. For instance, case detection and diagnosis for TB and MDR-TB increased by about 13% (€196,000), and there is an expectation that TB/RSSH funds will be used to expand diagnostic capacity for the HIV and TB programs. Funds for laboratory systems increased by 14% (€176,000). Because of limited changes in the actual allocations, the scale and scope of the interventions related to diagnostic capacity have remained relatively unchanged.

As discussed earlier, there were several challenges that were identified in NFM2 around resource optimization. During NFM2, only 45% of GeneXpert devices (47 devices total) were used due to lack of maintenance, stock outs, and gaps in human resources. To address these gaps, the focus in NFM3 has shifted to more integrated use of GeneXpert, a strengthened sample transportation system,

acquisition of cartridges for multiple diseases, regular monitoring of activities, staff capacity building, equipment maintenance, and establishment of interconnection software to facilitate information management at all levels.

To coordinate use of GeneXpert, the TB and HIV programs developed a plan to establish a more integrated GeneXpert network and sample transport system to maximize use of the platform.(21) The sample transport system will be further integrated into the package of services provided by the community health workers, especially in difficult-to-access areas. Development of these integrated plans is necessary as the use of GeneXpert has expanded to HIV pediatric testing and viral load measurements, as well as COVID-19 testing. However, there appeared to be limited consultation for integrating GeneXpert procurement between the programs during the funding request, and difficulties in transporting the samples have not yet been addressed in NFM3. With CT input, the DGS will remain the lead for equipment distribution with coordination support by the DL. To facilitate this transition, the DL has requested that PNT continue to manage the deployment of GeneXpert until the end of 2021, a year after MSAS proposed that DL oversee the coordination as more programs (HIV and Hepatitis) are using this diagnostic tool. Global Fund investments also include the procurement of cartridges to minimize stock outs. In order to cover the significant cartridge needs generated by the use of the GeneXpert test as a first line in districts of six high load regions, 40% of the annual stocks needed in Year 1, 15% in Year 2 and 10% in Year 3 are included in the funding request; the remaining annual gaps are integrated into the PAAR. To avoid delays in the procurement of reagents, equipment and other supplies, a review is underway to understand the need for establishing a Laboratory Information Management System (LIMS) to learn more about stock outs at the district level, with the goal of averting them in the future. Additionally, securing government contributions for procurement is still a major challenge according to a recent FMEA risk analysis.

According to the country team, NFM2 investments to directly fund staff dedicated to testing did not adequately fill the human resource gaps. Therefore in NFM3, the Global Fund has planned to conduct an assessment of the Human Resources for Health (HR4H) to support the Government of Senegal develop a 5-10 year strategic plan with clear deliverables related to human resources, while fostering country ownership. Furthermore, laboratory technicians will be further trained in maintenance, quality assurance and application of tests for different diseases. Training of healthcare workers is expected (especially in the context of PPE use during COVID-19), but it is unclear whether this training will include specific modules for use of GeneXpert.(22) Furthermore, supervision of GeneXpert and laboratories will be integrated in the biannual supervision conducted jointly between PNLT and CNLS. Plans for greater equipment maintenance were discussed for NFM3, and the program established an interconnection software in 2020 that will be used in the next funding period. According to the country team, coordination under the DL is expected to improve coordination of equipment maintenance and quality assurance, training, and supervision. Laboratory indicators have also been expanded in NFM3 to address performance. Lastly, funding for COVID-19 has been helpful in strengthening supply and procurement of equipment for reference laboratories (especially Rapid Testing PCR) and other molecular testing, increasing use of GeneXpert for COVID-19 testing, avoiding possible shortages of medication and supplies during COVID-19, and supporting the COVID-19 response plan.

Proposed changes to interventions and implementation arrangements in NFM3 may not adequately address RSSH and equity of Global Fund investments in diagnostic capacity. RSSH could be strengthened by leveraging the GeneXpert Network Extension Plan (GeneXpert distribution and sample transportation) and relying on DL for strategic coordination as advised by the country team, though the transition from PNT to DL has been delayed until the end of 2021. The CT has recommended that the DL revise the existing laboratory strategy to coordinate needs across all programs and lead the coordination across all laboratory activities.

Despite efforts to address inequality in NFM2, limited use of GeneXpert was linked with persistent regional and KP inequities in access to testing. To reduce inequities in test coverage, NFM3 plans to expand test platforms (GeneXpert, PCR, microscopy), particularly in higher burden areas. The donor mapping exercise for viral load tests may facilitate greater geographic coverage for HIV viral load testing. These activities are intended to address geographic inequities, but mapping of GeneXpert machines to be acquired by the Government of Senegal (n=11) still show gaps in diagnostic capacity in southern regions. Deployment still appears to be informed by older TB prevalence and mortality data, and plans for conducting a new TB prevalence survey have been limited due to the prohibitive costs. In the absence of new data, there may be new clusters or concentrations of TB that are not accounted for in the current integrated GeneXpert network.

RSSH and DHIS2

The overall budget for RSSH increased by nearly 25% between NFM2 (€11 million) and NFM3 (€13.5 million), and included some notable shifts in the budget for specific RSSH modules (Figure 15). For example, overall funds under the HMIS/M&E module decreased by about 13% and funds for human resources for health decreased by about 14%. In comparison, funds for community systems strengthening, procurement of health products, and laboratory systems received greater funding than in NFM3 (Figure 16). Funds for DHIS2-related activities also increased substantially in NFM3 as there was greater investment to support the national HMIS (96% increase) and disease-specific patient tracking (78% increase) (Figure 17). In NFM3, strengthening the national DHIS2 system will be accomplished through increased investments for guides, manuals, and training of staff from the private and public sector on the use of the platform, and purchasing smartphones to make data collection easier in community settings. There are also funds to further develop the system through hiring consultants, and organizing workshops to ensure stakeholders are involved with final configuration of the application. In addition, funds for data quality review will support DHIS2 in NFM3 as data validation activities will be undertaken using DHIS2 data instead of data collected in disease-specific systems. The President of the CCM released a note on April 30, 2020 affirming that each program had committed a certain percent of its budget for cross-cutting RSSH activities: 10% of the HIV and Malaria budgets and 7% of the TB budget, amounting to 6,634,315 Euros, or about 4,351,827,517 FCFA. The note has limited impact on the grant making budget and is expected to affect the RSSH budget for cross-cutting activities during NFM3 implementation.

