Zambart

Research and Development to Improve Health for All

ANNUAL REPORT 2019


TREATS
TAKE PART IN THE TB PREVALENCE SURVEY


TREATS


TREATS


Zambart


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Chapter Four: Financial Overview

Acronyms

ACABs	Adolescent Community Advisory Boards
BILHIV	Bilharzia and HIV
BCWs	BILHIV Community Workers
CABs	Community Advisory Boards
CE	Community Engagement
CHiPS	Community HIV Providers
CPP	Community Partners' Platform
CRT	Cluster-Randomised Trial
CSE	Comprehensive Sexual Education
DCE	Discrete Choice Experiment
DFID	Department for International Development
EDCTP	European & Developing Countries Clinical Trials Partnership
EGPAF	Elizabeth Glaser Paediatric AIDS Foundation
EPHSA	Evidence for HIV Prevention in Southern Africa
ETB	Eradicate TB Project
EWEC	United Nations Every Woman Every Child
HEU	Health Economics Unit
HFS	Health facility survey
HIVST	HIV self-testing
HPTN	HIV Prevention Trials Network
HST	Health Systems Trust
HTC	HIV Testing and Counselling
HTS	HIV Testing Services

IDP	Intensive Diagnostic Phase
IEC	Information, Education and Communication
MFS	Mobile Field Sites
MoH	Ministry of Health
NHRA	National Health Research Authority
NORAD	Norwegian Agency for Development Cooperation
NTLP	National TB and Leprosy Program
ODI	Overseas Development Institute
OR	Operational Research
P-ART-Y	PopART for Youth
PC	Population Cohort
PopART	Population Effects of Antiretroviral Therapy to Reduce HIV Transmission
SAG	Study Advisory Group
SIDA	Swedish International Development Agency
SRH	Sexual and Reproductive Health
STAR	HIV Self-Testing AfRica
TASP	Treatment as Prevention
TREATS	Tuberculosis Reduction through Expanded Antiretroviral Treatment and Screening for active TB
USAID	United States Agency for International Development
UTT	Universal Test and Treat
VMMC	Voluntary Medical Male Circumcision (for HIV prevention)
ZNHRC	Zambia National Health Research Conference

Executive Director's Report

Dr. Alwyn Mwinga
Executive Director

On behalf of Zambart I am pleased to present the organisation's annual report for 2019. The major achievements made by Zambart are highlighted in this report.

This annual report demonstrates that Zambart continues to increase the value it delivers to the health research fraternity as well as to the communities we serve. Over the past 25 years, Zambart has fostered and established many strategic and trusted partnerships across the health and research sectors. In collaboration with these partners, Zambart has continued to develop and conduct the research required to inform national policy and health priorities. This work supports good policymaking, research and the information needs of the broader community.

Zambart continues to work very closely with the Ministry of Health to ensure that the research carried out is responsive to the needs of the Ministry and that the results translate into policy and practice. Zambart staff continue to serve on national working groups such as the National TB Working Group, the ART Working Group, and contribute to the development of policy and practice. In 2019 the Ministry of Health awarded Zambart a contract to conduct the third National TB Drug Resistance Survey. Zambart had carried out the first two TB drug resistance surveys in 2000 and 2008.

Community engagement is one of the key activities that underpin all of Zambart's research studies, before, during, and after study implementation. Both Adult and Adolescent Community Advisory Boards have been established in the communities where studies are taking place. Involvement of the CAB members in discussions and in research activities contributes to improving research literacy in the communities. Dissemination of the results of the studies to the local communities that were involved is a top priority, and in 2019 the social science department developed a community dialogue process for the dissemination of the main PopART study and the stigma ancillary studies.

The strategic planning process that Zambart embarked on in 2017 culminated in the development of the Research Directorate Strategy for the period 2019 – 2025. This process was led by the Deputy Directors of Research, Dr Shanaube and Dr Simwinga working closely with staff that were organized into results management teams. This approach has ensured that staff contribute to, and therefore own, the vision. In line with one of the strategic pillars which is to expand into other areas of public health importance beyond TB

and HIV, Zambart won a grant as the lead organization to carry out a qualitative study on the dynamics of poverty in Zambia (ODI Poverty Dynamics in Zambia) and a study on disability (Program to Evaluate and Inform Disability (PENDA) funded by DfID. The latter study will enable a person living with a disability to enrol for PhD with the University of Zambia. Other areas that Zambart staff have been engaged in include masculinity and health, adolescent health (sexual and reproductive health and HIV), disability, and mental health and TB.

