

**Médecins Sans Frontières
(MSF OCBA), Spain**
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Yambio

HIV community- based Test and Treat pilot project

Report For External Partners



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A Community Health Worker announces the arrival of a Test and Treat team to a village.

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Abbreviations and acronyms

3TC	Lamivudine
ART	Antiretroviral Therapy
ARV	Antiretroviral (drug)
AZT	Zidovudine
CAG	Community ART Group
CB-HTC	Community-based HIV Testing and Counselling
CD4	Cluster of Differentiation 4
CHW	Community Health Worker
CMMB	Catholic Medical Mission Board
CrAg Test	Cryptococcal Antigen Test
DBS	Dried Blood Spots Kit
DRC	Democratic Republic of Congo
ELISA	Enzyme-Linked Immunosorbent Assay
HTC	HIV Testing and Counselling
LPV/r	Lopinavir Boosted with Ritonavir
LTFU	Lost to Follow-Up
MD	Medical Doctor
MSF OCBA	MSF Operational Centre Barcelona/Athens
MUAC	Mid-Upper Arm Circumference
NVP	Nevirapine
OI	Opportunistic Infection
PCR	Polymerase Chain Reaction
PHCC	Primary Healthcare Clinic
PHCU	Primary Healthcare Unit
PLWHA	People Living With HIV/AIDS
PMTCT	Prevention of Mother-To-Child Transmission
RDT	Rapid Diagnosis Test
RIC	Retention In Care
SGBV	Sexual and Gender-Based Violence
SPLA	Sudan's People Liberation Army
T&T	Test and Treat
TB	Tuberculosis
UNAIDS	Joint United Nations Programme on HIV and AIDS
UNDP	United Nations Development Programme
VCT	Voluntary Counselling and Testing
VL	Viral Load
WHO	World Health Organization
YSH	Yambio State Hospital

1 Executive Summary

In June 2015, MSF OCBA with the cooperation of the South Sudan Ministry of Health and the World Health Organization (WHO), launched a community-based 'Test and Treat' (T&T) pilot project in the rural areas of Yambio. Yambio is a conflict-affected area with an estimated population of around 200,000. Part of what was formerly Western Equatoria State, the area has the highest prevalence of HIV in South Sudan (6.8 percent for those between the ages of 15 and 49).¹ Antiretroviral therapy (ART) is only available to about 10 percent of people living with HIV in South Sudan, one of the lowest ART coverage ratios in the world. The United Nations Development Programme (UNDP) in partnership with Global Fund supported the collaborative pilot project by supplying HIV diagnostic tests and antiretroviral drugs (ARV).

The previous MSF integrated HIV programme imbedded at Yambio State Hospital (YSH) greatly contributed to improving ART coverage for people living in the Yambio and Nzara Counties. In April 2015, MSF handed over all the medical activities at Yambio State Hospital to the Ministry of Health. The programme included an HIV component centrally located in the town of Yambio and serving 1,477 patients actively on ART. The T&T pilot programme was devised to expand the existing HIV programme to those living outside Yambio, a logical next step. The expansion provided an opportunity to pilot an innovative model outside hospitals, clinics or health facilities and increase coverage in the counties, as **decentralised** HIV services had been unavailable in these areas.

The aim of the new project was to assess T&T feasibility and acceptability ('Treat All' as set out in WHO guidelines)² through a community-based mobile HTC programme including same day antiretroviral (ARV) treatment initiation and the delegation of tasks to less specialised health staff. MSF wanted to document whether bringing HIV testing and treatment closer to patients' homes, with simplified protocols and tools ('Treat All'), would result in treatment outcomes similar to those of facility-based care. Proof of the concept would mean the strategy could be applicable to areas with few trained healthcare workers or inaccessible, centralised HIV services, as well as difficult to reach areas with low ART coverage and conflict-affected areas. Subsequently, this model could be scaled up and replicated in other regions of South Sudan or other countries that have areas with little or no availability of HIV services.

The pilot is evaluated using a two-phase observational study approach. The first phase entails offering free HIV testing and

1 South Sudan AIDS Commission and Ministry of Health, June 2015. Available from http://www.unaids.org/sites/default/files/country/documents/SSD_narrative_report_2015.pdf

2 The 'Treat All' guidelines are available from <http://www.who.int/hiv/pub/arv/arv-2016/en/>

counselling to everyone in the participating communities until December 2016. The programme handover began in August 2017, and patient enrolment continued until December 2017. Finalisation of the handover is scheduled to take place by June 2018. The second phase followed an all-inclusive cohort of tested positives to monitor treatment acceptability, adherence and programme retention for 18 months.³

The model comprises a combination of different building blocks, enabling other parties to contribute to each block as stand-alone components with reasonable resources. The foundations necessary for the implementation of a T&T programme include:

- **Awareness raising by community health workers:** Community health workers (CHWs) recruited from the communities helped to lay down essential groundwork for T&T by performing health promotion activities. Extensive awareness raising and health information dissemination took place within the communities before counselling and voluntary testing began.
- **Test and Treat:** HIV counselling and testing (HCT) programme with same day ARV treatment initiation (termed 'Treat All' in WHO guidelines set out in 2016).
- **Decentralised approach:** The use of five mobile clinics with seven staff each enabled the expansion of HIV testing and ART to rural and underserved areas.
- **Community Antiretroviral Therapy Groups (CAGs):**⁴ Groups of patients rotated clinic visits to obtain drug refills, dispense drugs to their peers in the community group and ensure peer support. In total, 98 patients were organised into 24 CAGs. The CAGs have functioned very well and are improving the adherence of the organised patients to the ARV regimen.
- **Delegating tasks to less specialised health staff:** By delegating medical and health responsibilities from higher to lower cadres of health staff, clinical officers or nurses could commence treatment independently, so that an MD did not need to be present. In exceptional cases, trained CHWs could conduct the testing.
- **Drop-in centres:** Mobile clinics placed in determined fixed locations in the community provide a place for people to receive HIV testing, ARV treatment and further follow-up. Tents were erected and taken down every day in several sites.

³ There were 348 within the study and 53 added in 2017 outside the study cohort.

⁴ In the current South Sudanese Policy they are called CARGs (Community Antiretroviral Therapy Refilling Groups).

- **Contingency plan:** A contingency plan is essential for providing ART in unstable settings. In case of any active insecurity, the CHWs of the area provide patients with a 'run-away' bag containing three months of **additional** ARV as well as their regular stock. CHW, and sometimes peer patients or CAG members, were acting as focal points to distribute the ARVs among patients.
- **Viral load (VL) capacity:** The possibility of performing RNA-based VL tests is essential to monitoring the medical success of ART programmes, because therapeutic benefit stems from the suppression of VL in patients.

Data from the T&T programme appear in Table 1 and Table 2.

Table 1. HIV testing results from June 2015–December 2017

Age groups	No. Tested	No. Tested Positive	HIV Prevalence Female	HIV Prevalence Male
<15 years old	183	10	7.4%	3.4%
>= 15 years old	14,617	494	4.3%	2.5%
Total	14,800	504	3.4%	

Table 2. ART initiation, programme retention and deaths: June 2015 to December 2017

Summary T&T Project	Total cumulative	%
Started on ART	395	100
Lost to follow-up	94	23.8
Transferred out	32	8.1
Deaths	12	3.0
Active on ART*	223	65.1

* In Nov 2017 before handover.

Of 14,800 people tested, 504 tested positive for HIV. Of these, 10 were under the age of 15. A total of 401 patients diagnosed with HIV had initiated ART therapy. Most patients initiated ART on the day of diagnosis.

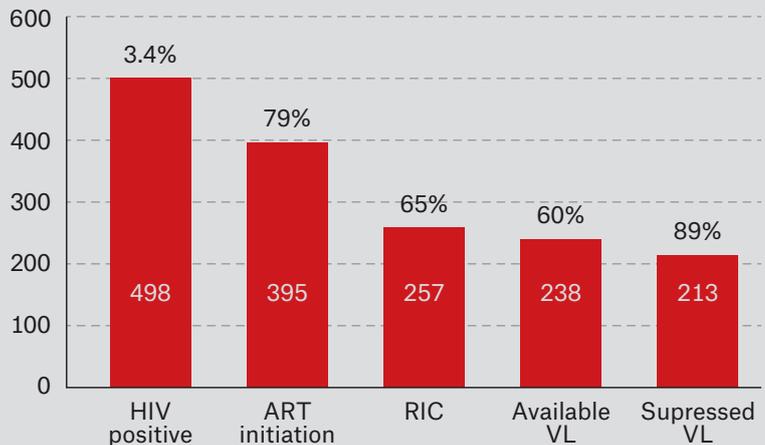
The insecurity in the area and some patients living in the Democratic Republic of Congo (DRC), an area inaccessible to the CHWs, are the main factors underlying the high rate (23 percent) of patients lost to follow-up. Also, the increased frequency of consultations established during the last five months of study (appointments every six weeks) had an influence on the follow-up rate.⁵

⁵ An LTFU is a patient who missed the next scheduled appointment for three months.

In the study cohort (342 patients), VL suppression was observed for most of the patients **at six months**. Specifically, 89 percent of patients demonstrated suppressed VL **at 12 months**. The aim of the Joint United Nations Programme on HIV and AIDS (UNAIDS) is to achieve suppressed VL for 90 percent of patients on ART, therefore Yambio T&T outcomes are excellent.

1.1 Conclusion

Figure 1.
HIV cascade in Yambio
Test and Treat project



Since 2016, WHO recommendations have incorporated T&T/‘Treat All’, and this healthcare policy was adopted in South Sudan. The T&T pilot study introduced an unprecedented approach to reaching patients using a decentralised, community-based T&T model, employing mobile clinics to deliver care in South Sudan.

The T&T pilot programme was successful in achieving **higher ART coverage for those with HIV in the country. The model for the delivery of care provides a significant opportunity for expansion within South Sudan, as well as application to other similar settings.** The strategy with mobile clinics, adapted in terms of location and working hours, could also be applicable to providing care to key mobile populations, such as sex workers and soldiers.

Moreover, the T&T pilot programme was popular. There was a high turnout for testing and ART initiation, and patients who began treatment demonstrated a **high level of adherence to ART** (in terms of the percentage of suppressed VL and low VL). Handover of the programme to the Ministry of Health led **the Ministry of Health to increase the number of validated ART sites. The contingency plan and the favourable experience with community models of care (CAGs) are additional positive outcomes for the T&T pilot.** Also, **the model is replicable and can be applied to other humanitarian settings.**



An important part of the Test and Treat Programme is the counselling patients receive so that they can better understand their condition and treatment.

2 Background

HIV prevalence rates in Sudan



ACCORDING TO UNAIDS, **THE HIV PREVALENCE RATE WAS 2.7 PERCENT IN 2016 IN SOUTH SUDAN FOR THOSE BETWEEN THE AGES OF 15 AND 49**

2.1 HIV in South Sudan

South Sudan has a generalised HIV epidemic. According to the latest Modes of Transmission study, seven of 10 new HIV infections are linked to either female sex workers and their clients or perinatal transmission (mother-to-child transmission). Furthermore, it is reported that urban communities, cross-border areas and those along the transport corridors seem to have higher HIV prevalence than the general population.

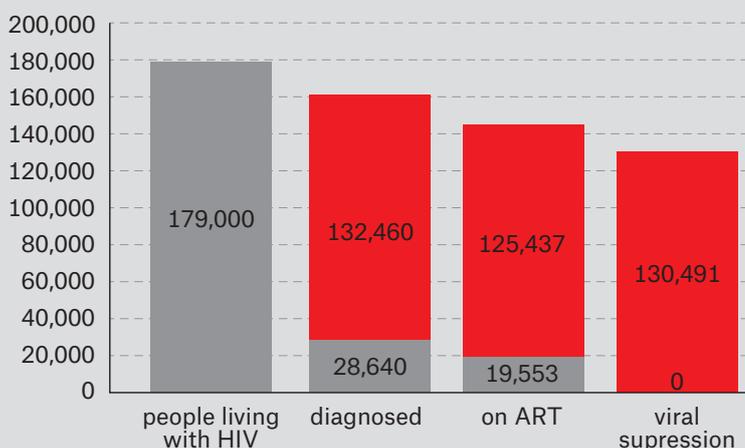
According to UNAIDS, the HIV prevalence rate was 2.7 percent (1.7 percent to 4 percent) in 2016 in South Sudan for those between the ages of 15 and 49.⁶ The 3.2 percent (2.0 percent to 4.7 percent) HIV prevalence in women was significantly higher than the 2.2 percent (1.4 percent to 3.2 percent) for men. The organisation's estimates of the number of people living with HIV reached 200,000 (130,000–290,000) for that year. ART was available to only 10 percent (ranging from five percent to 14 percent) of those living with HIV, giving South Sudan one of the lowest ART coverage ratios in the world.

The humanitarian crisis, conflict and related displacement of people significantly hamper the response to HIV, and make women and girls more vulnerable to HIV infection. In addition, 95 percent of financing of the health sector in South Sudan for 2016–2017 came from external support. The total expenditure on health as a percentage of GDP is 2.7 percent.⁷ Due to limited data in South Sudan, all estimates have wide plausibility boundaries.⁸

Figure 2.
Progress in South Sudan toward achieving UNAIDS targets by 2020⁹

Reaching 90-90-90:
A long way to go

■ Achieved ■ Gap



⁶ UNAIDS South Sudan country fact sheet, available at <http://www.unaids.org/en/regionscountries/countries/southsudan/>

⁷ WHO, country data 2014. Available from <http://www.who.int/countries/ssd/en/>

⁸ South Sudan AIDS Commission and Ministry of Health, June 2015.

⁹ UNHCR Inter-Agency Task Team for addressing HIV in Humanitarian Emergencies. South Sudan. Conflict displacement, famine and the HIV response – time to act! Geneva: UNHCR; 2018. 8 p. Available from <http://www.unhcr.org/5a5892f17.pdf>

HIV prevalence rates in Sudan



UNAIDS ESTIMATES THAT THERE ARE **200,000** PEOPLE LIVING WITH HIV IN SOUTH SUDAN



18,000 CHILDREN ARE LIVING WITH HIV IN SOUTH SUDAN



ONLY 10% OF SOUTH SUDANESE PEOPLE AND JUST 5% OF CHILDREN LIVING HAVE ACCESS TO ART, GIVING SOUTH SUDAN ONE OF THE LOWEST ART COVERAGE RATIOS IN THE WORLD.

2.2 HIV in former Western Equatoria State

In 2012, a sentinel survey of antenatal clinics reconfirmed the former Western Equatoria (one of former 10 states in South Sudan) as the state with the highest HIV prevalence in the country (6.8 percent of the population between the ages of 15 and 49).¹⁰ There are multiple contributing factors. It borders countries with high HIV prevalence zones and weak health systems (the Central African Republic, DRC and Uganda). There are traffic routes that pass through the state. Many of these roads provide access to neighbouring countries, rendering truck drivers, female sex workers and members of the armed forces the people most at risk.¹¹

When the T&T project was launched (July 2015), six of the 10 counties in Western Equatoria State had centralised ART sites – five located in hospitals and one in a primary healthcare clinic (PHCC). The MSF T&T programme introduced community-based services for associated rural areas in the state of Yambio. Previously, the health services in these states offered HIV testing in the main towns solely through voluntary counselling and testing (VCT) centres. There had been no services available in the rural areas.

The Ministry of Health is the primary provider of HIV services in YSH. The Catholic Medical Mission Board (CMMB) 'supports' prevention of mother-to-child transmission (PMTCT) at the primary healthcare unit (PHCU) located in the town of Yambio. Most of the unit's patients eventually visit YSH. In addition to the ART clinic at YSH, there is an ART clinic run by Comboni Sisters, another Catholic charity, at Nzara hospital.

