

“On yer bike!”



Supporting TB treatment & control
@ St Francis' Hospital, Katete, Zambia

Project Evaluation Report – April 2021

The Logie Legacy sets out to uphold key principles for effective involvement in global health. These are ownership; alignment; harmonisation; evidence-based; sustainability; and mutual accountability. Its purposes are:

- To support the formally established twinning partnership with NHS Borders to achieve improvements in education, service delivery and patient experience at St Francis Hospital, Zambia
- To promote the value of voluntary engagement in global health for NHS Borders staff and partners in bringing knowledge, skills and ideas back to the UK
- To raise income and monitor expenditure in the support of the above.

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Background

Tuberculosis (TB) in Zambia is a major public health problem.ⁱ

- 62,000 new TB cases in the country are diagnosed each year; 271 in Scotland in 2018
- Every day around 50 people will die as a result of the infection
- 638 per 100,000 of the population have laboratory confirmed TB; 5 per 100,000 in Scotland
- 6 cases out of 10 have HIV too. This makes treatment even more difficult
- TB is a curable disease
- It takes at least 6 months of treatment with a combination of antibiotics to treat TB
- This stretches out to 18 months if it is a drug resistant strain
- Side effects are common and unpleasant putting people off completing treatment
- St Francis Hospitalⁱⁱ (SFH) treats over **1600** new cases every year; Borders General Hospital - less than 5 per year. Despite this excessive workload, 85% of patients complete treatment in line with WHO targetsⁱⁱⁱ; 82.1% in Scotland in 2017^{iv}.

Project summary

A longstanding formal twinning relationship exists between NHS Borders and SFH. The Logie Legacy was constituted as a registered charity in 2017 to strengthen this link further. Chris Faldon (Health Protection Nurse Consultant) first visited the hospital in 2012 as part of a small team tasked to explore areas of hospital life that may benefit from some specific project support. He could see that the TB workload was overwhelming. A team overseen by a senior nurse but operationally led by Dennis Makowa, Clinical Officer and a group of volunteers (many of them had been previous TB patients) worked tirelessly to help men, women and children to complete their treatment. These 'Treatment Support Volunteers' give of their own time to work with TB patients. This could involve a variety of tasks ie encouraging them to keep appointments, Direct Observed Therapy (DOT) of medications, contact tracing, delivering drugs to those who cannot travel, giving advice on diet and nutrition and generally just being there when times are tough. They face many challenges as they try hard to support the patients. When asked what would make their work easier the loud cry came back – “a bicycle!”.

So what has happened since then?

1. Raised funds (quiz nights, cake sales, gifts from Galashiels, Gateshead, Germany and elsewhere!)
2. Researched and discussed good practice models with various agencies, individuals and NGO's (Jhpiego – an affiliate of Johns Hopkins University^v; FHI 360^{vi}; Riders for Health; Ministry of Health^{vii}; Nuffield Centre for International Health and Development, Leeds); Eric Bing^{viii}
3. Purchased 36 bikes (and tool kits) from Zambikes. A good quality robust model for difficult terrain.
4. Delivered bikes in 2013 along with a tee shirt each. A dedication service was held in the SFH chapel
5. Funded building improvements to the TB patient waiting area



6. Chris returned in 2014 with funding provided from the General Nursing Council for Scotland (Education) Fund 1983 and Margaret Callum Rodger Midwifery Award to see what lessons could be gleaned from TB treatment and support in Zambia that could be applied in Scotland
7. In conjunction with new water & sanitation projects Chris returned in 2016, 2017 and 2019. Funding provided for two bike maintenance courses and a workshop on healthy nutrition for the TB patient. Each volunteer was provided with a new t-shirt and a back pack for their community visits
8. Over £12,000 raised since 2012 to run the project – average of less than £1 per week per volunteer

How are the bikes being used?

Fantastically! Each of the 36 bikes were given an identity with the name of a book in the Bible. Volunteers who provided **regular reports** and **maintained the bike** at their own expense were promised ownership would transfer to them after 3 years of use. Each volunteer was interviewed in 2016 to get a feel for what their work was like, what pressures they faced and what difference their bike had made. At the last visit in 2019 it was noted that 30 were still in use, two of the bikes had been stolen and two had been sold. 23 were brought in for repairs.



