

EVALUATION OF

THE AHD PROJECT
COMPONENT
HIV PROJECT BEIRA 2018-2021

FEBRUARY 2023

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The authors' views expressed in this publication do not necessarily reflect the views of Médecins sans Frontières and the Stockholm Evaluation Unit.

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ACRONYMS

AHD	Advanced HIV Disease
ART	Antiretroviral Treatment
BCH	Beira Central Hospital
CCM	Cryptococemia
CM	Cryptococcal Meningitis
CD4	Cluster of Differentiation 4 Cells
CI	Confidence Interval
CMAM	Central Ministerial das Aquisições Médicas (Health Product Agency MoH)
CrAg	Cryptococcal Antigen
CS	Centro de Saude
DPS	Departamento Provincial de Saude
DR-TB	Drug-Resistant TB
ECHO	Efficiencies for Clinical HIV Outcomes project
EHA	Evaluation of Humanitarian Action
ER	Emergency Room
GF	Global Fund to fight TB, HIV, Malaria
HC	Health Centre
HIV	Human Immunodeficiency Virus
HR	Human Resources
IPC	Infection and Prevention Control
KII	Key Informant Interview
KPs	Key Populations
LP	Lumbar Puncture
LTFU	Patients Lost To Follow-Up
MAM	Medical Coordinator MSF
M&E	Monitoring & Evaluation
MISAU	Ministerio de Saude, MoH
MoH	Ministry of Health
MoU	Memorandum of Understanding
MSF	Médecins Sans Frontières
MSM	Men who have Sex with Men
NGO	Non-Governmental Organization
OCB	(MSF) Operations Centre Brussels
OCG	(MSF) Operational Centre Geneva
OIG	Office of the Inspector General
OPD	Out-Patient Department
PEPFAR	United States President's Emergency Plan for AIDS Relief
PLWHA	People Living With HIV/AIDS
PoC	Point of Care
PPT	Periodic Presumptive Treatment
SAMU	(MSF) Southern Africa Medical Unit
SEU	Stockholm Evaluation Unit
SoP	Standard Operating Procedures
SRH	Sexual and Reproductive Health
SW	Sex Workers
TB	Tuberculosis
TB-LAM	TB (Lateral flow urine) Lipoarabinomannan Assay
ToP	Termination of Pregnancy
UNAIDS	Joint United Nations Programme on HIV/AIDS
VL	Viral Load
WHO	World Health Organization

EXECUTIVE SUMMARY

BACKGROUND

Mozambique is one of the most severely affected countries by the HIV pandemic. The Médecins Sans Frontières (MSF) – Operational Centre Brussels (OCB) HIV project in Beira started in 2014 as a project for migrants and key populations (KPs). This led to insights into the magnitude of the AHD issue that needed to be addressed. In 2018, MSF introduced an AHD component in the Beira Central Hospital (BCH) and in two health centres (Munhava and to a lesser extent, Ponta Gea). The AHD component covered MSF-run laboratory diagnostics and in-facility case management circuits. During the evaluation period, Cyclone Idai and COVID-19 restrictions were important external factors.

METHODOLOGY

The evaluation was aimed at assessing the relevance, appropriateness, effectiveness, efficiency, and connectedness (reduced set of Evaluation of Humanitarian Action criteria) of the project over the 2018-2021 period, as well as compiling lessons learnt that could facilitate future AHD projects.

The evaluation included a desktop review, and a visit to all three project sites in Beira. A mixed-method approach was used. Key informant and patient interviews provided mainly qualitative information, while document review and study of MSF patient databases were used to explore quantitative information. From the outset, the evaluation was conducted in participatory manner with MSF Beira managers. An on-site debriefing session was held and later with the Consultative Group.

FINDINGS & CONCLUSIONS

RELEVANCE

The project was highly relevant in meeting the needs of the population of Beira. At that time, there was no similar project in the Sofala Province, while at the Munhava health facility, over 20% of HIV patients tested were diagnosed with AHD.

APPROPRIATENESS

The project was appropriate to quickly address the lack of AHD diagnostics and management in emergency and primary healthcare settings. In later phases of the project, issues such as the future transfer of the case management to the public health facility, post-discharge follow-up and remaining high mortality at the BCH ER could have been better addressed.

EFFICIENCY

At the operational level, MSF responded with flexibility to changing needs for human resources and medical supplies. The evaluators found that the projects made good use of resources and staff, although high turnover of international staff and unexpected supply hurdles during one year which influenced the implementation. The project received the financial resources it identified as needed. The project did not set efficiency criteria or measure value for money.

EFFECTIVENESS

The AHD management service was established as planned in both BCH ER and Munhava, and support was provided to Ponta Gea outside the original scope. Access for the general population was broad and KPs did not seem to have been hindered from accessing the AHD service. Both men and women used the services equally.

The high HIV-related mortality rate in the BCH ER at baseline seems to have been reduced. During the evaluation period, the mortality measured at BCH ER remained stable at 20% of Patients with AHD. At Munhava, mortality was not measured, and a significant number of patients became LTFU. Verifiable indicators for patient diagnostic testing were better achieved in BCH than at Munhava.

No mortality study took place. Data were collected, but significant gaps were also noted.

CONNECTEDNESS

The project was created in a relative vacuum, with no other organisations working directly on AHD management. However, over the evaluation period, MSF could have created more connections with partners to work on adherence, post-discharge follow-up or facility circuits.

Towards the end of the evaluation period, the project started to build individual professional competencies of future implementers through the mentoring approach. However, there was a lack of an exit strategy to transfer standards and routines to institutions.

Supporting the MoH to draft national AHD guidelines in a country with 1.7 million ARV patients was a major achievement for MSF OCB and MSF Beira, beyond the scope of the targeted results.

LESSONS LEARNED

- An MSF intervention focused on AHD can reduce in-facility mortality related to AHD in a relatively short period of time.

- While the establishment of parallel in-facility circuits focused on AHD and run by MSF resources provides a rapid AHD response, a plan needs to be drafted on how to integrate AHD management into the existing health facility routines at a later stage.
- AHD management needs to be supported by a reliable flow of information on crucial indicators. This includes laboratory information, supply information, and post-discharge mortality information. Internal dashboards and monitoring sheets with reliable information on crucial indicators make changes over time visible and provide a basis for management decisions.
- The root causes of AHD such as non-adherence to treatment and lost to follow-up should be considered in the overall intervention design, even if they will be eventually addressed by other partners.
- Infection control and antibiotics management should be integrated into the design of facility-based AHD intervention from the outset.
- Early identification of Patients with AHD with CD4 at primary health facilities contributes to reducing AHD costs to the public health system, limiting the need for specialised medical expertise, and reducing AHD mortality.
- MSF's clinical and programmatic AHD experience may position it to provide stronger support to Mozambique and other countries in the implementation of WHO's AHD recommendations and national AHD guidelines.
- Transferring routines, methods, functioning circuits and standards for institutional capacity reinforcement may be just as important as the development of individual skills.
- A handover plan to the future implementer and handover standards needs to be designed early in the project.
- Clear, frequent, and consistent messages are important in advocacy, to be disseminated across all levels of the hierarchy of national stakeholders. Advocacy with key health partners such as PEPFAR or WHO can play a key role in supporting MSF's work.

INTRODUCTION

1.1. CONTEXT

1.1.1. SOCIO-ECONOMIC BACKGROUND

Mozambique is a low-income country with a population of about 32.5 million people, out of which 14.4 million (44%) are under the age of 15¹.

Beira, the capital of the Sofala Province in the central region, is Mozambique's major harbour city. In 2020, Beira's population was estimated at 681,486², a large proportion of whom lived in poor conditions with limited urban infrastructure and inadequately functioning services (education, health, and security). The Port of Beira acts as a gateway for both Mozambique's interior and neighbouring landlocked countries (Zimbabwe, Zambia, and Malawi).

1.1.2. HEALTH AND HIV CONTEXT

The public health sector in Mozambique faces challenges, such as lack of motivated, adequately trained, and paid human resources, and weak supply chain system with regular stock-outs and M&E systems. This leads to poor quality of care³.

Mozambique has one of the world's highest burdens of HIV. As of 2021, an estimated of 2.1 million people lived with HIV⁴. The national HIV prevalence rate in the adult population (15 to 49 years) was estimated at 12.4%⁵ (Confidence interval: 11.4-13.4%) in the 2021 national HIV prevalence study. This represented a slight decrease compared with 2015 (13.4%)⁶.

Mozambique has one of the largest HIV treatment programmes in the world, with 1.7 million people reported to be on treatment by June 2022⁷. The HIV programme in Mozambique has been clinic-centred, but some decentralisation has begun⁸. Since the end of 2019, Mozambique has been implementing the Test & Treat policy. Since the end of 2019, the national first-line protocol has been switched to Dolutegravir.

The Global Fund and the United States President's Emergency Plan for AIDS Relief (PEPFAR) are the two main funding partners for HIV programmes in Mozambique with annual funding of over 500 million USD. The Global Fund funding and implementation are channelled through the Ministry of

¹ INE Destaques — Instituto Nacional de Estatística. Available at: <http://www.ine.gov.mz/> (Accessed on 8 May 2019).

² MSF Beira Project Document 2022.

³ MSF Tors Evaluation 2022.

⁴ National Prevalence survey, 2021. Available at: https://phia.icap.columbia.edu/wp-content/uploads/2022/12/53059_14_INSIDA_Summary-sheet-Web.pdf

⁵ Available at: https://phia.icap.columbia.edu/wp-content/uploads/2022/12/53059_14_INSIDA_Summary-sheet-Web.pdf.

⁶ Mozambique National strategic Plan HIV.

⁷ MoH HIV report June 2022.

⁸ MSF Tors Evaluation 2022.

Health (MoH) as the main implementing partner, while PEPFAR funding is channelled through several partners, including the USAID's five-year flagship clinical programme for Efficiencies for Clinical HIV Outcomes (ECHO).

Mozambique has made progress on HIV and Tuberculosis (TB) over the past years. By the end of 2020, it is estimated that 81% of people living with HIV knew their HIV status and 88% of the People Living with HIV/AIDS (PLWHA) were enrolled on Antiretroviral Treatment (ART)⁹, and 66% of ART patients had suppressed viral loads¹⁰. Meanwhile, estimated HIV-related deaths fell from 62,000 in 2016 to 37,000 in 2020¹¹. New estimated HIV infections dropped from 160,000 in 2010 to 130,000 in 2019¹². Between 2017 and 2019, TB notifications increased by 12%¹³. In 2019, Mozambique introduced molecular TB testing as the primary diagnostic tool and switched to an all-oral treatment regimen for MDR-TB¹⁴.

Despite the progress made in recent years towards the UNAIDS 95-95-95 goal, gaps remain. Indeed, there is still a need for programmatic improvements in several areas, including improved antiretroviral retention, monitoring of patients lost to follow-up, improved viral load coverage and suppression, and programme design, quality, and testing coverage for key populations (KPs)¹⁵.

1.1.3. SOFALA CONTEXT

The Province of Sofala has an estimated HIV prevalence of 13.2% in the adult population (15-49 years), which is higher than the national average estimated at 12.4%¹⁶. In 2020, according to the Ministry of Health (MoH/MISAU), 57,499 people were receiving ART in the city of Beira, of whom 10,073 were registered at the Munhava Primary Health Centre. In 2022, the Munhava cohort had about 12,000 patients while Ponta Gea had about 13,000 patients¹⁷.

Concerning TB, in 2020, 3,156 TB cases were detected in Beira (with only 43% were laboratory confirmed), of which 55% were children. The rate of HIV co-infection among the confirmed TB cases in Beira was extremely high (64% in 2020)¹⁸, while the national rate the World Health Organization (WHO) reported was 25%¹⁹.

⁹ First semester report 2022, MoH. Available at: <https://www.misau.gov.mz/index.php/relatorios-semesterais>.

¹⁰ UNAIDS Global Update 2021 Mozambique.

¹¹ UNAIDS Global update 2021

¹² Mozambique National Strategic Plan HIV 2021-2025.

¹³ WHO Global Tuberculosis Report 2021.

¹⁴ Global Fund OIG report 2022. Available at: https://www.theglobalfund.org/media/11838/oig_gf-oig-22-006_report_en.pdf.

