



Royal Tropical Institute



Stop TB Partnership TB REACH

Grantee Annual Narrative Report

(GANR) – W3Y2 on:

Enhancing early and increased TB case detection and treatment with major focus on high risk population groups and congregate settings in South Sudan



Implementing Grantee:

In Collaboration with the NTLBP - RoSS



Implementing team:

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- Esther Wangari Njuguna – TB Reach Grant Manager/AAA Finance Officer
- Emmanuel Wasilwa – M&E Officer
- Dr Ng'uela Ronald – Consultant Public Health/M&E Specialist

Direct field implementation by:

TB Officers in collaboration with 5 State TB coordinators and the County Health Directors in the Republic of South Sudan (RoSS).

Field staff TBMs (clinical, nursing, laboratories, administrative and supportive) in Lakes state (Yirol East, Yirol West, Awerial and Cueibet), Western Equatoria state(Tambura), Western Bahr-el-Ghazal state (Wau), Warrap state (Tonj North, Gogrial East, Gogrial West, Tonj South and Twic) and Northern Bahr-el-Ghazal State (Aweil Centre, Aweil East, Aweil South Aweil North and Aweil West).

AAA Director:

Natalina Sala

AAA Stamp and date:

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Executive summary

AAA is an indigenous South Sudanese NGO founded in November 2006 and upgraded to international NGO status in 2012 following successful health program implementation in South Sudan.

South Sudan became Africa's newest and world's 193rd nation on July 9, 2011. Nation with multiple challenges and joins the ranks of the world's least-developed countries with a large population failing to gain access to accurate TB diagnosis or effective treatment; suffering and dying needlessly from this preventable and curable disease. The biggest obstacles to development and access to health care for this newest nation is poverty and the lack of infrastructure that largely contribute to the world's failure to detect nearly 9 million infectious TB cases thereby thwarting efforts to reduce the spread of TB and eliminate it. Multiple rough and dirt roads that are paved and repaired after rains become impassable during the long rains and floods that span from around May to November every year. AAA supported by Canadian International Development Agency (CIDA) through the TB REACH initiative of Stop TB Partnership developed and implemented an innovative community approach of reaching people with limited or no access to TB services through a project referred to as **“Enhancing early and increased TB case detection and treatment with major focus on high risk population groups and congregate settings in South Sudan”**. The main objective of this initiative in resource constrained countries is to increase case detection of TB, detect the disease as early as possible, and ensure timely and complete treatment while maintaining high TB cure rates. The interventions to achieve this objective included TB education in schools and community with enhanced community-TBMU referral linkages established, intensified TB case finding in congregate settings such as prisons and army barracks, high risk populations living in IDP camps, returnee camps, refugee camps, fishing camps, cattle camps, organized outreach services for TB diagnosis and treatment in the community, enhanced integration of TB HIV collaboration for TB screening among PLHIVs and integration of TB services into primary health care for TB screening among OPD/IPD patients and effective referral of specimen/patients for prompt diagnosis and treatment initiation. The continuum included symptom screening with questionnaire, identification of persons with presumptive TB, bacteriological examination and clinical evaluation with algorithms for diagnosis and treatment initiation or referral for convenience. In a period of twelve months of this intervention, 196,658 people were symptom screened with questionnaire after community TB education. Of these, 926 were bacteriologically confirmed (SS+/bac+) with TB disease and 925 of them or 99% initiated on treatment within 48 hours and notified to the national health authority as recommended by the South Sudan National TB, Leprosy and Buruli Ulcer Program (NTLBP). Cumulatively including the passive case search, 3267 ALL TB patients; among them 1596 SS+/bac+ patients were notified. Across all the interventions implemented by the project, the proportion of SS+ cases identified among those screened was 0.5% (going from 0.1% among contacts of children under 5 years on TB treatment and up to 0.9% among IDP populations). Adaption and adoption of recording and reporting tools from successful community models from neighbouring countries and WHO manuals ensured documented and verifiable results of processes. The challenges of limited movements due to insecurity, intermittent availability and high unregulated black market costs of fuel and conflict that led to transfers of soldiers to other stations for country defence and national duty increased treatment interruption before the action developed strategies to strengthen transfer/referral documentation and accessing treatment in their new settings. Treatment success remained at 89% and all implementation strategies were considered successful by the NTLBP and have now been included in the revised NSP 2015-2019 as well as in the New Funding Mechanism (NFM) for continued implementation and expansion by the country.

We propose other funding opportunities be sought to support the NFM budget and continue this community intervention that is not very strong in the NFM due to huge funding gap.

1. Project Description

More than one-third of Tuberculosis (TB) patients in the community worldwide, and probably worse in the conflict prone South Sudan live in poverty-stricken areas with poor infrastructure and have very limited or non-existent access to health services and therefore fail to gain access to accurate TB diagnosis or effective treatment and are suffering and dying needlessly from this preventable and curable disease.

The South Sudan national TB strategic plan that was revised in 2014 aiming to cover the 2015 - 2019 period. It was developed in close collaboration with implementing partners including AAA International. In the document, major challenges for TB prevention and care in South Sudan were clearly identified and a new road map was proposed:

- Increased access to TB diagnosis and care by increasing TBMs from 65 in 2014 to 100 by 2015 and continue phased expansion (AAA to increase from 14 to 39),
- Increased TB diagnostic sites from 87 in 2014 to 100 by 2015 and continue a phased expansion (AAA to increase from 14 to 39 and ensure all TBMs are fully functional as diagnostic sites)
- Increased community access to diagnosis through outreaches and door-to-door TB screening (experience gained from TB Reach W3Y1 by AAA)
- Increased access to diagnosis and care in the congregate settings (Experience gained from TB Reach W3Y1 by AAA)

In response to the recommendations in the revised National Strategic Plan 2015-19, AAA International proposed to address some of them with funding from CIDA through the TB REACH initiative of Stop TB Partnership among other sources with the following two main objectives:

Objective 1: To increase access to TB diagnosis and accordingly raise the notification of new smear positive pulmonary TB cases in AAA intervention areas from the current (Wave 3 Year 1 achievement) 1426 to 3017 (3 fold that was quite ambitious) and that of all forms of TB from 2602 to 3800 by end of action in June 2015 and,

Objective 2: To maintain treatment success rate above 90% as achieved in Year 1

To achieve these objectives and by extension the objective of TB REACH initiative through CIDA funding, AAA developed an implementation plan with interventions and activities as:

- 1.0** Development of operational guidelines, recording and reporting tools and on-site training, coaching and mentorship to ensure adherence to South Sudan TB control services guidelines and integration of activities into existing TB control program according to the Strategic Plan.
- 2.0** Training and capacity building of HHPs, laboratory staff and clinicians on TB screening, community mobilization, recording and reporting and accurate TB diagnosis through microscopy and algorithms with adherence to protocol and guidelines.