These are some of the pressures they identified and suggestions for future support:

- **Poverty** – many people do not have enough food to give themselves the proper nutrition to build themselves up and get better. The volunteers could benefit from teaching programmes so that they can give advice to patients on good nutrition from a small income.
- **Lack of protective clothing** – this is particularly a problem in the rainy season. They could benefit from raincoats, boots and bags.
- **Poor hygiene** – many people do not have basic Community Health Education. This is something the volunteers could have training in.
- **Expectations of patients** – Many patients think that the volunteers get paid for what they do or at least get incentives. This is not the case. Patients often expect volunteers to bring them food.
- **Patients want to stop taking their medication** – This can be due to side effects or that they begin to feel better. The volunteers try and persuade them of the importance of finishing a full course of treatment and encourage them to come into hospital to have this explained to them.
- **Issues over ownership of the bikes** – There can be a feeling that it is a community bike so is available for anyone to use. This puts pressure on the volunteers. There is a need to bring on board the village headmen/chairmen so that they understand the ethos behind the work of the volunteers.
- **Lack of encouragement** – There is a need for emotional support for the volunteers as they face many difficult situations when they visit the patients in their own homes. Regular meetings together would help.
- **Traditional medicine** – Many people who fall



ill seek the help of traditional healers and not medicine from the hospital.

- **Labelling** – Being labelled as people who work with those who have TB and HIV.

Many of the above issues have now been taken forward

Patients supported

- **Joseph** was sick for 5 years before he received any treatment. He is looked after by his grandma and is recovering well.
- **Rhodea** has 14 children and started taking TB medicines 4 years ago. She has problems with her eyes and begs for food to feed her family.
- **Eunice** has 4 children and sells roofing material. Her husband is a builder but has TB. He is too weak to work and they struggle to feed their family. Having a volunteer visit them means that they do not need to travel to hospital for the medicines.
- **Tenford** has been well for a while although his wife died. He encourages other people to take their medicines and visit hospital.
- **Catherine** had TB when she was 6 months old. The volunteers helped the family with her medicines and gave advice on looking after her. She is better now but her mother has died. She helps look after the younger children
- **The list goes on and on.....**

Ending the TB epidemic is a target under the WHO Sustainable Development Goals that requires implementing a mix of biomedical, public health target and socioeconomic interventions along with research and innovation^{ix} It calls to focus on serving populations highly vulnerable to infection and poor health care access....the very people the treatment supporters at St Francis Hospital are reaching out to daily.



Volunteer snapshots



Loveness became a volunteer in 2005 when she saw a great need in her own community. She wanted to see people recover from TB so as a volunteer felt she would be able to offer advice. 4 members of Loveness' family had TB. They are all better now. The bike has made it safer for her travelling out to the villages as the journey time is shorter.

Moses began volunteering in 2015. He has a passion to help those suffering from TB and HIV. The bike has made it much easier for him to follow up clients. He can see many more than he used to with the time available.

Loveness (a different one!) has been a volunteer since 2006. Her husband died from TB and she wanted to tell others how to stop the spread of TB and encourage them to take their medicine. The bike helps her save time when transporting patients to hospital, taking sputum specimen for testing, attending monthly meetings

Monica became a volunteer in 2008. She saw how devastating a disease this had within her own village and wanted to help people get better. Monica loves visiting people and although she had a stroke last year she has made a good recovery and has found that the bike has made it possible for her to continue volunteering.

Catherine worked as a cleaner in the hospital for 26 years. She became a volunteer in 2005 after seeing how ignorant people were about the disease. She wanted to teach them and encourage them to go to the hospital and not rely on traditional medicines. She helps clients with practical tasks. The bike makes it quicker for her to visit patients and she is less tired.