Figure 15. Percent increases in disease allocations between NFM2 and NFM3 (€ Euro)

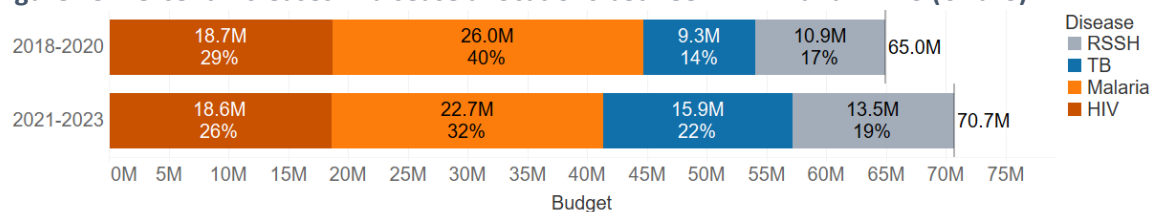


Figure 16. Percent changes between RSSH modules between NFM2 and NFM3 (€ Euro)

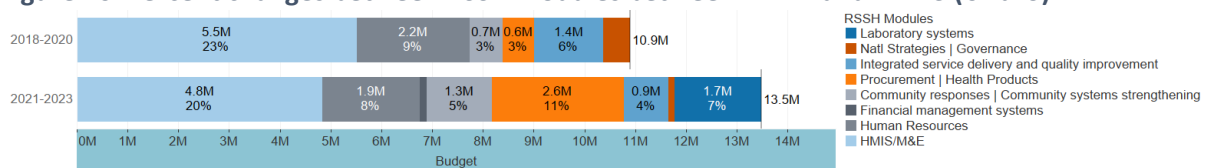
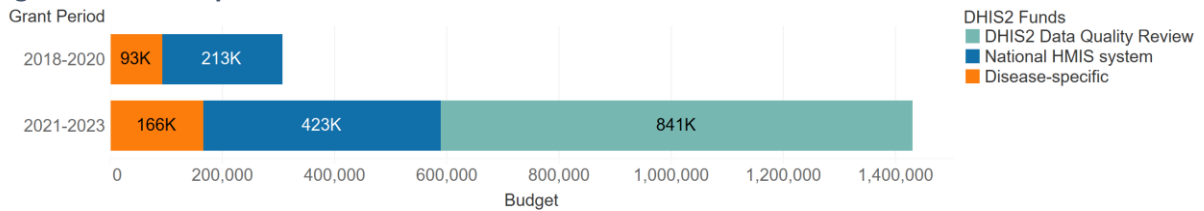


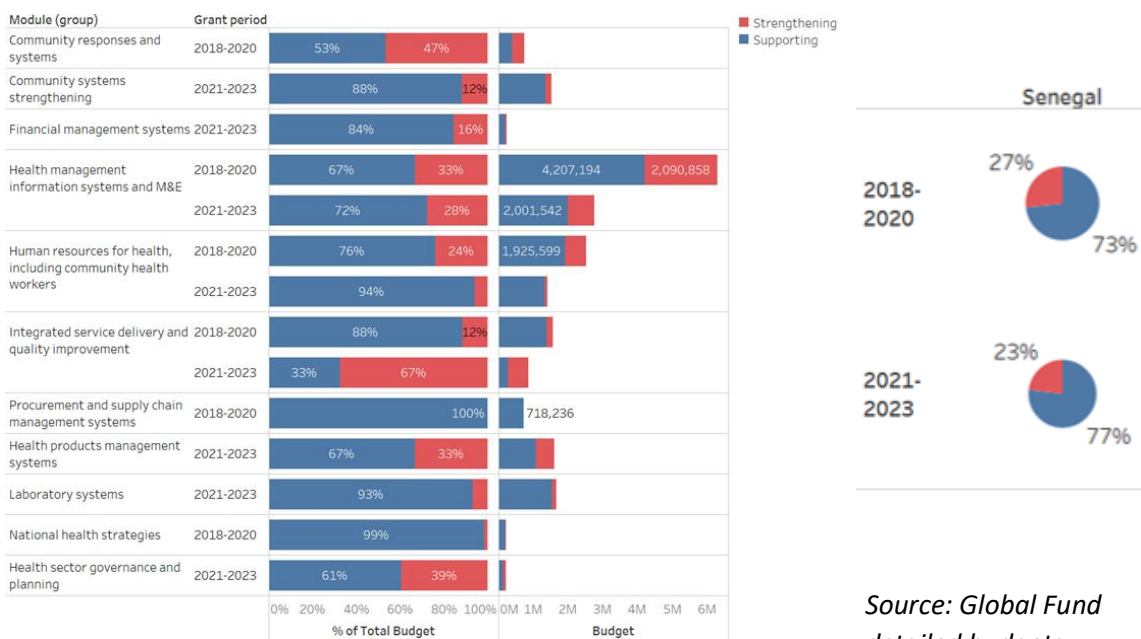
Figure 17. DHIS2 Specific funds in NFM2 and NFM3



Source (Figures 15, 16, 17): Global Fund detailed budgets

The PCE findings from the RSSH support versus strengthening “2S” analysis showed no significant changes in NFM3 compared to NFM2 in the percent of investments that were categorized as supportive versus strengthening. The vast majority of RSSH investments continue to be supporting (77% in NFM3) rather than strengthening the health system despite Global Fund’s guidance “to shift from a focus on short-term, input-focused support...towards more strategic investments...that build capacity and lead to sustainable results”.(23) At the modular level (Figure 18), Integrated Service Delivery and Quality Improvement was the only module that showed greater strengthening investments in NFM3 compared to NFM2 (67% vs. 12%). Otherwise, investments for Laboratory Systems in NFM3 were mostly commodity-focused and considered supportive (93%) and HMIS/M&E investment categories remained mostly the same. Conversely, the proportion of strengthening interventions decreased for Community Systems Strengthening (12% vs. 47%) and Human Resources for Health (6% vs. 24%). Systems initiated as part of NFM1 follow vertical programming and require supportive investments to make equipment, supplies and training available. With growing recognition of the importance of crosscutting systems for diagnostic capacity, HMIS, and human resources, a shift towards strengthening and integrated investments is conceivable.