Intervention areas to address the two objectives

Door-to-door TB education and screening of contacts of smear positive TB patients and contacts of children under 5 years.

The involvement of uniformed services and informal settings for provision of TB services for TB education and outreach mobile microscopy in high-risk and congregate settings such as prisons, army barracks, IDPs, fishing communities, refugees/returnees and cattle camps.

Integration of HIV and TB services to promote early detection through TB screening and treatment of detected cases in large hospitals with admission facilities such as Aweil, Wau, Kuacjok, Mapourdit and Yirol West county hospital/CUAMM aimed at comprehensive diagnosis and provision of standard care by providing TB and HIV services in a “supermarket model”.

Expansion of the network of laboratories in AAA catchment areas from 14 (TBMU-based) to (9 additional being county PHCCs and hospitals to be upgraded and utilized in collaboration with the CHD as new TBMs and DOT centres and provide quality assured TB diagnostic services.

To increase access to TB services by reducing travel distance to diagnosis and refill for drugs, thus, achieving prompt treatment initiation, promoting adherence and maintaining a high treatment success of 90% and above, the action expanded TB control services in line with the proposal of the NTLBP in the revised National Strategic Plan 2014-2019 by:

The integration of TB services in primary health care (PHC) through screening of TB in OPD/IPD in state and PHCCs, safe sputum collection and referral of specimen or presumptive TB cases for prompt diagnosis and treatment initiation to cut the chain of transmission.

The expansion of TB detection services at community level in the 16 counties through mobile outreaches, community TB education and community engagement through opinion leaders and TB mobilizers. Further, the action increased community awareness through community theatre, community-linked radio programs, school TB education and door-to-door visits by Home Health promoters (HHPs) formerly known as TB mobilizers for TB education, TB screening and referral for prompt diagnosis.

Community TB-DOT and promotion of treatment adherence through HHPs and TB clubs feedback meetings to minimize lost-to-follow up.

Early retrieval of persons lost to follow up, through the strengthening of established TB-clubs and the involvement of TB ambassadors (former TB patients with live human stories) and HHPs.

Recording and reporting of all detected cases to the NTLBP utilizing standardized NTLBP guidelines and reporting tools in a timely manner. The project implemented community TB electronic data management and reporting (e-recording & reporting) through mobile telephony in all the 23 TBMs. The mobile telephony enabled field staff to relay sputum results to persons identified as bacteriologically positive and that are not within reach to shorten the turn-around-time (TAT) and ensured prompt initiation of TB treatment as well as tracing of persons interrupting treatment and improving on timeliness of reporting of community TB interventions.

South Sudan is in a progressive and dynamic position and currently developing a robust TB recording and reporting system. Due to current inadequate recording and reporting tools for

community TB, we designed presumptive TB registers, TB screening tools and guidelines for smear positive contacts, congregate settings, PLHIVs and for the general population. This adaptation from WHO manuals and other successful community models and TB HIV collaborative activities in neighbouring countries was necessary as such documents that were hitherto non-existent became useful to effectively manage and document the process indicators. The adapted materials were revised, improved, pretested, disseminated to the relevant government authorities and other implementing partners and adopted. Recording and reporting tools for community interventions, TB agenda (diary for recording planned activities and assignments) and referral were also developed and adopted for documentation of the process.\

2. Results

Arkangelo Ali Association (AAA) implemented enhanced TB case finding in 5 states and 16 counties in alignment with the revised NTP strategic plan (NSP) 2015-19, the NTP national policy and guidelines for implementing TB interventions and the NTP guidelines for quality assurance and supervision of smear microscopy in TB control in collaboration with the NTP. The just ended TB REACH wave 3 year 2 implementation was a one year follow up to W3Y1 and started on July 1, 2014 and ended on June 30, 2015. The strategies for enhancing TB case finding through active approach for the four quarters implementation period involved outreaches and TB screening in intervention areas (and mainly outreaches in the community and congregate settings, door-to-door TB screening, collaboration with PHCCs/Us, collaboration with HIV programs for TB screening of PLHIVs and efforts by the implementing organizations to provide capacity building and mentorship to state level and CHD staff for continuity and sustainability beyond TB Reach implementation period). AAA considers the implementation successful with the results as below:

2.1. Training and capacity building:

This community approach is novel in South Sudan, a new nation just emerging from nearly three decades of turmoil and threatened with fresh internal conflict that renders access to health care very limited. The capacity of the health work force in South Sudan is limited. The action invested in skill and capacity building with available human resource, knowledge transfer, supportive technical advice and mentoring. To obtain political commitment at various administrative levels, conduct TB screening and provide community based TB education, we conducted 3-day sensitization sessions targeting 90 community opinion leaders, 45 HHPs (TB mobilizers), 25 senior management level prisons and army officers and 9 HTC counsellors on the sensitization session covered basic aspects regarding TB screening, referral documentation, infection prevention control and messaging on TB. To provide quality assured TB diagnosis, 18 laboratory microscopists followed a 10-day on job refresher training and practicum on AFB microscopy and level three (technicians on the bench) EQA training. Quarterly reporting on community activities was done by the HHPs during TB club and feedback meetings. Laboratory EQA was conducted with randomly selected slides being re-processed at Nairobi AMREF Health Africa laboratory. It was necessary to do the EQA in Kenya because South Sudan does not have a National Reference laboratory able to perform this role. Results from the EQA showed that

97% of the laboratories maintained 100% accuracy and concordance while 3% that were new peripheral laboratories had inconsistencies mainly related to staining techniques and quantification errors. On site mentoring by our experienced laboratory staff through exchange program and peer reviews was used to address and solve these inconsistencies.