Justin has been a volunteer since 2006. He started because he wanted to stop the spread of the disease. He works in the hospital laboratory but volunteers in his spare time. The bike enables him to travel much further to support clients at a greater distance

Mary has been a volunteer since 2017. She has looked after family members who have suffered from TB. She nursed her own sister with HIV and when she came to Katete as a nurse she contacted the TB co-coordinator to see if she could help with the project in anyway. The bike has made it much easier for her to take medicines out to patients.

Loveness (a third one!!) has been a volunteer since 2005 She saw many people suffering in the Community. People were begging for food as they were too sick to grow it themselves. She helps with practical tasks such as sweeping, getting water and cooking. The bike means she can keep in touch more often with clients.

Monitoring & Evaluation

1. What has been achieved?

- A severely under resourced team of volunteers have been each given a bike (at their request). This in turn has helped significantly in retaining their services
- Over £12,000 raised from a variety of individuals, groups and businesses and organisations
- Strong working relationships with variety of individuals and agencies with encouraging spin off for future projects
- Economic support to Zambia through Zambikes and local suppliers for repairs
- Bike maintenance workshops funded and minor repairs made. 30/36 bikes still in working order
- Building improvements funded for the TB clinic waiting area
- Hundreds of patients better supported to enable successful completion of medication
- New patients identified with TB due to the better geographical coverage from the bikes
- Travel bursary from General Nursing Council for Scotland (Education) Fund awarded to bring lessons back to Scotland from TB control in Zambia^x. Findings presented at Scottish Annual TB Conference.

2. What worked well?

- Listening and responding to identified needs from staff and volunteers in Zambia
- Establishing an agreed model to encourage responsible use of the resource. This included a signed volunteer agreement and log book of usage
- Excellent working relationship with the bike manufacturer

3. Where could improvements have been made?

- Clearly articulated aims and objectives for the project from the outset including an exit strategy
- Better monitoring of the use of each bike. Log book not consistently kept.
- Higher expectations set for regular updates and linked to on-going funding requests. This should include key data sets on patient outcomes
- More accountability for maintenance of the bikes by enforcing the terms of conditions of their use. The standards of bike maintenance were variable.
- The bikes that were not deployed immediately could have been distributed to other volunteer programmes – ie HIV, Malaria

4. What does the future hold?

- Explore how to support the patients in more remote locations and distant locations from the hospital ie Motorbike, trailers for bike to bring in sick patients to hospital. Not every TB patient was connected to a treatment supporter. In a larger study involving several TB treatment centres (including St Francis Hospital) 43% of TB patients were connected to a treatment supporter^{xi}. The main support received under DOTS included: Adherence support, collection of drugs, spiritual (through home visitations), and general health talks.
- Seek funding (£2000) for a 3rd bike maintenance workshop (Summer 2021)
- Revisit the sustainable development assumptions - responsibility for cycle maintenance falls to volunteer and as many have low income they cannot fulfil this obligation.

Impact

This modest project has set out to alleviate a global health problem through a practical approach in a remote rural setting. It has done so by first setting out from the principle of listening to the needs of staff and volunteers in Zambia. Agreement thereafter was reached to fund the purchase of 36 bikes. Additionally the goal was set of future maintenance costs being picked up by volunteers motivated to care for their resource

by taking on ownership of the bike after a period of consistent good use. Significant health benefits have been delivered by people '*getting on their bikes*'. Treatment completion rates have exceeded the WHO target of >85%^{xii}. It shows that a small project can make a big difference. It has largely been inspired by the IMPACTS approach (Bing & Epstein, 2013) to global health that sets out to bring innovative and sustainable care at reduced cost to those who need it most. Importantly this requires good partner coordination to stimulate cross-sector collaboration and coordinate complementary roles. The use of volunteers to support clinicians is an example of this. Its impact could be strengthened by articulating more clearly the different levels of accountability, goals and targets to monitor success. With this in place it holds the potential to scale up programmes (even within the TB service as well as HIV, malaria etc) to save even more lives.