Figure 18. Percent changes in supporting and strengthening investments based on the 2S analysis for RSSH modules



Source: Global Fund detailed budgets

Despite the decrease in funding for the HMIS/M&E module in NFM3, the NFM3 funding requests discuss the intention to build on lessons learned from NFM2. The Global Fund Allocation Letter for 2020-2022 strongly encouraged a focus on improving the availability and quality of data in DHIS2 and LIMS and highlighted the importance of finalizing the full transition to DHIS2. The expectation was

that investments in parallel reporting systems would not be supported in NFM3 funding requests the way they had been in NFM2. While the malaria program completed its full transition to DHIS2 as of January 2020, the TB program is expected to transition by January 2021, and the HIV program during NFM3. During NFM3 grant making, the HIV program agreed to transition data and reporting to DHIS2 at the end of 2021, but will need to overcome challenges related to sensitive data collection occurring at the community level. To achieve this, two activities are proposed in NFM3: 1) An assessment of monitoring and evaluation needs of the HIV program and DLSI, resulting in recommendations for how DHIS2 can support these needs, 2) transfer of “conseiller techniques” HIV reporting specialists to DLSI once the HIV program reporting is switched to DHIS2.

During NFM2 implementation, the PCE noted an increased acceptance of DHIS2 by national programs as the national platform for collecting health information, and greater awareness among stakeholders about what is needed to fully transition to DHIS2. Nonetheless, there are still challenges with integration of programmatic data sources within DHIS2. In an effort to address these challenges, in NFM3 there are plans to improve data validation and system interoperability. Challenges with the non-digitalization of community level data that were noted in NFM2 are being addressed by equipping community stakeholders with tablets for the data entry so that data may be directly uploaded to DHIS2. DPRS is also working on software interoperability to allow programs to upload data from other software to DHIS2. Other areas where the NFM3 funding requests are investing in addressing lessons from NFM2 with regards to DHIS2 are:

- Reinforcing the use of DHIS2 as a reference tool for M&E
- Building data analysis capacity and data quality audits
- Supporting DHIS2 data validation with district level officials prior to national TB and HIV reviews
- Building greater interoperability between DHIS2 and logistic, community and laboratory information systems

As discussed previously, during NFM2 grant implementation arrangements and the institutional set-up for crosscutting RSSH activities were changed as part of the ‘shared service approach’ to integrate financial and program management of Global Fund grants under the MoH. This structure was intended to bring programs together under a single management unit to pool resources, services, and human resource needs, with the goals of improving the visibility of funding within the system, promoting integration across programs, strengthening accountability through an integrated M&E framework, empowering national structures (such as Procurement and Supply Chain Management through PNA), and improving decentralization of services by establishing more unified programmatic strategies for medical regions. Although the MoH faced early challenges to institutionalize its role in the management of the Global Fund portfolio, several of these appeared to be overcome during NFM2 implementation. NFM3 is taking the next step to consolidate ownership under the MoH by adding responsibility for the malaria grant, with opportunities for greater program integration and accountability, however its success will depend on taking into account lessons learned from NFM2. In addition, stakeholders recognized the importance of the multi-sectoral RSS platform and decided to expand it during NFM3 to include a fifth commission entitled "Coordination of Technical and Financial Partners (TFP)", however the institutional arrangements in NFM2 were not well defined, and as a result the platform did not receive the financial support it needed to ensure its functionality.

6. Conclusions

The purpose of PCE 2020 was to conduct a grant cycle analysis of Global Fund investments of (1) NFM2 in terms of the Funding Request, Grant Making, and Grant implementation, through to (2) NFM3 funding request and the early stages of its Grant Making, with a particular focus on how investments in diagnostic capacity and DHIS2 led to achievements in equity, RSSH, and sustainability.

Preliminary findings are provided below:

1. During NFM2 grant making, the overall country allocation for TB remained the same but there were numerous shifts within budget modules and interventions, which resulted in a 34% decline in TB/RSSH funding for diagnostic capacity and a 42% higher budget for HMIS/M&E. Declines in diagnostic capacity were primarily due to the non-purchase of GeneXpert by the Global Fund, and the increase for HMIS/M&E is due to PNLN cost-savings, which could not be effectively reprogrammed as part of revisions, were addressed in the NFM3 Funding request to fund RSSH activities, supervision and other areas.
2. During NFM2 implementation, poor integration and coordination of diagnostic strategies (and systems) between disease programs have undermined efforts to strengthen diagnostic capacity and value for money.
3. Significant changes in grant arrangements were initiated during NFM2 with the objective of consolidating grant management under the MoH/DGS. However, complex grant implementation arrangements and poorly functioning coordination mechanisms for RSSH resulted in the non-implementation of many cross-cutting RSSH activities.
4. Non-optimal use of DHIS2 during NFM2 put sustainability of the platform at risk. Several technical, financial and political barriers have prevented uptake of the platform across disease programs and at multiple levels of the health system (particularly at the community-level).
5. In NFM3, we assessed evidence of 'change of trajectory' for diagnostic capacity, DHIS2, and RSSH implementation arrangements using three criteria. For diagnostic capacity, program integration continued to be a challenge in terms of pooling resources, distribution of GeneXpert systems and establishing an integrated specimen transportation system. Funding for DHIS2 has increased considerably from NFM2 to NFM3, as the malaria program has transitioned their reporting to DHIS2 as of January 1, 2020 and the TB program is expected to complete its transition in 2021. However, DHIS2 still requires political capital to strengthen its platform for easier use and make it a reference in the national reporting system. Lastly, DGS' role as PR was expanded to include the malaria program in NFM3. This suggests even greater movement towards institutionalizing the program management and coordination of the Global Fund portfolio under MSAS.

7. Recommendations

Diagnostic Capacity: Point-Of-Care technologies, such as the GeneXpert, can improve accessibility to timely diagnosis of TB, HIV, HPV, and most recently COVID-19. However, poor coordination has led to inequitable distribution and under-utilization of GeneXpert. Coordination related to sample transportation, equipment maintenance and quality assurance, and cross-training technicians can help build a resilient diagnostic capacity. Recommendations include:

- Harmonization in the procedures for acquiring and deploying GeneXpert machines that is focused on systems and not programs (Government of Senegal)
- Continue to support the transition of the management of the GeneXpert network from the TB program to the Directorate of the Laboratories (Government of Senegal, the Global Fund)
- Structure Global Fund budgets to account for delays in when government co-financing resources are made available (the Global Fund)
- Develop an approach for health facilities and laboratories to pool resources between disease programs (Government of Senegal)

DHIS2: Since 2014, health facilities in Senegal have used the DHIS2 platform to collect health information with support from the Global Fund for its nationwide rollout. Acceptability of DHIS2 as a national platform has improved over time, but challenges with accessing data for disease-making and reporting from DHIS2 puts the sustainability at risk. NFM3 investments for data reviews and increased capacity to collect community-level data has helped address lessons learned during NFM2. Recommendations include:

- Continue to support efforts around interoperability, in partnership with PNA and AIRIS (DLSI, the Global Fund)
- Improve the accessibility of DHIS2 as well as connectivity at the community levels (DLSI)
- Train staff to assess and improve DHIS2 data quality (DLSI)
- Work with programs to exclusively enter data into DHIS2 and identify reasons for non-use (DLSI)
- Promote DHIS2 as the national reference tool for tracking national indicators (Government of Senegal, DLSI)

RSSH and country ownership: In NFM2, MSAS continued to centralize the coordination of Global Fund investments by establishing the DGS as the PR for the TB/RSSH grant, which was expanded to include the malaria grant in NFM3. However, in the absence of a clear set of activities and disease program (HIV and malaria) buy-in, the DGS could not use RSSH platform to coordinate cross-cutting RSSH investments during NFM2. Furthermore, delays in procurement led the Global Fund to campaign for the use of GDF and Wambo. PNA's low purchasing and inventory management capabilities threaten the country's ability to strengthen their national systems. Recommendations include:

- Continue to centralize RSSH funds and ensure disbursement during the grant period (the Global Fund)
- Ensure that the RSSH entity in MSAS works beyond program goals to strengthen the system (the Global Fund, MSAS)
- Strengthen staffing related to health systems strengthening and RSSH (MSAS)
- Empower the CCM to work with programs to boost their commitment and involvement under the leadership of DGS (MSAS)

- Establish RSSH indicators to encourage accountability (the Global Fund, MSAS)
- Revitalize the RSSH platform by implementing more specific action plans proposed in NFM3 (MSAS)
- Strengthen the PNA to enable the entire health system benefiting from a safe, regular, and good quality supply. (the Global Fund, Government of Senegal)

NFM3 funding request and grant making process: The funding request and grant making processes were transparent, inclusive and was driven by country priorities. Major challenges involved changes in required documentation and selection of PRs during grant making. Recommendations include:

- Avoid template changes during the different submission phases (the Global Fund)
- Improve communication and transparency with stakeholders participating in funding request development regarding the PR selection process and role during the funding request development. (the Global Fund)
- Explain major changes and strategic shifts (such as grant implementation arrangements) to country stakeholders well in advance of grant making to avoid misunderstandings. (the Global Fund)
- Give SRs more legitimacy, including a seat at the table during grant negotiations when budgetary decisions are made. (the Global Fund)

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Appendixes

Appendix 1. Alignment between NSP strategies and NFM2 priority areas and related indicators

PROGRAM	INTERVENTION STRATEGY	NFM2 PRIORITY AREAS OF INTERVENTION	INDICATORS (reflected in NFM2 performance frameworks, and NSPs)
MALARIA (NSP of PNLP 2016-2020)	Contribution to sustainable strengthening of the health system	Resilient and sustainable health systems 'RSSH): purchasing management systems and procurement	Percentage of health facilities with a stock of essential drugs and other essential medical products
			Proportion of confirmed malaria cases that received first-line antimalarial treatment, according to national policy, in public sector health facilities
		Resilient and sustainable health systems: health information management system and monitoring and evaluation	Percentage of reporting entities submitting their reports on time according to national guidelines
TUBERCULOSIS (NSP of PNT-2018-2022)	Contribution to sustainable strengthening of the health system	Resilient and sustainable health systems: procurement and supply chain management systems	Percentage of health facilities with a stock of essential drugs and other essential medical products
			Number of TB microscopy laboratories
			Number of GeneXpert devices with 4 modules
		Resilient and sustainable health systems: health information management system and monitoring and evaluation	Percentage of reporting entities submitting their reports on time according to national guidelines
HIV (NSP of CNLS 2018-2022)	Development of combined prevention among key populations and other vulnerable groups	Comprehensive prevention programs for people who inject drugs (PWID) and their partners	Percentage of people who inject drugs that have received an HIV test during the reporting period and know their results
		Prevention programs for other vulnerable populations	Percentage of other vulnerable populations that have received an HIV test during the reporting period and know their results
		PMTCT	Percentage of HIV-exposed infants receiving a virological test for HIV within 2 months of birth
		Treatment, care and support	Percentage of people living with HIV and on ART, who have a suppressed viral load at 12 months (<1000 copies / ml)

		Treatment, care and support	Percentage of ART sites that had a stock-out of any antiretroviral drugs during the reporting period
		TB / HIV	Percentage of HIV-positive new and relapse TB patients on ART during TB treatment
RSSH - HMIS/M&E (Digital Health Strategic plan 2018-2023)	Health management information systems and M&E	health information management system and monitoring and evaluation	Percentage of HMIS or other routine reporting units submitting timely reports according to national guidelines

Appendix 2. NFM2 Investment breakdown by disease modules and PRs

HIV

Investments by disease grant. Concernant la subvention du VIH, le budget de la demande de financement 2017 sur 2 ans et demi devait couvrir :

- Près de 44% des besoins en médicaments et réactifs, le reste est couvert par l'Etat et le FM (Phase 2 du round 9)
- Près de 65 % des gaps nationaux pour les HSH : l'Etat et les autres partenaires (USAID, ENDA Santé, Alliance Internationale, OIM) contribuent à la couverture des besoins
- Près de 35% des gaps pour les PS : l'Etat et les autres partenaires (USAID, ENDA Santé, Alliance Internationale, FM phase 2 du round 9) contribuent à la couverture des besoins
- Près de 70% des gaps pour les CDI : l'Etat et les autres partenaires (ONUDC, ESTHER, FM phase 2 du round 9) contribuent à la couverture des besoins
- Près de 40% des gaps de la PTME : l'Etat et les autres partenaires (UNICEF, USAID, FM phase 2 du round 9), contribuent à la couverture des besoins
- Près de 46% des gaps pour les populations en contexte de vulnérabilité : l'Etat et les autres partenaires comme l'USAID et le FM phase 2 du round 9) contribuent à la couverture des besoins

Elle comporte 6 modules quantifiables (3 modules qui ciblent les groupes clés, 1 module pour les populations en contexte de vulnérabilité, 1 module sur la PTME et 1 module sur la prise en charge) et 3 modules non quantifiables qui regroupent le renforcement de systèmes (suivi évaluation et système communautaire) et renforcement de la coordination et de la gestion.