¹⁵ GF OIG Report 2022.

¹⁶ National HIV survey INSIDA 2021. Available at: https://phia.icap.columbia.edu/wp-content/uploads/2022/12/53059_14_INSIDA_Summary-sheet-Web.pdf.

¹⁷ Verbal information ECHO, September 2022.

¹⁸ Project document MSF 2021.

¹⁹ WHO Mozambique TB data 2021. Available at: https://worldhealthorg.shinyapps.io/tb_profiles/?inputs_entity_type=%22country%22&lan=%22FR%22&iso2=%22MZ%22.

A community initiative to increase adherence and retention in Sofala has been funded by PEPFAR and implemented by the USAID's ECHO project since 2021.

1.2. DESCRIPTION OF MSF AHD COMPONENT

1.2.1 MSF WORK IN BEIRA PRIOR TO AHD

As part of its Corridor Project, MSF started working on HIV in Beira in 2014, providing a comprehensive care package to Key Populations (KPs) along a major transport corridor running through Mozambique and Malawi²⁰.

In 2015, MSF also intervened in two primary Health Centres (HC/Centro de Saúde de Carvalhos) in Munhava and Ponta Gea, supporting the MoH in implementing specific HIV-related activities including routine viral-load (VL) monitoring and pharmacy management.

In 2017, the Corridor Project evolved to provide a package of HIV prevention and treatment, as well as Sexual and Reproductive Health (SRH) services to KPs. In 2017, MSF started supporting integrated HIV care, notably in the Munhava Health Centre.

1.2.2 AHD COMPONENT

In 2018, based on an assessment conducted in 2017, the MSF project in Beira was refocused and started targeting the general population together with the AHD component.

Regarding the AHD component, MSF started working in three locations:

1. In the Munhava Health Centre, MSF contributed to TB/HIV, the AHD patient's journey and laboratory;
2. In the Beira Central Hospital (BCH), MSF intervened mainly in the emergency room (ER) and the ER laboratory and supported patients with AHD in the medical wards; and
3. In the Ponta Gea Health Centre, limited AHD support was provided intermittently (see table 1).

In 2021, MSF started implementing an AHD medical mentoring component to strengthen the MSF and MoH staff's skills, with plans to expand the mentoring support in Beira to a total of 10 facilities.

The main milestones of the AHD component are presented in the table below.

²⁰ MSF consultancy's ToRs.

Table 1. Main milestones of the AHD Project

YEAR	MILESTONES
2016, 2017	<ul style="list-style-type: none"> Assessments of the TB, HIV/TB, and AHD situation
2018	<ul style="list-style-type: none"> Start of AHD component in BCH (ER), Munhava (one-stop shop), and Ponta Gea (case management support, ER and laboratory rehabilitation)
2019	<ul style="list-style-type: none"> Start of AHD component in BCH ward, incl. X-ray and GeneXpert Cross-referral started from BCH to Munhava Start of phone follow-up Start of ultrasound
2020	<ul style="list-style-type: none"> Limited expatriate MSF presence due to COVID-19 Temporary and full nationalization of posts Temporary support to TB-DR in Munhava
2021	<ul style="list-style-type: none"> Launch of medical mentoring Changes in import and purchasing procedures for health products by MoH Start of decentralisation to 8 other Health Centres
2022	<ul style="list-style-type: none"> Agreement with local NGOs for follow-up of discharged patients with AHD

1.3 EVALUATION METHODOLOGY

1.3.1 EVALUATION FRAMEWORK

The evaluation framework describes an approach used to understand the extent of the change and the reasons why change occurred in the areas of interest – be it directly through the MSF’s intervention or due to other drivers of change.

The evaluation used a reduced set of Evaluation of Humanitarian Action (EHA) criteria as defined in the Terms of Reference (ToRs) – namely relevance, appropriateness, effectiveness, efficiency, and connectedness. The evaluation appraised the project’s outcomes and the merits of various parts of the interventions, approaches, and partnerships in the process.

Prior to data collection, a detailed Evaluation Matrix was designed, breaking down the criteria into questions for stakeholders and information to be reviewed in this respect.

Regarding data collection and analysis, a mixed-method approach was applied, while a participatory approach was applied from the early stages of the process. A working session with all members of the evaluation consultation group was conducted to jointly define the lessons learned based on the evaluation findings.

Based on the initial desk review and discussions with the members of the evaluation consultation group, conducted during the inception phase, the evaluation explored specific key areas, as follows:

- Access to and quality of care provided,

- Transfer of individual and institutional capacity,
- MSF's internal organization, and
- Advocacy and partnerships.

The evaluation covered the period from 1st January 2018 to 31st December 2021. It covered the health facilities of the BCH (covering both MSF activities in ER and BCH wards), the Munhava and Ponta Gea Health Centres.

1.3.2 DATA SOURCES

A mixed-method approach was applied using the following data collection tools:

- Document review. This included MSF documents such as assessments, handover reports, logical frameworks (or logframes), available monitoring sheets, regular project reports, etc. External information from sources such as the MoH, WHO, and organisations working on HIV in Mozambique was also included.
- Routinely collected clinical data. MSF's clinical databases (BCH ER and Munhava) as well as their clinical data analysis were reviewed. MSF's databases cover Patients with AHD at the BCH and all ARV Munhava patients including AHD ones.
- Individual interviews. A total of 58 people were interviewed, some repeatedly. They included: MSF staff working in regional and headquarter positions (4), MSF Beira project staff (26), MoH health care staff (6), representatives from MoH and other actors (6), and patients (16, including members of KPs). The detailed list can be found in the Annex.
- Group discussions. A total of 3 group discussions were held with laboratory staff from BCH, Ponta Gea and Munhava Health Centres. Nine MoH and MSF staff members participated.
- Review of patient records. Four randomly selected AHD patient records from BCH and Munhava facilities were reviewed. Due to archiving problems, only recent patient records (2020, 2021, 2022) could be reviewed.
- Direct observations. Observations of work processes and walk-throughs in facilities were undertaken. These included the BCH ER, one BCH medical ward, the Munhava and Ponta Gea Health Centres. Moreover, laboratories of all these facilities were also included.

1.3.3 DATA ANALYSIS

Data were analysed and compared by year, source and level of reliability. To ensure internal validity, triangulation was conducted across data collection tools (document review, clinical data, key informant interviews and field observations) and stakeholder groups.

Quantitative data analysis examined patients' status at admission (HIV status known, on ARV, TB status), post-admission testing (CD4, CrAg, TB-LAM or other TB diagnostics), percentage of people tested, percentage positive as well as treatment, discharge, and follow-up information. Trends were reviewed for descriptive analysis, e.g., coverage of patients by testing, number of patients in care, mortality and triangulated with qualitative data obtained from interviews and narrative reports.

We also examined the quality of MSF's quantitative data analysis and its use in MSF management decisions.

Qualitative data was used to assess the methods applied, the processes put in place, the way in which activities were carried out and the way in which cooperation with other stakeholders was designed. Field observations were conducted to observe the organization of the laboratory cycle and the patient's journey, as well as the overall facility conditions. Qualitative information was also used to fill the gap related to unavailable data and to gain an understanding of trends.

1.3.4 ETHICS

The evaluation was conducted in accordance with SEU Ethical Guidelines and the norms set out in the UNEG Norms and Standards for Evaluation, especially Norm 6 (Ethics)²⁸. All evaluators signed the SEU Ethical Guidelines.

Interviewees were selected without consideration of age, gender, religion, etc. The criterion for inclusion was whether the interviewee could contribute any information on the specific evaluation question(s) from their perspective. Patients were randomly selected from a list of patients covering all adult age groups, the two main supported facilities, and members of KPs.

Written informed consent was obtained from all former patients after they had been provided with background information about the evaluation. Furthermore, interviewees were informed that their participation was entirely voluntary and that they could stop and withdraw from the interview at any time. In addition, their answers would not affect their relationship (or treatment).

The credibility of the evaluation findings was ensured through the use of multiple sources of information for triangulation, regular meetings of the evaluation team during the interviews, and data analyses to discuss the findings and their interpretation. This minimised any bias that might have been introduced. Key findings were discussed at a debriefing meeting and during a working session to ensure member verification and ensuring validity of the findings.

1.3.5 LIMITATIONS

The main limitations of this evaluation include:

- Difficulties in arranging interviews with some key MoH informants.
- MSF staff turnaround in key project positions, resulting in gaps in institutional memory.
- Limitations of routinely collected data, including issues of completeness and reliability. The evaluation could neither access to data from the MoH or the USAID's ECHO project, thus preventing the assessment of clinical results at the Ponta Gea Health Centre.

2 FINDINGS

2.1. RELEVANCE

Summary of findings:

In 2017, MSF decided to establish a specific AHD component within the existing HIV project with the help of similar MSF OCG projects in Maputo. Despite significant challenges related to AHD, there were no stakeholders interested nor involved in AHD in Mozambique at that time.

Prior to the launch of the AHD component, several assessments were conducted to explore issues related to TB, HIV, and AHD. The results highlighted high HIV-related mortality at BCH and limited AHD detection in Munhava Health Centre. All three assessments looked at the facilities where MSF was already operating, but did not examine other needs outside the facility.

The design of the AHD component was also informed by discussions with MoH staff at BHC and Munhava.

The AHD component initially focused on addressing HIV mortality in BCH (through the establishment of triage and diagnostic pathways and AHD treatment) and on improving AHD detection at Munhava (through systematic CD4 testing of all HIV patients and AHD treatment as needed). New activities were incorporated to the AHD component during the project cycle.

2.1.1 EXISTING AHD NEEDS BEFORE PROJECT START

In 2017, MSF decided to invest efforts into addressing AHD by creating a specific component within the existing HIV project starting from 2018. At that time, evidence gathered through this evaluation indicated that the main AHD-related challenges were as follows:

- High numbers of HIV patients presenting to health facilities at a late stage of the disease;
- High percentage of identified Patients with AHD with previous exposure to ARV treatment (75%);
- High numbers of HIV patients lost to follow-up (LTFU)²¹;
- High mortality of patients identified or suspected to have AHD – estimated at 51% in BCH²²; and
- No information on what happened after the HIV-positive patient was discharged.
- According to MSF and MoH staff interviewed, as well as information in the MSF assessments and MoH documents²³, the quality of the health care provided to patients with AHD at that time was hampered by the following factors:
 - Insufficient knowledge and attention to AHD aspect by individuals and MoH institutions;

²¹ MSF Assessment report 2017.

²² Ibid.

²³ Advanced HIV Update, MoH, 2020.

- Lack of guidelines at national and/or facility level;
- No established routines for managing AHD (e.g., no AHD triage, long laboratory loop, lack of equipment and consumables for AHD-related testing);
- No funding for AHD-related needs²⁴ (Point-of-care testing, antibiotics, diagnostic equipment such as ultrasound or GeneXpert or Pima CD4 testing); and
- No national or international stakeholders working directly on AHD apart from MSF OCG in Maputo.

2.1.2 ASSESSMENT CONDUCTED BY MSF

The MSF team in Beira faced many of these challenges as part of its HIV activities in Munhava, where MSF had been working since 2014. At least three MSF documents reflect the AHD-related situation in Beira before the start of the AHD component. These documents were drafted by the MSF's South African Medical Unit (SAMU) department. In addition, the three documents are based on BCH and Munhava MoH data from 2015-2017 in collaboration with BCH and MoH managers.

An MSF SAMU document assessing the TB situation from 2016 points at the extremely high HIV/TB co-infection rate of the BCH TB patients in 2015 – 65% and the lack of TB treatment for some patients with a positive TB diagnosis. It also mentions that over 50% of patients at BCH ER got admitted due to HIV and TB-related pathologies.

The main assessment on AHD was conducted in 2017 by four MSF SAMU staff members/colleagues and focused only on BCH. The assessment mentions the following data for BCH in 2016:

- 11.9% overall mortality rate
- 30% mortality rate in the medical wards
- 51% mortality rate among HIV patients admitted to the BCH wards and ER^{25, 26}
- 19% mortality rate among TB patients admitted
- 68% of total deaths in medical wards are related to TB and HIV
- TB and HIV patients accounted for 47% of total admissions to medical wards
- In 2016, 1,400 TB/HIV patients died at BCH

The assessment pointed out that not all patients in the BCH ER were tested for HIV or later for AHD. The assessment also identified BCH Hospital as a referral hospital for about 9 million people, covering not only the Province of Sofala, but also Manica and Tete ones, adding to the importance of any changes that could be carried out.