1 – Zambike team (Lusaka)

2- Bikes ready for delivery

3- Catherine (Volunteer) & TB patient

4 – Monica (Volunteer)

5 – Community visit

6 – Service at Hospital Chapel

Special thanks

- all the generous donors, family members and colleagues who caught the vision and made this project possible
- all the dedicated staff and TB treatment support volunteers at St Francis Hospital
- all the patients who invited us into their homes and shared with us their stories
- Dennis Makowa, Clinical Officer for his inspirational work at 'TB Corner' SFH
- Tiki Mambwe and the team at Zambikes for their 'can do' approach to life
- the many individuals and agencies who were consulted and helped to shape this project

See short [Youtube video](#) summary of this project at

<https://www.youtube.com/watch?v=Gt0dpMcLopU>

Appendix 1 – Finances

Transaction Date	Dr	Cr	Narrative
11/12/2012		45	Private donation
18/12/2012		50	Private donation
27/12/2012		71.46	Private donations
22/01/2013		25	Private donation
29/01/2013		24.95	Private donation
12/02/2013		50	Private donation
20/02/2013		40	Private donation
05/03/2013		4.26	Private donation
07/03/2013		438	Private donation
26/03/2013		16.18	Private donation
19/04/2013		100	Unite the Union
19/04/2013		208	Private donation
11/06/2013		85	Private donation
05/07/2013		133	QUIZ NIGHT
26/07/2013		1000	SCOTTISH BORDERS AFRICAN AIDS GROUP
13/08/2013		14.69	Private donation
10/09/2013		150	SBAAG
08/10/2013		1359.89	Private donation (Germany)
08/10/2013		110	Private donation
17/10/2013		112.3	BAKE SALE
22/10/2013		28.33	Private donation
28/10/2013	72		ABACUS STUDIOS, SELF ADHESIVE STICKERS
28/10/2013	603.63		TABLET & ELEC TESTING METER
28/10/2013	1918.32		ZAMBIKES 50% PYT
28/10/2013	12		ZAMBIKES BANK CHGS
28/10/2013	1998.86		ZAMBIA BIKES 50% (FINAL PYT)
05/11/2013		189.83	Private donation
15/11/2013		534	QUIZ NIGHT
25/11/2013		498.95	NHS LOTHIAN - TABLET PURCHASE
10/12/2013		20.3	Private donation
19/12/2013	860.03		T-shirts
24/12/2013		600	HASTINGS LEGAL
24/12/2013		110	SBAAG
24/12/2013		52.75	CAKE SALE
28/01/2014		293.7	Private donation
28/01/2014	133.25		BUILDING MATERIALS
18/02/2014		34.6	Private donation
07/03/2014		160	HASTINGS SOLICITORS
11/03/2014		120	Private donation
18/03/2014		20.76	Private donation
08/05/2017		5000	Grant - Univ of Edinburgh
19/06/2017	810.72		Travel

22/07/2016	618.06		Zambikes payment
05/07/2017	871.95		Travel, supporter t-shirt and backpack purchase
20/07/2017		500	Donations - Cheques D Logie, M W McCue, Selkirk Rotary
14/11/2017	321.28		Travel Expenses
28/12/2017	160		Border Embroideries
09/04/2019	2176.18		Bike repairs
30/05/2019	39.64		Travel Expenses
	10,596	12,201	Balance £1,605

Appendix 2 – Bike policy



Introduction

NHS Borders in Scotland have been supporting the work of St Francis Hospital for many years. Following a visit to St Francis' Hospital (SFH) in 2012 it was identified by staff at the TB Corner of the hospital that the provision of bicycles would greatly assist the work of their Community Treatment Supporter Volunteers. Funds were therefore raised to secure the purchase of 36 bicycles from Zambikes in Lusaka. These were delivered to the hospital by the manufacturer in October 2013, who also provided a tool kit for each bicycle and brief training on basic repairs to St Francis Hospital maintenance staff.

Discussions on how these bicycles could be best utilised took place with Mr. Chris Faldon (NHS Borders), Mr Dennis Makowe (Clinical Officer) and Mrs Merina Musonda (Nursing Sister). In addition a meeting was held with a good number of the volunteer treatment supporters to ascertain their views on the bicycle use. A consensus view emerged from these discussions. To minimise work for the hospital and encourage due care and attention is paid to the maintenance of the bicycle it was decided that ownership of the bike would transfer to the volunteer after two years of responsible use.