Les 6 modules quantifiables se présentent comme suit :

- **Module 1** : Programme de prévention combinée avec la prise en charge et la protection des droits humains pour les hommes ayant des rapports sexuels avec des hommes, afin de permettre de réduire les nouvelles infections et leur offrir une meilleure qualité de vie. **Le coût global de ce module est de 780 387 euros qui seront sollicités dans le cadre de la note conceptuelle de 2017.**
- **Module 2** : Programme de prévention combinée pour les professionnelles du sexe et leurs partenaires pour contribuer à réduire les nouvelles infections. **Le coût global de ce module est de 555 159 euros qui seront sollicités dans le cadre de la note conceptuelle de 2017.**
- **Module 3** : Programme de prévention combinée pour les consommateurs de drogues injectables et leurs partenaires pour contribuer à réduire les nouvelles infections. **Le coût global de ce module est de 610 949 euros qui seront sollicités dans le cadre de la note conceptuelle de 2017.**

Soit un total de 1 949 494 euros pour les populations clés.

- **Module 4** : Programme de prévention pour les autres populations vulnérables. **Le coût global de ce module est de 2.031 724 euros qui seront sollicités dans le cadre de la note conceptuelle de 2017.**
- **Module 5** : Ce module contribuera à la réduction du taux de transmission mère-enfant du VIH à moins de 2%, par l'extension de la mise en œuvre des plans d'élimination de la transmission de la mère à l'enfant (eTME). **Le coût global de ce module est de 1 227 887 euros, montant qui sera sollicité dans le cadre de la note conceptuelle de 2017.**
- **Module 6** : ce module cible le renforcement de la prise en charge médicale de 12 388 adultes et 808 enfants VIH en 2017. **Le coût global de ce module est de 6 206 925 euros qui seront sollicités dans le cadre de la note conceptuelle de 2017.**

La protection des droits humains et l'amélioration de l'environnement pour la mise en œuvre efficaces des interventions surtout en directions des populations clés les plus exposées seront transversales sur toutes les stratégies. C'est un principe majeur qui sera appliqué à tous les modules.

Les 3 modules non quantifiables sont :

- **Module 7 : Le renforcement du système de suivi évaluation** est prévu dans cette note conceptuelle pour parvenir à un système performant de production des informations stratégiques. **Le coût global de ce module est de 1 497 643 euros, montant qui sera sollicités dans le cadre de la note conceptuelle de 2017.**
- **Module 8 : Le renforcement du système communautaire**, prévu dans le cadre de cette présente note est une composante majeure ayant accompagné le programme depuis le round 6. **Le coût global de ce module est de 518 864 euros qui seront sollicités dans le cadre de la note conceptuelle de 2017.**
- **Module 9 : Le module de gestion, coordination et gouvernance des programmes** répond à une orientation de la stratégie nationale qui vise la pérennisation institutionnelle et organisationnelle des activités. **Le coût global de ce module est de 2 286 597 euros qui seront sollicités dans le cadre de la note conceptuelle de 2017.**

Au total, le montant global demandé dans le cadre de la note conceptuelle VIH de 2017 est de **15 697 840** pour le financement indicatif. La répartition de ce budget par module est résumée dans le tableau 1.

Table 2.1 : Résumé du budget par module et par année

Composantes	Juin-Dec 2015	2016	2017	Total	%
Prévention -HSH	193 113	286 392	300 881	780 387	5%
Prévention - Professionnels du sexe	212 865	173 913	168 381	555 159	4%
Prévention - Consommateurs de Drogues par Injection	153 340	265 359	192 250	610 949	4%
Prévention autres groupes vulnérables	388 622	868 380	774 722	2 031 724	13%
Prévention de la Transmission de la Mère à l'Enfant	233 791	515 665	478 431	1 227 887	8%
Traitements, Prise en charge et Soutien	947 448	2 390 419	2 869 058	6 206 925	39%
Suivi et Évaluation	330 650	460 070	706 922	1 497 643	10%
Renforcement des systèmes communautaires	66 377	286 493	165 994	518 864	3%
Gestion de programme	420 010	958 270	908 317	2 286 597	15%
Total	2 946 217	6 204 961	6 564 957	15 716 134	100%

Figure 2.2a. Investments by disease grant, CNLS

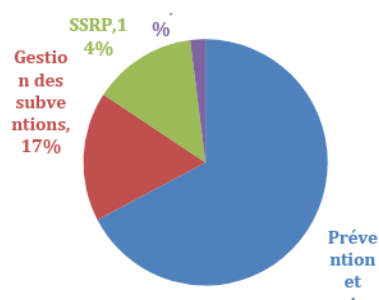
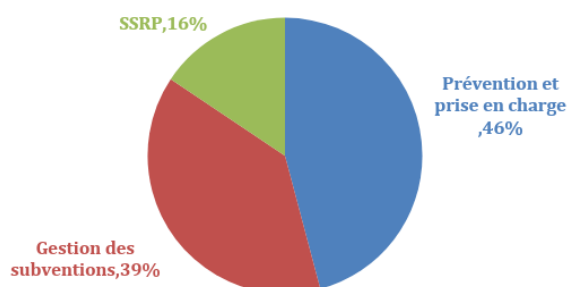


Figure 2.2b. Investments by disease grant, ANCS



TB

Investments by Module. Concernant la subvention TB SSRP, le budget de la demande de financement de 2017 était aligné à la priorisation des activités en vue d'un impact maximal. En effet, 64% du budget est alloué au module « prise en charge et prévention de la tuberculose », qui inclut les nouvelles stratégies mentionnées ci-dessus. Par ailleurs, l'analyse du budget révèle que 28% de la demande est destinée aux activités spécifiques de recherche des cas mises en œuvre dans les 6 régions à forte charge (avec 81% des cas manquants). Une proportion de 47% du budget porte sur les activités de diagnostic et traitement des cas TB et de TB-MR dans les 14 régions du pays. Les 25% restant concernent les activités du niveau central.