²⁴ Global Fund product and price guide, 2020.

²⁵ Data for ER and wards for patients with known HIV status.

²⁶ Little recent comparative data on in-hospital HIV mortality was found online. Studies were conducted on small samples. A study from a regional hospital in Ethiopia showed a 18% in-hospital mortality rate among 101 HIV-positive patients in 2019. A study of 700 patients in China showed a 8% in-hospital mortality rate in HIV patients in 2019 (reduced from 19% in 2010)²⁶. A retrospective cohort study from regional hospital in Brazil, showed a 13.5% mortality rate during the 2012-2017 period on a 461 patients sample. A mixed-method review of in-hospital HIV mortality from Senegal, Malawi and Tanzania from 2014 showed a mortality rate ranging from 22% to 44%. In respect to the above studies, 51% mortality rates seem extremely high.

A separate MSF SAMU assessment report for Munhava (2018) found that in 2017, less than 40% of the ARV Munhava cohort were tested for CD4. The CD4 results were below 200 for 18% of patients. The report also showed that only 30% of the sample with a CD4 below 200 were treated as AHD. According to the assessment, the Munhava Health Centre and BCH were interested in collaborating on AHD.

All three assessments looked in detail at the in-facility diagnostics and medical treatment of the facilities where MSF was already operating. They did not review other processes or needs outside of the facilities. The assessments concluded that addressing the in-hospital mortality through better diagnostics and medical follow-up may have high relevance and a high chance of impact. The assessment reports did not examine the situation in Ponta Gea or any other health facility.

2.1.3 ACTORS INVOLVED IN THE NEEDS ASSESSMENT AND DESIGN PHASE

Based on the interviews with MSF stakeholders, in addition to the data collected and discussions with BCH and MoH representatives, MSF OCB was informed by its discussions with MSF OCG on the OCG's AHD project in José Macamo Hospital in Maputo to define its new AHD component.

No other Mozambican stakeholders (beyond MSF OCG and BHC and Munhava MoH staff) were consulted during the AHD assessment and the initial design²⁷. Nevertheless, it should be noted that in 2018, there were very few stakeholders known to be interested or involved in AHD in Mozambique. Furthermore, AHD wasn't part of any Global Fund or PEPFAR-funded activities. AHD-related data were not assessed by the MoH or any other partner. Even the MoH's HIV patient record format, which was introduced nationwide in 2020, did not include a specific AHD category²⁸.

2.1.4 MAIN OBJECTIVES/ELEMENTS OF AHD COMPONENT

The new AHD component focused on addressing the high HIV mortality at the BCH ER creating an MSF circuit of HIV and CD4 diagnostic after triage, followed-up by further AHD-related diagnostic (TB and CrAg) and treatment steps.

To improve AHD detection at the Munhava facility, the AHD component required that every HIV patient to be referred to the MSF-provided CD4 within the facility and then to further MSF-provided AHD-related diagnostic and treatment as needed.

The new component also paid attention to ensuring the provision of AHD diagnostics. As such, during the evaluation period, AHD diagnostic tools and consumables were purchased by MSF, MSF laboratory technicians were deployed in the BCH ER and Munhava laboratory, while related laboratory circuits and referrals were developed.

²⁷ CUAMM was consulted on TB-related aspects.

²⁸ As viewed at Munhava facility, Sep 2022.

Since its launch in 2018 until 2021, the AHD component expanded its activities to address additional issues, including:

1. Initiating a follow-up mechanism for Patients with AHD after discharge from BCH (since 2019);
2. Conducting training and mentoring activities for MSF and MoH staff working in supported facilities (first AHD training in 2018, second in 2020, mentoring from 2021); and
3. Establishing a referral mechanism for Patients with AHD from the Beira hospital to the Munhava Health Centre, with patient follow-up by MSF Munhava (starting in 2019).

Further changes were introduced by MSF Beira in 2022, notably:

1. Community follow-up for the general population through a collaboration with a local NGO;
2. Support to eight additional MoH health facilities, decentralising AHD management by introducing basic AHD detection, diagnostics and treatment at Health Centre level;
3. A mentoring approach to enhance MoH staff competencies;
4. Stock-out control in facility-based pharmacies; and
5. Genotyping for resistance to the first-line protocol and Visitect for POC detection of CD4 below 200.
6. Although worthy of mention, they will not be explored in this report as they fall outside the timeframe of this evaluation.

2.1.5 AHD EVOLVING CONTEXT

During the first years of MSF's AHD intervention in Beira, there were no significant changes in the AHD/HIV context. At the end of 2019, the Test & Treat ARV protocol began. In 2020, the ARV protocol including Dolutegravir began. Moreover, in 2020, the PEPFAR reinforced the HIV cohorts follow-up in four provinces (including Sofala), with extensive support for MoH data management and community follow-up. However, primary data generated by PEPFAR funded organisation in Ponta Gea and Munhava have not been shared with MSF. MSF has been seeking an agreement with USAID's ECHO project to access to primary data, but the process has not been completed by the time of the evaluation.

In 2021, the Global Fund – the main funding mechanism for ARVs in Mozambique, also began to fund AHD-related health products, leading to:

1. MSF no longer receiving MoH approvals to import many AHD products based on the presumption that Global Fund-related procurement would be sufficient; and
2. Stock-outs at provincial and facility levels as the Global Fund and the MoH-related distribution mechanism did not function smoothly.

To overcome these changes, MSF began supporting pharmacies to conduct inventory and consumption reviews to facilitate earlier ordering.

National AHD guidelines were published and the implementation began in 2022. Adjustments made by MSF's AHD component were not included in this evaluation as they were outside of its scope.

2.2. APPROPRIATENESS

Summary of findings:

The three facilities selected to implement the AHD component were able to cover 25% of the HIV cohort in Beira. At the end of 2021, the project extended its support to eight new health facilities to help them implement the newly introduced national AHD guidelines.

MSF decided to work within the existing structures of the MoH by creating new and parallel AHD management circuits within these facilities. These new circuits were run with MSF's own resources. A limited number of initiatives were implemented to promote the involvement of MoH staff. Challenges were reported in the coordination with the BCH hospital. Higher levels of MoH authorities were not engaged by MSF to navigate and address these challenges.

Laboratory investments were made in the three supported facilities — namely the purchase and maintenance of laboratory equipment (Pima, GeneXpert), the rehabilitation of the Ponta Gea laboratory and minor laboratory repairs, as well as the purchase of tests and consumables.

Different approaches were taken in each of the supported facilities to improve case management. Limited efforts were conducted to improve patient adherence follow-up and counselling after BCH discharge.

Four trainings sessions and one mentoring cycle were provided to selected public health workers. Despite major challenges (Cyclone Idai and COVID-19 pandemic), most of the activities continued to be implemented.

2.2.1 FACILITIES CHOSEN

Three facilities were selected by MSF to implement the AHD component activities during the first four years of this component²⁹. The first one is the Beira Central hospital, where most of the city's AHD ER cases arrive or are referred to. The other two facilities (Ponta Gea and Munhava Health Centres) cover about 25% of all HIV patients in the city of Beira³⁰ (Ponta Gea with a cohort of about 9,000 HIV patients and Munhava with a cohort of about 11,000 HIV patients for 2020)³¹. While this decision allowed MSF to cover a relatively large percentage of Beira's Patients with AHD (all emergency cases and 25% of the HIV patient cohort), it still left 75% of Beira's regular HIV patient cohort without access to AHD support at primary level.

³⁰ DHIS 2020.

³¹ Ibid.

In 2021, the project decided to discontinue its support to Ponta Gea, as other USAID's ECHO actors started providing significant support, which was yet to be extended to eight new health facilities in Beira. According to MSF managers interviewed, this decision was aimed at improving early detection of AHD cases and helping facilities to implement the newly introduced (2022) national AHD guidelines. MSF's rationale behind this decision was that such patient support will require less specialised medical knowledge than that required at the hospital level and will help to identify patients at an earlier stage. Higher CD4 counts have been linked to lower mortality in several studies³².

2.2.2 COORDINATION WITH MOH

When MSF initiated the AHD component, there were no other AHD interventions or guidelines existed in Mozambique³³, so there was no existing AHD initiative that MSF could support. Confronted with this problematic during the implementation of MSF's HIV activities and informed by the assessment conducted in 2017, MSF decided to rapidly respond to the high HIV-related mortality by establishing new AHD management circuits before implementing them with its own human resources.

These new AHD circuits implemented by MSF were set-up within MoH facilities, established in parallel with the existing HIV circuits (i.e., in the Munhava Health Centre, an MSF doctor was dedicated to the TB/HIV cases and an MSF treatment room was dedicated to all other AHD cases). For this purpose, MSF recruited its own staff (doctors, nurses, laboratory technicians, support staff). MSF's support also included the logistic and financing of the supply chain (with both laboratory and pharmacy support). This parallel approach facilitated a rapid response without increasing the workload of public health care workers.

Since the launch of MSF's AHD component in 2018, only a limited number of initiatives have been implemented by the MoH and MSF to promote the involvement and integration of MoH staff in the management of patients with AHD (both at the BCH ER and the Munhava Health Centre). They included mainly three training sessions for public health staff³⁴ and mortality discussions³⁵, although the latter were less frequent than planned³⁶.

It may be worth mentioning that in Beira, no financial incentives were distributed to health workers for treating and diagnosing Patients with AHD. According to interviews with external parties and MSF Beira staff, the lack of financial incentives (per diem, travel, salary subsidies) may have been one of the factors why MoH staff was reluctant to participate in AHD interventions initiated by MSF.

³² Available at: <https://www.nature.com/articles/s41598-017-03384-7>, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3655761/>, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3655761/>.

³³ Update AHD, Mozambique, MoH, August 2020.

³⁴ Trainings conducted included: 1) AHD medical training (2018) of 3 days; 2) AHD medical training (2020) of 4 days each; 3) Ultrasound training (2021).

³⁵ Mortality discussions were officially conducted from 2019.

³⁶ The indicators foresaw monthly discussions with MoH staff, but according to MSF managers, only discussions every several months could be implemented.

Challenges in the coordination with BCH hospital were reported. For instance, the MoH didn't define AHD discharge criteria at ER or ward level, despite MSF's efforts to influence BCH to do so. Moreover, BCH/MoH did not conduct post-discharge follow-up. According to MSF managers interviewed, efforts were undertaken by MSF to improve triage, intra-hospital infection rates, hygiene and follow-up of in-hospital mortality, but a discussion between BCH management and the MSF project on these issues stalled. The evaluation found no evidence of efforts by MSF to advocate at higher levels with MoH authorities to address the abovementioned challenges for hospital circuit modifications.

2.2.3 DIAGNOSIS

In all three facilities, laboratory investments were undertaken by MSF — namely purchases and maintenance of laboratory equipment (Pima, GeneXpert), minor repairs in the lab, and the purchase of tests and consumables. In addition, two MSF laboratory technicians were integrated into each of the two laboratories (BCH ER and Munhava Health Centre) and carry out the activities related to AHD diagnosis.

The (re)introduction of CD4/TB-LAM/CrAg/diagnostics by MSF within the Munhava and Ponta Gea Health Centres allowed the diagnosis of patients with AHD at a decentralised level (therefore not only in the BCH ER). This, together with the MoH/Global Fund introduction of Test & Treat in 2019 and Dolutegravir as standard first-line HIV protocol in 2020, may partly explain the lower inflow of HIV patients at BCH ER level from 2,841 (2019) to 2,242 (2020) and 2,283 (2021)³⁷.

2.2.4 CASE MANAGEMENT

At the BCH, MSF joins and supports the daily shift in the ER with four MSF doctors, three nurses, as well as MSF counselling and psychosocial support staff. Support of one MSF doctor, one counsellor and one nurse from the same team was provided to accompany Patients with AHD in the ward.