The achievements of the Research Directorate headed by the Director of Research, Prof. Helen Ayles and her research directorate team, have been made possible due to the dedication of the research teamably supported by our dedicated administrative staff. I want to particularly mention their passion and commitment across Zambart.

Finally I would like to appreciate the partnership with our research partners, the Ministry of Health, other government agencies, civil society, the communities we work in, and our funders, for their support that has made possible the accomplishments of 2019. As we enter the new decade of the 2020's and as we get closer to 2025 and the time of reckoning for the SDGs, Zambart is committed to playing a part in contributing to the fulfilment of SDG3, with good health and wellbeing for all.

Research Director's Report

Prof. Helen Ayles,
Director of Research, Zambart, Professor of
Infectious Diseases and International Health,
London School of Hygiene and Tropical Medicine

Note from the Research Director

2019 was a year that combined the continued delivery of our research studies with the reorganization of the research directorate, with the appointment of two deputy directors of research for qualitative and quantitative research and the employment of a dedicated grants manager. Additional activities undertaken included the development of a grant development program aimed at increasing the number of staff that are actively participating in grant writing.

Our Vision 2025 is to be internationally recognised as Africa's leading public health research and training organization, and the seven strategic goals have maintained their relevance and guided our priorities. Importantly, with growing concerns over increased (or decreased) funding of public health research, high quality health research and strong strategic partnerships have remained central to our work. Zambart acknowledges that (the) research that we conduct has impact on national and international policy and we remain committed to disseminating results from these studies to our partners and other stakeholders including the communities where we conduct our research.

In 2019 we continued our transformation from publishing traditional reports to more dynamic and interactive products and enhanced digital reporting, without compromising our rigorous standards of privacy and confidentiality. All annual reports, policy briefs and press statements will be available on the Zambart website for download.

Our operations

The national health research authority, the Zambia National Health Research Authority (ZNHRA), went online to improve health research approval efficiency. This was a significant change to ease of research applications.

We re-aligned our work units with existing and emerging work streams to foster greater collaboration across departments and improve study program

output and meet the needs of our stakeholders. Members of staff from the studies and data units are now sitting in offices according to the study they are working on, rather than per department. This restructure or diaspora of departments has resulted in the establishment of a new team with a focus on automating the organisation's procurement and stores systems as well as improving the timesheet platform and other systems.

Our staff continued to be engaged with the work of Zambart. The high level of support from our staff for our purpose and the degree of willingness to 'buy in' to what we do, are a huge part of our organisational culture and what will continue to make us a high-performing organisation. This is also reflected in the large numbers of high quality applicants for vacancies in the Research Directorate level positions.

2019 highlights

Key highlights in 2019 included:

- Awarded the TBDRS contract by the Ministry of Health
- Awarded the PENDA Scholarship (PhD scholarship on disability (program for evidence to inform disability action) by DfID
- Awarded the PX Pilot study grant by 3ie
- Awarded the AMPHEUS - Scalable technology infrastructure to support genomics based HIV intervention strategies in Africa research grant by BMGF
- RINSS - Assessing urban communities for the purpose of adapting public health interventions to local context research grant by Global Challenge Research Fund (GCRF)
- Awarded ODI Poverty Dynamics research grant by DfID

Disseminated results from the HPTN 071 (PopART) Study at international, national and community level.

Acknowledgments

The success of Zambart is the result of contributions and efforts of many people including the Zambian governments through the Ministry of Health who has continued to be a valued partner, non-government organisations, professional bodies and academics who participated on our advisory committees, provided subject matter expertise and reviewed our studies, funders and collaborating partners, the senior executive and staff of Zambart who have continued to show their commitment to research and development to improve health for all Strategic

Looking ahead

We will disseminate research results from the HPTN 071 (PopART) Phylogenetics study and SEPO 11 in the first half of 2020.