2.2. Contact Investigation among SS+ and Children on TB treatment:

TB spreads from a focal infected person to another through droplets from aerosols containing Tubercle bacilli. There is a higher chance of being infected from bacteriologically confirmed cases compared to bacteriologically negative ones. Children diagnosed with TB are likely to have got the infection from an adult in close proximity. The purpose of this innovative intervention by AAA was to identify the infection focus/source of infection as well as those likely to have been infected by the index patient. The action identified persons at increased risks living in close contact with the index cases, for example, children, PLHIVs, the elderly among others and screened them as well as conducting clinical evaluation for possible TB disease. The action traced and symptom-screened 6,545 contacts of SS+/bac+ and 1,798 contacts of children under 5 years that were on TB treatment through the innovative door-to-door by the HHPs. 418 contacts of SS+/bac+ and 194 contacts of children under 5 years were identified with symptoms and either referred utilizing a prescribed referral form or sputum safely transported by the HHPs to the TBMU for diagnosis. 18 contacts of SS+/bac+ and 2 contacts of children under 5 years were confirmed bacteriologically as having TB and 18 (100%) and 2 (100%) initiated on treatment within 48 hours. Those not initiated were referred to other TBMUs for convenience of treatment and referrals documented. The HHPs were provided with safe sputum boxes and bicycles for the intervention. The screening target for contacts of SS+/bac+ under-achieved at 66% against the target due to travel limitations, scarcity of fuel and large distances to families for door-to-door by HHPs coupled with inaccessibility due to floods while that of contacts of children under 5 years over-achieved at 166% as the number of children treated in the intervention period increased nearly threefold due to enhanced utilization of paediatric algorithm diagnostic kit.

2.3. Active screening of chronic coughers from general community, pockets of TB, OPD/PHCC/PHCU:

The action integrated TB screening in PHCCs/hospitals and general community outreaches, symptom-screened 147,166 people (105% of the proposed target), diagnosed 687 through bacteriology with sputum safely transported from the PHCCs OPD and the large hospitals in patient department to the laboratory. Chronic coughers were identified and sputum submitted for TB diagnosis. A further 1366 of TB ALL forms were diagnosed through utilization of designed algorithms and radiological examinations where applicable especially in the large hospitals of Aweil, Wau, Kwacjok, Tambura, Yirol West/CUAMM county hospital and Mapourdit. 100% of the SS+/bac+ and 96% of ALL TB were initiated on treatment within 48 hours as recommended

with the remaining being referred to TBMs of their convenience for treatment. The AAA TB Officers and M&E officer conducted mentoring of the health staff in these facilities and patient reviews to promote early diagnosis of TB among patients admitted in the facility with chronic chest illnesses.

2.4. Number of known/newly identified PLHIV in implementation area (mainly Wau, Aweil, Mapuordit, Kwacjok and Yirol West-CUAMM county hospital):

The 5 named facilities have ART and pre-ART care services with PLHIV attending the facilities monthly for psychosocial support, clinical reviews and ARV/CPT refills. Through the TB HIV collaborative activities, the action conducted TB screening at the Pre-ART and ART clinics to PLHIVs on every contact. In the period under review, the CHD-CUAMM collaboration alluded to above, opened an ART centre and hired the services of an experienced clinical staff to review, initiate and monitor PLHIVs on ARVs. AAA approached the CHD-CUAMM collaboration and introduced TB screening and referral of PLHIVs with presumptive TB. This action contributed to reduce the burden of TB among PLHIV through prompt initiation of ARVs for the co-infected, prompt TB diagnosis among PLHIVs and reduction of loss to follow up from treatment for both diseases due to improved linkages and prompt tracing. There were 16,203 PLHIV registered for follow up in the 5 ART/Pre-ART clinics with monthly screening conducted. The action enhanced collaboration between the HIV and TB programs in these hospitals with the developed screening tools and screened 10,165 people (27% of the screening target), identified 220 people with TB symptoms, and diagnosed 15 people with smear positive TB and 111 with ALL forms of TB. 100% of the SS+/bac+ and 99% of ALL TB cases were initiated on treatment within 48 hours. The challenges leading to low screening achieved was non commitment of the staff working in the ART sites in conducting the TB screening for all co-infected persons on every contact during refills. For example in Aweil State Hospital an HHP was placed at the ART site to conduct TB screening due to unwillingness by the staff citing lack of incentives and workload. Further, there was cleaning and validation of all HIV care records by the HIV program that found over-reporting, thus, fewer PLHIV than anticipated.

2.5. Outreach mobile microscopy to IDPs:

There are IDPs scattered all over South Sudan caused by cattle rustling, floods and the current ongoing and flare ups political/ethnic clashes. The IDPs do not have access to TB diagnosis and treatment and the action conducted outreaches for TB diagnosis and treatment. The action in collaboration with the county government of Awerial initiated a new TBMU at Mingkaman as a response to addressing the health needs of IDPs in the Lakes State. This large camp has a population of approximately 76,000 mainly escapees from Bor county in Jonglei State. Due to unpredictable flare up of violence and hostilities restricting movements of non-local or less dominant ethnic communities, outreaches in this camp have not been successful but the TBMU is accessible to the IDPs and many patients were diagnosed with TB and receiving community DOT through organized peer supervision within the camps. The action screened 12,795 people

that represented a mere 8% of the target. This low achievement was due to restricted entry into the IDP camps that were referred to as protection of civilians (POCs) camps. 120 people were diagnosed with SS+/bac+ TB and 323 with ALL forms of TB and 100% and 92% initiated on TB treatment within 48 hours respectively. There was collaboration with other health providers such as HealthLink, WHO, UNHCR and IOM to ensure treatment access to the IDPs in the context of security provision (POC).