In Munhava, MSF provided support to HIV-positive patients after they were identified as AHD on the facility's TB patient circuit and on a non-TB AHD circuit. The support included phone calls to Patients with AHD who did not attend their monthly visit and an MSF navigator to accompany them through the facility for laboratory checks. HIV patients followed up by MSF in this facility as part of the KPs component, benefited from a proactive HIV testing in the community and an invitation to CD4 testing. These last two additional services were not offered to Patients with AHD from the general population.

At the Ponta Gea Health Centre, a different, 'light', approach was agreed with the facility, with an on-demand support provided by an MSF HIV doctor present at the facility, as well as material support for the laboratory and pharmacy. There was no patient follow-up by MSF, no data management and no MSF laboratory technicians were present. The effectiveness of the support (verifiable indicators) was

³⁷ MSF database for MSF ER.

assessed for one period (Q 2020), with results significantly lower than for Munhava Health Centre (see table in the Effectiveness section).

As non-adherence is one of the main root causes of AHD³⁸, it should be considered as an important actionable component of any AHD intervention³⁹, even if not carried out by MSF itself. Nevertheless, the evaluation found limited evidence of efforts by the AHD component's efforts to improve patient adherence and post-discharge counselling. Project documents and interviews indicate that these aspects were not part of the activities conducted, particularly during the first two years of the AHD component. Cross-reference from BCH to 'home' health workers were conducted for Munhava patients from 2020 onwards. The lack of attention to this aspect is all the more surprising as the KPs component of the overall HIV project had already integrated such patient support and community interventions integrated.

While phone follow-up of discharged patients from BCH was introduced in 2019 based on the information collected during interviews with MSF staff, this was more an effort to monitor mortality up to 90-days rather than an effort to improve adherence. Data collected by MSF showed that only 60% of patients discharged from the BCH provided phone contacts or responded to these phone calls.

A community component has been implemented in 2022, while a Memorandum of Understanding (MoU) with a local NGO Kugarissica has been signed to engage NGO activists in conducting the follow-up of the discharged Patients with AHD.

2.2.5 CAPACITY BUILDING

With the support of MSF SAMU, the MSF project conducted a two one-week AHD trainings for BCH doctors and MSF staff in 2018 and in 2020. In addition, a four-day Training of Trainers (ToT) for MSF staff was implemented in 2021. According to interviews with MSF managers, additional trainings were planned, but didn't take place due to external factors (Cyclone Idai and COVID-19 pandemic).

International educational research has shown that stand-alone classroom trainings were relatively ineffective with limited changes in workplace performance. However, when classroom trainings were complemented by ongoing support in the workplace, learning was found to be more effective. A widely used teaching and learning model draws on the 70-20-10 principle which suggests only 10% of formal learning, 70% of on-the-job learning, and 20% from discussions with colleagues. In line with this evidence, a mentoring programme was designed and implemented, aiming to address this need for workplace support.

The first AHD-related capacity building activity following the 70-20-10 approach was conducted in the Q2 of 2021. Six health technicians from the Ponta Gea Health Centre participated and five completed

³⁸ Project monitoring document 2018.

³⁹ AHD guidelines Mozambique, 2022.

the module. After its completion, only one practitioner of the six mentored continued to work on AHD. The selection approach was then adjusted, to increase the likelihood of staff applying the approach.

A second mentoring including individual follow-up was conducted for 16 BCH MoH doctors from November 2021 to April 2022. As a result, 15 BCH doctors completed the module and graduated. In addition, a one-month course in ultrasound (for extrapulmonary TB) was conducted for MSF and MoH doctors from all three facilities in 2021. The effective length of the mentoring process (between start and graduation) for the participants was 4-5 months.

Neither the nurses nor the laboratory assistants at BCH or Munhava received mentoring during the 2018-2021 evaluation period. According to MSF managers, mentoring of nurses started in 2022.

2.2.6 ADAPTING TO CHANGES

During the 2018-2021 evaluation period, the COVID-19 pandemic and the Cyclone Idai posed serious challenges. Among other things, they limited the presence of internationally recruited staff, with only 2-3 of them in Beira for several months. Despite these challenges and gaps in key positions, the AHD component continued most of its activities. Some positions were permanently nationalised as a solution to the inability of expatriates to remain in the duty station.

Direct observation and interviews with MSF managers showed how the project, based on lessons learned from the past, introduced important changes in 2022. These included a “welcome-back package” for patients lost to follow-up (LTFU), a contract with one local NGO for community follow-up, the start of a rotation of laboratory duties between MSF and MoH staff, and a change in laboratory and pharmacy support to include capacitation and mentoring. These changes occurred after the evaluation period and are therefore not described or assessed in this evaluation.

2.3. EFFECTIVENESS

Summary of findings:

The total number of patients with AHD was 5,305 at BCH and 1,451 at Munhava HC. The evaluation could not estimate the coverage of target population by MSF's provided service. Aspects such as free services and specific KPs component introduced by MSF are expected to facilitate access to care.

Testing rates were significantly better in BHC ER (around 90% for CD4) than in Munhava (60%). Severe stock-outs influenced lower testing in the 2021 period.

In BHC, in-hospital mortality remained at the same level (around 20%) throughout the period evaluated. Joint discussions on mortality (MoH and MSF), although planned in the project logframe, did not take place as expected. A study of mortality to explore causes of death was not carried out.

MoH mortality figures in Munhava seem to be unreliable. Indeed, large proportion of patients with AHD in Munhava were LTFU during the first years of the intervention (54% and 45%). These figures improved (19% and 12%) when the USAID's ECHO project started working in the facility.

The evaluation identified important issues regarding the availability and reliability of MSF data, especially in Munhava.

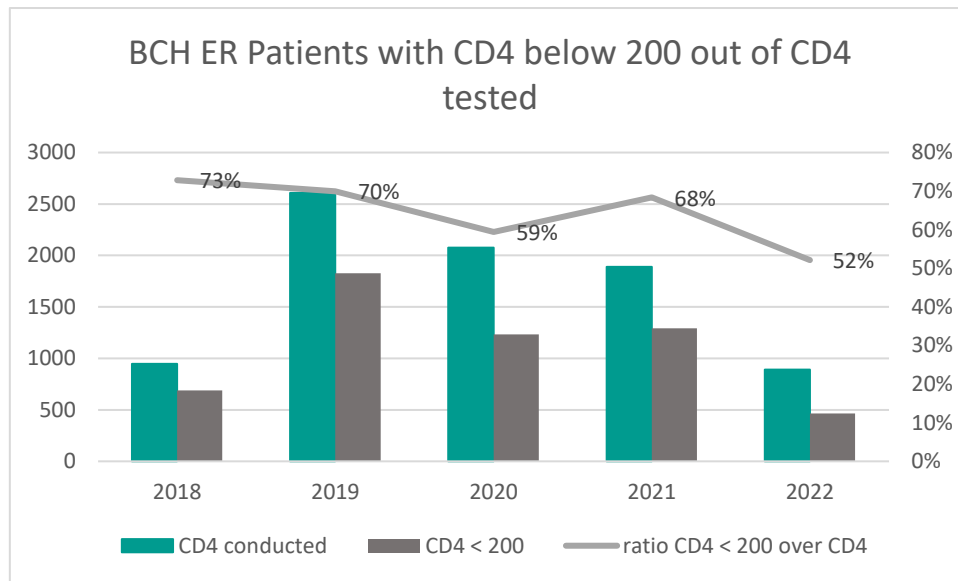
The contribution to the national AHD guidelines and the preparation of the AHD decentralisation project produced mid-term results that are deemed significant by the evaluators although it's too early to assess their impact.

2.3.1 UPTAKE OF SERVICES

At BCH, the total number of Patients with AHD (patients with known CD4 below 200 and/or HIV patients with TB) was 5,305 over the evaluation period⁴⁰. Previous exposure to ARV treatment was detected in 79%⁴¹ of Patients with AHD. Of all HIV patients tested for CD4 after admission to the ER, between 73% and 68% had CD4 below 200.

⁴⁰ This does not include 363 patients over the evaluation period that were HIV positive and had a TB treatment, and who would therefore count as AHD according to definition.

⁴¹ MSF Round Table 2021.



Graph 1. CD4 tests and results at BCH ER, 2018-2021
MSF database (consultants' compilation)

At Munhava Health Centre, 1,451 patients with AHD were registered during the 2018-2021 period, representing 20% of the new HIV patients⁴² during the evaluation period. In 2021, 4,575 AHD consultations were provided in Munhava⁴³, out of a total of 71,000 patient consultations at the Munhava Health Centre⁴⁴.

Women and men represented approximately equal numbers of patients, with men accounting for approximately 53% and women 47% of patients in both facilities⁴⁵.

2.3.2 ACCESS TO AHD SERVICES

There are no precise figures available on the total number of patients with AHD in Beira. As a result, the evaluation could not estimate the coverage of the target population (i.e., population most at risk of AHD) by MSF's provided services.

Public health services are free of charge in Mozambique, and unreferral BCH ER patients pay 100 Meticaís (or 1.5 USD) for the admission⁴⁶. Similarly, treating HIV-related opportunistic infections (including hospital stay) is officially free of charge. These are important aspects that facilitate access to services. However, anecdotal evidence collected by the evaluators and external reports⁴⁷ suggest that informal payment may be requested at the hospital ward.

⁴² Presentation of MSF to the National HIV programme 2022, MSF database.

⁴³ MSF HIV Annual report 2021.

⁴⁴ PEPFAR study, 2022.

⁴⁵ MSF databases.

⁴⁶ Statement from admission personnel, September 2022.

⁴⁷ Observatorio de Saude of the MoH of Mozambique. Available at: <https://www.observatoriodesaude.org/pagamento-de-taxas-privatiza-os-hospitais-publicos-e-prejudica-as-populacoes-mais-desfavorecidas-no-acesso-aos-servicos-de-saude/>.

The BCH and Munhava Health Centre have a common waiting area for all patients (except for TB cases), which may facilitate the access to patients with AHD without feeling immediately stigmatised.

As mentioned earlier in the report (see section on Appropriateness), the MSF HIV project had well-established links with the KPs in Beira through its specific component, including door-to-door activities and invitations for CD4 testing at the Munhava Health Centre. This facilitated KPs access to AHD services. MSF staff interviewed estimated that 5% (≈14 patients) of the total existing AHD cohort in Munhava in 2022 belong to the KPs group. The evaluation could not obtain any quantitative evidence on this, as this information is not collected by the MSF project. The evaluators note that the lack of labelling of the key population medical record is in line with the principle of non-stigmatisation.

An agreement between MSF and Sofala Health Authority established that migrants without a residence permit can access to HIV treatment in Sofala. The evaluation could not assess the percentage of migrants among the AHD cohort, as this information is not systematically collected by MSF's AHD database.

2.3.3 DIAGNOSTIC AND TREATMENT PROTOCOLS

Rapid AHD laboratory diagnostics for HIV patient are crucial for AHD diagnosis and immediate treatment. This factor seems to be captured in the MSF's logframe, where 80% of the verifiable indicators for Munhava Health Centre and 50% for BCH are linked to timely diagnostics – i.e., CD4, timely TB diagnosis and CrAg. Ninety percent of newly admitted HIV patients should be tested for CD4, and with a CD4 below 200, the patient should be tested on the same day with TB-LAM and CrAg POC tests.

The table below the number of patients at BCH ER who were tested for CD4, received a positive TB diagnosis (using different methods) and had a CD4 below 200 when tested.

Table 2. BCH ER patients tested for CD4, 2018-Q1, MSF database⁴⁸

BCH ER HIV PATIENTS TESTED WITH CD4 (%)	
2018	90%
2019	92%
2020	93%
2021	83%
Q1 2022	93%

⁴⁸ From the table above, we can observe a slight improvement in the morbidity indicators (factor related to better adherence, out of MSF scope of work).

In Munhava, only 60% of new HIV patients were tested for CD4 during the 2018-2021 period⁴⁹ (including 60% in 2021). The low testing rate in Munhava in 2021 seems to be mainly due to stock-outs of consumables⁵⁰.

TB-LAM testing is required for all patients with CD4 below 200. In BCH, TB-LAM testing was reported for more than 90% of patients. With AHD in 2018-2019, the average rate for the 2020-2021 period was at 70% (with 56% in 2021 due to stock-outs⁵¹). In Munhava, the performance was only measured in the last two years of the evaluation period. According to the 2021 annual report, only 45% of patients with AHD had a TB-LAM in 2021, and only 52% of patients with CD4 below 200 had either a TB-LAM and/or GeneXpert testing (see Table 3 below).