2.3 Conflict and context in Western Equatoria (now Gbudue State): Yambio and Nzara

In the years following independence in 2011, South Sudan has experienced a civil war between parts of the government and opposition factions. In early 2016, Yambio was hit by the civil war, with opposition groups challenging the Sudan's People Liberation Army (SPLA).

The former Western Equatoria witnessed a surge in violence between 2015 and 2016, with military clashes taking place regularly between SPLA forces and local armed groups (both aligned and not aligned with the SPLA). This led to significant displacement of people, especially in Yambio, Ezo and Tambura Counties.

¹⁰ South Sudan AIDS Commission and Ministry of Health, June 2015.

¹¹ South Sudan AIDS Commission and Ministry of Health, June 2015.

Although the presence of humanitarian agencies has increased since the beginning of the civil war, making services available in such a remote area has been a struggle. Several payams experienced insecurity and remained inaccessible for long period of time.¹² For example, Li-Rangu had been inaccessible to MSF since the end of 2015.

In early 2017, the former Western Equatoria State was divided into four new states: Gbudue (with Yambio and Nzara), Maridi, Amadi and Tambura. The T&T pilot sites are all located in Yambio County in what is now Gbudue State. MSF OCBA also provided assistance with an emergency response in the other new states.

Figure 3.
Map of former
Western Equatoria



2.4 Rationale for the Test and Treat pilot project

In 2014, MSF's HIV/AIDS Strategic Framework 2014–2017¹³ underlined its engagement in the fight against HIV. Providing HIV care in emergency settings and for displaced populations is a priority. The availability of HIV prevention, care and treatment services in conflict-acute emergency settings is not systematic, and global policy for the provision of care in these settings is lacking. Furthermore, where ART is successfully made available, maintaining a high level of retention with sustained undetectable VL remains a challenge. Adequate treatment monitoring (routine VL testing) is out of reach for most people on ART living in under-resourced areas. Adequate adherence support is also absent and a timely switch to second-line treatment, if needed, is hard to achieve, too.

¹² A state is subdivided into counties. A county is divided into payams. A payam consists of several bomas. Payams are required to have a minimum population of 25,000.

¹³ In a document titled 'MSF HIV/AIDS Strategic Framework 2014–2017, October 2014'.

HIV prevalence rates in Sudan



The new '90-90-90' UNAIDS strategy for 2020 aims to have 90 percent of people living with HIV (PLWHA) diagnosed, 90 percent of those diagnosed receiving ART and 90 percent of PLWHA on ART demonstrating viral suppression. These targets will not be feasible if innovative models are not implemented. This is particularly true for places where HIV care is not the main priority. However, given the extent of PLWHA, there is a huge unmet need due to extremely low ART coverage.

Yambio is a high prevalence location, and is a good place for MSF OCBA to pilot a community-based HIV testing and counselling (CB-HTC) programme coupled with ART. In order to improve survival and reduce transmission of HIV, the programme simplified HIV care delivery by using mobile teams to visit rural areas. This included delegating tasks to less specialised health staff within the mobile teams. It was expected that MSF could implement this project's lessons for emergency settings or other contexts with scarce HIV services or low ART coverage.

Community-based HIV testing and counselling (CB-HTC) can reduce HIV transmission, if ART is available for those who test positive.^{14, 15} CB-HTC has already been implemented in several countries – such as Zambia, Kenya, Malawi and South Africa – demonstrating high-testing uptake and high acceptability.¹⁶

These strategies bring HIV testing closer to people's homes and so reach previously untested individuals unaware of their HIV status. The approach has been recommended by WHO for generalised HIV epidemics with links to prevention, care and treatment services.¹⁷ Several studies, however, report high drop-out rates between HIV testing and ART initiation at **referral clinics**, suggesting that **starting ART at the same site and time of testing**, with or without cluster of differentiation 4 (CD4) testing, **would increase ART uptake and so reduce**

¹⁴ Suthar AB, Ford N, Bachanas PJ, Wong VJ, Rajan JS, Saltzman AK, Ajose O, Fakoya AO, Granich RM, Negussie EK, Baggaley RC. Towards universal voluntary HIV testing and counselling: a systematic review and meta-analysis of community-based approaches. *PLoS Medicine*. 2013 Aug 13;10(8):e1001496.

¹⁵ Cohen MS, Chen YQ, McCauley M, Gamble T, Hosseinipour MC, Kumarasamy N, Hakim JG, Kumwenda J, Grinsztejn B, Pilotto JH, Godbole SV. Prevention of HIV-1 infection with early antiretroviral therapy. *New England Journal of Medicine*. 2011 Aug 11;365(6):493-505.

¹⁶ Van Rooyen H, Barnabas RV, Baeten JM, Phakathi Z, Joseph P, Krows M, Hong T, Murnane PM, Hughes J, Celum C. High HIV testing uptake and linkage to care in a novel program of home-based HIV counseling and testing with facilitated referral in KwaZulu-Natal, South Africa. *Journal of Acquired Immune Deficiency Syndromes* (1999). 2013 Sep 1;64(1):e1.

¹⁷ World Health Organization. Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: recommendations for a public health approach. World Health Organization; 2016.

HIV-related illness, mortality, transmission and incidence.¹⁸

The benefit of ART initiation on the restitution of a patient in advanced stages of the disease immunity, and on those with higher CD4, has already been documented – improving individual patients’ health and so reducing HIV transmission in the community.^{19, 20}

The availability of HIV care in settings with low ART coverage to those affected by conflict is a long way from the target of 90 percent coverage. Competing medical priorities, weak health services and a lack of trained human resources are considerable obstacles. Even when HIV services are present to some extent in these types of settings, most still fall behind in practices with a proven success record, such as delegating tasks to less specialised health staff and decentralization of HIV care.

The provision of HIV T&T closer to patients’ homes, using simplified protocols and tools, allows for treatment outcomes comparable to those of facility-based care, and could be the most suitable strategy in areas with few human resources or without centralised HIV services.

¹⁸ Jaffar S, Amuron B, Foster S, Birungi J, Levin J, Namara G, Nabiryo C, Ndembu N, Kyomuhangi R, Opio A, Bunnell R. Rates of virological failure in patients treated in a home-based versus a facility-based HIV-care model in Jinja, southeast Uganda: a cluster-randomised equivalence trial. *The Lancet*. 2009 Dec 19;374(9707):2080-9.

¹⁹ DART VG, Trial T. Virological response to a triple nucleoside/nucleotide analogue regimen over 48 weeks in HIV-1-infected adults in Africa. *AIDS (London, England)*. 2006 Jun 26;20(10):1391.

²⁰ Cohen MS et al., 2011.



Aniongo Roselyn, MSF laboratory assistant, draws blood from a young patient to test his viral load.

3 The strategic approach

Objectives of the study



ASSESS ACCEPTANCE IN HIV T&T IN A SELECTED COMMUNITY



DESCRIBE THE DEMOGRAPHIC AND CLINICAL CHARACTERISTICS OF THE PARTICIPATING POPULATION



TO ASSESS ADHERENCE OF PATIENTS STARTING ART AT COMMUNITY LEVEL



ASSESS PATIENT RETENTION IN CARE AT THREE, SIX AND 12 MONTHS



DESCRIBE THE CLINICAL AND IMMUNOLOGICAL STATUS OF THE PATIENTS AT THE MOMENT OF HIV DIAGNOSIS



DESCRIBE ADVERSE EVENTS PRESENTED BY PATIENTS STARTING ART



ASSESS VIROLOGICAL OUTCOMES OF PATIENTS WHO STARTED ART UNDER THE PROGRAMME



DESCRIBE THE PRIMARY REASONS FOR REFERRAL TO A HEALTH CENTRE OR YSH



CAPITALISE ON THE MODEL INCLUDING INTERNAL REPORTING AND EXTERNAL PUBLICATIONS.

The programme was developed in close collaboration with the South Sudanese Ministry of Health and WHO. From the beginning, the strategy entailed facilitating and informing a handover of HIV care activities to the Ministry of Health, and the potential scale-up of activities in the country.²¹ In 2017, CMMB became a handover partner.

3.1 Objectives of the pilot

The overall objective of the pilot programme was to assess the acceptability and feasibility of a T&T strategy by the community. This would be a benchmark for creating a model that could be scaled up and replicated in other regions of South Sudan and/or other countries, as well as other unstable settings with few or no HIV services.

The specific objectives of the study were to:

- assess acceptance and feasibility of a HIV T&T in a selected community
- assess adherence of patients starting ART at the community level
- Describe the demographic and clinical characteristic of the patients
- assess patient retention at three, six and 12 months
- assess the immunological status of patients at the moment of HIV diagnosis
- describe adverse events presented by patients starting ART
- assess virological outcomes of patients who started ART under the programme
- describe the primary reasons for referral to a Health Centre or YSH
- capitalise on the model including internal reporting and external publications.

3.2 Target population

The T&T programme was conducted among rural areas of Yambio County in Gbudue State in southwestern South Sudan. The plan in the beginning was to select three or more villages outside the town of Yambio. The Ministry of Health proposed these as potential ART sites encompassing a sufficient number of people and logistically reachable for the MSF facilities.

Priority candidates were the towns of Bazungua Payam, Li-Rangu Payam and Gangura Payam,²² with a total a target population of around 48,943 people.²³ All household members from the selected rural areas would be offered home-based testing and counselling. Those testing positive for HIV would also be offered CD4 measurement, as well as

²¹ Any resulting article will include participation and co-authorship by at least one local collaborator from the Ministry of Health.

²² A payam is the second-lowest administrative division, below counties, in South Sudan.

²³ South Sudan 2008 Census with three percent yearly adjustment.

ART initiation free of charge, along with follow-up care and treatment at the community level.

Most of the people that benefitted from the programme resided in the payams of Yambio, Gangura and Bazungua and, to a more limited extent, Li-Rangu and Bangasou. These areas are home to around 56,083 people, according to a population count by World Vision, of whom 30,411 are estimated to be above the age of 15.²⁴

Table 3. Target population based on newer estimates by World Vision²⁵

Payams	Bomas	No. of Households	Total Population	Est. population aged 15 and over (target)
Li-Rangu	5	1,932	18,280	10,054
Bazungua	9	5,361	16,062	8,834
Gangura	6	2,878	21,741	11,523
Total	20	10,171	56,083	30,411

Figures based on a population count by World Vision.

3.3 Planned strategy for MSF activities

The project was based on community-based T&T performed by local health workers, delivered through mobile clinics, with quality assurance implemented by centralised reference laboratories/services.

A minimum number of staff is needed to support the five mobile teams.

3.3.1 ART initiation strategy

MSF was one of the pioneers in introducing the WHO 'Treat All' guidelines. T&T/'Treat All' was officially launched as a national approach by the Ministry of Health in South Sudan in 2016.

All who tested positive for HIV, provided consent and met the inclusion criteria, regardless of the CD4 count and WHO stage of disease, could start ARV treatment the same day.²⁶ During the post-test counselling, the counsellor verified the readiness of the patient to begin ART. For those patients not ready to start ART, another appointment was scheduled during the weeks following the visit.

²⁴ Earlier a census of 2008 with three percent growth rate was used as a basis.

²⁵ MSF OCBA Annual Plan 2017.

²⁶ In fact, treatment was not initiated with every patient the same day, as some patients came back to start treatment after taking time to think.

The programme provided two ART regimens, one for adults and one for children. The Adult ART regimen of TDF+3TC+EFV was the preferred first-line therapy for adults, according to WHO and South Sudan national guidelines. Patients with abnormal creatinine clearance were started on AZT+3TC+EFV. During the study, the first line for children under three years old was ABC+3TC+NVP. The national recommendation of administering lopinavir boosted with ritonavir (LPV/r) for children came later (2017).

Due to the cold chain requirements, not every child could be treated with lopinavir, but at least the children with previous exposure to nevirapine received lopinavir. In this regard, MSF advocated for better treatment for children under three years old.

3.3.2 Clinical events reported by patients diagnosed and started on ART

Clinical outcomes were determined based on data routinely recorded using specific data collection forms. The data collected included: baseline info, admission to hospital during ART, opportunistic infection (OI), and the need for admission to hospital.

3.3.3 Drop-in centres strategy

Drop-in centres are another key feature of the mobile and decentralized approach. These are places in the community where people can find MSF teams and show up to receive HIV testing, ARV treatment and further follow-up. The set-up included a tent and basic equipment to run mobile consultations with a team of seven staff.

At the peak of the project there were 18 drop-in centres. Five remained in fixed locations proposed by the Ministry of Health because they had been planned as potential future ART sites.

The same 18 drop-in centres were also integrated into the Ministry of Health's healthcare coding system of unique patient codes. As of October 2017 three fixed sites and three mobile clinics are operational for our patients in Yambio County (location Saura (mobile clinic), Bodo (mobile clinic), Nabiapai (mobile clinic), Bazungua (ART site accredited), Gangura (ART site accredited) and Yambio PHCC (ART site accredited). All patients handed over to CMMB will continue to receive ART and care through these six fixed sites. Three are PHCCs/accredited ART centres and three are PHCUs receiving CMMB visits for ART.

Image 1.
Mobile drop-in centres, like the one pictured here, are a key feature of the success of the T&T approach



Figure 4.
Map of drop-in centres at December 2017

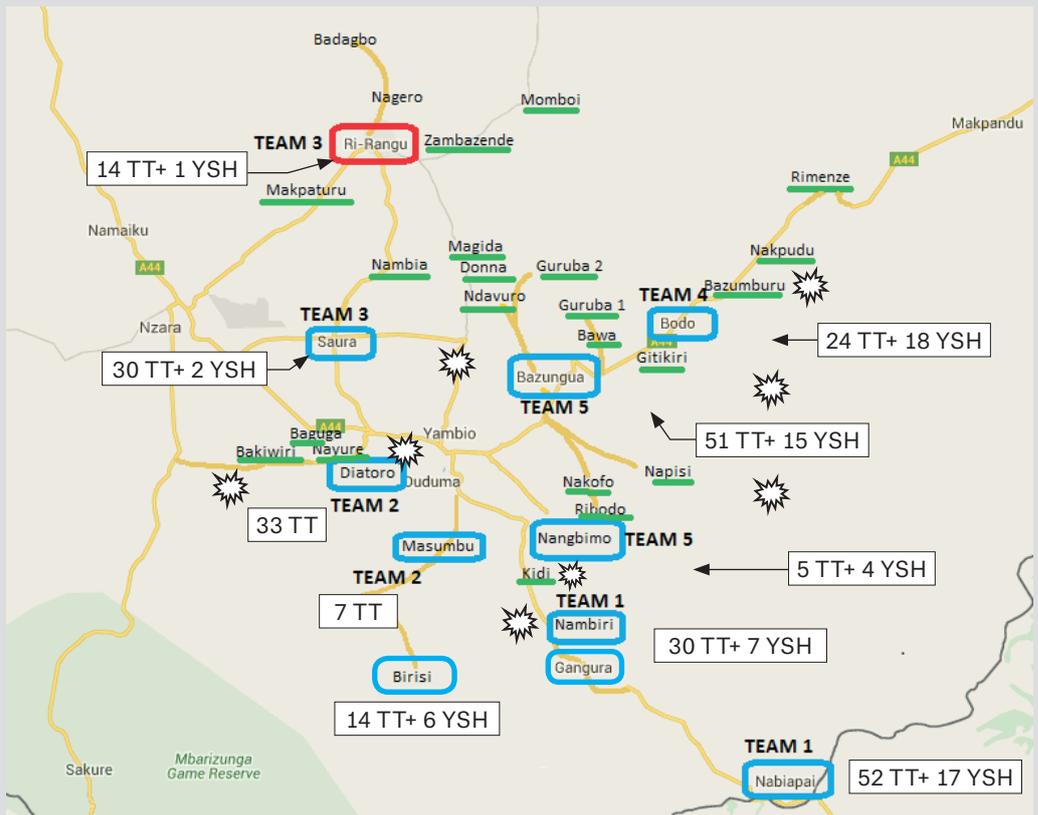
- Current DIC
- Former DIC*

*Ri-Rangu is currently a no-go area, therefore patients go to Saura to collect their medication.