2.6. Outreach and mobile microscopy in Prisons and military barracks:

The congregate setting staff and inmates live in congested and unhygienic setting that by nature is proxy to increased spread of TB due to poor ventilation. The action conducted outreaches to these enclosed settings and provided TB education and screening. Although these settings are mainly at the State level where prisons have capacity for inmates and large army barracks exists, several county level TBMUs such as Adior, and Gok Machar conducted similar activities in the military camps and in the transient prisons although not previously included in the targets. There were several other make-shift barracks due to the political crisis aimed at protection of civilians and defence. The action screened 6,732 people, identified 929 people with TB symptoms, and diagnosed 48 people with smear positive TB and 114 with ALL forms of TB. All prisons identified an officer that was coached by AAA TB officers on DOT and ensured strict adherence and sputum follow up submitted. Any transfers when the inmates complete their prisons term or are transferred to another prison were all documented and no loss-to-follow up occurred. The military were equally well monitored and the frequent transfers for service need during the political crisis were documented and treatment outcomes tracked and updated in the TBMU. The satisfactory achievement of screening against the target at 81% was due to good collaboration and political commitment after sensitization of the prisons officers.

2.6. Outreach and mobile microscopy semi-nomadic populations' fisher folk/cattle camp:

Cattle camps are a cultural practice for the Dinka and Nuer communities of South Sudan and is predominantly in the Lakes State. There are also fishing camps in the lakes state and the environs of the greater Bahr el Ghazal like Wau, Nyamllell, Tonj and Gordhim where there are long periods of large water masses due to rivers flooding and stagnation and flat grounds with poor drainage nor downstream flow. Due to the cultural practice that does not prioritize health seeking leading to delay in diagnosis, the action conducted outreaches for TB diagnosis and treatment in the fishing camps and the many highly mobile cattle camps. The action conducted outreaches to the camps of the semi-nomadic populations of fishing communities mainly in Lakes State, in Wau along the Jur River and in Tonj fishing camps in large flooded waters; and screened 11,457 people (191% of the proposed target), identified 1,450 people with TB symptoms, and diagnosed 35 people with smear positive TB and 126 with ALL forms of TB. 97% of SS+/bac+ and 99% ALL TB were initiated on treatment within the 48 hours set target. The over-achievement of screening targets was due to prolonged rains that caused floods in Tonj and other areas in Lakes State other than the initial targets of Lake Yirol and Jur River in Wau fishing camps. This led to

community members congregating and camping along the flooded river for fishing and therefore easily accessible to AAA for TB education and screening.

2.7. DOT and TBMU Expansion:

In Wave 3 Year 1 the action implemented active case finding based on 14 TBMUs. In the ongoing Wave 3 Year 2 the action responded to the NTLPB revised NSP 2015-19 and integrated TB services by renovating, equipping, mentoring and upgrading 9 RoSS PHCCs into TBMUs namely Gok Machar, Marial Baai, Aroyo, Panthou, Alek, Akon, Liethnom, Mapuordit and Mingkaman. All the 9 new facilities were renovated, laboratory staff, TB nurses and Home Health Promoters (HHPs) assigned and relevant modular as well as on job trainings conducted for implementation according to the South Sudan NTLBP policy and guidelines. To evaluate successful implementation through this expansion intervention, the action reported disaggregated results into new and old TBMUs. Additionally, AAA through its friendly financial supporters opened 16 satellite laboratories that currently diagnose TB and provide DOT services under supervision of the established 14 TBMUs in collaboration with the NTLBP. These 16 satellite sites will be upgraded to full TBMU in compliance to the revised NSP once the NTLBP finalizes validation of status and capacity. Cumulatively, the 9 new TBMUs under TB REACH initiative screened 36,555 people, identified 4,366 people with TB symptoms, 2,792 examined by microscopy for TB disease and diagnosed 169 people with smear positive TB and 482 with ALL forms of TB.

2.8. TB education, messaging and social mobilization:

The action conducted TB education through local FM radio stations in local languages and by local staff mentored on mass media communication by AAA. TB education materials to schools and communities were developed, printed and distributed during community outreaches and school health programs. Other communication channels included printed messages on travel/carrier bags for the HHPs, TB club members, and community theatre troupes and commemoration of World TB Day 2015 in all the 16 counties. All the messaging through mass media, print media, community theatres and school activities utilized the Massive, Repetitive, Intensified, Persistent and Sustained (M-RIPS) approach with continuous visibility. Due to the ongoing hostilities and fear in the community, the South Sudan closed down several media houses that we previously used for mass communication. The action continued to a limited extent to provide TB education through the available media as radio spots with short action oriented messages and live talk shows with call ins to address the community members concern and increase awareness. As a result we achieved 251 radio spots through Radio Good News in Rumbek in Lakes state, Radio Bakhita in Juba, Voice of Hope Radio in Wau, and Radio Don Bosco in Tonj. Radio Anisa in Western Equatoria was closed for the implementation period due to technical hitches. The TB education through Radio Good News in Rumbek may have influenced positively the high increase of patients in Rumbek state hospital, a control population (CP) facility. We confirmed the sudden increase of patients in Rumbek was due to a similar intervention by another organization conducting community TB education, screening and referral

in Rumbek Central County. This overlap may cause dilution and therefore calculation and statistical analysis for comparison require a lot of care. We propose to subject our data to statistical analysis with EPI info and control for this dilution during our manuscript development for publishing in peer reviewed journal.

To evaluate reach and effectiveness of TB education and messaging in increasing awareness and promoting positive health seeking behaviour chance, the action developed, pre-tested and administered exit questionnaire to sampled TB patients and other persons seeking services at the TBMUs. A total of 493 interviewer-led questionnaires were administered with 100% response rate (277 males and 216 females); with the majority (206) being out of school and not working, 123 working in various capacities and 164 being school children. 302 (61.3%) people received the TB education through health workers either during outreaches or during community dialogue days, 94 (19%) through a community leader or HHPs, 54 (11%) through school TB education and 43 (8.7%) through the radio programs. The accuracy of information provided and gained knowledge through these approaches was confirmed and 396 (80%) knew you suspect TB disease with a cough lasting 2 or more weeks and not responding to antibiotic treatment, 69 (14%) said various durations that appeared to suggest other COPDs and 28 (6%) said they did not know. There was sufficient knowledge transfer with 433 (87.8%) respondents correctly knowing TB is treated for 6 months and is curable, 32 (6.5%) did not know while 28 (5.7%) gave incorrect treatment durations.