Table 3. Patients with detected CD4 below 200 tested for TB (LAM or GeneXpert) MSF database, consultants' compilation

HIV PATIENTS WITH CD4 <200 WHO WERE TESTED FOR TB (N, %)	
2020	163 (29.53%)
2021	277 (52.36%)
Q12022	190 (44.29%)

Percentages were calculated using the total number of HIV patients with CD4 under than 200 as denominator.

Only 30% of patients with AHD in Munhava Health Centre had a CrAg test performed during the 2020-2021 period⁵², while in BCH the CrAg testing rate for patients with AHD was at 50% and 40% for 2020 and 2021 respectively⁵³, contrary to the target of 90% defined in the monitoring sheet indicator.

While biochemistry testing have been required every six months for all ARV patients since 2016 according to Mozambican National Guidelines, biochemistry testing⁵⁴ seem not to have been performed for patients with AHD in Munhava⁵⁵.

The stock-outs in 2021 affected CD4 cartridges for 3 months, CrAg tests for 4 months and TB-Lam for 3 months. According to the MSF manager, these stock-outs were caused by the tightening of import procedures for medical supplies⁵⁶. The stock-outs hampered diagnosis because there were no other sources of diagnostics. Alternative TB tests (BK, GeneXpert, ultrasound, radiology) were used to diagnose TB⁵⁷.

Only one site in the Sofala Province, the BCH, performed lumbar punctures to follow up on positive CrAg tests. The number of lumbar punctures for patients coming from the Munhava Health Centre was

⁴⁹ Round table discussion 2021.

⁵⁰ MSF Beira annual report 2021, MSF managers.

⁵¹ MSF Beira annual report 2021, MSF managers.

⁵² Data extracted from MSF data base, September 2022.

⁵³ MSF report Beira 2021.

⁵⁴ Glucose, cholesterol, and other tests defined in Mozambican HIV guidelines 2016.

⁵⁵ Review of patient records, Munhava 2020, 2021.

⁵⁶ See also MSF Beira annual report 2021.

⁵⁷ According to MSF managers and the annual report of 2021.

only recorded in 2020, with 10 cases⁵⁸ which is significantly low (7.6%) out of the 131 positive CrAg tests for Munchava in 2020. MSF managers reported that very few MoH doctors in Sofala knew how to perform a lumbar puncture. As a result, an MSF training session was conducted in 2022 for 16 BCH doctors as part of the mentoring, but the results appear to have been limited.

According to MSF managers, MSF tried to reorganise the BCH ER triage circuit as planned in the logframe, to improve diagnosis and treatment, but did not reach an agreement with BCH on this point. Similarly, MSF tried to discuss possible options to improve infection and prevention control (IPC) aspects of the BCH medical circuits, but the discussion efforts stalled. Discussion on better use of antibiotics at BCH was initiated by MSF in 2022⁵⁹. When interacting with local stakeholders at higher hierarchies, there might have been little time to build relationships.

The referral rate from BCH to the primary health centres was reported to be 70%⁶⁰ in 2021. Reliable data for previous years were not available according to MSF Beira's 2020 annual report.

2.3.4 BCH MORTALITY RATES (IN-FACILITY AND AFTER 90 DAYS)

Mortality was defined in MSF's 2017 baseline assessment as 51% mortality for patients with known positive HIV status in the BCH facility (wards and ER based on MoH data). This evaluation attempted to assess the evolution of mortality at BCH since the beginning of MSF's AHD activities and compare it with this baseline. However, this comparison was not possible as the mortality data collected by MSF only refers to patients with AHD (defined as CD4 below 200 or HIV/TB).

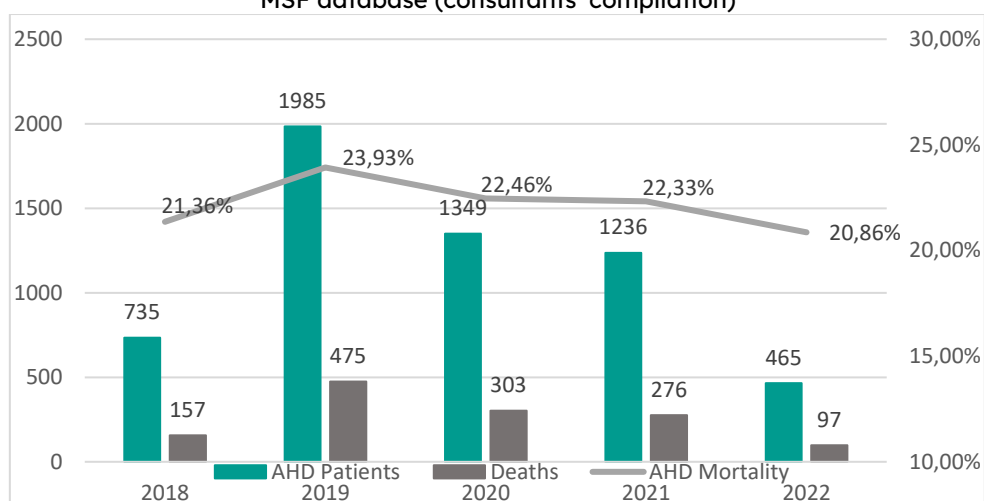
The graph below shows the evolution of in-hospital mortality among patients with AHD admitted to the emergency department since the start of MSF's AHD component. As can be seen, the mortality rate remained virtually stable during the period of MSF's AHD intervention⁶¹.

⁵⁸ MSF Beira 2020 Annual Report.

⁵⁹ Roundtable 2021.

⁶⁰ MSF Beira Monitoring sheet 2021.

⁶¹ Routinely collected MSF data at BCH hospital.

Graph 2. In-hospital AHD Mortality among patients admitted to the BCH ER (2018-Q1 2022) MSF database (consultants' compilation)

An analysis of mortality rates from the BCH MSF database indicates the following:

- Mortality in all HIV-registered patients remained at the same level over the evaluation period;
- Mortality among patients with AHD remained stable over the four-year evaluation period;
- Mortality of female patients was slightly lower than that of men, in line with the generally lower mortality of women;
- Mortality of HIV patients that were not defined as AHD in the database (CD4 above 200 and no TB) was significantly lower than that of patients with AHD;
- Mortality of TB patients with CD4 above 200 is lower than the average for patients with AHD; and
- Mortality of TB patients with CD4 below 200 is the highest of all groups.

The table below shows the different groups analysed for mortality rates during the 2018-2021 evaluation period and one semester beyond (i.e., Q1 2022).

Table 4. In-hospital Mortality in different groups of patients with AHD and patients with HIV but without AHD admitted to BCH ER, MSF data, analysis consultants

	DEATHS OF HIV PATIENTS AT ER	DEATHS OF PATIENTS WITH AHD	DEATHS IN FEMALE PATIENTS WITH AHD	DEATHS OF MALE PATIENTS WITH AHD	DEATHS IN HIV PATIENTS WITH NO TB DIAGNOSIS AND CD4 < 200	DEATHS IN HIV/PATIENTS WITH NO TB DIAGNOSED AND CD4 ≥ 200	DEATHS IN HIV-TB PATIENTS WITH CD4 < 200	DEATHS IN HIV /TB PATIENT WITH CD4 ≥ 200
2018	16,60%	21,36%	20,00%	22,60%	9,12%	4,78%	25,16%	16,13%
2019	19,71%	23,93%	21,90%	25,92%	12,34%	8,53%	27,02%	17,00%
2020	17,35%	22,46%	21,85%	22,94%	12,23%	8,78%	25,46%	14,57%
2021	15,99%	22,33%	22,83%	21,98%	11,81%	7,28%	26,04%	15,47%
2022	15,99%	20,86%	18,14%	22,99%	14,84%	10,81%	23,85%	11,11%

The evaluation team compared the in-hospital AHD deaths in patients admitted to the BCH ER with deaths recorded in patients with cryptococcosis (CCM) and cryptococcal meningitis (CM). This analysis indicates that CCM and CM were less important causes of overall mortality. For instance, in 2021, only

22 patients with CCM or CM died in the facility compared to 275 AHD in-facility deaths. At the same time, the CCM records were unreliable.

Table 5. Data on recorded in-hospital AHD deaths and deaths from CM and CCM patients admitted BCH ER 2018-2021, MSF, OR data

	2018	2019	2020	2021
CD4 below 200 deaths in the facility	156	476	304	275
HIV Deaths in CD4 above 200 in the facility	28	108	100	87
Patients with Cryptococcosis detected	n/a	11	18	31
Patients with Cryptococcosis known to have died in facility	n/a	n/a	n/a	2
Patients with Cryptococcal Meningitis detected	45	74	57	72
Patients with Cryptococcal Meningitis known to have died in facility	14	23	17	20

In BCH, MSF staff (neither laboratory nor medical) stopped covering the night or weekend shifts from 2019 onwards because the low inflow of patients⁶². At night, according to MSF managers and evaluators' review of patient records, MoH staff systematically reported HIV-positive patients admitted at night and showing signs of AHD to the day shift. As such, patients might not have been diagnosed or treated in time. In 2022, MSF began collecting information on AHD patient records differentiating results by day shift (with MSF presence) or night shift (without MSF presence). The goal was to assess potential differences in treatment and mortality. As this was outside the scope of this evaluation, these data are not included in this report.

The MSF project planned to hold monthly discussions on AHD mortality, jointly for MSF and MoH staff (indicator: monitoring sheets). Although the exact number of meetings that took place were not reported in MSF annual reports, interviews with MSF managers indicate that the meetings were held sporadically⁶³. This was partly due to other pressing issues for the facilities, particularly during the COVID-19 pandemic and Cyclone Idai.

For the AHD component, a mortality study was planned as operational research. Although initially planned for 2019, it was not implemented during the evaluation period. According to MSF managers, restricted movement during lockdowns and visa issues for expatriate study managers were the main reasons. As such, the causes of mortality were not examined even in small, but statistically relevant samples, and possible appropriate modifications to treatment options could not be made.

⁶² According to MSF Beira managers.

⁶³ The annual reports do not provide details.

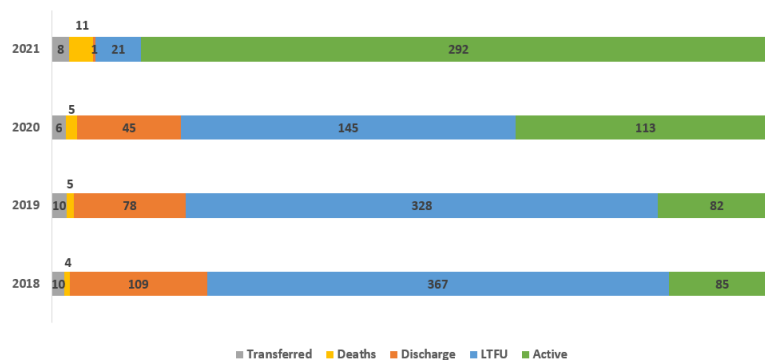
During the evaluation period, the patients stayed at the BCH for an average of 6 days before being discharged or passing away⁶⁴. The length of the individual hospital stays varied significantly from 0 to 35 days and in some cases extended beyond. According to MSF managers, an important gap in the circuit is that discharge criteria for the BCH are not clearly defined, which may result in patients in need being discharged before they succumb to their illness.

Since 2019, MSF staff have been following up BCH patients with AHD by phone at 15, 30 and 90 days after discharge. Follow-up data collection started in 2020. In 2021, of the 60% of patients and relatives who could be contacted by phone within 90 days, a mortality rate of 12% was recorded 90 days after discharge.⁶⁵

2.3.5 MUNHAVA PATIENTS WITH AHD OUTCOMES

MSF did not collect any mortality data for Munhava. MoH data shows Munhava mortality as 65-45-25-25 HIV patients for the 2018-2021 period, but the data appear unreliable compared to the 8,000-11,000 cohort of ARV patients cared for in the health facility for the same period.