Les 6 modules sont les suivants :

MODULE 1 : PRISE EN CHARGE ET PREVENTION DE LA TUBERCULOSE (6.8M – 65% du budget)

- Intervention 1 : Dépistage et diagnostic des cas – (2.5M – 23% du budget)
- Intervention 2 : Populations clés (498k, 5% du budget)
- Intervention 3 : Prise en charge communautaire de la TB – (2.8M, 26% du budget)
- Intervention 4 : Traitement et soutien du patient (Act 1.7 du PSN ; pp 38) (440k, 4% du budget)
- Intervention 5 : Prévention (Composante D du pilier 1 de la stratégie End TB) – (349k – 3% du budget)
- Intervention 6 : Implication de tous les prestataires de soins – (157k, 1% du budget)
- Intervention 7 : Activités concertées avec d'autres secteurs (105k, 1% du budget)

MODULE 2: CO-INFECTION TUBERCULOSE/ VIH – (77k – 1% du budget)

- Intervention 1 : Interventions conjointes de lutte contre la tuberculose et le VIH
- Intervention 2 : Renforcement de la réduction de la charge de la tuberculose chez les personnes vivant avec le VIH – populations clés
- Intervention 3 : Réduction de la charge du VIH chez les patients présumés ou diagnostiqués tuberculeux (pris en charge intégralement par la subvention VIH)

MODULE 3 : TUBERCULOSE MULTIRÉSISTANTE – (966k – 9% du budget)

- Intervention 1 : Détection et diagnostic des cas 190k – 2% du budget
- Intervention 2 : Traitement de la tuberculose multi résistante et mesures de soutien – (775k – 7% du budget)
- Intervention 3 : Prévention de la tuberculose pharmaco résistant

MODULE 4 : SSRP : SUIVI ET EVALUATION (432k – 4% du budget)

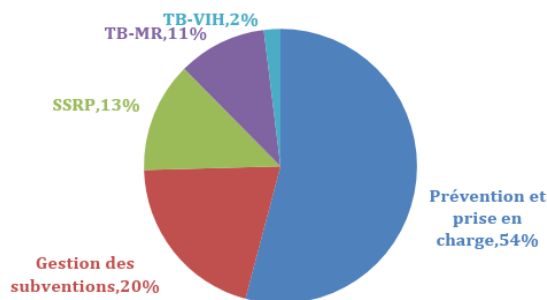
MODULE 5 : GESTION DU PROGRAMME – 1.6M – 16% du budget

- Intervention 1 : Politiques, planification, coordination et gestion des programmes nationaux de lutte contre la maladie (349k – 3%)
- Intervention 2 : Gestion des subventions – (1.3M – 12% du budget)

MODULE 6 : RESSOURCES HUMAINES POUR LA SANTE (702k – 6% du budget)

MODULE RESSOURCES HUMAINES POUR LA SANTE, Y COMPRIS AGENTS DE SANTE COMMUNAUTAIRES (SSRP/TB, SSRP/VIH, SSRP/PNLP) (702k – 6% du budget)

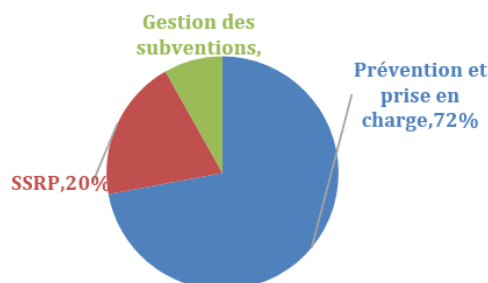
Figure 2.3. Investments by disease grant, TB/RSSH



Malaria

Investments by Module not available

Figure 2.4. Investments by disease grant, PNLP



Appendix 3. Absorption and Revisions.