TT = Treat under follow up

YSH = Patients from Yambio State Hospital cohort under follow up

Conflict point



3.3.4 Community Antiretroviral Therapy Groups (CAGs) strategy

The establishment of Community ART Groups was another key strategic element for the T&T programme that helped to simplify the follow-up and improve patient adherence to therapy and care.

Criteria for creating a CAG



PATIENTS STABLE ON ART WITH VL SUPPRESSION FOR AT LEAST 3 MONTHS



A MINIMUM OF THREE AND A MAXIMUM OF SIX PATIENTS



PEOPLE LIVING IN THE SAME BOMA/LOCATION



AT LEAST ONE PERSON ABLE TO READ AND WRITE



ONE PERSON WITH A PHONE

PHASE 1

- **Awareness raising** within the population to reduce stigma
- Offering free HIV testing and counselling to everyone in the participating communities.

PHASE 2

- An **all-inclusive cohort** of anyone testing positive for HIV monitored over 18 months for treatment acceptability and adherence..

A number of clinic and/or community-based strategies have been implemented in other countries to reduce the burden on health workers and patients. For example, the decentralisation of services from hospitals to health centres and health posts, are providing longer drug supplies to patients and drug refills through fast track systems. Adherence clubs are also serving as community distribution points. Community ART Groups (CAGs) are one such strategy for ART distribution. Groups of **patients from a community meet to provide peer support and rotate their clinic visits and obtain drug refills at the clinic to dispense to their peers.**²⁷ There is evidence showing the strength of CAGs in stable settings. Little evidence on the impact of CAGs in unstable settings like Yambio is available to date.

The eligibility criteria for joining CAGs in the T&T pilot were for patients to be stable with VL suppression on ART for at least three months.

Group formation criteria were as follows:

- a minimum of three and a maximum of six (a group of seven was allowed in one instance)
- people living in the same boma/location
- at least one person able to read and write
- at least one person with a phone that can be easily contacted by the other group members.

People not fulfilling the criteria, but wishing to join a group, would be required to come for follow-up on a normal basis and could eventually join a CAG when they met the criteria.

3.3.5 Strategy for delegating tasks to less specialised health staff

Delegating the provision of HIV services to less specialised staff was another crucial component of the T&T programme. South Sudan adopted task delegation to less specialised staff as a national policy, enabling nurses and midwives to assume the management of HIV patients who had started ART. However, it remains difficult to implement this policy due to the lack of trained staff. At the YSH ART clinic it was partially

²⁷ MSF SAMU. Community ART Group Toolkit. How to implement the CAG model. Cape Town: MSF SAMU (Southern Africa Medical Unit); 2017. 12 p. Available from https://www.msf.org/sites/msf.org/files/community_art_group_toolkit.pdf

implemented, as the clinical officer would stand in if the MD was unavailable.

In the T&T programme, **CHWs** were trained and equipped to perform **HIV testing** in exceptional circumstances, such as when screening house-to-house in remote areas or for certain index cases. **Clinical officers or nurses/counsellors could initiate treatment.** The nurses also replaced the clinical officers in their absence, and the T&T programme functioned without an MD. The 'Treat All' recommendation strongly facilitates the delegation of tasks to less specialised health staff because treatment initiation is simply decided on the result of the HIV tests.

3.3.6 Routine monitoring data collection strategy

Data was collected using standardised Ministry of Health forms (see Annex 2) and included:

- Sociodemographic information
- Clinical and laboratory information
- Ministry of Health-ART coding and registration number

3.4 Study and handover

This pilot programme was implemented using a two-phase observational study approach. The first phase was cross-sectional, and consisted of awareness raising within the population to reduce stigma, followed by offering free HIV testing and counselling to everyone in the participating communities. The programme continued to enrol new patients until the time of handover to the Ministry of Health or another operator, planned for 18 months from the first phase of the programme (July 2015–December 2016). The second phase followed an all-inclusive cohort of anyone testing positive for HIV monitored over 18 months for treatment acceptability and adherence, and programme retention. The Ministry of Health²⁸ would then take over the treatment of the cohort, and would potentially scale up the model regionally or nationally. Follow-up on the last patient will be in June 2018.

²⁸ In 2017, CMMB came in as handover partner.

3.5 Ethical considerations

Ethical considerations have guided both the programme design and its evaluation methodology. The programme is carried out with the approval, support and in conjunction with the Ministry of Health of South Sudan, and patient care will be handed over to the Ministry of Health at the end of the programme. The Ministry of Health was the sole collaborator at the beginning the pilot programme and there were no conflicts of interest. Project staff were selected based on the qualifications needed to carry out the duties, as well as the avoidance of conflicts of interest. Local ethics and scientific review panels were consulted concurrently with the MSF Ethical Review Board. MSF OCBA funded the pilot programme and the related study. UNDP and Global Fund supplied ARV and tests.

The project followed common standards for implementing community-based HIV testing and ART services including: **consent, confidentiality, counselling, correct results and connections to effective care.**



Community ART groups receive a briefings and submit questions to the expert teams.

4 Implementation: Services performed and logistical challenges

The community-based T&T project was officially launched at the end of July 2015. Application of the strategic project was designed to take place over a period of 18 months. During the first 12 months, testing (Phase 1), rapid ART initiation, data collection and treatment took place, along with follow-up and lab monitoring. The subsequent six months (Phase 2) were dedicated to data analysis and a progressive handover of the enrolled cohort to:

- three local PHCCs located in the town of Yambio, and the Bazungua and Gangura payams
- mobile clinics managed by CMMB near the PHCUs of Saura, Nabiapai and Bodo.

The pace of launching T&T activities and the deployment of mobile teams was affected by insecurity, which limited the mobility of the teams. For example, two weeks after MSF had launched the project, all outreach movements were halted for eight working days. Despite the bad conditions of the roads, physical access for the mobile teams was not hindered by the rainy season, except for a short period in Li-Rangu due to a damaged bridge. However, patients may have experienced access problems during rain. The mobile tent was vulnerable to the weather conditions as there was no covered waiting area for patients, for instance.

4.1 HIV awareness raising, patient support, education and counselling

4.1.1 Implementation: Health promotion

The stigma associated with HIV infection can be a substantial obstacle to community participation in health care, so health promotion was important to the success of the programme. To achieve health promotion, the project and results were to be discussed with community leaders and focus groups. These discussions help to inform the MSF teams as to people's movements and provide insights relating to locations and optimal access points. Including community leaders and local groups also enhanced the willingness of people to be screened. While absolute anonymity was guaranteed to all those receiving treatment, top line results were shared with the community. The strategy of using community leaders was very effective, as they have a good deal of influence. However, over time information by megaphone was often sufficient to inform the community.

Specific activities for the health promotion portfolio under the T&T initiative included information on HIV testing and the services provided by MSF, as well as information about the organisation and the teams operating in the area. The information included health education facts about the timely availability of ARV treatment, HIV prevention and care, as well

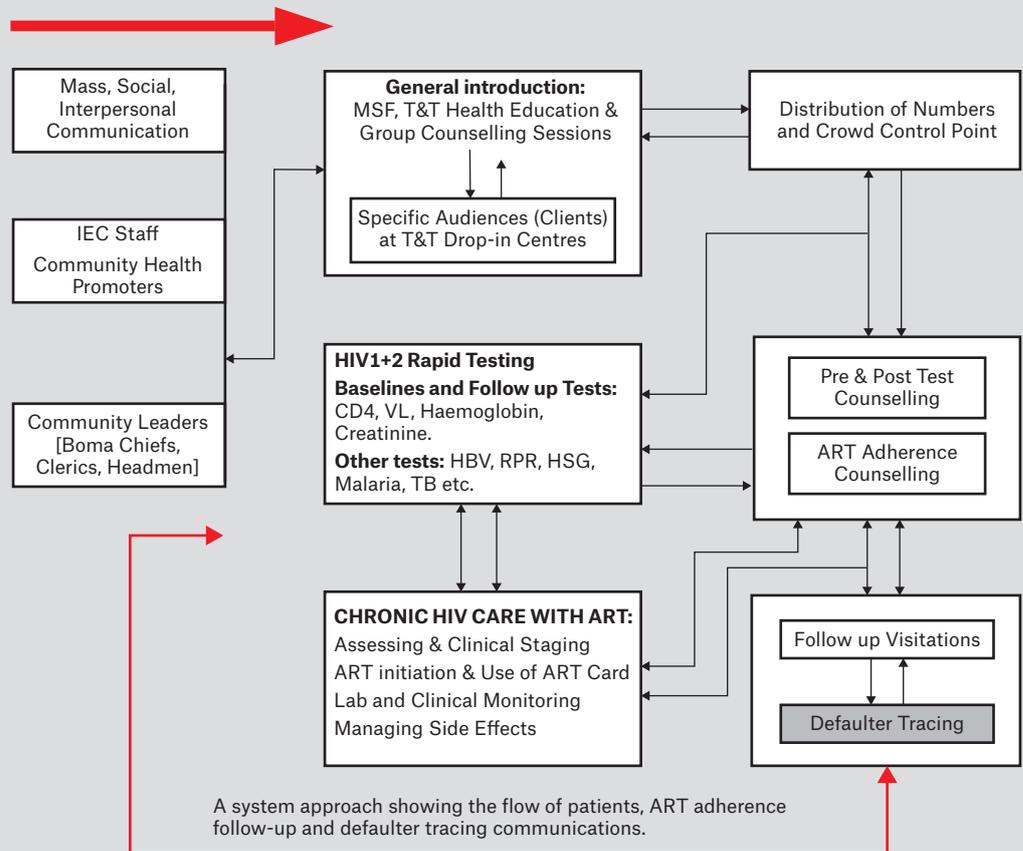
as safe sex practices, birth-planning and delivery assistance. Additional subjects included infant feeding, counselling and support based on knowledge of HIV status, HIV adherence counselling, living positively and basic psychosocial support.

Other activities involved case management meetings, supportive tracing of patients who missed appointments, follow-up for mothers and their babies throughout the period of prevention of mother-to-child transmission (PMTCT) and drawing up referral pathways from community or household level to healthcare facilities for specialised professional counselling or other psychosocial support services.

Radio messages were used to raise community awareness. Rural populations of Yambio County have few material resources, but radios are commonplace. Health promotion materials such as banners, and songs with key messages, jingles on ART and stigma, stickers, posters, leaflets, and T-shirts were developed. An MSF song on HIV has been relaunched and was played on two different radio stations (Yambio FM and Anisa FM) to reinforce T&T messages and to raise awareness as to the presence of MSF services in the community.

4.1.2 Implementation: Counselling, patient psychosocial support and adherence counselling

Figure 5. MSF Yambio - HIV Test & Treat Conceptual Framework Illustrating The Flow Of Patients



During all counselling sessions, the 5C principles (consent, confidentiality, counselling, correct results, linkage to care) were respected. The counsellors were not experts but all received the training to be counsellors at MSF. Some nurses participated in the training and provided counselling.

In some cases, the team performed index testing with prior consent of the patient to assess the HIV status of the patient's family at home. Patients in need of admission to hospital were referred to YSH, and followed up by MSF.

Counselling challenges

Some aspects of the **training relative to sexuality and human behaviour** should have been addressed with the counsellors from the beginning of the project. Training in enhanced adherence counselling is another area that should have been introduced earlier in the programme so that counsellors were equipped to address the needs of patients with a high VL closer to the launch of services in these rural areas.

4.1.3 Active case finding

Effective approaches for active case finding included **the drop-in centres** as primary model, follow-up of **index cases** and the use of community events, such as **market days** and sports events. The original plan to move from **house to house** offering voluntary HTC had not worked for the mobile teams, due to the long distances and scattered locations involved, and also the heavy lifting that the set-up for the mobile teams required. However, door-to-door tracing of patients who had missed appointments was effective for CHWs. CHWs used house-to-house approaches for awareness building and active case finding in places where people could not reach local markets. For this purpose, some CHWs were equipped with bicycles.

Market days (often on Sundays) **proved particularly effective** for reaching the community and conducting tests. Places of worship were also effective hubs for distributing information on testing activities.

In some cases, CHWs trained in counseling and testing, went from house to house undertaking HTC with family members of certain index patients, with prior consent. This was at times done by foot as MSF vehicles could not enter some areas. The teams managed to test 1,071 people and found 2.5% of those tested positive.

Figure 6.
Locations of
people living
with HIV who had
started ART

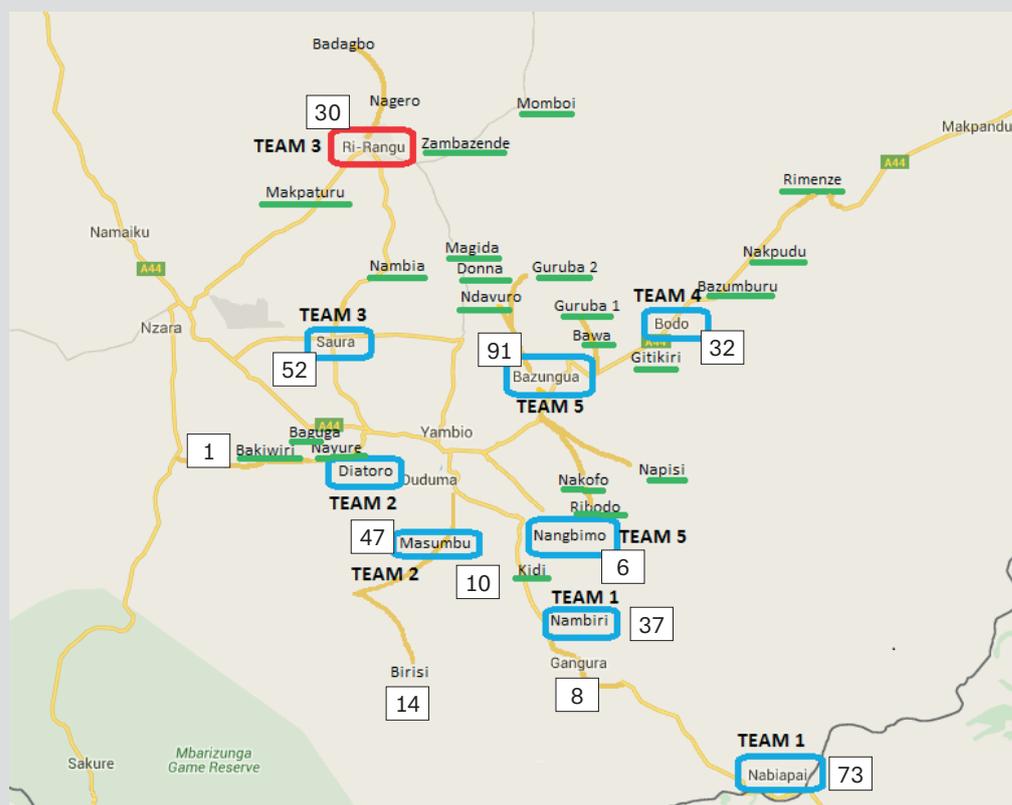


Table 4.