Of the 1,451 patients with AHD registered at the facility, 54%-45%-19%-12% were lost to follow-up. When the USAID’s ECHO project started working in the facility in 2020, the LTFU improved through USAID’s ECHO follow-up and community interventions. In 2021, only 60% of HIV patients were tested for CD4.⁶⁶



Graph 3. Main outcomes of MSF’s AHD-treated patients, Presentation to the National HIV programme 2022 (data Open MRS)

2.3.6 LABORATORY INFORMATION

Both at Munhava and BCH, there is no digital linkage of laboratory information to the medical technicians to automatically receive laboratory results. This resulted in significant gaps in the laboratory circuit. The only data relating to this issue was reported in the MSF HIV project report for 2021: “There was an issue with tracing: 27% (691/2,561) of all CD4 count, 22% of all TB-Lam (66/298), and 25% (83/337) in 2021 of all CrAg tests were untraced to their respective patients”.

⁶⁴ Data prepared by OR to the evaluator.

⁶⁵ Data manager MSF.

⁶⁶ HIV annual report 2021.

2.3.7 COLLECTION OF AHD DATA BY MSF HIV PROJECT

AHD data collection at BCH started in 2018 and included basic AHD diagnostics, the different types of TB diagnosis, and co-morbidities. The database includes data on follow-up at 15-30-60-90 days and data on in-facility mortality, but without mortality analysis.

MSF's AHD data collection for Munhava only started in 2020, and data prior to that date are not available. The data collected includes detailed information on type of TB diagnosis, and basic information on CD4, CrAg and viral load data. It does not include data on mortality, LTFU, people transferred to BCH, number of lumbar punctures, or changes to second line.

Some monitoring sheets or annual reports did not exist or were not available for the evaluation team (2019 annual report and 2018-2020 monitoring sheets only partially completed). The MSF databases consulted showed some issues related to missing entries.

2.3.8 RESULTS BEYOND LOGFRAME TARGETS

Ponta Gea was not defined in the logframes as a facility for direct MSF action, but the facility received support for three years out of the four years of the evaluation period. This support, defined by MSF as a 'light' approach, included the presence of an MSF doctor in the facility with on-demand support and case discussion, support in organising the circuit, laboratory support with the reintroduction of CD4, purchase of a GeneXpert, introduction of AHD POC diagnostics tools (TB-LAM and CrAg), and support for referrals and counter-referrals from BCH.

According to the Ponta Gea staff interviewed, MSF's support made AHD healthcare possible. In Q4 2020, 25% of newly HIV patients tested for CD4 in Ponta Gea were identified as AHD⁶⁷. However, the minimal quantitative data available for this evaluation (Q4 2020) indicates limited performance on quantified logframe indicators when compared to Munhava (see Table 6).

Data for Ponta Gea were specifically collected by MSF from MoH sources. For AHD, the national M&E system only collected CD4 data starting from 2022 onwards. The low and missing results observed in Ponta Gea (see table 6) may be both due to tests not being conducted and/or recorded. In addition, the table below shows that at least in the particular quarter, indicators were far from being reached.

Table 6. Comparative results of Munhava and Ponta Gea for Q4 2021. Source: Open MRS/Lab book Ponta Gea/PNCTL book Munhava.

LOGFRAME INDICATORS IN Q4 2020	MUNHAVA	PONTA GEA
>90% of patients on ART had a VL done in the past 12 months	59% (5,934/10,073)	11% (1,434/12,679)

⁶⁷MSF HIV annual report 2020.

>90% of new HIV-positive patients with CD4 <200 have CrAg done	73% (81/111)	0% (0/6)
>90% of new of HIV patients with CD4 <100 have TB-Lam done ¹	12% (13/111)	17% (1/6)
>90% of TB cases in AHD starting the treatment	46% (129/278)	NA
>90% of serum CrAg (+) cases in AHD starting the treatment (CM treatment + pre-emptive treatment)	55% (6/11)	NA

¹The low results achieved were partly due to a lack of consumables. Alternative methods for TB identification were used.

The contribution to the national AHD guidelines and the preparation of the AHD decentralisation project have produced mid-term results that are considered significant by the evaluators although it's too early to assess their impact.

2.4. EFFICIENCY

Summary of findings:

The existing HIV project facilitated a relatively easier launch for the AHD component.

By the end of 2021, a total of 25 positions were allocated exclusively to the AHD component. Additional positions supported all the HIV project components, and most of their work was completed for the AHD component. The AHD component was affected by high turnover and gaps in the service of internationally recruited staff due to visa issues and the COVID-19 pandemic.

The total expenditure, including human resources, for the entire HIV project in Beira in 2021 amounted to 2.5 million Euros, out of which 1,3 million were for HR. The cost of the AHD component was not followed upon specifically. MSF's supply chain aimed to cover all needs regarding drugs and consumables. In 2021, stock-outs of up to 3 months had to be endured.

The classroom training sessions on AHD offered to MSF and MoH medical staff were revisited as they were perceived as insufficient in improving the clinical skills of staff members. A new method (i.e., mentoring) has been introduced. Lack of motivation or absence of institutional circuits to execute expected work may prevent mentees from putting their new skills into practice. The parallel MSF data management for the MSF's AHD project, without links to the existing MoH data management system in place was a necessity to enable monitoring of activities, but the approach might have represented a duplication of resources.

Assessing the efficiency of MSF's support at the Ponta Gea Health Centre remains difficult due to limited information from the facility.

2.4.1 HIV EXISTING PROJECT

As MSF had already been present in the HIV field in Beira since 2014, there was a good understanding and knowledge of the HIV situation. This facilitated a relatively easier launch for the AHD component, particularly in relation to access to key populations and the HIV patients' cohort from the Munhava Health Centre. Similarly, the AHD component benefited from pre-existing relationships with local MoH authorities established through the HIV project.

2.4.2 HUMAN RESOURCES

In 2021, a total of 117 MSF HR staff members were employed in the Beira HIV project (including all project components: SRH for key and general populations; HIV services for key populations; and AHD services). Of these, 110 (93%) were nationally recruited and 7 (7%) internationally recruited. Four positions initially filled by internationally contracted staff were later nationalised (1 pharmacist, 1

medical doctor, 1 midwife, and 1 nurse supervisor⁶⁸). According to MSF staff interviewed, the reasons for the nationalisation were both the lockdowns with long absences of international staff and the demands of local medical and immigration authorities to transfer more responsibilities to Mozambican staff. This represented a significant reduction in the previous HR costs linked to the international positions.

By the end of 2021, a total of about 25 positions were allocated exclusively to the AHD component. It consisted of a team working at BCH made of 4 medical doctors, 1 nurse team supervisor, 5 nurses, 1 patient support manager, 3 laboratory assistants⁶⁹, 1 patient support supervisor, 5 counsellors⁷⁰, 1 data team supervisor, 2 data team recorders⁷¹.

A team in the Munhava Health Centre supported activities related to the AHD component and other project components. It consisted of 2 clinical officers, 2 counsellors providing psychological support, 2 laboratory assistants, 1 patient navigator, 1 data supervisor and 2 data team recorders. According to interviews with MSF managers, the allocation of tasks to staff was being reviewed in 2022⁷².

The number of patients with AHD at BCH decreased slightly in 2021⁷³ (1,986 for 2019, 1,353 for 2020, and 1,233 for 2021). On the other hand, the number of new patients with AHD in Munhava increased (82 new patients in 2019, 113 new patients in 2020, and 292 new patients in 2021)⁷⁴.

Additional positions supported all the HIV project components. These included the pharmacist, the MAM, the supply manager, the epidemiologist, and the laboratory manager. According to interviews with MSF managers, most of their work was carried out for the AHD component. Furthermore, the HIV project in Beira including the AHD component relied on the work of administrative and support staff (around 60 staff members in Beira).

According to MSF managers in Beira, the AHD component suffered from a turnover of international staff and the inability of contracted staff to enter the country due to visa issues and COVID-19 lockdowns. According to MSF managers, this might have hindered timely project improvements and caused delays in activities. According to MSF managers, during the lockdown in 2020, only one MSF international staff remained in Beira for several months.

In 2021, MSF's internal recentralisation (regionalisation) shortened the decision-making process.

⁶⁸ MSF Beira Administration.

⁶⁹ Change to 2 in 2021 as per MSF managers.

⁷⁰ Reduced to 4 in 2022 as per MSF managers.

⁷¹ Handover report Telma Azavedo, interview MSF managers.

⁷² According to MSF Munhava staff.

⁷³ Data from MSF Data management unit, 2022.

⁷⁴ MSF PPT presentation to HIV service, 2022.

2.4.3 FINANCIAL RESOURCES AND SUPPLY

In 2021, the total expenditure, including human resources, for the HIV project in Beira amounted to 2.5 million Euros. According to MSF managers, MSF provided sufficient funding resources for all project-related activities, so that financial resources have not created a bottleneck. The cost of the AHD component was not specifically monitored.

According to MSF managers, during the evaluation period (2018-2021), MSF's supply chain tried to cover all needs regarding drugs and consumables with a three-month minimum supply⁷⁵. In 2021, import and purchasing times for MSF health products took longer (up to 9 months according to MSF managers) and stock-outs of up to three months had to be endured⁷⁶. In 2022, the situation changed again when MSF's own laboratory and drug purchases were significantly reduced due to the start of AHD-related procurement from non-MSF sources (Global Fund) by the MoH, leading to another round of stock-outs within facilities (non-MSF related).

2.4.4 CAPACITY DEVELOPMENT

As discussed in the section on Appropriateness above, the classroom training sessions offered to AHD MSF and MoH medical staff during the first years of the project, were reviewed as they were perceived not fully successful in improving the clinical skills of staff members.

A new method (i.e., mentoring) has been introduced. The implementation of mentoring activities started only late in the project. Only one cycle of mentoring, targeting six MoH health technicians from Ponta Gea was completed at the end of 2021. This mentoring took an average of four months for each participant to complete, including an individual follow-up. It represented a significantly higher resource-intensive method than the in-classroom sessions. After this first mentoring cycle, only one out of the six health technicians who completed the mentoring continued working in the HIV/AHD circuit.

Without analysing the effect of the mentoring methods on staff competencies, and focusing only on the extent to which they are used for AHD management, if the mentees cannot or do not want to use their skills after the training or when institutional circuits are not ready to execute work according to AHD guidelines, the high cost comes in vain.

Based on the initial experience of the project implementing this mentoring method, MSF managers adapted the selection process to select participants based on verified personal motivation and career prospects, rather than those selected by the facility management.

⁷⁵ Logframe 2018 and 2019-2021.

⁷⁶ Annual HIV report 2021.

2.4.5 PARALLEL DATA MANAGEMENT

The AHD project was parallel in nature. This is not only the case for the medical staff, but also for the data management staff. In 2021, a team of eight MSF staff members was dedicated to data management for the HIV project, including activities related to operational research. Based on interviews with MSF staff, it seems that the project focused all its efforts on managing its own data, without supporting MoH staff in strengthening their data management related skills.

The PEPFAR's partner, USAID's ECHO, was nominated to take over data management in Munhava and Ponta Gea starting from 2020. According to MSF Beira managers, the willingness of USAID's ECHO and BCH to share the data produced was limited.

The parallel MSF data management for the MSF's AHD project, without links to the existing MoH data management system in place was a necessity to enable activities monitoring, but the approach might have represented a duplication of resources.

The evaluators noted that quarterly MSF reports and MSF monitoring sheets were not completed for several periods. The reasons for this could not be confirmed by the evaluation.

2.4.6 NOTE ON PONTA GEA

It is challenging to assess the of MSF's support at the Ponta Gea Health Centre, due to the lack of medical indicators from this facility. According to interviews with MoH and MSF staff, there appears to be an overall satisfaction with the level of care provided for basic AHD management, especially when considering the level of support offered by MSF. This support includes a part-time MSF doctor (backing the HIV circuit) and support for the laboratory with equipment and consumables. The section on Effectiveness includes the only available data on indicators found for Ponta Gea related to Q4 2020, which indicate significantly lower results than for Munhava.

2.5. CONNECTEDNESS

2.5.1 LAUNCHING THE AHD COMPONENT

Summary of findings:

The MSF's AHD component was initiated in an "AHD vacuum". MSF decided to work through existing public health facilities and laboratories, adding MSF staff, diagnostics supplies and routines.