Figure 3.1a, 3.1b, 3.1c, 3.1d Holistic absorption

Figure 3.1a. Average absorption across all semesters of implementation

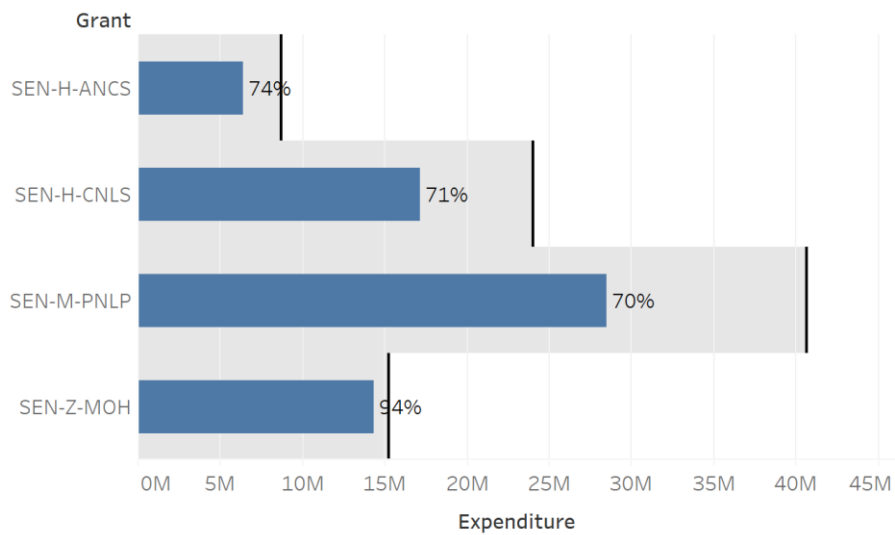


Figure 3.1b. Average absorption in all grants in each semester of implementation

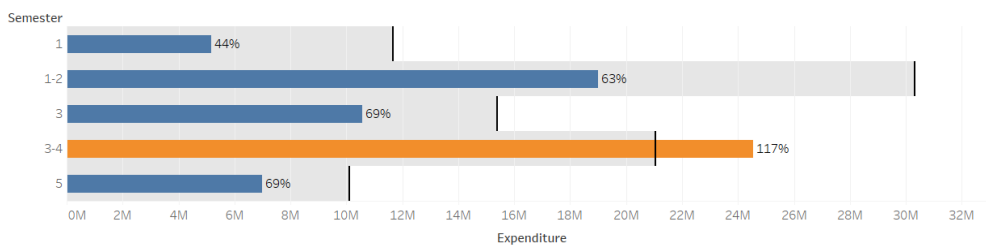


Figure 3.1c. Average absorption of RSSH funds in each semester of implementation

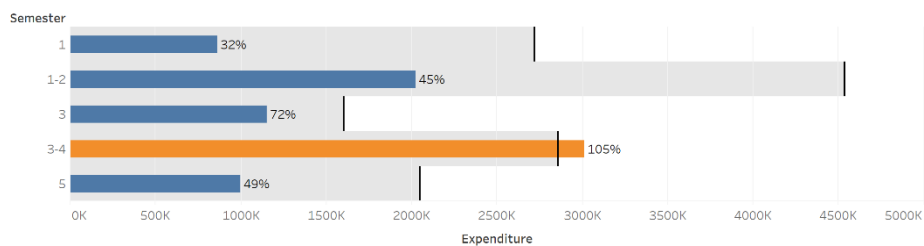


Figure 3.1d. Absorption trends of Human Rights modules in the HIV grants

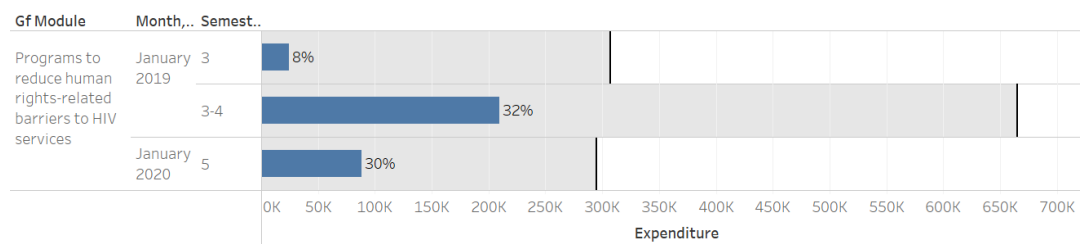


Figure 3.2. Diagnostic Capacity Absorption S1 2018

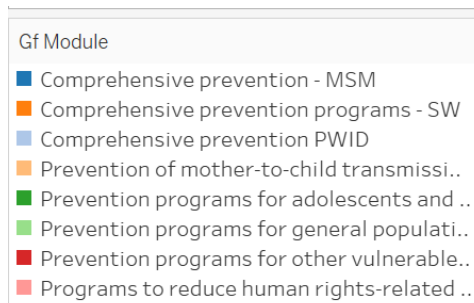
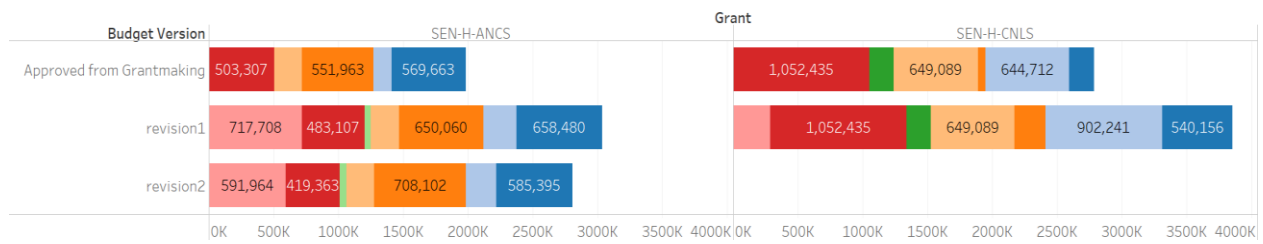


Figure 3.3a. Absorption for S1-2 2018 for each intervention in the Health Management Information System and Monitoring and Evaluation (HMIS/M&E) Module

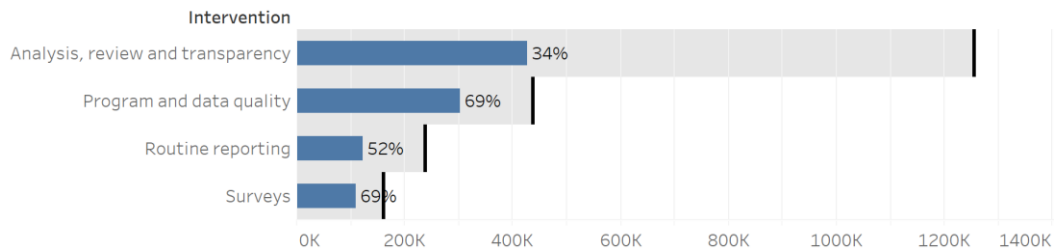


Figure 3.3b. HMIS/M&E allocations in the two HIV grants

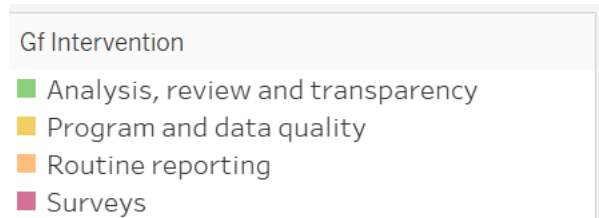
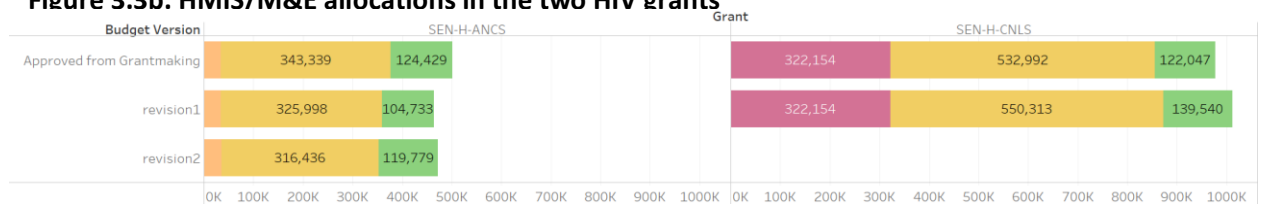


Figure 3.3c. HMIS/M&E absorption in the TB/RSSH grant in Senegal

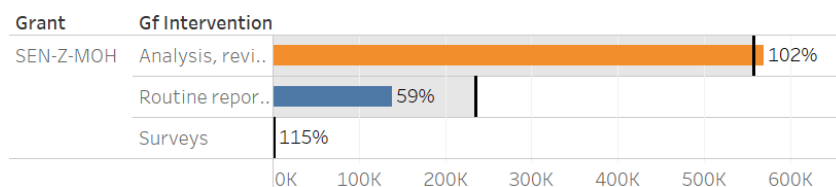


Figure 3.3d. Absorption for Routine Reporting intervention in each semester of the TB/RSSH grant implementation

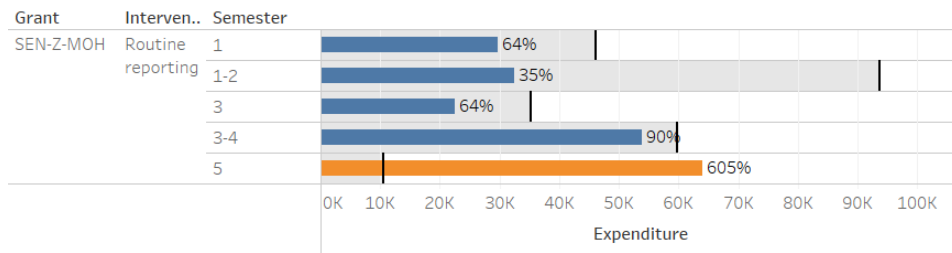


Figure 3.3e. Absorption for each intervention related to Diagnostic Capacity across Senegal grants