2.9. TB sensitizations in the community:

Community TB sensitization of local administrators was conducted to raise TB issues high in influential community leaders' agenda, increase public awareness and promote self-agency referrals. The opinion leaders, HHPs and community theatre troupes conducted TB education in the market places and public meetings through miking and TB education brochures. This led to either self-referral or documented referral with referral forms to TBMUs for prompt diagnosis. The referral without referral forms was documented in the TBMU register as referred by community member (CM) as well as through the exit interviews and we confirmed about 19% of TB patients had received TB information from a community leader and reported to TBMU for either diagnosis or more information.

2.10. How the process led to TB cases identified:

The action screened 196,658 people from all interventions by both new and old TBMUs representing 55% achievement against the planned target. 13% (n=24,676) had TB presumptive symptoms, 14,669 (7% of total screened and 59% of those with presumptive TB) had productive cough, were bacteriologically examined and yielded 926 bacteriologically confirmed TB, representing 0.5% of the people screened, 4% of those with presumptive symptoms and 6% of those examined by microscopy. 925 or 99% initiated treatment within 48 hours and were

reported to the NTLBP as required. The 1% not initiated on treatment were persons that either were double tested in different facilities and number reduced during TBMU and laboratory TB register synchronization from various TBMU or were persons referred outside AAA catchment area and treatment but whose transfers were not confirmed by the receiving facilities.

2.11. TB case finding and reporting structure:

The action ensured all TB cases detected were initiated on TB treatment within 48 hours according to WHO recommendation. This prompt initiation of treatment was facilitated by mobile telephony to patients by the HHPs that were the linkage between the TBMU, health staff and the community. The HHPs conducted tracing of primary defaulters to be able to initiate treatment promptly. The action conducted outreaches in high risk populations and congregate settings for active case finding as well as continuing passive case finding in the static TBMU. All diagnosed TB patients were reported to the NTLBP through the South Sudan prescribed reporting channels and standardized recording and reporting tools. Look at the GMS

Old TBMU

TB REACH Quarterly Reporting Period	SS+/Bac+			New SS-/Bac- (3)				New EPTB (3)				Other New (not SS+/Bac+) (4)	Other ReTx (not SS+/Bac+)	All Forms
	New SS+/Bac+ (1)	ReTx SS+/Bac+ (2)	Total SS+/Bac+	0-4 yrs	5-14 yrs	>= 15 yrs (or all ages)	Total SS-/Bac-	0-4 yrs	5-14 yrs	>= 15 yrs (or all ages)	Total EPTB			
Q3 2014	317	29	346	2	16	110	128	33	35	45	113	33	3	623
Q4 2014	319	34	353	0	8	132	140	43	49	59	151	42	7	693
Q1 2015	338	30	368	0	9	103	112	30	45	52	127	39	2	648
Q2 2015	326	27	353	2	10	80	92	40	61	84	185	34	9	673
Total	1300	120	1420	4	43	425	472	146	190	240	576	148	21	2637

New TBMU

TB REACH Quarterly Reporting Period	SS+/Bac+			New SS-/Bac- (3)				New EPTB (3)				Other New (not SS+/Bac+) (4)	Other ReTx (not SS+/Bac+)	All Forms
	New SS+/Bac+ (1)	ReTx SS+/Bac+ (2)	Total SS+/Bac+	0-4 yrs	5-14 yrs	>= 15 yrs (or all ages)	Total SS-/Bac-	0-4 yrs	5-14 yrs	>= 15 yrs (or all ages)	Total EPTB			
Q3 2014	55	8	63	0	4	27	31	14	22	21	57	10	4	165
Q4 2014	71	3	74	0	0	29	29	7	15	10	32	12	2	149
Q1 2015	59	10	69	0	3	29	32	3	13	22	38	8	1	148
Q2 2015	74	12	86	0	2	20	22	17	10	14	41	8	4	161
Total	259	33	292	0	9	105	114	41	60	67	168	38	11	623

Proof of additionality based on table as shown in the QRN for Q2-2015

	populat ion	Historical Baseline Notifications								Implementation Period Notifications				Unadjuste d additional cases (Y2)	% change from baseline	Additional ity target (Y2)	O score (Y2)	
		Y1								Y2								
		Q2/12	Q3/12	Q4/12	Q1/13	Q2/13	Q3/13	Q4/13	Q1/14	Q2/14	Q3/14	Q4/14	Q1/15	Q2/15				
SS+/B+	Eval	293	247	305	330	326	370	348	367	335	372	390	410	424	421	36%	1.842	23%
	Control	61	41	46	57	50	50	72	62	49	53	56	81	46	31	15%		
all forms	Eval	475	412	503	555	539	645	667	743	675	788	764	825	890	1,322	68%	1.855	71%
	Control	107	121	116	123	95	84	133	147	165	161	145	139	91	69	15%		
Difference (%Eval minus %Con) =																		

Compared to the baseline (before the TB RECAH intervention), the notification results obtained during Y2 show an increase of 36% for SS+ cases and 68% for All TB forms. The clinically diagnosed TB were based on adapted, approved and adopted algorithms backed with radiology in cases where microscopy was negative and radiological services available. EQA was conducted on all laboratories and 97% maintained 100% concordance with only 3% achieving below 90% concordance implying the level of accuracy of diagnosis was reliable and acceptable. There was no significant difference with the CP although we did not subject the data to statistical analysis. Through developed algorithms, continuous mentorship and on-site training for adherence to approved evaluation before subjecting patients to the six months regimen and knowledge transfer on AFB refreshers and infection prevention control by the action, the implementing field staff and state level doctors and clinicians adopted best medical practice of laboratory examination that minimized the number of people diagnosed without smear microscopy as the WHO recommended practice. There were challenges of intermittent reporting from Lui and Maridi as well as BRAC implementing TB REACH in Rumbek Central County in the CP data and this would either overshadow or show significant improvement in the CP performance.