The purpose of this document is to provide St Francis hospital management, staff and community volunteers with guidelines and procedures for the use of the bikes

Responsibilities

St Francis' Hospital

- Enter the bicycles in the hospital inventory
- All bicycles will be well labelled and identified by name and numbers
- Designate a responsible staff member to be a nominated bike co-ordinator
- Emphasise that bicycles will continue to be used by SFH supported community volunteers only
- Provide guidelines related to proper usage of bicycles to staff and volunteers
- Keep a copy of a signed agreement by users
- Provide secure storage facilities for all bicycles when necessary
- Coordinate usage of the bicycles through the designated bike co-ordinator
- Keep a spreadsheet usage record of the bicycles and provide report to NHS Borders on request
- Monitor and record the condition of each bicycle every 6 months
- Delegate responsibility to the nominated bike co-ordinator to decide if ownership of the bicycle can be transferred to the volunteer after two years of responsible use.

Community volunteers

- Ensure that the bicycles are well maintained are in good working conditions at all times
- Are responsible for the secure storage of the bike
- Shall be responsible for the cost arising from negligence (any breakdown, loss of parts, loss or theft of the bicycle)
- Report a loss of the bicycle to the police before reporting to the hospital. A police clearance shall be needed as proof of the loss/theft
- Understand and comply with guidelines for usage of bicycles
- Record the utilisation of the bicycle as required
- Observe all national road traffic laws of Zambia.

Accidents and Violation of Road Traffic Rules

SFH will ensure that community volunteers understand the following:

- In the event that person riding the bicycle commits a traffic violation, s/he is responsible for payment of all fines
- SFH will not be responsible for payment of any fines arising from accidents or violation of road traffic rules by persons using the bicycles
- SFH will not be responsible for any compensation for injuries or loss arising from the use of bicycles
- It the event that person riding the bicycle is involved in a traffic accident, s/he responsible for reporting the matter to police and the SFH designated bike co-ordinator

Policy Appendix: Bicycle agreement for TB Treatment Supporter

Name of volunteer	Village/Section	Chief	District

This bicycle agreement is between St Francis' Hospital Management Board and the above mentioned community-based TB volunteer supporter.

Bicycle manufacturer	Model	Gears (yes/no)	Bicycle name	Frame number
Zambikes	Mukango			

Agreement conditions

The aforesaid bicycle has been released to the above mentioned person on a strictly 'personal to holder' agreement under the following conditions:

1. The bicycle is initially the property of St Francis' Hospital Management Board and not of the custodian who has signed for it.
2. In case of transfer or change of the registered catchment area, stoppage of voluntary work, or death of the custodian, this bicycle has to be returned to St Francis' Hospital by the custodian, spouse, 1234 dependents or next of kin within 14 days of the event.
3. This bicycle is to be under the personal custody of the above mentioned person in order to assist in the support of TB patients, including contact tracing.
4. This bicycle may also be used by the above mentioned person to support other volunteer activities run by St Francis' Hospital.
5. This bicycle shall only be used by the above-mentioned person, and only for official duties stipulated in items 3 and 4 of this agreement within a specified catchment area.
6. It shall be the duty/responsibility of the above named person to keep this bicycle securely and in good order, to use it as specified above and to report monthly on its condition to the bicycle coordinator at St Francis' Hospital.
7. Monthly activity log sheets will be submitted to the bicycle coordinator in order to monitor the frequency of their use. The rider will fill in the utility logbook for each return trip taken.
8. The custodian shall be responsible for the cost arising from negligence (any breakdown, loss of parts, loss or theft of the bicycle). The custodian shall report a loss of the bicycle to the police before reporting to the hospital. A police clearance shall be needed as proof of the loss/theft.
9. The person authorised to ride the bicycle is to abide by all road traffic laws in Zambia. In the event that the person riding the bicycle commits a traffic violation, they will be responsible for payment of all fines.
10. St Francis' Hospital will not be responsible for any compensation for injuries or loss arising from the use of project bicycles.
11. Before the rider uses the bicycle they should ensure that the bicycle is in a good usable condition. Bicycles are for convenient use only and are used on own risk.
12. The TB team at St Francis' Hospital shall be responsible for supervision of the manner in which the bicycle is used.
13. If there is sufficient evidence of misuse or negligence of the bicycle, or any failure to abide by the conditions stipulated above, the hospital shall withdraw the bicycle from the custodian without prior notice.
14. The bicycle shall be deemed to be personal to holder when this declaration form is signed and witnessed by both parties to the agreement.
15. After two years of consistent and diligent service, the custodian shall be given the said bicycle as a gift in appreciation for the voluntary work undertaken.