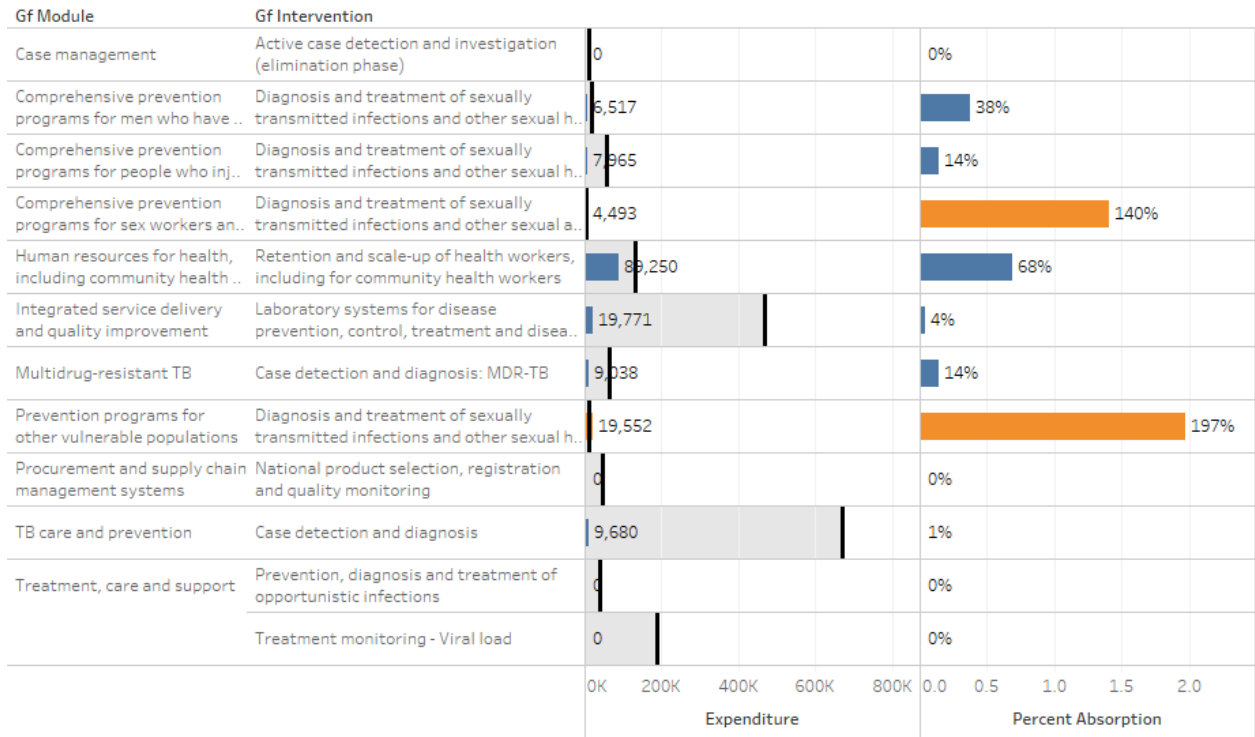
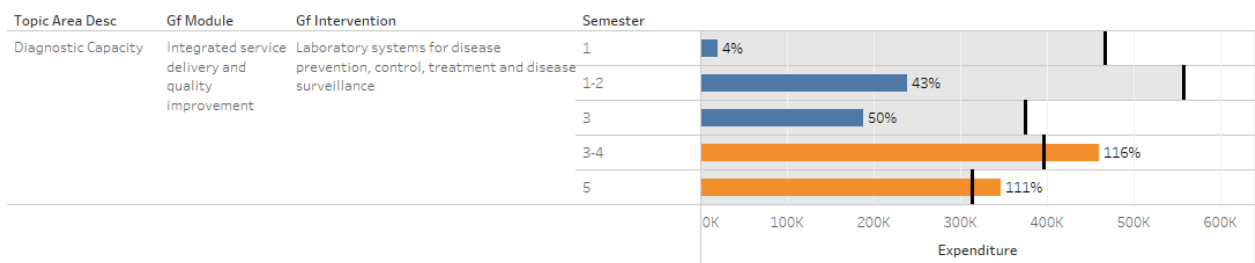


Figure 3.3f. Absorption for the “lab systems” intervention in each semester of implementation across all Senegal grants



Appendix 4. Table of keywords used initially to identify activities for focus topics

Topic	Keyword(s)
DHIS2	dhis2
	collecte de donnees
	qualite des donnees
	validation des donnees
	utilisation des donnees
	informations sanitaires

Topic	Keyword(s)
Diagnostic capacity	diagnostic rapide
	tests rapide
	tests pour le depistage
	TDRs
	Depistage
	GeneXpert
	Xray
	Microscopie
	cartouches
	PCR
	Charge virale
	papier buvard
	frottis
auto tests	

Appendix 5. Files used in analyses

Grant	Budget Version	Version Date	File Name
SEN-H-ANCS	Approved from Grant-making	Dec 2017	SEN-H-ANCS_Budget (1).xlsx
	Revision 1	Apr 2019	SEN-H-ANCS_Revised Budget_FC_FINAL_28Feb2019.xlsx
	Revision 2	Sep 2020	Budget_SEN-H-ANCS_Revised Budget_FC_COvid edit ANCS_updated 02sept20.xlsx
SEN-H-CNLS	Approved from Grant-making	Dec 2017	SEN-H-CNLS_Budget.xlsx
	Revision 1	May 2019	SEN-H-CNLS_Revised Budget_FC_FINAL_28Feb2019.xlsx
SEN-M-PNLP	Approved from Grant-making	Jan 2018	1c.SEN-M-PNLP_Budget (1).xlsx
	Revision 1	Jun 2020	Budget_1c.SEN-M-PNLP_Budget-revision_UpdatedCOVID_23rdJune2020 REVU (1).xlsx
SEN-Z-MOH	Approved from Grant-making	Jan 2018	1c.SEN-Z-MOH_Budget (1).xlsx
	Revision 1	Oct 2020	SEN-Z-MOH_Budget2_Update COVID Module_24Jun AM-11092020.xls