Location	No. Who Had Started ART	Initiated by Mobile Team
Gangura	7	1
Gangura/Nambir	1	1
Nabiapai	73	1
Nambiri	37	1
Bakiwiri	1	2
Birisi	14	2
Diatoro	47	2
Masumbu	10	2
Li-Rangu	30	3
Saura	52	3
Bodo	32	4
Bazungua	91	5
Nangbimo	6	5

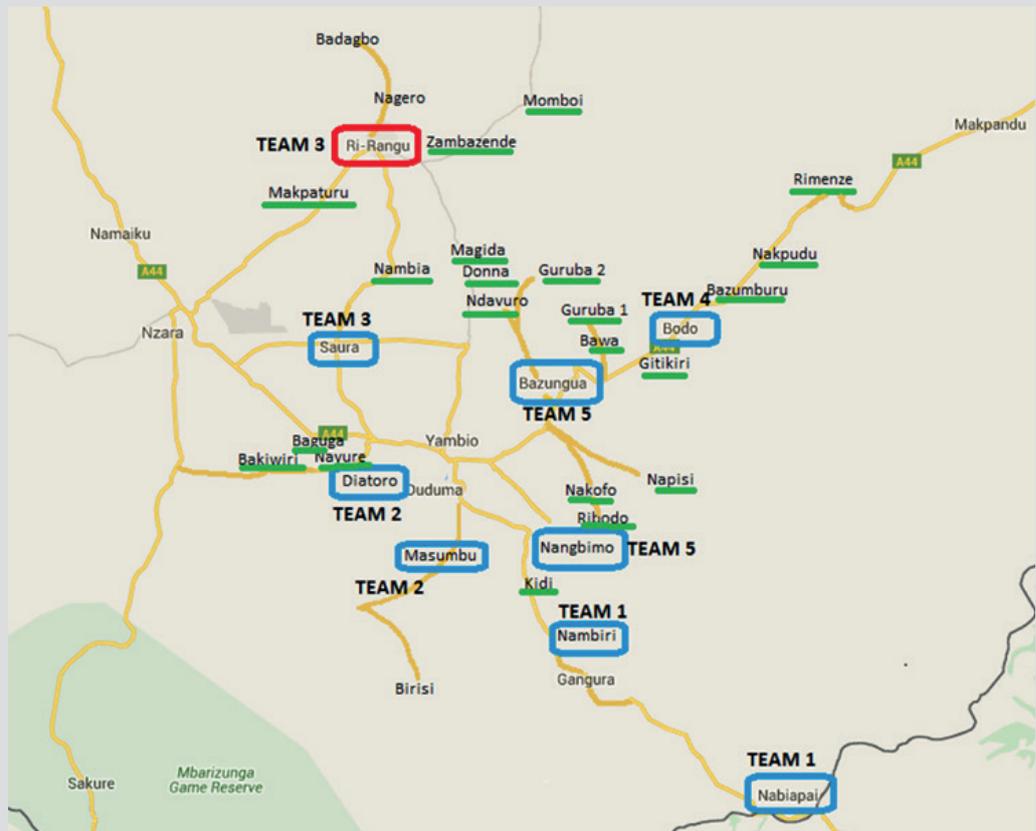
4.1.4 Tracing of patients who miss appointments

Patients who miss an appointment (often termed ‘defaulters’) are classified as lost to follow-up (LTFU) when an appointment is missed for three months. Information is recorded in a data file only after the patient is considered LTFU. All outcomes and reasons for missing appointments are recorded.

4.2 Community ART Groups (CAGs)

As of November 2017, **24** Community ART Groups (CAGs), each consisting of three to six members, had been established. One CAG included seven members. In total, 98 patients are organised into the 24 CAGs. The established CAGs are in five selected areas. Basumburu, Nakofo, Kisiaki, Nagero, Nambiongo, Gitikiri comprise one axis area encompassing six CAGs. Saura axis, Diatoro axis, Nambiri axis and Bazungua axis encompass five, five, four and four CAGs, respectively.

Figure 7. Mobile clinic locations



Initially, visits to the clinic were scheduled every month for one representative from each CAG. Afterwards, if CAG members complied with the system, the schedule could be switched to every two months. With the two-month visit system, each member of the CAG is seen in the clinic at least every six months. The Ministry of Health recommends this rate as the minimum frequency of visits.

The experience in Yambio with CAGs confirms the evidence obtained from stable settings in other countries.²⁹ The CAGs make drugs available for patients by reducing financial and time costs associated with frequent clinic visits. CAGs

²⁹ MSF SAMU. Community ART Group Toolkit. How to implement the CAG model.

encouraged peer support at the community level, thereby facilitating a social fabric among patients and reducing perceived stigma. They created a stronger engagement of the community in HIV care with patients taking up critical roles in the delivery of ART in their communities. CAGs also reduced the workload of healthcare workers by decreasing the number of patients individually attending clinics. The CAG model also fosters patient self-management and independence from the health service.

Among the 98 patients in CAGs, 82 (**84 percent**) had suppressed VL over the previous 12 months, which is similar to the overall virological suppression (**89 percent**).

To document the systematic approach to the CAG experience is described below:

- a) Meeting of the CAG members in the community take place one day before or on the same day as a visit to the clinic**
 - Assessment of TB, side effects, other problems, and adherence of each member
 - Peer group support: exchange concerns, challenges, motivation
 - Fill in CAG monitor report or register. Signature of all members.

- b) Visit to the clinic**
 - One or two representatives go to the clinic following an agreed schedule
 - At the clinic there is a 'fast track' for CAGs
 - The representative/s meets the counsellor. The counsellor fills in his register information about adherence or other problems
 - Clinical follow-up for the representatives. The samples for the lab are taken (VL, monitoring CD4 if needed, creatinine once a year...)
 - Fill in the files of all the members, with the information in the CAG report/register
 - Fill in the clinic feedback form, with prescription of treatment and comments if needed (e.g. asking for a specific member to come to the clinic next time)

- c) Meeting of the CAG in the community (same day or day after the visit to the clinic)**
 - Delivery of treatment for all the members
 - Provide feedback comments from the clinic to specific members
 - Signature of reception of treatment in the feedback form. The form with the signature will be presented back to the clinic, to confirm every member received the treatment.

CAGs: Initial training

Initial training for CAG members involved reinforcing confidentiality, clarifying misconceptions and teaching how to fill out the CAG monitor report/register. At the beginning, CAG meetings were facilitated by the CHWs.

Health Staff was trained about the CAG system and instructed on how to support them from the clinic. This training will be repeated and reinforced when the CAGs are handed over to the Ministry of Health.

CAGs use two forms for each visit, the CAG monitor report to transfer information to the files and the feedback form with prescription and comments from the clinic. Both forms need to be signed by all the members. The forms are integrated in an exercise book, to keep better track of the visits. This book is kept with the focal person of the CAG.

Challenges arose with the implementation of CAGs. Regular monitoring of the members was not always functioning. Sometimes, there was only one CAG member visiting the clinic several times to collect the drugs for the rest of members. Hence, the VL for every member could not be collected according to the schedule. The meetings of CAGs prior to the clinic visit were sometimes conducted one week before. So, for the counsellors it was difficult to calculate adherence of every member.

In the beginning, VL results were not integrated in the regular monitoring forms for the CAGs. So, the representatives of the CAG could not control the VL of the members. This was changed during the project.

Pregnant women were excluded from the CAGs. However, there was no specific support for pregnant women and child groups. Moreover, when a woman became pregnant, she would ideally return for regular follow-up at the clinic. This did not always happen. The women often did not come.

The successful MSF-initiated CAGs are in the process of being handed over to CMMB³⁰.

³⁰ Status at November 2017

4.3 Referrals

The teams referred critical patients to YSH or alternatively to Nzara Hospital (Comboni sisters). The quality of care in the medical ward was perceived as superior in Nzara by the MSF team. MSF took on the transport of patients. Then MSF followed up the patients in YSH or Nzara Hospital till they could go back to their communities. For YSH, an MSF nurse was seconded for the follow-up of patients.

4.4 Laboratory

HIV Rapid Diagnostic Tests (RDTs) by finger prick were performed for HIV diagnosis. In accordance with the Ministry of Health protocol, the first test was performed using Determine. When the Determine test is positive, a second test with Uni-Gold is used to confirm the result. In the case of discordant results, the team waits 14 days and repeats the two tests. If the tests persist in being discordant, samples are sent to Durban for VL DNA testing.

At the moment of HIV diagnosis, patients' **CD4** counts were measured at baseline to better understand the immunological profile of this particular population, CD4 count was not **used to determine treatment initiation**. The information helped to provide insight on the proportion of patients that are in the advanced stages of the disease, at ART initiation. CD4 count was performed by finger prick using an Alere PIMA point-of-care machine. One per mobile team had been supplied by MSF. In 2017, a disruption in the supply of PIMA cartridges ensued for about 3 months.

Table 5. Overview of lab capacity of the T&T project

Tests	
HIV: Uni-Gold and Determine	One per each mobile unit
CD4 count	One per each mobile unit
Creatinine measurement	Yes. One per each mobile clinic
Ziehl-Neelsen (TB diagnosis)	No (samples were sent to YSH)
GeneXpert (TB diagnosis)	No (some samples were sent to Juba during 2017)
Haemoglobin	Yes
Viral load	Arrangement with Durban/ South Africa
DNA-PCR for Early Infant Diagnosis	Arrangement with Durban/ South Africa
Malaria rapid tests, syphilis	One per each mobile unit
Hepatitis B	Yes

The MSF project did not screen for tuberculosis (TB) and cryptococcus using TB-LAM and CrAg tests (Cryptococcal antigen test) to screen tuberculosis and cryptococcosis in patients with advanced HIV disease, as per WHO guidelines because the tests were not available in Yambio. TB-LAM is a point-of-care test for tuberculosis diagnosis in HIV patients <100 CD4. Some (16) of the patients at diagnosis presented with advanced disease (<200 CD4). Among these 16 patients with CD4<200, 7 died.

Routine VL assessment was not available in South Sudan. MSF has been sending samples of Dried Blood Spots (DBS) to the Global Clinical and Viral Laboratory in Durban/South Africa, for qualitative DNA-PCR and quantitative RNA-PCR, since the start of HIV activities in 2012. The results are delivered by email.

Venous blood samples (5cc) were used to assess VL, taken at baseline and months three, six and 12 following ART. The outcomes were used to monitor ART compliance, to eventually detect treatment failure and make decisions about switching to second-line treatment.

MSF funded the cost of the VL assessment at about \$18 per test plus the transport.

The demonstration of VL suppression not only permitted the monitoring of patients, the information was also used to motivate patients through the early stages of treatment and through to routine referral for participating in the CAGs.

Challenges and the limitations of lab assessments undertaken during the pilot programme arose relative to paediatrics and human error. CD4 in children under five years was not useful because the team did not have haematology facilities and the percentage of CD4 could not be calculated. During the first year of study, six instances of HIV false positives were reported. *Determine* and *Uni-Gold* diagnosed these six as positive, however VL-RNA and VL-DNA were undetectable despite conducting the two tests several times using DBS. Human error was identified as the cause of the issue after six ELISA antibody tests performed in Durban and *Determine* confirmed negative results.

During the first 1.5 years of the study, problems occurred with the **VL monitoring** in clinical management. First, there was the previously mentioned delay in the reception of results from Durban. Second, for the results received in the project, no one was delegated for registering the data on the file of the patient, and the files of patients with high VL were not identified. Moreover, once the VL was in the file, the team did not follow up the VL results with the patients properly.

4.5 Pharmacy

A T&T standard drug list was implemented. The list aligns with the broader Ministry of Health Clinical Guidelines for Treatment of HIV using ARV drugs as well MSF Pharmacy Standard Operating Procedures. This list was undergoing several reviews by the MSF Pharmacist to select only material truly needed.

The Global Fund/UNDP supplied HIV commodities (ARVs, Rapid HIV Testing Kits & drugs for OIs). There were few delays or disruptions recorded relative to the provision of supplies by the UNDP/Global Fund.

MSF supplied lopinavir syrup for children as a second-line treatment because it was not available from UINDP/Global Fund. In 2017, there were stock outs of PIMA cartridges for 3 months.

4.6 Data management: Monitoring

Data was collected using standardised Ministry of Health forms and the MSF Health Management Information System. A monthly report was submitted to the Ministry of Health and WHO, and monthly situation reports, including data about epidemiological surveillance and sexual violence was provided to MSF. Due to the different internal reporting standards for MSF and the Ministry of Health, data management challenges arose. The discordant requirements increased workload because it required the generation multiple reports.

4.7 Other medical services implemented

The T&T pilot programme capitalised on the opportunity to introduce two complimentary services pertinent to assisting women and children. Two programmes were implemented for the population as a whole (not just HIV T&T).

4.7.1 Sexual and gender based violence care

The population of former Western Equatoria is vulnerable to sexual and gender-based violence (SGBV) as well as HIV. According to UNDP, the documented rate of SGBV in South Sudan is 40 percent. Times of armed conflict exacerbate what are already crisis levels of SGBV in South Sudan.

Integrating SGBV with HIV services is a strategic approach with the potential to assist in eliminating the structural drivers of inequality and high-risk HIV practices. These SGBV survivors in South Sudan are faced with stigma and discrimination within society. Integration between and among

services can increase accessibility to health services, which is a top priority for assisting SGBV survivors.

4.7.2 Nutritional screening for Test and Treat

Using a mid-upper arm circumference (MUAC) strip, nutritional screening was conducted for the children tested in the T&T programme. The MUAC strip measures mid- and upper-arm circumference to identify malnourishment. Malnourished HIV+ children and adults received Plumpy'Nut, a therapeutic food enriched with vitamins and minerals for treating malnutrition. At the end of 2016, a nutrition protocol for the HIV patients was introduced. In 2017, PLWHA in the T&T programme received therapeutic nutritional support.

Summary: Chapters 3 and 4

Table 6. Key learning on implementation services performed/strategic approaches

Best practice	
<i>Outreach for T&T</i>	<ul style="list-style-type: none"> Special activities organised on market days (often on Sundays) have proved highly effective in reaching more patients for testing.
<i>Testing</i>	<ul style="list-style-type: none"> CHW can effectively be trained for HTC and index testing of family members in remote areas, with the prior consent of patients for tracing of their family members.
<i>CAGs</i>	<ul style="list-style-type: none"> The experience in Yambio with CAGs demonstrates (and confirms existing evidence from stable settings in other countries) that these lead to augmented HIV-support and adherence to ART. Although the continuity of CAGs may suffer from the volatile context, they are even more important for continuation and adherence to treatment than in stable settings.
<i>Tracing Patients Who Miss Appointments</i>	<ul style="list-style-type: none"> Hiring CHWs from the area of operation improved the outcome of tracing patients who missed appointments. Involving PLWHA could also have been an option. Performing tracing at the week of the T&T team's presence in the area helped the patient to remember and to attend follow-up visits.
<i>Delegating Tasks to Less Specialised Health Staff</i>	<ul style="list-style-type: none"> T&T has proved an effective strategy for delegating tasks to less specialised health staff. This included switching from doctors to clinical officers and nurses, and promoting testing capacity with CHWs. No MD need be in attendance for initiation of treatment. As expected, T&T facilitated the delegation of tasks to less specialised health staff as initiation of treatment is decided on the result of the HIV tests and does not require an MD.
Lessons learned, recommendations	
<i>Outreach for T&T</i>	<ul style="list-style-type: none"> House to House testing proved challenging as a strategy for the mobile team, as frequently the distances between stops were too far apart.
<i>Patient Management/ Viral Load results</i>	<ul style="list-style-type: none"> There were several patients with high VL without adequate adjustment of care. One person in the team has final responsibility for the inclusion of the VL results in the files. Clearly identify the files of patients with high VL at risk of treatment failure. VL monitoring should be included as part of the routine done by the CAG focal point.
Remaining challenges	
<i>CAGs</i>	<ul style="list-style-type: none"> For CAGs to function well, new key tasks – such as formation, training and monitoring of groups – need to be clearly assigned to a specific cadre. In the pilot project, these tasks were primarily performed by CHWs, lay counsellors or expert patients. These positions are often not a recognised occupation within the Ministry of Health and are often not remunerated. The lack of acknowledgement and remuneration increases the risks of interruption of services.