I, (full names in capital letters) hereby declare that I shall abide by the above-mentioned conditions in the use and maintenance of the bicycle given to me by St Francis' Hospital Management Board.

Signature of volunteer	Date
Next of kin (N.O.K.)	District
N.O.K. address/village	Chief

Agreement signing witnessed by (on behalf of the St Francis' Hospital Management Board)

Bicycle is issued by:

Name	
Signature	
Post at St Francis hospital	
Date	

Two copies: one for volunteer and one retained for records

Policy Appendix: Bike Usage Log-Book

Name of Volunteer	Bicycle Name

Date	Purpose	Destination	Time taken	Signature

Instructions on how to complete the Usage Log-Book

This section must be completed by the Rider.

- 1 **Date:** Insert the actual date when the bicycle is being used
 - 2 **Purpose:** Indicate the purpose for use of the bicycle. For example
1= TB support; 2= ART adherence; 3= Malaria; 4= Growth Monitor; 5= Other etc
In case of multiple assignments, list each one of them
 - 3 **Destination:** Insert the name of the furthest place visited
 - 4 **Time:** Number of hours spent in volunteer activity
 - 5 **Sign:** The rider must insert his or her signature
-

Appendix 3 - Example completed volunteer log-book sheet (2014)

Appendix 2 St Francis' Bike Usage Log-Book

Name of Volunteer	Bicycle Name
Zulu JUSTINE	MALACHI

Date	Purpose	Destination	Time taken	Signature
26/01/2014	TB Support	MPOIO	1:30 Minutes	Juz.
29/01/2014	ART ADHERENCE	MPOIO	1 hour	Juz.
31/01/2014	TB Support	MPOIO	1 hour	Juz.
02/02/2014	ART ADHERENCE	MPOIO	1 hour	Juz.
04/02/2014	TB Support	MPOIO	1 hour	Juz.
05/02/2014	TB Support	MPOIO	1 hour	Juz.
06/02/2014	TO WORK ON OPD	CHIBOLYA COMMUNITY HEALTH POST	2 hours	Juz.
07/02/2014	MPOIO TB Support	MPOIO	1 hour	Juz.
10/02/2014	ART ADHERENCE	KAFULA - FULA	1 hour	Juz.
13/02/2014	TB Support	MPOIO	1 hour	Juz.
15/02/2014	TB Support	MPOIO	1 hour	Juz.
16/02/2014	ART ADHERENCE	MPOIO	1 hour	Juz.
18/02/2014	TO CORRECT ^{DRUGS} TB	SFH	1 hour	Juz.
20/02/2014	TB Support	MPOIO	1 hour	Juz.
24/02/2014	ART ADHERENCE	MPOIO	1 hour	Juz.
26/02/2014	TB Support	MPOIO	1 hour	Juz.

Appendix 4 - Bike Inventory

No	Name	Serial Number	No	Name	Serial Number
1	Joshua		19	Nahum	
2	Ruth		20	Habakkuk	
3	Samuel		21	Zephaniah	
4	Ezra		22	Haggai	
5	Nehemiah		23	Zechariah	
6	Esther		24	Malachi	
7	Job		25	Matthew	
8	Solomon		26	Mark	
9	Isaiah		27	Luke	
10	Jeremiah		28	John	
11	Ezekiel		28	Timothy	
12	Daniel		30	Titus	
13	Hosea		31	Philemon	
14	Joel		32	Hebrews	
15	Amos		33	James	
16	Obadiah		34	Peter	
17	Jonah		35	John	
18	Micah		36	Jude	