2.12 Promotion of adherence to TB treatment:

The action continued to promote adherence to treatment through tracing of persons interrupting treatment and lost to follow up using defaulter tracking/tracing diary used by Home Health Promoters (HHPs) and TB officers. The outcomes of these tracing were shared during monthly feedback meetings for Home Health Promoters (HHPs), ambassadors and TB club and provided TB education. TB information updates were done during these forums. Treatment interruption in AAA implementation area is minimized through community TB education by the Home Health Promoters (HHPs). Treatment success for the implementation period was 89% (n=1260 of 1420), maintained at the same percentage as baseline similar period one year ago. This achievement was facilitated through community TB-DOT implementation, identification and prompt retrieval of persons interrupting treatment and those lost to follow up by HHPs and return them to treatment. The updates and reports on the tracing was updated on the TBMU registers during monthly

feedback meeting of HHPs and TB patients at facility that also served as the drugs refill day. Such meeting of current and former TB patients also known as TB club was meant for updates on TB, continuous counselling and experience sharing. In collaboration with WFP, food rations were availed and distributed to patients for nutritional supplementation that the patients considered an incentive.

Quarters	Reg TB pts	Treatment success		Negatively affecting treatment success				Not evaluated	Total evaluated (validity check)
		C	TC	Def	TF	D	To		
Q3 2013	370	310	18	16	0	19	7	0	370
Q4 2013	348	296	13	8	1	15	15	0	348
Q1 2014	367	312	13	17	2	17	6	0	367
Q2 2014	335	287	11	13	2	17	5	0	335
Total	1420	1205	55	54	5	68	33	0	1420
Percentage		85%	4%	4%	0.3%	4.7%	2%	0%	
		89%		11%				0%	

2 . Effectiveness of the strategies used to increase case finding

3.1. Health-seeking behaviour:

Patients typically visit health facilities only when they are overwhelmed by disease due to inadequate awareness. With infectious diseases such as TB, any delay in seeking care has major ramifications: first, it extends the period that one is infective and thus capable of transmitting the infection to others unknowingly; second, the delay in diagnosis complicates the treatment process and finally, the fact that over the course of the treatment duration patients are likely to feel well when symptoms such as coughing, night chills, sweating and fever cease even before they finish the treatment dosage and assume they are cured. Such a patient sees no need to continue visiting the health facility and may interrupt treatment or get lost to follow up (default). Our use of multi-faceted mass media approach and community engagement to provide information on TB symptoms, curability, and the process of diagnosis, including the need for a sputum test or any other appropriate diagnosis process increased awareness, promoted self-agency to seek diagnosis, sustained adherence and treatment success at 90%.

3.2. TB services expansion:

Whereas lack of accurate information is a major reason for delay in seeking health care services. In some cases, lack of access to a health facility and to diagnostic and treatment services causes delay. The additional 9 TB MUs and mobile outreaches to community and congregate setting increased access to diagnosis by being close to the community and therefore shortened time to treatment initiation.

3.3. School health program:

Because of the increasing risk of TB among children and adolescents, teachers are increasingly becoming an important point of focus and school children agents of change (AOC). Apart from parents, teachers spend the most time with children in school and may be regarded as the most important source of information due to the trust bestowed upon them by school children and therefore placing them in a good position to enforce appropriate TB prevention practices in the school environment. Like other congregate settings, schools are high-risk places due to crowding. Based on learning from school-based campaigns by WASH programs to inculcate a culture of hand-washing after use of latrines, our TB education interventions modelled a culture of preventive cough etiquette among youth, a debating discussion model and transfer of knowledge from teachers-to-pupils-to parents.

Once empowered with information, these important social units in the community will also become a safe environment for caring for people infected and affected by TB, thus considerably reducing the cost of treatment, eliminating stigma and enhancing chances of cure.

3.4. Mobile/migrant populations:

South Sudan is host/home to migrant populations resulting from ethnic conflict, cattle raids, and returnees that have driven internal movement and displacement. Conflict, cultural practices and flood-related movement and migration across rural South Sudan and mainly in the greater Bahr el Ghazal and the Lakes State is common leading to living in concentrated camps. These settings have local community leadership that we engaged to gain access to them for TB screening and education. This local leadership structure helped minimize treatment interruptions as information was readily available whenever they needed to relocate.

3.5. Prison inmates, staff and other uniformed services:

These settings are recognized in any country as a high-risk group for HIV infection and therefore at equally higher risk for TB spread due to the congregate nature of habitation as well as social living that exposes them to immunosuppressive diseases such as HIV. The leadership rank and file were well sensitized and therefore access to provide TB screening and education was made possible. The activity provided through improved structure, a TB treatment unit in

Aweil Central prison and initiated TBMs in Wunyik and Grinty military barracks in Wau through counterpartying finance. Screening was conducted in these camps and lost to follow up was minimized through linkage with the unit leadership and transfers were documented whenever necessary.

People living with HIV: Collaboration in TB and HIV programs is still weak and led to very low screening and TB diagnosis in HIV care settings and requires strengthening through concerted efforts by the government and other implementing partners.