At the Diatoro Primary Health Care Unit in South Sudan, Buai Tut Chol, MSF Clinical Officer, examines a client.

5 Implementation: Set-up and resources

Composition experience requirements and training of each mobile team



CLINICAL OFFICER / TEAM LEADER (1)

2 TO 3.5 YEARS' MEDICAL TRAINING and 4 weeks of MSF HIV training

Weekly training over 9 months with study coordinator



LAB ASSISTANTS (1)

NO FORMAL EDUCATION. 4 weeks of MSF training



NURSE (1)

3 YEARS' EDUCATION and 4 weeks of MSF HIV training

Weekly training over 9 months with study coordinator



HTC COUNSELLORS (1)

MSF TRAINING OR NURSES WITH MSF TRAINING FOR HTC



COMMUNITY HEALTH WORKERS (3)

3 WEEKS' MSF TRAINING

5.1 Human resources

Five mobile teams were in place covering five different road axes (see Map in Annex 1) and perform HTC, ART initiation and follow-up activities, such as adherence monitoring according to a regular schedule.

Several months into the project's initiation, CHWs were recruited from the communities where the activities were taking place. The CHWs are well placed for the delivery of community-related activities, including security, context and local knowledge and information gathering. The composition of one mobile team is outlined in the following table.

Table 7. Composition experience requirements and training of each mobile team

Position	MSF recruited staff	Education
Clinical officer/ Team leader	1	The CO/team leader had 2 to 3.5 years' medical training and 4 weeks of MSF HIV training; 2-hour weekly training sessions were held with the study coordinator during the first 9 months of the project
Lab assistants	1	No formal education. Four weeks of MSF training
Nurse (ART adherence counselling and dispensing)	1	Nurses had 3 years' education and 4 weeks of MSF HIV training; 2-hour weekly training sessions were held with the study coordinator during the first 9 months of the project
HTC counsellors	1	MSF training or nurses with MSF training for HTC
Community Health Workers	3	Received 3 weeks' MSF training
Total	7	

Each mobile team had a driver.

Training strategy

Before the launch of the T&T project in July 2015, a four-week training on comprehensive HIV care and ART, counselling and basic Lab HIV training took place for five mobile teams comprised of seven members, including five clinical officers, 10 nurse counsellors, 15 community health educators, five Lab assistants and five field service supervisors. The study coordination group performed the entire training.

Based on the WHO and Ministry of Health approved guidelines on integrated management of adults and adolescents for chronic HIV care and treatment with ARV, all core modules and topics for T&T trainings were created

Figure 8.



based on established health policy, apart from 'Treat All', as an official guideline was not available in 2015.

A team of five supervisors supported the mobile staff: a clinical officer supervisor (in charge of field clinical services and staff health), a lab supervisor, a counsellor supervisor, a health promotion supervisor, a PMTCT and pharmacy supervisor and a team member responsible for data entry.

5.2 Finance

The cost per patient and per year of the mobile team for the delivery within the decentralised T&T.

The costs indicated are based on the T&T pilot experience and MSF costs. It aims to provide an indicative budget. Hence, any budget will depend on the capacity of the partner organisation. For instance, whether the partner organisation implementing the strategy already had a car to transport the mobile team or whether the purchase of a car was necessary.

Tests such as CD4, creatinine and two VL tests also contributed to cost. The UNDP provided HIV testing and ARV, however, it has been included as an estimative cost according to the available market price for a first line of treatment.

The cost of HR is based on MSF salaries. The implementation through salaries or incentives would have an effect on the final cost of this activity. Training costs are not included in the calculation.

Family	Cost per Patient
Personnel	\$67
Drugs	\$82
Laboratory	\$35
Infrastructure	\$2
Transport	\$6
Others	\$7
Total Annual Cost	\$199

*The personnel includes the Mobile Clinic team composed of; one Clinical Officer, one Nurse Counsellor, one Laboratory technician, two community health workers and one driver

*It has been included the amortization of a car with a life expectancy of ten year and with the related costs of maintenance

5.3 Logistics requirements

The logistics included a dedicated driver and car for each mobile team and easy-to-set-up tents for conducting consultations. Tents came with tables, chairs and benches for a waiting area. The team brought all drugs and laboratory items with them every day. Also, a cold box was needed to keep the lopinavir syrup for babies and Hep-B and Tetanus vaccines in case an SGBV survivor was treated.

Laboratory material was transported in a metal case by the mobile teams. Some items, mainly the creatinine strips and the creatinine control solutions, had to be transported in a cold box. ARVs and medications were also transported in a dedicated metal case.

5.4 Contingency plan

A contingency plan is essential for ART in unstable settings. One of the important aspects of the Yambio T&T project was the implementation of the **run-away bag**. In case of active insecurity in drop-in centre areas, the CHWs of the area gave patients the run-away bag with three months of additional ARV in addition to their regular stock.

The MSF teams prepared individual **pre-packed stocks of ARVs**, and stored them in the project pharmacy. They were kept in different boxes according to the different areas of operation (Li-Rangu, Saura, Nдавуро, Bodo, Bazungua and Gangura). Eventually, each team gave these boxes to the **focal points for implementation** (CHW and sometimes peer patients or CAG members) for subsequent distribution to patients. These focal points for implementation are a key link to patients in the community. CHWs, peer patients or CAG members could provide instructions about what to do in case of emergency and, if necessary, provide ARVs. They were chosen from CHWs or peer patients in the communities. Patients were given their contact phone numbers and they coordinated with the Health Promotion Supervisor.

The run-away bag



CONTINGENCY PLAN: A contingency plan is essential for providing ART in unstable settings. In case of any active insecurity, the CHWs of the area provide patients with a 'runaway' bag.



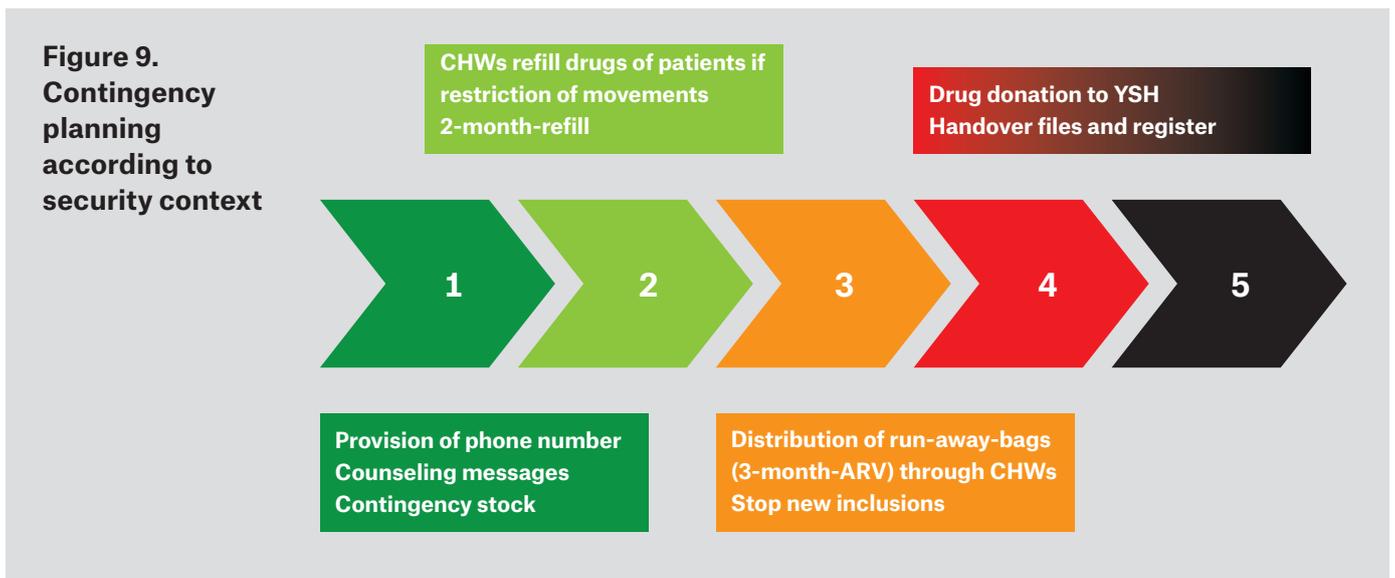
CONTAINING THREE MONTHS OF ADDITIONAL ARV AS WELL AS THEIR REGULAR STOCK



CHW, AND SOMETIMES PEER PATIENTS OR CAG MEMBERS, ACTED AS FOCAL POINTS TO DISTRIBUTE THE ARVS AMONG PATIENTS.

During the period of the project, the contingency plan was triggered several times. The first instance occurred six weeks after start of the T&T programme. All locations were affected by insecurity and a consequent lack of access over time. Hence, the contingency plan was activated, for longer or shorter periods, in every location. Gangura and Li-Rangu were most frequently in need of a contingency option. All relevant staff were trained in the use of the contingency plan. Even radio messages were used to alert the community, when the contingency plans were activated.

PLWHA on ART were informed about the Contingency Plans as follows:



Patient cards are another important feature for managing HIV care in unstable settings. As displacement is very common, and ART patients may not be able to access their common ART centres, the patient cards allow them to rapidly access ART in other locations (if available).

5.5 Handover

A handover to the Ministry of Health was integrated into the project from the beginning. In 2017, the Ministry of Health with WHO accredited ART sites near the drop-in centres. Finally, during the first months of 2017, CMMB started supporting Ministry of Health and taking over the care of the ART clinics in Gangura and Bazungua. The Ministry of Health, with the CMMB, will also take care of patients in Saura and Nabiapai through mobile clinics visiting once per week, and will continue to support the CAGs.

The handover of the project started when the first patients reached 18 months follow-up. This process should last until June 2018. CMMB continues to monitor the VLs under a contract with a lab in Nairobi. Samples are sent via AMREF.

One lesson that became evident in the **handover was the need to share strategic approaches** (CAGs, T&T, Contingency Plan, etc.) **as well as the patients.**

For the handover, the number of drop-in sites was reduced to six fixed sites. The WHO accredited three sites and the other three sites are PHCUs that are not accredited. CMMB plans to add mobile drop-in ART centres for these locations.

Summary: Chapter 5

Table 8. Key lessons learned on implementation set-up and resources

Best practice	
<i>Community Health Workers</i>	<ul style="list-style-type: none"> Recruiting the CHWs from the target communities was a key success factor. It rendered community mobilisation, tracing of patients who missed appointments and adherence significantly more effective.
<i>Human Resources</i>	<ul style="list-style-type: none"> The presence of at least one female team member in each mobile team was needed to ensure a focal point for SGBV and other specific female demands. Aside from that, the mobile team composition was appropriate.
<i>Contingency Plan</i>	<ul style="list-style-type: none"> Contingency plans have proved their effectiveness in maintaining the availability of treatment for PLWH on ART in insecure areas. Evaluation of the context at regular intervals allowed the team to activate the contingency plan on time, before the situation deteriorated to a point where restrictions imposed on the movements of the CHWs would make them unable to pick up the medication from the clinic. Defining CHWs from the community as focal points for emergencies helped considerably in the execution of contingency plans.
Lessons learned, recommendations	
<i>Contingency Plan</i>	<ul style="list-style-type: none"> The existence of a contingency plan is only one element. More crucial is the ability and awareness of management and staff to trigger and implement the contingency plan when necessary. This needs to be engrained in the organisation via training and practical exercises (e.g. preparing the run-away bags, defining focal points) on a recurring basis.³⁰ Contingency plans should be made before risks materialise and should be talked through among the team for HIV care. Contingency plans also need to include run-away bags for TB patients.
Some remaining challenges	
<i>Skilled Staff</i>	<ul style="list-style-type: none"> The lack of skilled staff will remain a challenge for the Ministry of Health and any other health operator.
<i>Contingency Plan</i>	<ul style="list-style-type: none"> Triggering the contingency plan requires the constant analysis of the security situation and micro context, including dedicated resources. This persistent analysis – beyond the usual medical management – might be a challenge for other operators lacking the necessary resources.

³¹ The Ministry of Health included contingency actions such as giving extra ARV drugs for 3–6 months in their 2017 guidelines.



Each team member is allocated a plan for the day.

6 Outcomes of the programme

6.1 Medical outcomes

6.1.1 Voluntary counselling and testing

Between June 2015 and December 2017,³² MSF tested 14,800 individuals in Yambio County and informed them of their HIV status.³³ In 2017, following the T&T project study period (July 2015 to Dec 2016), the campaigns for the active mobilisation of people for testing were halted, and testing services reduced to testing family members and some specific groups of patients travelling from DRC to the Nabiapai drop-in centre. HIV testing is not available to people from DRC in their villages of origin.

Of the 14,800 individuals tested 98.8 percent were aged 15 or above; 1.2 percent were under 15 years old, with 0.6 percent under the age of five and 0.6 percent aged between five and 15. HIV prevalence among females was significantly higher than for males (4.3 percent vs. 2.5 percent).

Based on the estimated adult population of 30,400 located in the payams covered in the study, 48 percent of those aged 15 and above could be reached. However, the T&T programme failed to achieve a similar coverage for adolescents below the age of 15, although they were targeted as well. Adolescents under 18 years old were only tested when they came with their parents or when they were married. Also, testing was performed parallel to school hours, which limited access for many adolescents. These restrictions hampered coverage. For future projects, ensuring parental consent should be discussed. Another option to reach the adolescents could be the provision of testing activities at schools or after school hours.

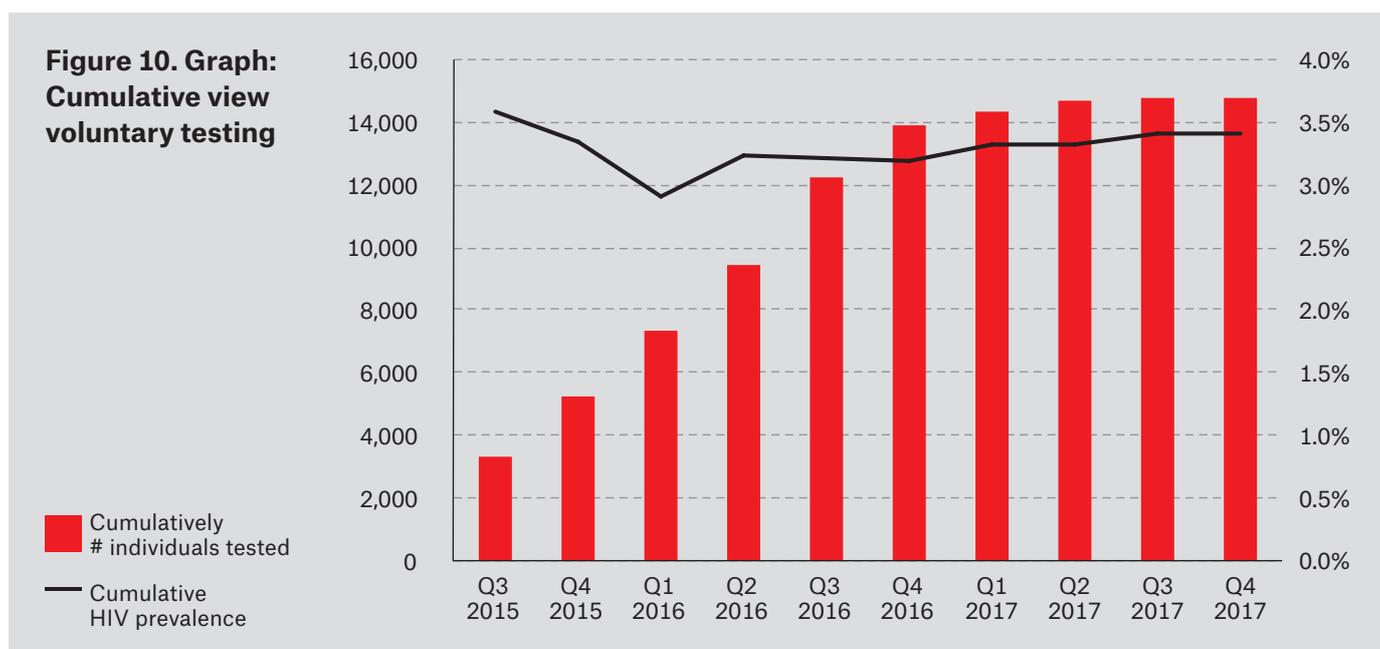
Some of the patients tested were already on ART when they arrived at a clinic and failed to declare their previous status. This became apparent when the VL results of these patients showed non-detection but the serology was still positive.