Appendix 5 - Repair log (2019)



Bike repair maintenance:
TB Corner volunteers



	Name	Volunteer	Currently active? (Yes/No)	Repaired April 2019 (tick)	Requires Work (tick)	Comments
1	Joshua	LOVENESS NJOBVU	YES	NO	NO	BIKE STOLEN DURING A FUNERAL AT HER HOME
2	Ruth	RACHEL BANDA	YES	NO	NO	BIKE STOLEN AT KATETE STORES
* 3	Samuel	JOSEPH DAKA	YES	✓	✓	TB TSUPPORTER UNDER KWENJE RHC, DID NOT BRING THE BIKE DURING REPAIR BECAUSE OF DISTANCE
4	Ezra	FLORENCE CHAPANSI	NO	NO	NO	WENT OUT TO LUSAKA, NOW MARRIED
5	Nehemiah	LOVENESS SIMBANI	YES	✓	NO	REPAIRED IN APRIL 2019
6	Esther	PATIENCE M. SIKWEWA			NO	REPAIRED IN APRIL 2019
7	Job	MARY M. NYIKA				APRIL 2019
8	Solomon	MARTHA CHIMBELU				
* 9	Isaiah	MERCY TEMBO				
10	Jeremiah	FADALESS PHIRI				

	Name	Volunteer	Currently active? (Yes/No)	Repaired April 2019 (tick)	Requires Work (tick)	Comments
11	Ezekiel	MERINA	YES	✓		
12	Daniel	MUSONDA KENNEDY	YES	✓	NO	REPAIRED IN APRIL 2019
13	Hosea	MOBENE MOFFAT	YES	✓	NO	REPAIRED IN APRIL 2019
14	Joel	IBACK SAKALA	YES	✓	NO	REPAIRED IN APRIL 2019
15	Amos	LUNGU JUZIEL	YES	✓	NO	REPAIRED IN APRIL 2019
16	Obadiah	BANDA				
17	Jonah	EMMANUEL				



	Name	Volunteer	Currently active? (Yes/No)	Repaired April 2019 (tick)	Requires Work (tick)	Comments
24	Malachi	JUSTINE ZULU	YES	✓	NO	REPAIRED IN APRIL 2019
25	Matthew	NATHANIEL SAKALA	YES	✓	NO	REPAIRED IN APRIL 2019
26	Mark	CHRISTINE PHIRI	YES	✓	NO	REPAIRED IN APRIL 2019
27	Luke	JOSEPHAT DAKA	NO	NO	NO	REPAIRED IN APRIL 2019
28	John	SARAH C. PHIRI	YES	✓	NO	REPAIRED IN APRIL 2019
28	Timothy	PETER Y. BANDA	YES	✓	✓	TB TSUPPORTER UNDER KWENJE RHC AND DID NOT BRING THE BIKE DURING REPAIR BECAUSE OF DISTANCE
30	Titus	MOSES PHIRI	YES	✓	NO	REPAIRED IN APRIL 2019
* 31	Philemon	GHOSH PHIRI	YES	✓	NO	SOLD THE BIKE AFTER RECEIVING A BUFFALO BIKE GIVEN BY OTHER ORGANISATION (CHAZ)
32	Hebrews	DALITSO SAKALA	YES	✓	NO	REPAIRED IN APRIL 2019
33	James	MASULAI SUMA	YES	✓	NO	REPAIRED IN APRIL 2019
34	Peter	SARAH M. PHIRI	YES	✓	NO	REPAIRED IN APRIL 2019
35	John	DENNIS S. MAKOWA	YES	✓	NO	DIED - M.H.S.R.I.P
36	Jude	CHIKOTI PHIRI	NO	NO	NO	