3.6. Contacts of TB patients:

Limited evidence is available from country-level practice regarding the benefits of contact tracing. This was the first such intervention that will be published to share knowledge of TB yield of about 5% confirmed/tested and 0,3% confirmed/examined among contacts Adults SS+ and 3% confirmed/tested and 0,1% confirmed/examined among contacts of children under 5 years that were on TB treatment following an innovative door-to-door screening. This is within the documented WHO global recommendation to screen close contacts of active TB patients based on cross-sectional studies showing that contact tracing contributed 2% to 19% of TB cases

The process indicators pathway and proof of yield

Process indicators	1	2	3	4	5	6	7	
Interventions/pathway	Contact investigation (screening contacts of adult SS+)	Contact investigation (screening contacts of children on treatment)	Active screening of chronic coughers from OPDs, IPDs (Integration into PHCC)	Integration of HIV and TB services (screening PLHIVs)	Outreach / mobile microscopy to high-risk and congregate settings (IDPs and/or returnees)	Outreach / mobile microscopy congregate settings (Prisons /army barracks)	Outreach / mobile microscopy to Nomadic / Semi-nomadic populations	TOTAL
Annual Target Number of people screened W3Y2	9,877	1,085	140,600	37,500	152,027	8,300	6,000	355,389
Achievements by intervention/pathway								
Number of eligible index cases whose contacts to be screened	1724	416	0	0	0	0	0	2140
Number of index cases on which CI was done	1140	598	0	0	0	0	0	1,738
Number of contacts encountered (HH/workplace/neighborhood)	7694	2734	0	0	0	0	0	10,428
Number of people screened	6545	1796	146,413	11,016	12,786	6,732	11,457	196,745
Number of people identified with TB symptoms	4400	1,079	11,654	1530	4,003	1,756	550	24,972
Number of people identified with TB symptoms examined for TB	2,002	397	7,567	837	2,569	1,004	338	14,714
Number of confirmed SS+/B+ TB cases	62	7	769	78	66	135	66	1,208
Number of confirmed SS+/B+ TB cases put on treatment	49	4	628	68	57	100	64	925
Number of diagnosed all forms TB cases	75	13	1,433	107	162	217	80	2,087

Number of diagnosed all forms TB cases put on treatment	61	10	1231	92	150	182	75	1,801
% People with TB symptoms / screened	67.2%	60.0%	8.0%	13.9%	31.3%	26%	4.8%	12.7%
% people examined / people with TB symptoms	45.5%	36.8%	65.0%	54.7%	64.2%	57.2%	96.6%	58.9%
% confirmed SS+/B+/ examined	3.1%	1.8%	10.2%	9.3%	2.6%	13.4%	19.5%	8.2%
% confirmed SS+/B+/ screened	0.9%	0.4%	0.5%	0.7%	0.5%	2.0%	0.6%	0.6%
% confirmed SS+/B+/ persons TB symptoms	1.4%	0.6%	6.6%	5.1%	1.6%	7.7%	12.0%	4.8%
% confirmed SS+/B+ Initiated treatment within 48 hrs / confirmed SS+/B+	80.6%	57.1%	81.7%	87.2%	86.4%	74%	97%	77%
% ALL TB Initiated treatment within 48 hrs / ALL TB	81%	77%	86%	86%	93%	84%	94%	86%

N.B: The variances between bacteriologically confirmed TB and those initiated on treatment (same reason for ALL TB) was as a result of persons tested more than once in the neighboring TBMs. A majority of them were initiated on treatment and registered in one TBMU but for laboratory workload this may have led to double reporting. Further, some patients were initial defaulters that never collected their results and efforts to trace them were unsuccessful. There were still others that were referred for treatment out of AAA catchment areas and we did not receive report of their treatment initiation. These adjustments and variations were noted during data validation prior to final report writing and communicated to the NTLBP. A close look at the QRN and GSM may notice minor adjustments due to this validation exercise carried out in collaboration with the NTLBP state level managers.

3 Lessons learned and recommendations

- Joint preparation of quarterly and annual reports by representatives from different facilities and TBMUs improves quality of data.
- Use of mobile phones and internet to transmit data speeding up flow of information.
- Preparation for rainy season for adequate stocks of medicines in key and hard-to-reach areas to avoid shortages once roads get cut. Outreaches concentrated and conducted before the onset of rains mitigates interruptions of implementations.
- Communication with NTP to pass lessons learned and influence national policy and strategy papers with view of replication and countrywide roll out.
- TB activities among army and prison populations are needed and well received. Sensitization of key staff catalyses the intervention.
- There is a big resistance among HCW from HIV services to perform TB work suggesting the recommended TB HIV collaboration is still weak at all levels.
- Adoption and adaption of recording and reporting tools improves community activity reporting where tools development is slow due to financing gaps.
- Utilizing school teachers to transfer knowledge and school children to disseminate to the villages as agents of change promotes early health seeking behaviour.
- Engaging communities including TB patients and opinion leaders promotes adherence to treatment through human life stories.
- The cost of diagnosing one single bacteriologically confirmed TB patient is high at \$ 416. This is based on the \$503,012 awarded to AAA for the intervention. The primary objective being to identify bacteriologically confirmed at less than \$350 per case diagnosed. We recommend special consideration in conflict and poor infrastructure countries at about \$500 to be able to achieve targets as travel logistics are challenging.

4.1. Early case detection and initiation of treatment

Yes, the project contributed to early case detection through opening 9 new TBMUs, 15 satellite laboratories from AAA co-funding and other funding models to improve access; outreaches with community DOT to improve access and promote prompt treatment initiation, HHPs/TB mobilizers tracing of primary default to shorten treatment initiation time and cut the chain of transmission and use of mobile telephony to relay TB test results and provide community activity reports. The project in collaboration with the NTLBP adopted and adapted in some instances recording and reporting tools to track time of diagnosis and time of treatment initiation with tracing of those delaying to collect sputum results done through mobile telephony.

4.2. Sustain or expand project

In your opinion, is it worthwhile to sustain and/or expand this project/activities?

Yes No partial

The revised NSP 2015-19 included AAA experience to include community interventions and targets and how to address the challenges faced while implementing TB REACH. There is also evidence of inclusion of the project's intervention(s) in the GFATM reprogramming and NFP work plan in the approved concept note. The NTLBP has initiated quarterly state review meetings and annual program review to address data quality and annual work planning with experience from this intervention. The TB REACH interventions are extensively captured as next generation approaches. (See attachment below).



Adobe Acrobat
Document

4.3. What plans does the project have to disseminate results/lesson learnt of the project?

No plans

Seminar/workshop with national/regional/provincial NTP and other stakeholders – The results of this intervention will be shared in the newly introduced Annual program review and work planning with the NTLBP and other TB interventions stakeholders.