Most of the external stakeholders interviewed for this evaluation expressed their satisfaction with their collaboration with MSF on the AHD component. Support to MoH laboratories and capacity building are among MSF's most valued contributions. Concerns were raised by some of the partners interviewed regarding the separate circuits established by MSF for the management of AHD. Agreements were signed with the MoH to support the BCH and the two health facilities (Munhava and Ponta Gea). The signed agreements did not specify the transfer of work between the partners or the performance benchmarks to be achieved by the public services. Lack of agreement with the NGO responsible for data management in some facilities prevents the AHD component from accessing relevant data.

The evaluation found no evidence of an advocacy plan developed by MSF during the evaluation period. MSF OCB did not participate in national technical platforms or MoH HIV groups.

No exit strategy was defined during the evaluation period. An important institutional constraint on the transfer of AHD management responsibilities to the MoH is the limited number of MoH staff. One of MSF's most important contributions to facilitating the transfer of responsibilities to the MoH is MSF's participation in the definition of national AHD guidelines in 2021.

When the AHD project started in the Sofala Province, other partners (Global Fund, PEPFAR, etc.) were focusing on implementing the Test & Treat Strategy by increasing the number of people being tested, and starting ARV treatment as soon as possible, as well as increasing viral load testing (while phasing out CD4 testing). While the lack of adherence and the high loss-to-follow-up in Mozambique was recognised by international partners, no steps were taken to address the severe morbidity associated with it.

In this relative vacuum of any AHD approach, with little local technical capacity or resources available for AHD that the project was set up vertically and in parallel (see the section on Appropriateness), to respond to an urgent situation of high mortality due to AHD. The project was set up within existing public health facilities, by establishing additional mechanisms to address AHD, implemented by MSF staff.

2.5.2 COORDINATION AND COLLABORATION WITH ACTORS

Most of the external stakeholders interviewed during the evaluation expressed their satisfaction about the collaboration with MSF on the AHD component. These included representatives from the Sofala Health Authority, the BCH and the Munhava and Ponta Gea health workers, and local NGOs working in the field. Among other things, they valued MSF's support in monitoring and addressing stock-outs in supported facilities, the opportunity to work side by side which contributed to knowledge transfer, and the quality of the training provided.

MSF's support to the three MoH laboratories in the supported facilities was highly appreciated. MSF's support in this regard was seen as crucial for the supply of AHDs and some non-AHD health products, as well as for maintenance. Activities related to capacity building of health workers (both MoH and NGO) were also appreciated by stakeholders interviewed.

Concerns were raised by some interviewees about the separate circuits set up by MSF for the management of AHD. This appears to be a pressing issue, as evidenced by the MoH's explicit statement of its desire for a rapid handover of MSF's activities in the BCH to the MoH. Indeed, despite MSF's contribution to strengthening the skills of public health staff through training and mentoring, the transfer of responsibility for AHD management (including counselling, treatment, data management and laboratory) is still limited.

Since the beginning of activities at the BCH hospital, in June 2018, BCH and MSF signed and renewed annual agreements for the AHD component. For Munhava and Ponta Gea, the cooperation was covered by an agreement with the Sofala Health Authority for the entire HIV project. The analysis of these agreements shows how they cover in sufficient detail MSF's planned support including AHD management. However, they did not describe the transfer of work between partners or the performance benchmarks to be reached by public facility services.

Since 2021, the PEPFAR-funded ECHO project has been responsible for data management at the Munhava and Ponta Gea facilities. According to MSF managers, the MSF project requested medical data related to the the HIV cohort from ECHO. After more than a year of negotiations, the related agreement has not been signed by September 2022. According to the ECHO representative interviewed, the legal basis for sharing primary data has not yet been clarified by ECHO contracted legal team at national level. The pending agreement is preventing MSF's AHD component from accessing primary data related to the the HIV cohort, and therefore to complete information on LTFU patients or CD4 detection, which is crucial to identify potential AHD cases.

2.5.3 ADVOCACY

Despite being a pioneer in the field of AHD, this evaluation found limited evidence of an advocacy plan prepared by MSF OCB during the evaluation period to disseminate lessons learned at Beira, Sofala or

national level⁷⁷. External factors (the Cyclone Idai, COVID-19 pandemic, and the late official validation of the national AHD guidelines) played a role.

MSF OCB represented OCB in national technical platforms such as the Health Partners Group (around 30 international donors and implementers) or MoH HIV groups. According to MSF OCB and MSF OCG coordinators, while OCB provided significant input to the AHD working group for the development of the AHD guidelines, representation was mainly through MSF OCG colleagues.

It was not until mid-2002 that the first visit of national HIV programme representatives to MSF Beira was organised to present the lessons learned from the AHD project component.

The evaluators did not find any evidence of activities undertaken by MSF at Beira or Sofala level during the evaluation period to disseminate its medical experience beyond the facilities directly supported by MSF.

2.5.4 TRANSFER OF RESPONSIBILITIES TO MOH

In the 2019 project document, the project initially aimed to close in 2021. Analysis of project documents and interviews indicates that no detailed exit strategy was developed during the evaluation period. Few aspects of the logframe and project document reflect the project's attention to the transfer of AHD management responsibilities to MoH staff.

The evidence collected in this evaluation indicates that an important institutional constraint on the transfer of responsibilities in the AHD management to the MoH is due to the limited number of MoH staff. In the MSF one-stop shop (one treatment room) at the Munhava Health Centre, one MSF doctor and two MSF counsellors are responsible for an active cohort of 300 patients with AHD⁷⁸. This may not be feasible with existing MoH staff, as each of the other treatment rooms in the same centre, managed by MoH staff, serve an active cohort of 750 HIV patients on average, in addition to pregnant women and patients with other pathologies. Similarly, according to MSF managers, the night shift at BCH relies on the presence of only one or two doctors for all ER cases.

Despite the lack of a systematic approach in this area, MSF has made contributions to facilitate the transfer of responsibilities within the AHD component. Among the most relevant ones is the MSF participation in the definition of national AHD guidelines in 2021. The guidelines are expected to improve both awareness and management at national and provincial levels. In addition, mentoring, joint case management in the ward and working side by side in the facilities contributed to improve the skills and competencies of health workers at the individual level.

⁷⁷ Two sentences in the Project document 2019.

⁷⁸ August 2022.

3 CONCLUSIONS

3.1. AHD INTERVENTION DESIGN

The project was particularly relevant in responding to AHD needs that were well identified through previous HIV projects and formal MSF assessments. The AHD component allowed MSF to define and provide a service that was previously unavailable in Mozambique.

The intervention design, which was facility-based, was appropriate for a rapid response on AHD diagnosis and provision of medical care. The three facilities selected for the intervention (Beira Hospital as the central point for receiving provincial emergency patients, and the two larger health centres in Beira) cover 25% of the provincial HIV cohort of about 80,000 people. This represented an adequate coverage area for the initial phase of the intervention.

While the intervention paid attention to the in-facility aspects of managing patients with AHD, other aspects of HIV care were not adequately addressed. For example, limited efforts were made to follow up patients with AHD after discharge from the BCH and to support patient adherence. Similarly, the reasons for patient mortality were not necessarily investigated or adequately addressed. These are important gaps that limited overall effectiveness.

The intervention seems to have adequately addressed important aspects of access for the general and key populations. The parallel project for men who have sex with men (MSM) and sex workers (SW) facilitated active detection of AHD cases within KPs, although this active detection did not occur for the general population.

3.2. MAIN ACHIEVEMENTS

The intervention seems to be successful in contributing to a rapid reduction in in-hospital AHD mortality and stabilising the AHD mortality of patients admitted to the BCH ER at 21%. The proxy baseline was the in-hospital HIV mortality of 51% in 2017. While future results from a retrospective mortality analysis (planned for 2023) may contribute to understand the reasons why the in-hospital mortality could not be further reduced, some factors that may partly explain this are related to MSF's difficulties in leveraging improvements in the Beira hospital. These relate to improvements in triage, infection prevention and control (IPC), and the definition of discharge criteria. Similarly, in-depth discussions with the MoH on mortality cases took place less frequently than planned.

At the Munhava Health Centre, the MSF project was effective at reaching to an important proportion of patients with AHD with diagnostics, outpatient care and referral to BCH when needed. Moreover, MSF seemingly exercised limited control over HIV patients for CD4 testing (60% of HIV patient cohort

over 4 years), and over patients who should have been included in the AHD treatment circuit (over 50% LTFU in the first 2 years).

The fact that MSF OCB contributed to the development of national AHD guidelines is a remarkable achievement, with high potential impact, beyond the direct implementation of medical services. However, MSF's experience on AHD in Beira could have been further disseminated at national and provincial levels. This represents a missed opportunity, especially given the uniqueness of MSF's AHD experience in Mozambique.

3.3. COORDINATION AND TRANSFER OF RESPONSIBILITIES

By the end of 2021, after 3.5 years of implementation, the intervention has only been partially successful in transferring capacities and responsibilities to the national implementers.

The patient circuits created by MSF as part of the AHD component (established in parallel with existing ones and entirely run by MSF resources) facilitated a quick start of activities. On the other hand, they worked against the transferability of responsibilities to the selected partner, partly because they prevented the public health workers from having sufficient exposure to the clinical activities conducted. As such, the approach did not trigger sufficient interest or sense of urgency from MoH to progressively assume a responsibility of AHD-related activities.

At the level of health worker capacity, a mentoring training system was introduced at the end of the evaluation period, with an individualised approach for each non-MSF health worker selected to participate. Although this aspect could not be assessed in the context of this evaluation (conducted mainly in 2022 and therefore outside its scope), the perceptions of stakeholders captured by this evaluation sound promising.

In terms of institutional capacity, MSF did not conduct a formal assessment of the MoH's capacity to hand over AHD component activities. No detailed exit strategy was designed, although the project was initially planned to be handed over by December 2021.

It was only towards the end of 2021 that rotational laboratory duties for MoH staff or supportive supervision for facility pharmacies were introduced. These two initiatives may pave the way for a better transfer of responsibilities.

There was a lack of involvement with other actors in community interventions. More exchange with partners (DREAM facility, local NGO, Sofala Health Authority) has been achieved only four years after the start of the AHD component activities.

3.4. DATA MANAGEMENT

To address the inherent weaknesses of the data management systems in the public health facilities, MSF established its own data management system in two of the three facilities supported. The data routinely collected by MSF as part of the AHD component has important limitations.

In addition, the process of analysing and presenting the data collected appears to be too complicated. Instead, MSF could have focused its efforts on the regular analysis and reporting of key information or problematic targets.

Operations research could not be carried out during the evaluation period, which raises the question of whether the planned OR design was too complicated to implement.

3.5. RESOURCES

The AHD component made efficient use of material resources, with a relatively modest investment (purchase of small laboratory equipment, AHD consumables and laboratory repairs) and in line with needs and contextual relevance.

The number of MSF staff directly involved in AHD activities in the facilities makes the intervention cost-intensive in terms of human resources.

The funding received was sufficient and was allocated in a flexible manner, adapting to changing needs.

4 LESSONS LEARNED

What have we learned from this intervention that can take us forward and may be applied elsewhere?

Both the many positive experiences during the evaluation period and the missed opportunities identified ex-post can serve as lessons to be considered in future work. The main lessons learned from the AHD component of the MSF HIV project in Beira HIV are summarised hereafter.

AHD INTERVENTION DESIGN

- L.1** An MSF intervention focused on AHD can reduce AHD-related in-facility mortality in a short period of time.
- L.2** Establishing vertical and parallel AHD-focused circuits which are run by MSF resources can be a suitable approach for the early phases of an AHD response, as it will likely facilitate a rapid improvement of medical outcomes. However, these circuits will soon need to be adapted to be better integrated into the existing system.
- L.3** The implementation of responsive AHD circuits needs to be supported by reliable information flow. This includes adequate information systems at laboratory, medical and supply level.
- L.4** The design of an AHD intervention should include, from the early stages, the allocation of necessary resources to enhance patients with AHD' adherence, individual follow-up, and cross referral mechanisms. These efforts should include activities at community level.
- L.5** When designing an AHD intervention, it's crucial to understand the root causes of AHD problematic (e.g., the non-adherence to treatment, lack of follow-up). These causes should also be considered in the overall intervention design, even if they will be eventually indirectly addressed (e.g., by coordination and agreement with other actors).
- L.6** Include infection control and antibiotic management into in-facility intervention design from the outset of AHD projects.