Appendix 6 - Nutrition Handout – TB Treatment supporters



FOOD PROCESSING HANDS ON TRAINING TB Treatment Supporters - ST FRANCIS HOSPITAL



1. SOYA MILK	2. BAMBARA MILK
Ingredients <ul style="list-style-type: none"> 2 cups soya beans 2 cups of water 1 teaspoon sugar Salt to taste  Heat Treatment <ol style="list-style-type: none"> Sort and clean soya beans Boil water and pour in soya beans bit by bit ensuring that water continues boiling till you finish all the soya beans Continue to boil for at least 30 minutes Wash with cold water Dry or use as may be required Method <ol style="list-style-type: none"> Remove skins from the wet soya beans Pound or blend the soya into a paste Put the pounded soya or blended soya into a bowl and then add water Squeeze the paste through a clean mutton cloth Add sugar and salt to the soya milk Boil the milk for 10 minutes Cool the milk in a jar <p>Serve as a beverage, or use as cooking soup or paste for vegetables.</p> <p>Provides protein and energy</p>	Ingredients <ul style="list-style-type: none"> 2 cups wet heat-treated Bambara 2 cups of water 1 teaspoon of sugar Salt to taste Method <ol style="list-style-type: none"> Pound or blend the bambara nuts into a paste Put the pounded or blended Bambara nuts into a bowl and then add water Squeeze the Bambara nuts through a clean mutton cloth Add sugar and salt to the Bambara milk Boil the Bambara milk for 10 minutes Cool the Bambara milk in a jar <p>Serve as a beverage, or use as cooking soup or paste for vegetables</p> <p>Provides protein and energy</p> 

8. MANGO JUICE

Ingredients

- 6 semi-ripe mangoes
- Sugar
- 1 lemon
- 2 cups of water

Method

Wash mangoes and peel
Cut into small slices and boil in water until soft
Mash the mangoes or blend
Sieve the juice and add sugar and lemon (optional)

May add milk (legume or cow) to make a drink

MANGO JUICE

Ingredients

- 6 semi-ripe mangoes
- Sugar
- 1 lemon
- 2 cups of water

Method

Wash fruit
Cut the mangoes thinly and discard the pith
Boil peel and juice in water and add sugar: stir until sugar dissolves
Cool boiled juice, squeeze lemon juice and add (option: use 2 tablespoons of citric acid if available)
Strain the juice, and seal
Refrigerate for longer life

9. MANGO SOYA MILK DRINK

Ingredients

- 1 cup of mango juice (ripe)
- 2 tablespoons of sugar
- 3-4 cups of legume milk

Method

- Make soya milk
- Wash mangoes and boil them whole for 10 minutes
- Cool off mangoes and remove skin
- Squeeze the mangoes to make 1 cup of mango juice
- Put soya milk, mango juice and sugar into a pot and boil for 5 minutes stirring every 2-3 minutes

Cool and serve



11. LEMON JUICE

Ingredients

- 6 big lemons
- 3 cups of sugar
- 3 cups of water
- Citric acid (optional)

Method

- Sort and wash lemons
- Cut the fruit and squeeze out the juice
- Mix the sugar, juice and water
- Heat on fire whilst stirring to remove dissolve sugar
- Remove from heat and cool
- When nearly cool, add the citric acid.
- Dilute to taste

Ingredients

- Tomato
- Sugar
- Lemons

Method

- Wash the fruits
- Boil water in boiled water
- Put fruit in boiled water and leave minutes
- Mash fruit and add 1 part water to fruit and mix
- Mash and serve
- Add lemon juice



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Sources and further reading

- ⁱ TB Alert <http://www.tbalert.org/what-we-do/our-work-in-zambia/>
- ⁱⁱ St Francis Hospital <https://www.supportstfrancishospital.org/>
- ⁱⁱⁱ WHO <http://www.who.int/tb/strategy/en/>
- ^{iv} Health Protection Scotland <https://www.hps.scot.nhs.uk/a-to-z-of-topics/tuberculosis/>
- ^v JHPIEGO <https://www.jhpiego.org/>
- ^{vi} FHI360 <https://www.fhi360.org/countries/zambia>
- ^{vii} Republic of Zambia Ministry of Health <http://www.moh.gov.zm/>
- ^{viii} Bing, E & Epstein, M https://ssir.org/books/excerpts/entry/pharmacy_on_a_bicycle
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- ^{xi} USAID https://tbcare2.org/wp-content/uploads/2018/03/TB-CARE-II-Adherence-report_Zambia.pdf
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