Present at a (inter) national TB conference

Write a paper for a scientific journal – AAA will seek approval from the TB REACH secretariat and the NTLBP South Sudan for publication to share this experience and data in peer reviewed journals such as the IUATLD and/or Journal of Health Science. We plan to set about three or more themes for publications.

Other, specify

5.0. Finance Report /Breakdown of audited expenditure

Table 4: Breakdown of audited expenditure

Line item	Allocated July - Sept 2014	Spent July - Sept 2014	Allocated Oct - Dec 2014	Spent Oct - Dec 2014	BBF from Oct - Dec 2014 expenditure period	Allocated Jan - March 2015 including BBF	Actual cash available and spent Jan - March 2015 from donor tranches disbursed	Committed to settle Jan - Mar 2015 unpaid bills due to delayed tranche 2 by donor (received 23/03/2015) Paid between April - June 2015	Allocated Apr - Jun 2015 from balance of all project tranches disbursed	Available project balance from all tranches disbursed (to be expended Apr-Jun 2015 as commitment or direct implementation)	Available 10% equivalent (48,801) as per GAL - available Apr 1, 2015 by AAA allocated to be expended Apr - Jun 2015 on accelerated plan	Spent April - June 2015)	Total amount project Budget (July 1, 2014 - June 30, 2015)	Total expenditure at end of project (July 1, 2014 - June 30, 2015)	Balance at end of project (July 1, 2014 - June 30, 2015)
Human Resource	9,600.00	9,600.00	29,800.00	14,910.00	14,890.00	25,500.00	16,565.00	23,825.00	23,900.00	47,725.00	-	47,725.00	88,800.00	88,800.00	-
Activities	46,845.00	46,845.00	44,965.00	40,665.00	4,300.00	40,975.00	26,350.00	18,925.00	37,975.00	56,900.00	5,800.00	57,109.65	176,560.00	176,769.65	(209.65)
Procurement (medical items)	-	-	3,128.00	-	3,128.00	-	-	1,644.55	1,483.45	3,128.00	2,300.00	3,128.45	5,428.00	5,428.45	(0.45)
Procurement (Non-medical)	34,394.00	34,394.00	40,330.00	16,273.80	24,056.20	21,860.00	9,578.40	36,337.80	7,870.00	44,207.80	10,170.00	43,636.00	114,624.00	114,052.20	571.80
IT/Communications	3,050.00	3,050.00	950.00	1,000.00	(50.00)	1,000.00	-	950.00	1,000.00	1,950.00	7,600.00	1,950.00	13,600.00	13,600.00	-
Operational Research	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Internal Monitoring and Evaluation	250.00	250.00	5,250.00	250.00	5,000.00	5,584.40	500.00	10,084.40	11,185.60	21,270.00	6,730.00	21,269.00	29,000.00	28,999.00	1.00
Administrative overheads	6,275.00	6,275.00	19,169.00	14,221.00	4,948.00	10,465.00	7,290.00	8,123.00	7,889.80	16,012.80	16,201.20	12,669.00	60,000.00	51,298.70	8,701.30
External Monitoring and Evaluation and Global TB Reach	-	-	-	-	-	-	-	-	-	-	-	-	15,000.00	-	-
Total AAA budget	100,414.00	100,414.00	143,592.00	87,319.80	56,272.20	105,384.40	60,283.40	99,889.75	91,303.85	191,193.60	48,801.20	187,487.10	503,012.00	478,948	9,064

6.0. Anything else you would like to comment on or discuss regarding your project?

Improvement of infrastructure and creation of space:

TB is a highly infectious disease and propagates mainly in unhygienic and poorly ventilated environments. The action purchased a canvass tent for Aweil prison and erected it to facilitate provision of DOT services in a hygienic and safe environment for infection prevention and control.



Figure 1: Former TB clinic at Aweil prison DOT centre - dirty corrugated iron sheets on left



Figure 2: Improved TB clinic at Aweil prison through TB Reach: Side view



Figure 3: Inside the improved tented TB clinic at Aweil prison DOT centre, TB officer (lady) handing over to prison officers

The action acknowledges this funding improved service delivery and confirms that there is still a huge gap. For example, the laboratory renovations were inadequately done due to inadequate funds. Some laboratories still have very sub-standard work tops that are not acceptable for infection prevention control.



Figure 4: Mayen Ulem PHCC laboratory set up for AFB microscopy that requires further renovation

Integration, collaboration and sustainability: The action continued to collaborate with the NTLBP at all levels. The action supported the Central Unit NTLBP to conduct supportive supervision and data validation in the CP and in Turalei and mentored the CHD on M&E and supportive supervision. Following the successful expansion of DOT services to the 9 NEW PHCCs, the NTLBP acknowledges this and will work with other implementing organizations to further expand TBMs as proposed in the revised NSP 2015-19. For continuity beyond TB Reach funding, the action designed a modular and user friendly M&E guide for the CHD and State level staff to capacity build their supportive supervision and mentoring skills to ensure complete integration into New Funding Model of GFATM and the existing Primary Health Care (PHC) interventions in South Sudan.

Addressing inequitable access to TB prevention and by vulnerable population of children and women

Childhood TB: The action involved other health implementing partners such as HealthLink, HealthNet and World vision to access children in CHW and Nutrition growth monitoring clinics in Aweil North, South and East counties. There was initially a challenge in disaggregating this data obtained through collaboration and joint activities by other implementing partners to effectively acknowledge their input. A simplified reporting tool was jointly designed and all partners were able to capture their contribution to primary health care through this collaboration.

Enhanced TB screening among women: Culturally in South Sudan women construct and repair houses either in groups by clans or neighbourliness. This is a good environment that the action identified for reaching women for TB screening during door-to-door visits. Once again, this action was unable to disaggregate this effort to

specifically acknowledge the efforts of HHPs to this specific need. In future interventions data summaries will be tailored to acknowledge origin of data to give credit to collaboration efforts.



Figure 5: Caption of South Sudan women constructing a house and a good venue to reach women for TB education and screening