DECENTRALISATION OF AHD SERVICES

- L.7** Improving early identification of patients with AHD at primary health facility level, seems to be a plausible solution to reduce costs for the public health system, limiting the need for specialized medical expertise, and reducing AHD mortality.
- L.8** MSF's clinical and programmatic experience with HAD in Beira and other AHD projects (including the decentralisation model), if properly evaluated and documented, may enable MSF to adequately support other countries in implementing WHO's AHD recommendations and national AHD guidelines.

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KNOWLEDGE TRANSFER

L.9 Training modalities that go beyond classroom sessions, such as hands-on training and long-term reinforcement are crucial to enhance competencies of health staff and to facilitate the implementation of their newly acquired skills.

L.10 In projects where MSF has established its own patient management circuits, opportunities for the transfer of responsibilities to the identified partner need to be adequately planned and implemented (e.g., rotation of work duties between MSF and partner staff, work in MSF tandem partners, or individual or team supervision).

HANDOVER PLAN FOR TRANSFER OF RESPONSIBILITIES

L.11 A handover plan needs to be designed early in the project. This plan should be drafted together with the partner identified for the transfer of responsibilities.

L.12 The technical and organisational standards to be achieved by the transfer partner for handover of responsibilities should be stated in a written agreement, together with the necessary steps to achieve them. These standards should cover all areas (i.e., laboratory, medical care, pharmacy, IPC, procurement, supply, etc.).

ADVOCACY

L.13 When interacting with local stakeholders, building relationships in a culturally appropriate way is crucial to gaining the trust needed for fruitful cooperation.

L.14 In hierarchical public systems, decision makers tend to implement useful changes only after receiving formal instructions from higher levels. It is therefore important to ensure that coordination and advocacy related activities include stakeholders at all levels of the hierarchy.

L.15 It's important to have clearly defined messages and objectives as part of advocacy plans, and to be consistent with them. This is even more crucial given the high turnover of MSF staff in the project.

L.16 Advocacy efforts targeting high-level national stakeholders may have a significant impact. As such, they should be considered by AHD interventions as long term and worthy of investment. Due to its international reputation and extensive implementational experience, MSF is well placed to support national and provincial levels in adopting improved practices in areas of MSF expertise, such as AHD.

L.17 International health partners such as PEPFAR or WHO can play a key role in supporting MSF's advocacy objectives. Using the leverage of prominent international partners working with the MoH is an efficient way to mutualise efforts to achieve common goals.

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INTERNAL FOLLOW-UP

L.18 Internal dashboards and monitoring sheets with regular and quantified information make changes over time and bottlenecks visible and provide a good basis for management decisions. When reporting becomes too complicated or irregular, important aspects which require attention may be overlooked and decision-making unduly delayed.

L.19 MSF projects may receive a relatively high number of field visits by managers and technical experts. Having a consolidated list of all recommendations made during each of these visits can facilitate their follow-up

5 SUGGESTIONS FOR THE AHD COMPONENT IN BEIRA

This evaluation helped to identify a series of areas that could be considered to strengthen the current AHD component of the Beira project.

5.1 COORDINATION WITH MOH

- Define clear indicators in the annual MoU with the BCH, possibly with inputs from the provincial levels. As part of these agreements, include standards that the MoH partner would commit to achieving or adopting.
- Consider offering again to BCH to rewrite SOPs for ER circuit as part of annual agreement to help improve institutional standards (in line with WHO guidelines or even in coordination with the WHO Office).
- Include MoH staff in MSF circuits to reduce MSF costs and facilitate capacity building and transfer of responsibilities to MoH (preparation for handover of activities).
- Support the provincial level to quantify and order AHD health products, and transfer of good storage practices that could reduce stock-outs for procurement by the MoH/Global Fund project.
- Support BCH and Munhava facilities and the provincial levels to establish maintenance contracts for Pima and GeneXpert before the end of the project. Support them to establish routines (similar to MSF ones) to monitor the utilisation of AHD-related equipment.

5.2 COORDINATION WITH OTHER LOCAL ACTORS

- Strengthen and expand existing coordination and collaboration with different actors (NGOs, community-based organisations, etc.) to improve patient follow-up and continuity of care. Options such as community ARV provision and differentiated care models may be explored as part of these collaborations.

5.3 AHD PROVISION OF CARE

- Where possible, use digital solutions to improve the transmission of laboratory results to the facility staff in charge of the patients' care. It may accelerate the start of treatment and facilitate tracing of all patients.
- Explore new ways to coordinate and share with the BCH on aspects related to triage, discharge, nosocomial infections, and mortality discussions. Where possible, include the municipal or provincial level in these discussions (or the national level, for instance for the definition of discharge criteria), as well as international partners (WHO).
- Explore solutions to ensure adequate MSF follow-up for night/weekend shift patients at BCH, when MSF staff are not present.

- Reinforce biochemical testing for co-morbidities (diabetes, cholesterol and other tests required by national HIV guidelines) for patients with AHD in facilities¹.
- Ensure that referrals from BCH to other health centers are efficient and that patients are adequately followed-up after discharge.
- If problems with stock-outs cannot be resolved through the MoH, consider alternative means of import –luggage (CrAg POC tests – 100 tests ≈ 600 g) or UNICEF/UNFPA who experience fewer issues with MoH authorities. With a shelf life of 18 months for TB-LAM and 2 years for CrAg tests, a 10-month stockpile could be considered with a calculated risk of small losses.

5.4 PROJECT MANAGEMENT

- Consider having a single list of recommendations received by technical referees during project visits to facilitate follow-up.
- Complete the monitoring sheets regularly, at least with quantified information on targets for most important activities of the logframe. Compare quarterly performance to get a better overview of tendencies and make early adjustments, if necessary.
- Establish a simple but regular (monthly) internal data reporting system, to provide MSF Beira managers with timely management information. The reporting dashboard could include availability of main consumables, number of tests performed and positivity rates, new patients accessing AHD care in the BCH ER and Munhava Health Centre.
- Assess MSF-HR resources currently deployed in the MSF-supported facilities and explore options to improve efficiency. Some of the current HR resources may be used for decentralisation. Develop an HR transfer plan until the end of the AHD project.
- Develop an AHD exit strategy for MSF Beira with agreed benchmarks for personal and institutional changes on the part of implementers (as stated in the 2022 project document). The handover of the AHD project to the MoH requires the integration of activities (medical, laboratory, pharmacy, M&E, etc.) into the existing routine of the health facility. Exit targets should be part of the logframe.

5.5 ADVOCACY

- MSF OCB and MSF Beira to participate in the existing HIV committees at national level (Health Partners Group, MoH HIV Committees) as well as at provincial and facility levels (Mortality, Hygiene, HIV committees, Quantification Group).
- Expand advocacy efforts with international health partners to address challenges identified by the AHD component. These include difficulties in data sharing (e.g., USAID's ECHO project), supply chain for AHD health commodities (quantification, ordering, distribution) such as LMIS; and differentiated service delivery with community ARV distribution.
- Develop a short advocacy plan until 2024 with quantified targets at national and provincial levels

6 ANNEXES

ANNEX 1: KEY DOCUMENTS REVIEWED

MSF DOCUMENTS REVIEWED

- Logframes 2018, 2019-2021, and 2022-2024
- ARO 2018 BCH and Munhava
- Annual reports 2018, 2020, 2021
- Annual monitoring sheet for 2021
- Training ToT reports 2018, 2019, 2021 (no report in 2020 due to COVID-19 lockdown)
- Handover report Carina Perotti 2018-2022
- Clinical database for BCH, clinical database for Munhava
- AHD strategy, PPT presentation 2019
- HIV project update November 2021, PPT presentation
- Mozambique Visit Summary, Gilles – MSF SAMU, 2018, PPT presentation
- Handover report MAM Telma Azevedo, 2022
- Assessment (Baseline) AHD BCH, 2017
- List of MSF Beira staff 2022
- Learning materials on AHD – mentoring follow-up
- Supply information 2021
- Agreements with Sofala Health Authority and BCH
- Laboratory Report 2021
- Handover report Telma Azevedo
- Documentation Round Table on AHD, 2021
- Presentation to the National HIV Programme, 2022
- Patient records
- Guide to AHD hospital treatment, MSF

EXTERNAL DOCUMENTS REVIEWED

- AHD guidelines, MoH Mozambique, 2022
- ARV treatment Guidelines Mozambique, MoH Mozambique, 2016 and update 2019
- Evaluation of Humanitarian Action Guide, 2016, <https://www.alnap.org/system/files/content/resource/files/main/alnap-evaluation-humanitarian-action-2016.pdf>
- WHO AHD Guidelines 2017
- Guidelines on Differentiated Treatment MoH Mozambique

- Guideline for Implementation of Viral Load in Mozambique
- List of drugs and tests for HIV/AHD eligible for Global Fund project purchasing, 2022
- Circular on TB-LAM DPS Beira
- AHD Situation Update, MoH Mozambique and iCAP, 2020
- Guidance on Humanitarian Evaluation <https://www.betterevaluation.org/en/themes/evaluating-humanitarian-action>
- Relevance and Appropriateness in Humanitarian Action: https://www.degeval.org/fileadmin/users/Arbeitskreise/AK_EPol/ALNAP_Dillon.pdf
- Global Fund Audit Report Mozambique, 2022
- Mozambique National HIV report, 2021
- Mozambique National HIV report, Q1-Q2 2022
- Studies relating to HIV mortality in hospitals

ANNEX 2: PERSONS INTERVIEWED

Institution	Position Person interviewed
MoH Representatives and Staff	
Sofala Health Directorate	HIV focal point
Beira Central Hospital	Head of ER laboratory Clinical manager ER Medical Doctor Ward Head nurse Head of TB Laboratory
Munhava Health Centre	Head of laboratory Nurse in charge of testing MoH: (HIV Focal point) Counselling:
Ponta Gea Health Centre	Head of laboratory Medical nurse in charge
Partners and Donors	
USAID's ECHO	Medical Director
DREAM Facility	Medical Director
MSF Stakeholders	
Beira Project	Beira Field Coordinator Beira Project Medical Responsible Beira Medical Activity Manager Beira Doctor Beira Doctor Beira Nurse Beira OPD Mentoring Program Coordinator Beira Pharmacy Manager Beira Laboratory Focal Point Beira Data Manager Beira Epidemiologist Beira HR manager Beira Patient Support Beira Supply Manager

MSF Staff in Direct Provision of Care	Laboratory assistants BCH and Munhava Medical doctor s BCH and Munhava (4) Nurses BCH and Munhava (3) Counsellors Munhava (2) One-stop-shop and patient navigator Supervisor
MSF Coordination and Technical Referents, Former staff	
	SA Regional Operations Responsible HIV OCB-Referent SAMU Former Mozambique OCB Medical Coordinator Learning Unit Coordinator SAMU Deputy OCG, Maputo Former Beira Project Coordinator
Patients	
	Sample of 14 patients from the 3 supported facilities, including men and women
Community Organizations	
	NGO Kugarissica Director

ANNEX 3: LIST OF TABLES AND GRAPHICS

Graph 1. CD4 tests and results at BCH ER, 2018-2021

Graph 2. In-hospital AHD Mortality in BCH ER admitted patients (2018-Q1 2022)

Graph 3. Main outcomes of MSF's AHD-treated patients, Presentation to the National HIV programme 2022 (data Open MRS)

Table 1. Main milestones of the AHD component, MSF's HIV project in Beira.

Table 2. BCH ER patients tested for CD4 2018-Q1 2022, MSF database.

Table 3. Patients with detected CD4 below 200 tested for TB (LAM or GeneXpert). MSF database, consultants' compilation.

Table 4. In-hospital Mortality in different groups of patients with AHD and patients with HIV but without AHD admitted to BCH ER, MSF data, analysis consultants.

Table 5. Data on recorded in-hospital AHD deaths and deaths from CM and CCM patients admitted BCH ER 2018-2021, MSF, OR data.

Stockholm Evaluation Unit
<http://evaluation.msf.org/>
Médecins Sans Frontières

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