³² It should be noted that the cohort for the study ended in December 2016, though in 2017 there was still testing and initiation on ART.

³³ For comparison, in 2014 the total number of individuals tested for HIV at HCT sites (excluding pregnant women) in South Sudan was reported at 89,733. See South Sudan AIDS Commission and Ministry of Health, June 2015. http://www.unaids.org/sites/default/files/country/documents/SSD_narrative_report_2015.pdf

Table 9. Voluntary testing by gender and age groups (age at testing)³³

Age groups	Tested Female	Tested Male	Tested Positive Female	Tested Positive Male	HIV Prevalence Female	HIV Prevalence Male
< 2 years	13	20	3	-	23.1%	0.0%
2-4 years	27	27	-	1	0.0%	3.7%
5-14 years	54	42	4	2	7.4%	4.8%
>= 15 years	7,145	7,472	305	189	4.3%	2.5%
Total	7,239	7,561	312	192	4.3%	2.5%
Summary	14,800		504		3.4%	



6.1.2 Overall Test and Treat outcome

Out of the 14,800 individuals tested, 504 (3.4 percent) have tested positive and 401 (80 percent) were enrolled in treatment. The cohort of 401 PLWHA on ART was 66 percent female and 34 percent male.

The tested prevalence of 3.4 percent is significantly lower than the 8 percent HIV prevalence assumed in the planning phase. There are couple of possible explanations: first, the 8 percent taken from former antenatal care sentinel sites is probably too high to extrapolate to the whole population. In 2012, the HIV prevalence in antenatal care sentinel sites was 6.8 percent and HIV prevalence in females, countrywide, was one percentage point higher than in males. Second, the 3.4 percent experienced from the T&T programme may be biased, as PLWHA from the target populations may have had already accessed ART in Yambio.

³⁴ Source: HMIS (Health Management Information Systems).

Table 10. Overview of T&T pilot up to November 2017 (Before Handover)

Summary T&T Project	2015	2016	2017	Total Cumulative	%
Pre tested Pre-counselled	5,260	8,613	927	14,800	
Tested	5,260	8,613	927	14,800	49% of target population
Tested Positive	176	268	60	504	3.4%
%age Positive	3.3%	3.1%	6.5%		
Started on ART	147	201	53	401	80%
%age Started on ART	83.5%	75.0%	88.3%		
Cumulative Patients under care	138	257	257		

Table 11. Age (at initiation) and gender split of the active cohort up to November 2017 (prior to project handover)

Age groups	Female	Male	% age groups at initiation
< 2 years	2	2	2%
2-4 years			0%
5-14 years	1	2	1%
>= 15 years	176	74	97%
Total	179	78	
		257	
Summary	70%	30%	

Of 378 CD4 counts recorded for patients at initiation of ART, 147 (**39 percent**) had a **CD4 >500** and 231 (61 percent) a CD4 count <500. Only the latter group would have been started on ART following WHO's old recommendations. A total of 56 (15 percent) of patients tested were in an advanced stage of disease with a baseline CD4 <200. Overall this cohort shows a high level of immunosuppression and most of these patients would have benefitted from receiving ART prior to the initiation of the project.

Table 12. Development of T&T cohort up to November 2017 (before handover)

Summary T&T Project	2015	2016	2017	Total Cumulative	%
Started on ART	147	201	53	401	101.5%
False positives	-	6	0	6	1.5%
On ART minus false positives	147	195	53	395	100%
Lost to follow up	5	49	40	94	23.8%
Transferred out	4	27	11	32	8.1%
Deaths	-	20	2	12	3.0%
Active on ART				257	65.1%

* Active on ART is a cumulative number measured in November 2017 for the whole cohort. For purposes of comparison the **retention in care** after six and 12 months for the **study cohort** shown in paragraph 6.2.2 is the more appropriate figure.

In November 2017, the cumulative ratio of Lost to follow-up (LTFU) reached 23.8 percent. A total of 12 (3 percent) of patients on ART died and 8 percent of PLWHA on ART transferred to another programme. Six individuals, or 1.5 percent of PLWHA on ART, were found to be *false positives* after further analysis.³⁵ In November 2017, 257 **(65.1 percent)** PLWHA had **remained active on ART**.³⁶

LTFU is defined as a patient on ART missing an appointment for more than three months. Due to the conflict situation, ongoing since late 2015, there has been lot of displacement and movement of people. The assumption is that some LTFU may have found treatment elsewhere or died. The teams have found patients repeatedly classified as LTFU undergoing ART in other fixed locations. These patients were then classified as transfers. **With the patient card, PLWHA on ART can easily get treatment in other locations, which is essential for unstable settings.**

Why do patients leave treatment (LTFU)? Some information came to light. Seven PLWHA on ART directly informed teams about leaving or relocating to DRC. Another eight patients moved elsewhere according to others in their communities. Some are now under ART in Nzara clinic. An analysis on the geographic locations of LTFU does show a few outliers. In Birisi, nine out of 14 patients on ART are LTFU. This included SSLM soldiers, who were relocated to Yambio and are not classified as having transferred out. Bazungua (28 LTFU) and Li-Rangu (seven out of 23) were sites affected by insecurity, which may have had an impact on the number of LTFU.

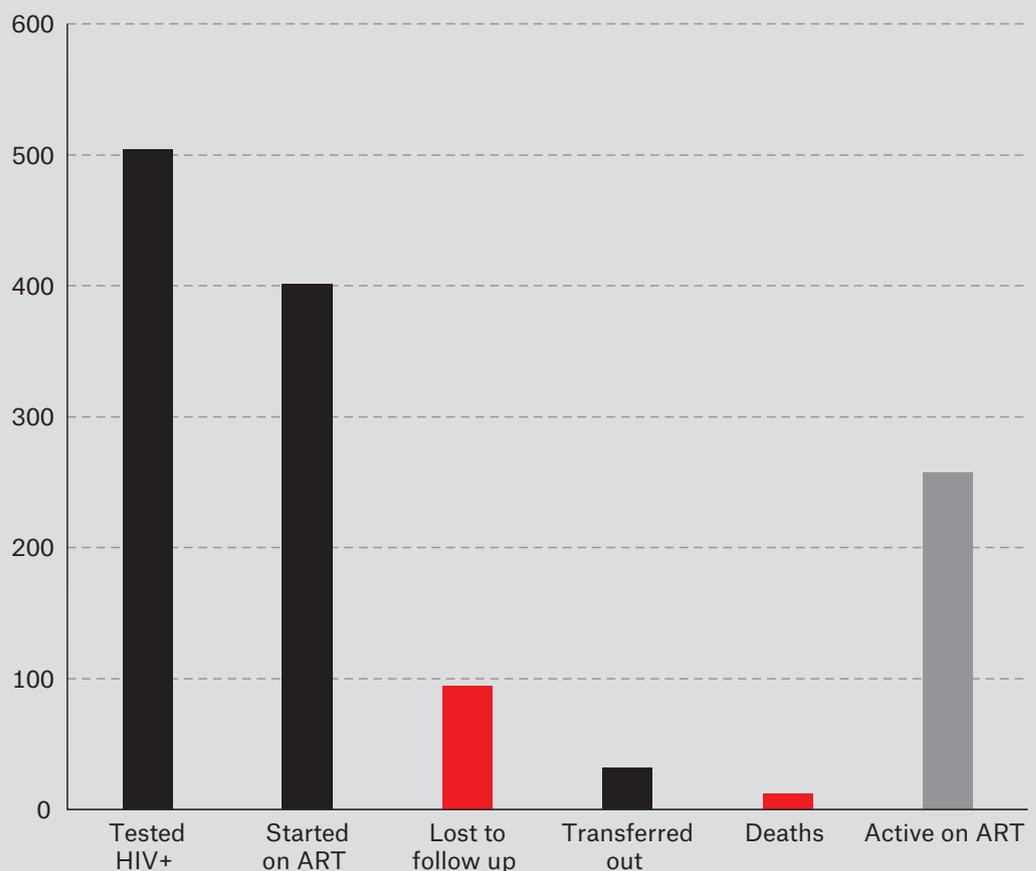
³⁵ The false positives are likely to be due to human error during testing.

³⁶ Excluding the false positives from those who started on ART.

Table 13. Where did the LTFU come from?

Location of Drop-In Centre	No. Starting ART	LTFU	% of Initiated
Gangura	7	1	14%
Gangura/Nambir	1		0%
Nabiapai	73	15	21%
Nambiri	37	5	14%
Bakiwiri	1		0%
Birisi	14	9	64%
Diatoro	47	9	19%
Masumbu	10	2	20%
Li-Rangu	30	7	23%
Saura	52	11	21%
Bodo	32	6	19%
Bazungua	91	28	31%
Nangbimo	6	1	17%
Total	401	94	

Figure 11. Graph: T&T cohort as of November 2017 (before the handover)



A total of 103 patients out of 504 tested positive (21 percent), but did not start ART. The following are the main reasons:

- Of the responses, 18 out of 54 stated they would access ART in Yambio instead, as they are close to town.
- Patients are HIV+, but do not feel sick (clinical stage 1 or 2) and therefore ignore the need to start ART right away. They may come during a later phase, when the disease breaks out. This is a weak point of T&T.
- There is still significant stigma despite all the community work undertaken to improve perceptions surrounding the disease. Many who tested HIV+ are not disclosing their status to the family and, therefore, are not starting ART. Women, particularly, are afraid of disclosing their positive status to their husbands. Six out of 54 responding non-initiators said they would have to discuss it with their family.
- Some patients moved after they have been tested HIV+. So, they were unable to access ART within the programme. This was for instance the case with three Congolese patients, who had to go back to DRC.
- The teams also had PLWHA come for testing, who were already on ART in other locations (such as YSH). The hypothesis is that PLWHA come to test again to see if they are 'cured' or in expectation something might be distributed. Of the 54 responding non-initiators, some were identified as 'old' patients.

6.1.3 Pregnant women and children

In total, 42 HIV+ women became pregnant and received PMTCT. Hence, 42 infants were exposed. Three children were found to be HIV+. The mothers of these three presented themselves too late (after delivery) to the T&T programme.

Table 14. Women enrolled in PMTCT

Summary T&T project	2015	2016	2017	Total cumulative
PMTCT patients enrolled	7	21	13	42
Children <2 years positive	-	3	-	3

6.1.4 Switch to second line

Ten patients (2.5 percent) were put on second-line ART, including five children, and 391 remained on a first-line ARV regimen.

Table 15. Cumulative number of patients by regimen in November 2017

By regimen	No. Starting ART	Line of ART
TDF+ 3TC + EFV	362	1st
AZT + 3TC + EFV	2	1st
AZT + 3TC + NVP	25	1st
ABC + 3TC + LPV/r	1	2nd
TDF + 3TC + LPV/r	1	2nd
AZT + 3TC + LPV/r	2	2nd
AZT + 3TC + NVP ped	2	1st
ABC + 3TC + NVP ped	1	1st
ABC + 3TC + LPV/r ped	3	2nd
AZT + 3TC + LPV/r ped	2	2nd
Total	401	-

6.2 Adherence and retention in care

6.2.1 Adherence

Adherence to therapy was assessed using a questionnaire in the local language.

The records show 2,771 responses on adherence provided during follow-up visits.³⁷ A total of 2,447 answers (88 percent) indicated *good adherence*, 101 *fair adherence* (four percent), 72 *poor adherence* (three percent) and 151 *not specified* (five percent). At the same time, several patients were recorded as returning to care after being declared LTFU. Hence, the conclusion on precise adherence based on the questionnaires is that these numbers are not reliable enough, as patients may lie about their adherence. The more conclusive statistic on adherence is the data on viral suppression.

Taking into account all 342 patients **after 12 months, 89% of the patients were retained in care with the VL available had suppressed VL**. It is also important to note that 65 patients had suppressed VL at baseline. Some were already receiving ART in YSH or Nzara Hospital, but did not disclose this information.

³⁷ Patients were asked at each follow-up visit.

6.2.2 Retention in care

Retention in care was defined as the number and percentage of patients still under care at six and 12 months following the initiation of ART. For the Yambio T&T project, retention in care was 73.1 percent after six months and 65.2 percent after 12 months (77.8 percent not considering the transfer out), which seems acceptable for the type of unstable setting.

Table 16. Retention in care and suppressed viral load for the study cohort³⁸

Cascade	After 12 Months	% 12 months
Initiated on ART	342	100%
Deaths	8	2.3%
Lost to follow-up	91	26.6%
Transfer out	20	5.8%
Retention in care	223	65.2%
Suppressed viral load	128 out of 144 available VL	89%

A scheme for tracing patients who missed appointments was put in place and followed on a regular basis. In order to facilitate this tracing, CHWs have been recruited based on geographic criteria, namely residence in the same bomas in which activities take place. The major obstacle to retention in care has been displacement, especially in the areas of Li-Rangu (where the displacement situation is on-going) and Gangura, where the population became more scattered as people moved into more remote areas.

6.2.3 Tuberculosis (TB)

In total, eight patients with TB were referred for treatment to YSH. Two of the eight died. One of the patients started on TB treatment had extra-pulmonary TB. A further nine patients were TB suspects, but could not be confirmed. The mobile teams collected the sputum of TB suspects and brought the samples to YSH or Nzara Hospital for lab analysis.

The number of patients with TB appears low. Co-infection should be higher than the number detected during the pilot. One reason may be the difficulty level of sputum testing. For the community-based HIV Testing Counsellor, LAM TB tests³⁹ may provide a simpler option for future projects. LAM tests have emerged as potential point-of-care tests for TB in HIV patients with low CD4 levels (< 100). Urine-based testing would have advantages over sputum-based testing as

³⁸ Six false positives were excluded from the analysis (348-6=342).

³⁹ Tests based on the detection of mycobacterial lipoarabinomannan (LAM) antigen in urine.

it is much more sensitive than sputum in seriously immunodepressed patients. In addition, urine is easy to collect and store, and lacks the infection control risks associated with sputum collection.⁴⁰

6.2.4 Outcomes of the contingency plan

Between September 2015 to December 2017, eight security situations affected Yambio and limited the access of the mobile clinics and their ability to provide drug refills and conduct clinical follow-up visit. The contingency plan was activated in every situation, and a total of 90 patients in six different locations received drug refills through contingency measures. Of these, 71 (79 percent) were active in January 2018, two (2.2 percent) were transferred out, one (1.1 percent) died and 15 (16.7 percent) missed appointments. Of the active patients, 58 (81.7 percent) had a suppressed VL.

The high rates of retention in care and viral suppression detected for patients affected by security situations show that community-based T&T services are feasible and suitable for conflict-affected population when a contingency plan is developed in advance.

6.3 Health facilities

As of October 2017, MSF has successfully supported the validation of five ART sites in former Western Equatoria: Makpandu, Gangura, YSH, Yambio PHCC and Nzara. In 2017, WHO validated all the sites except for YSH.

In total there were 14 validated ART centres in former Western Equatoria State in November 2017.

Once the validation process was completed, integration of T&T activities within the health facilities started. This included capacity-building activities and insistence on the integration (de-verticalisation) of the HIV services within the broadly related services provided by the facilities.

⁴⁰ The use of lateral flow urine lipoarabinomannan assay (LF-LAM) for the diagnosis and screening of active tuberculosis in people living with HIV according to the WHO.

6.4 Acceptance of the T&T programme

The T&T programme showed a high level of acceptance for community-based counselling, testing and early ART, despite the rural context and the security situation.

A satisfaction survey was performed using anonymous individual questionnaires delivered by CHWs. A total of 220 people responded to the questionnaires. Out of those, 219 said the T&T programme is a “good thing to have” and 15 percent stated the ART centres were still “too far”. However, under *other comments*, five percent commented that the ART came closer to their homes, which is good for them.

Satisfaction with the medical staff was high with 87 percent responding that staff were “very helpful”. Only one percent said their questions were not answered completely and only one percent responded that the staff did not take enough time. There was a very high level of appreciation for having CHWs from the community (96 percent). Only one percent did not like the idea of having a CHW, and three percent did not express an opinion.

Of the respondents on ART, 67 percent stated that they would be supported by the family, 13 percent would have family support “somehow” at least, and 14 percent said their family would not support them at all.

6.4.1 Stigma

There was some qualitative information on stigma from previous projects, but no quantitative baseline was available for comparison. Stigma existed before and continues to do so after the T&T in the Yambio community. However, what patterns of stigma, how it is phrased, what the fears are and how PLWHA are discriminated was not previously set out in detail for the teams. Also, MSF does not know if the patients are disclosing their status, to whom they are disclosing it and when and, if not, why not. A lack of knowledge about HIV and broader misconceptions are contributing strongly to the stigma. For instance, some local MSF staff had to be persuaded to work on T&T, as the widespread perception was that everybody working on HIV is likely to be infected with HIV. So, some staff were reluctant to be associated with the disease.

Stigma also played a role in prompting some of those who tested positive tested to put off treatment. These people simply feared disclosure. For example, in one case two friends came for testing, one was tested positive. He was afraid to stay too long at the consultation and did not start treatment, as he feared disclosure to the friend.

In many cases, the fear was that disclosure would affect the relationship with one's partner. This is more likely to be an issue for women, who may be afraid of being ejected from the home. Therefore, counselling sero-discordant couples remains a challenge because of cultural and social issues.

Six percent of the 220 patients responding to the satisfaction survey mentioned a "lack of privacy" at the mobile ART centres. One explicitly commented on the lack of confidentiality with the medical staff.

On the extent of stigma, the opinions of MSF staff interviewed vary broadly. However, everybody stated the level of stigma had been reduced in the communities due to the strong awareness campaigns and the related T&T programme. Before, HIV treatment and related campaigning was mostly concentrated on the town of Yambio (YSH) and on Nzara.

Some PLWHA came forward and gave testimonies to their communities or on the radio, demonstrating no fear of stigma.

Experiences with HIV from other areas of South Sudan, such as the former Greater Upper Nile (Malakal), demonstrate a perceived higher level of stigma in comparison to former Western Equatoria. It must be assumed that some characteristics of the pilot, such as community-based testing, recruiting CHWs from the communities and lack of anonymity with the mobile set ups, could be a significant barrier in areas with a higher stigma levels. This may be a limiting factor for replication of the pilot in other regions.

6.4.2 Confidentiality

Confidentiality was followed throughout the project, although there are areas of improvement. In mobile clinics, PLWHA and patients were exposed, as everybody around knew that the MSF team and tent is just for HIV testing and treatment. In addition, CHWs recruited from the community would know the HIV status of everybody in the community who had been tested.

Despite these factors, 88 percent of 220 PLWHA on ART responding to the satisfaction survey felt that medical information was "kept private", eight percent responded that they "would not know" and only two percent thought that medical info was "not kept private enough".

Summary: Chapter 6

Table 17. Key learning on medical outcomes

Best practice	
<i>Medical Outcomes</i>	<ul style="list-style-type: none">Given the unstable setting with a great deal of displacement and insecurity, the medical outcomes are good and provide proof of concept for the pilot project.
Lessons learned, recommendations	
<i>Adolescents</i>	<ul style="list-style-type: none">The number of adolescents initiated in ART was low. Major reasons include requirements for adolescents below the age of 18, such as the need for parental consent or that they be married, for them to be admitted to the programme. Testing was performed in parallel to school hours. To capture adolescents in future projects, there should be a greater focus on following up on the consent of the parents more persistently or advocate for adolescents mature enough to be tested without parental consent. Another option to reach adolescents could be testing activities during school hours and reaching out to the schools.
<i>HIV Advanced Disease</i>	<ul style="list-style-type: none">CrAg and TB-LAM rapid tests should be included as part of the care provided for patients with advanced HIV diseases in order to detect these potentially lethal diseases (TB and cryptococcosis) earlier and in time for an effective response.GeneXPert should be included as part of the care because it is more sensitive than Ziehl-Neelsen technique on sputum for detection of TB. Currently, GeneXPert is recommended as the main TB diagnostic tool in HIV patients (also in the 2017 South Sudan HIV Guidelines).
<i>TB</i>	<ul style="list-style-type: none">TB was only suspected though evident in the population. Also, CHWs did not perform any awareness raising for TB. TB diagnosis and care should be included and, in general, improved TB integration requires greater focus during planning and implementation. One of the challenges was the late diagnosis of TB, during CO/nurses attending the patients.
Remaining challenges	
<i>Stigma</i>	<ul style="list-style-type: none">Stigma will remain a challenge, hindering many from initiating ART after testing positive for HIV, disclosing her or his status to a partner or the family and for continuing and adhering to an ART regimen. Nonetheless, efforts on health promotion and mobile outreach resulted in enhanced knowledge and awareness of HIV, which reduces stigma.As experienced by MSF, the level of stigma in former Western Equatoria is lower than in the former Greater Upper Nile (Malakal). It has to be assumed that community-based testing, CHWs from the community, lack of anonymity will lead to far more significant barriers in areas with a higher stigma levels. This may be a limiting factor for replication of the pilot in other areas.
<i>Human Resources</i>	<ul style="list-style-type: none">A lack of trained and qualified staff is an underlying constraint for health responses, particularly for remote locations.
<i>Context/ Insecurity</i>	<ul style="list-style-type: none">Insecurity, conflict and corresponding displacement, and the unavailability of care or health agencies for the patients will remain basic challenges for the years to come. Health agencies have to adjust their activities (and the underlying strategy) on a constant basis. This contextual volatility affects both the implementation of services and medical/programme-related outcomes.
<i>Funding</i>	<ul style="list-style-type: none">Some of the features of the MSF T&T programme are resource-intensive and therefore too expensive for supporters to fund or other agencies to be brought in. Nevertheless, many modules can be carried out independently, sometimes with limited resources.



MSF staff load equipment and supplies into a vehicle before setting off to Bodo, South Sudan, to operate an HIV Test & Treat clinic.

7 Conclusions

7.1 Advantages of Test and Treat the same day as a community-based model of care

The T&T pilot project has shown the expected advantages of Test & Treat ('Treat All' WHO recommendations 2016). The project supports efforts to reach the 90-90-90 goals set by UNAIDS in 2010 as more PLWHA undertake treatment. Out of 378 CD4 counts performed at initiation, 147 (**39 percent**) had a **CD4 >500**. This number of PLWHA would not have been put on ART according to the old WHO guidelines (CD4 <500).

Consequently, placing more PLWHA on treatment will mean a reduction of new HIV infections in the long term, along with the benefits of survival for the patients and a reduction of HIV transmission in a given population.

The **approaches and processes** to be undertaken to provide patients with diagnosis and treatment were **simplified and, therefore, can more easily be performed**. For instance, there is **no longer a pre-ART category** and there is **no CD4 tracking needed** for the initiation of ART. The only exception for pre-ART is the suspicion of TB and signs of cryptococcal meningitis. For these patients, ART had to be delayed until the patient was on treatment, for at least two weeks for TB and eight weeks for cryptococcosis.⁴¹

T&T can substantially facilitate the **delegation of tasks to less specialised health staff**, as initiation of treatment is determined by the results of the HIV tests. This can be performed **without a medical doctor being present**. In the T&T programme, **CHWs** were trained and equipped to do the testing although they performed the tests only by exception. **Clinical officers** (two to 3.5 years of medical training) **or the nurses/counsellors** (three years of training) could start **treatment**. The nurses/counsellors also replaced the clinical officers in their absence.

T&T also **facilitated decentralisation**; the simplified processes are more easily implemented in remote locations. Hence, the overall ART coverage and geographical equity of ART can be improved when T&T is employed beyond hospitals and through mobile approaches.

⁴¹ Patients with signs of TB or other serious opportunistic infections that require admission to hospital will not be taken into account for the final analysis of the study.

7.2 Disadvantages of Test and Treat

Some disadvantages of conducting a T&T programme at community level are clearly identifiable. First, PLWHA who tested positive, but did not feel sick (clinical stage 1), may not start ART or they may not adhere to treatment, as they may not experience the symptomatic health benefits of ART. Also, patients can feel the pressure of starting treatment the same day without being really ready to embark on a treatment that is for life. The T&T programme showed both effects (on initiation and adherence), although the reasons captured were not quantifiable and their impact on the uptake of ART through T&T unknown.

The additional **costs of the short-term programme start and scale-up** is the second major issue with T&T. It simply means adding a lot more patients on ART compared to the old WHO guidance of CD4 count <500. So, the cost for additional ARV drugs and VL tests is significant. However, **in the long term the public health cost will be favourable**, as there will be significantly fewer new incidences once T&T is widely implemented.

Annexes

Annex 1: Type of routinely collected monitoring data

Time of follow-up	Variables	Time of follow-up	Variables
Baseline information	<ul style="list-style-type: none"> • Date of HCT • Date of admission in the T&T program • Date of ART initiation • Date of next appointment • Age • Sex • Pregnancy • Education level • Marital status • Occupation • Electricity at home • Water at home • Mean of transport • Time to reach the nearest rural health centre and Yambio Hospital • MUAC • Weight • Height for children <5 years • Previous ARV regimen? • Date of ART initiation • Partner HIV testing • WHO clinical stage • Active screening for TB • Date of blood collection and result of laboratory testing: <ul style="list-style-type: none"> – CD4 cell count – Creatinine – Hb – Viral load 	Acceptability	<ul style="list-style-type: none"> • Perceptions of T&T strategy • Perception of HIV • Stigma related to HIV • Disclosure issues • Quality of services provided by MSF team • Awareness of HIV • Awareness of this HIV service Satisfaction with: <ul style="list-style-type: none"> • Test & Treat approach overall • HIV test, CD4 count, viral load and ART initiation on same day • Appointment schedule • Staff behaviour • Confidentiality • Clarity of explanations given by staff • Counselling services • Tracing system • Regularity and timing of ART doses • ART intolerance • Partner support • Community support • Barriers to obtaining and/or taking the pills
Follow-up (ART) appointments	<ul style="list-style-type: none"> • Date of visit • Date of next appointment • WHO clinical status • Opportunistic infections • MUAC if the patient is a child • Weight • Diagnosis of ARV toxicity • Adherence to ARVs • Adherence to CTX • Stop of ARV drug/regimen: reason, type of intolerance and drug suspected for intolerance • Date of blood collection and result of laboratory testing (VL, CD4 or other tests as HB or renal function) • Patient outcome (if applicable): death, referral to hospital, loss of follow-up, transfer outside the program; with date. 	Adherence	<ul style="list-style-type: none"> • % pill missed in the last 4 days (self-report) • % pills remaining since the last prescription (pill count) • Adherence of the past 30 days (visual scale) • If defaulter: <ul style="list-style-type: none"> • Reasons for default (where/why) • Did the person take medicine with them • Plan to return or not • Plan to enter care elsewhere

Annex 2: Severity grading of laboratory toxicities

	Unit	Normal range	Grade 1	Grade 2	Grade 3	Grade 4
Haemoglobin	g / dL	12.0–16.0	80–94	7.0–7.9	6.5–6.9	<6.5
	g / L	120–160	80–94	70–79	65–69	<65
Creatinine	μmol / L	87–107	134–267	268–535	536–1070	>1070

Note: IU, international unit; L, litre; ULN, upper level of normality; grades calculated according to normal ranges of the laboratory machine used in the field.

Source: Division of AIDS, National Institute of Allergy and Infectious Diseases, version 1.0 December 2004, clarification August 2009.

Annex 3: Tracing of defaulters form

Health Area / Town Date of form completion:/...../.....

Name and PMTCT ID **Name:** **ID:**

Tracing date (dd/mm/yy) **Date:** / / For last visit with final tracing outcome
No. of tracing attempts: For current tracing episode

Source of info **Participant** **Husband** **Neighbour** **Relative** **Head of community**
 Other, specify:

Tracing outcome

<input type="checkbox"/> Met and planning to return Date: / /	<input type="checkbox"/> Moved away Please complete a Change of Address Form
<input type="checkbox"/> Met and refusing to return	<input type="checkbox"/> Away / Travelling Reason:
<input type="checkbox"/> Never met but alive
<input type="checkbox"/> Never met and unknown outcome
<input type="checkbox"/> Wrong name or wrong address
<input type="checkbox"/> Death Date: / /	Expected date of return: / /
Please complete a Death Record Form	

Pregnancy status & Delivery - if applicable **Not Applicable** **Still pregnant** **Aborted**
 Delivered Date: / / Foetal outcome: **Alive** **Dead**

Reason for defaulting (if found alive)	Reasons/s:	Comments:
.....
.....
.....
.....
.....
.....
.....

Annex 5: What is needed before giving a GREEN LIGHT for initiation?

Step 1 Psychologically ready for ART?

- Check with counsellors.

Step 2 Rule out current TB

- Current cough?
- Recent weight-loss?
- Drenching night sweats?
- Fever.
- Chest pains.
- Ask about contacts with a case of active TB.
- Since 'subclinical TB' is common in those being 'worked up' for ART, send one or more specimens for TB testing, even in the absence of TB symptoms.

Step 3 Ask for symptoms of other opportunistic infections

- Skin lesions: herpes zoster, PPE, seborrheic dermatitis, Kaposi's sarcoma.
- Headache, seizures; Meningitis: cryptococcal, TB or bacterial.
- Weight loss >10%.
- Fever >1 month.
- Diarrhoea >1 month.
- Pain when swallowing or difficulty swallowing: oesophageal candidiasis.
- Recurrent upper respiratory tract infections (URTIs)?
- Any other problem today?
- Any sexually transmitted infections (STIs)?

Step 4 Clinical examination

- Mouth: Oral thrush, necrotising gingivitis, oral sores, oral hairy leucoplakia, oral KS lesions, herpes, angular cheilitis.
- Skin: herpes zoster (scars), PPE; seborrheic dermatitis, KS, Tinea (capitis, corporis, pedis, cruris), molluscum contagiosum, warts – genital ulcers or warts?
- Enlarged lymph nodes: TB, persistent generalised lymphadenopathy (PGL).
- Lung exam: crackles, percussion dull (consolidation) or stony dull (effusion).
- Hepatomegaly.
- If headache: neck stiffness?
- Children: Calculate weight for age (W/A) and height for age, check for developmental milestones.

Step 5 Other conditions and medications?

- Alcoholism, TB treatment, epilepsy, drug interactions.

Step 6 Discuss contraception and safe sex

Step 7 Laboratory

- CD4 count at baseline. But ALL patients will be started regardless the level of CD4.
- Creatinine clearance >50ml/min?
- Check haemoglobin (Hb) in child <12 years or if CrCl<50 ml/min, since AZT likely to be used.
- Viral load before ART initiation.

Annex 6: Patient information note (English)

Acceptability and adherence of Test and Treat Strategy, Yambio, South Sudan

Médecins Sans Frontières (MSF) is a non-governmental organisation that supports health care provision in resource-limited countries. In collaboration with the Ministry of Health, MSF has started a HIV testing and treatment program in the District of Yambio.

What are the objectives of the program?

MSF is evaluating a new strategy meant to improve HIV treatment services by bringing the testing and the treatment closer to their home. The findings of this evaluation will help to better understand the challenges and to find solutions to provide good quality and effective HIV treatment services. They will inform decision-makers to adopt effective strategies and to improve HIV treatment in rural areas of the country.

Why are you asking me?

We are asking everyone who lives in this area to be tested, and those with HIV positive results will be advised to start treatment if they need it. If you tested positive then it is better for your health to start taking life-saving drugs. You have an option to get these drugs at the health centre every month, or to get them from us here in the community through community based ART support groups. Both options are free of charge.

Do I have to take part?

It is completely up to you if you participate or not in this study program. You can also accept now and change your mind later, or refuse to answer any question you are not comfortable with. If you agree to participate we will bring the pills to you here in the community. If you refuse or change your mind later, you can always get the same medicine in the health centre free of charge.

What will happen to me if I take part and what do I have to do?

If you agree in this study program, one interviewer who is both part of our team and a member of the community will ask you some questions to assess your satisfaction with the services provided and if you are experiencing any difficulties to take the HIV treatment. You will also have a blood test now to determine how well your body is fighting HIV and again, in 6 and 12 months.

What are the advantages or problems for me if I participate?

Participating in this program will give you an opportunity to enter into HIV response, resulting in accessing prevention services tailored for HIV negative people and care and treatment comprehensive services for PLHIV. Either way if results of the test revealed that you are already infected with HIV, you will get same quality of life saving drugs free of charge. The only difference is that if you participate your drugs will be brought here to the community until end of the study period. However, there could be some discomfort when we collect the blood. It will also take about 15 minutes to answer our questions each time we come with the drugs, which will be about once per month.

What do we gain by taking part in this?

Results from this program will help to improve the way we manage HIV services in Yambio, and may also affect how we manage in other places here in South Sudan and in other countries.

Will my taking part in this study be kept confidential?

All information collected for the study and the medical information recorded in your clinic files will be kept exclusively confidential. Only the identified study personnel will have access to the information collected during the interview. Only the health staff responsible for your clinical management and the study personnel will have access to your medical records.

Has this been approved by the authorities?

We are working with the permission of the County, SMOH and national Ministry of Health authorities and they have approved all the procedures. The Ethics Review Board of MSF has also approved this activity.

Annex 7: Informed consent Form – Evaluation of a community-based HIV testing and ARV treatment program in rural areas of Yambio, South Sudan, 2015

- Dr. Cecilia Ferreyra, (Principal Investigator), Médecins Sans Frontieres/Doctors Without Borders, Nou de la Rambla 26, Barcelona, 08001, Spain, Tel. +34 933 046 229
- Dr. Elena Grandio (Medical Coordinator) Médecins Sans Frontieres/Doctors Without Borders; MSF Mission, Plot 4 Block n. AX11, PO box 244 Hai Mudhuria, Juba, South Sudan, Tel: (+211) 922 365 4444; +211 913 376 680

I declare that the information note concerning the study on the “Evaluation of a community based HIV testing and ARV treatment program in rural areas of Yambio, South Sudan, 2015” has been read to me. I have clearly understood the objectives of the study, its advantages and potential inconveniences. I have obtained clear responses to all my questions.

I also have understood that I can freely chose to participate or not, refuse to answer any question I do not wish to answer and that I may withdraw from the study at any moment without any prejudice or blame done to me (my child). I agree to participate in the study under the conditions presented in the information note.

Name of the participant:

First name

Last name

Status: participant Legal representative of the participant

Signature or Thumbprint* of participant or legal representative:

Place Date

*If the participant/parent or legal representative is unable to read and/or write, an impartial witness should be present during the informed consent discussion. After the written informed consent (information note) is read and explained to the participants, and after they have orally consented to their participation in the study, and have either signed the consent form or provided their fingerprint, the witness should sign and personally date the consent form. By signing the consent form, the witness attests that the information in the consent form and any other written information was accurately explained to, and apparently understood by, the participant or legal representative, and that informed consent was freely given by the participant or legal representative.

Name of person witnessing consent:

First name

Last name

Signature

Annex 8: Implementation of CAGs in T&T

Eligibility criteria:

- Both T&T and YSH clients can join the CAG's.
- On ART more than 3 months.
- Confirmed adherence by counselor.
- CD4 > 350
- No active OI's.
- No pregnant. (If a CAG member gets pregnant, she can continue in the CAG if attending ANC)
- On adult dosage FDC
- Follow up VL (3-6 months after initiation) <1000 copies/ml (for YSH clients VL needs to be monitored)

Group formation criteria:

- Minimum 3- Maximum 6
- People living in the same boma/location
- At least one person is able to read and write
- At least one person has phone, and can easily contact the rest of the group

Schedule for visits and refills:

- Visits to the clinic are scheduled every 2 months, with one or two representatives of the CAG
- With this system every member of the CAG is seen in the clinic every 6 months (minimum recommended by MoH)

	Member					
	A	(B)	C	(D)	E	(F)
Month 0 (introduction)	X	(X)	X	(X)	X	(X)
Month 2	X	(X)				
Month 4			X	(X)		
Month 6					X	(X)
Month 8	X	(X)				
Month 10			X	(X)		
Month 12					X	(X)

Alternative schedule for visits:

- Visits to the clinic and refill every month.
- This need a minimum of 6 members, it could go up to 12 member if some representatives are coming in couples.
- We still keep a clinical follow up in the clinic every 6 months for all the members.

	Member					
	A	B	C	D	E	F
Month 1	X	X	X	X	X	X
Month 2	X					
Month 3		X				
Month 4			X			
Month 5				X		
Month 6					X	
Month 7	X					
Month 8		X				
Month 9			X			
Month 10				X		
Month 11					X	
Month 12						X

Systematic of the visit:

1 Meeting of the CAG in the community (day before or same day of visit to the clinic)

- Assessment of TB, side effects, other problems, and adherence of each member
- Peer support group: exchange concerns, challenges, motivation
- Fill in CAG monitor report or register. Signature of all members

2 Visit to the clinic:

- 1 or 2 representatives go to the clinic following schedule
- At the clinic there is a "fast-track" for CAGs
- Clinical follow up for the representatives. The samples for the lab are taken (VL, monitoring CD4 if needed, creatinine once a year...)
- Fill in the files of all the members, with the information in the CAG report/register.
- Fill in the clinic Feed-back form, with prescription of treatment and comments if needed (eg asking for a specific member to come to the clinic next time)

3 Meeting of the CAG in the community (same day of day after the visit to the clinic)

- Delivery of treatment for all the members
- Give feedback comments from the clinic to specific members.
- Signature of reception of treatment in the Feed-back form (the form with the
- signature will be presented back to the clinic, to confirm every member received the treatment)

Initial trainings

- Trainings to the members of the CAGs to reinforce confidentiality, clarify misconceptions and teach technical aspects to fill the CAG monitor report/register.
- At the beginning, meetings of the CAG can be facilitated by the CHW.
- Trainings to the health staff on the system of the CAG's and how to support them from the clinic (this training would be repeated and reinforced when the CAG's are handed over to MoH clinic)

Reporting and M&E

- Each CAG has a code related to the boma, followed by a number (eg CAG-Bodo-1, CAG-Saura-3...)
- The files of the members are kept together, and classified under these codes.
- CAG's use 2 forms for each visit; the CAG monitor report (to transfer information to the files) and the Feed back form (with prescription and comments from the clinic).
- Both forms need to be signed by all the members. The forms can be integrated in a register or exercise book, to keep better track of the visits.

Annex 9: Contingency Plan (Nov 2015)

Level	Definition – Application	Indicators	Actions to do for HIV Patients in the program	Project Actions	Comments
1 GREEN Normal	“Normal” Operations and Conditions	<ul style="list-style-type: none"> • Absence of conflict. The situation seems stable and the level of crime is very low • No risks for international staff • The patients come or may reach the centre without problems 	<p>Main Responsible: Study Coordinator</p> <p>Focal Points: Team Leaders for the activities in the field, Pharmacist for the activities in the pharmacy</p> <ul style="list-style-type: none"> • Continue normal activities, appointments and mobile teams movements as planned • Each patient has an HIV card with current treatment and an MSF phone number: check that they are up to date at every follow up visit • Staff who will be in charge of the contingency plan implementation is already identified, the HP supervisor as the focal point, and 1 CHW or Peer patient per area of operations, or members of association of PLHIV if there are gaps in some locations. • Training of the staff on the contingency plan in regular basis (every month) • A contingency stock is prepared (3 months of ARV's for n° of patients + 10%) , to be updated every 3 months) • Inform all patients at recruitment about the contacts/actions they should make to ensure medications in case of insecurity • For the patients from Yambio state hospital, being followed up by our team, they will be explained that in case of stop of our activities, they should go back to the hospital to take their drugs. At the moment we will be allowed by MoH to officially transfer these patients to our services, they will be covered by our contingency plan. • Include in every counselling follow up information about contingency plan • Weekly update of the patients database , ensure we have all patients contacts (phone) 	<p>Individual</p> <ul style="list-style-type: none"> • Always with ID and security money • Be informed about the news of the country (especially local and national). • All staff wearing MSF identification (Shirt/vest) while in the field <p>Collective</p> <ul style="list-style-type: none"> • Safety Meetings / context • Apply normal safety rules • Adapt the safety plan when needed 	Under normal conditions, all staff and patients should be informed of the existence of a contingency plan and what to do in case security deteriorates.

Level	Definition – Application	Indicators	Actions to do for HIV Patients in the program	Project Actions	Comments
			Main Responsible: Study Coordinator Focal Points: Team Leaders for the activities in the field, Pharmacist for the activities in the pharmacy		
2 YELLOW Alert	<ul style="list-style-type: none"> • Appearance or increase in tensions and risk 	<ul style="list-style-type: none"> • Increased tensions at State and National level. • Changes in political/ military power structures begin to influence our areas of operations (including Juba/ Capital). • Implementation and visible enforcement of full or partial curfew by the Government. • Increased presence of Police and Military personnel and assets in public places. • Appearance or increase in acts of lawlessness and disorder. • Intra/inter-ethnic clashes near our project locations. • Local businesses shorten working hours. • Restrictions of movements to some of the operational areas. • Patients have difficulties to reach the drop in centres. 	General actions: <ul style="list-style-type: none"> • Stress counselling messages for patients to understand what to do in case situation deteriorates • Prepare run away bags at the Yambio pharmacy with 3 months ARVs for HIV patients • Organize all registers and patients files For areas with restricted movements (only CHW can move): <ul style="list-style-type: none"> • The IEC from the area with restricted movements is in charge for follow up and distribution of drugs to the clients (with support of Team Leader and Study coordinator for organization). He takes the drugs in the base, and goes on private transport to the meeting points for distribution. MSF provides payment of transport & mission orders. • Keep 1 month follow-up, but give 1 extra month of ARVs. Review the amount of pills every follow up. (discuss with team possibility of 1 extra month buffer for all the patients, as a general action) Put on stand-by new ART inclusions for patients who arrive from these areas 	Medical staff <ul style="list-style-type: none"> • Every mobile team responsible of the contingency plan implementation meets to discuss and prepare weekly activities • Regular contact with the base are defined Field coordination <ul style="list-style-type: none"> • Possible limitation of movement / activities • Monitoring the situation at the project level (direct calls) if necessary • Contact with other NGOs and local authorities • Daily security update (minimum). All info that might impact our security considerations should be immediately reported to the FC/ HoM. Daily contact between projects and Juba. (FC to HoM). Visitors only after validation by FC. <ul style="list-style-type: none"> • Restriction of movements and avoidance of sensitive or risk areas. Movement follow-up tables in all premises ready with updated names of current IS or Relocated Staff. Consider pay 	The probability of threats or intimidation of staff or MSF properties increases at this level, the plan has to be activated and prepare bags for all patients in the cohort to have them ready.

Level	Definition – Application	Indicators	Actions to do for HIV Patients in the program	Project Actions	Comments
3 ORANGE High Tensions	Instability in our operational areas	<p><i>As in level 2 plus the following:</i></p> <ul style="list-style-type: none"> • Market closed. Looting. • Change in local governance. • Local population panic or exodus. • Military build-up. • Open armed conflict, bombardment or air strikes in the area of our operations. • Appearance or increase in number and scope of protests, rallies civil disobedience etc. Increase in the number of checkpoints and roadblocks. • Telecoms networks shut down. Air and road transport becomes restricted. • Patients hardly reach the drop in centres. 	<p>Main Responsible: Study Coordinator</p> <p>Focal Points: Team Leaders for the activities in the field, Pharmacist for the activities in the pharmacy</p> <ul style="list-style-type: none"> • The KEY person identified (HP supervisor) takes over and leads the contingency plan implementation • No movements of the teams to the field (only CHW from the areas by private vehicles or motorbikes) • Meet with focal point of the different areas in MSF base in Yambio (CHW, Peer patient, or member of association of PLHIV) and provide them kits with runaway bags with 3 months ARVs, to distribute among the patients. • The focal point for each area (CHW, Peer patient or member of association of PLHIV) contacts the patients to organize the distribution of run-away bags. • No new inclusions of patients in the program. • Advise patients to call to MSF phone in case of running out of drugs • Send last database to CMT in Juba. 	<ul style="list-style-type: none"> • Reduction of activities to essential services (if necessary) • Identification of documents / information to take away or destroy • Reduction of team and movements • Distribution of clear tasks for the staff (International/ national) as well as a preparation in case of evacuation of staff. • Daily morning briefing on the context and security situation. • Communication with authorities about the situation and future plans by the Field Co. 	The movements are limited, teams can be contained.

Level	Definition – Application	Indicators	Actions to do for HIV Patients in the program	Project Actions	Comments
4 RED Dangerous	Insecurity that prohibits our activities or poses a direct physical threat to our teams	<i>As in level 3 plus the following:</i> <ul style="list-style-type: none"> • 24hr curfew imposed by authorities. • Open armed conflict in close proximity to MSF structures and teams. • Riots and unrest of civilian population. • Imminent signs of possible closure of airport. • Massive population movement. • Common violent incidents targeting aid agencies. • Attempts to disrupt agency's work with violence or violent threats. 	Main Responsible: Study Coordinator Focal Points: Team Leaders for the activities in the field, Pharmacist for the activities in the pharmacy <ul style="list-style-type: none"> • Stop of all the activities of our staff in the field • If still possible, provide run away bags to the Peer patients from the areas or the identified members of association of PLHIV, for distribution among the patients. • Drugs donation to Yambio Hospital • Hand over of patients files to Yambio Hospital 	<ul style="list-style-type: none"> • Partial Evacuation for nonessential international and relocated staff (skeleton team to be left according to the contingency plan of the project) OR <ul style="list-style-type: none"> • Full evacuation • Field Co to communicate to authorities about the evacuation 	Suspension of activities until the situation will become again normal.
5 BLACK Untenable	<ul style="list-style-type: none"> • Full team relocation / evacuation 	<ul style="list-style-type: none"> • Widespread looting. • Sustained gunfire day and night. • Violence of all types against MSF staff or patients in MSF facilities. 	If possible: <ul style="list-style-type: none"> • Drugs donation to Yambio Hospital • Hand over of patients files to Yambio Hospital • If community health workers still within their communities continue communication with the clients (phone balance can be provided to them via sms) 	Full Evacuation <ul style="list-style-type: none"> • All staff remains in safe rooms until they can be evacuated. • All staff remains away from project until green light is given by HoM, RECO and DO to return. 	



A Community ART Group (CAG) meeting in Ribodo, South Sudan, where an MSF Community Health Worker provides support by reinforcing information about adherence to treatment.

Para más información:
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www.msf.org/en/yambiotestandtreat