To achieve our goals for 2020, we will continue to build on the relationships with our partners in health, government and community services across Zambia, the African continent and overseas to maintain our role (goal) as Africa's leading public health research and training organization.

In brief

Our purpose

To be internationally recognized as Africa's leading public health research and training organization

Our values

Key elements underpinning all of the strategic priorities of the research directorate are excellence, quality and compassion. Zambart aims to conduct all of its activities to the highest standards of research and ethics. The motivation for all that Zambart does is to improve the health of the people of Zambia and the rest of the world.

Our strategic goals

Over the next 5 years, we will apply and strengthen our capabilities to:

1. Strengthen existing areas and expand beyond HIV & TB into other areas of health research
2. Build strong strategic Partnership: Strengthening existing partnerships and developing new ones
3. Achieve great Global Reputation: being visible and well known locally, regionally and globally
4. Ensure demonstrable Policy Impact & Influence: Locally and internationally
5. Maintain financial sustainability
6. Develop a robust Training and Consultancy arm: a self-sustaining business providing services to others
7. Become a great Place to work

Our organisation

The Companies Act of 2017 is our enabling legislation and establishes the Zambart Board which is the organisation's governing body. Further information about how we operate and the role and composition of the Senior Management Team are specified on ***page 14***.

The Board is responsible for setting the overall policy and strategic directions of the organisation. For planning purposes, Zambart prepares a corporate plan and budget estimates as required by the Act. The Executive Director manages the day-to-day affairs of the organisation with the assistance of the Director of Research and a Senior Management Team.

For reporting purposes, it prepares an annual report an annual performance statement, also as required by the Act. All of the research work we undertake is subject to ethical clearance by the various local and international Ethics Committees

Stakeholders

Our stakeholders are important to us as groups to whome we are accountable, who fund us, and to whom we target our studies. They include:

- The people of Zambia
- The Zambia Government through the Ministry of Health and its departments and agencies
- Provincial and district health administrations and their departments with responsibilities for health and community services, education and justice
- Public health service providers, professionals and non-government organisations
- Consumers of public health assistance services
- The research community.

Zambart collaborates closely and has effective partnerships with many individual government entities, universities, research centres, non-government organisations and individual experts throughout the country.

Zambart continuously receives feedback from participants in our studies to gain insight into the perceptions of our stakeholders. Overall, the feedback provided positive results and evidence that Zambart is achieving its strategic objectives.

International partnerships

Zambart partners with many institutions around the world and works diligently to forge new ones when opportunity arises. The organisation has historically strong partnerships with the London School of Hygiene and Tropical Medicine and with the University of Zambia, School of Public health.

Zambart continues to enjoy strong partnerships with other institutions including Stellenbosch University, Imperial College, NIH, Johns Hopkins University, International Centre for Research on Women and the Universities of Toronto and McMaster. Over the past two years Zambart has developed new partnerships with KNCV, Qiagen, Sheffield University and the Union and these need to be nurtured and expanded.

Zambart would like to acknowledge the contribution and support of some of our funders and partners over the last year:

- Bill & Melinda Gates Foundation
- Delft Imaging Systems
- Desmond Tutu TB Centre - Stellenbosch University (DFID)
- Department for International Development
- European and Developing Countries Clinical Trials Project II
- Imperial College
- International Initiative for Impact Evaluation (3IE)
- Johns Hopkins University
- KNCV
- London School of Hygiene and Tropical Medicines (LSHTM)
- MACAIDS/International Centre for Research on Women
- Medical Research Council
- Ministry of Health
- National Institute of Health
- PATH Zambia
- Population Council
- Population Services International/UNIT AID
- Qiagen
- Sheffield University
- The TB UNION
- The University of Toronto and McMaster
- The University of Zambia, School of Public Health
- University of Cape Town

Our Leadership Team

Dr. Alwyn Mwinga,
Executive Director

Prof. Helen Ayles,
Director of Research

Frank Mbozi,
Finance Manager

Dr. Kwame Shanaube,
Deputy Director of Research
-Quantitative

Dr. Musonda Simwinga,
Deputy Director of Research
- Qualitative

Dr. Ginny Bond,
Head - Social Science, and Professional Development

Ab Schaap,
Head DATA/IT and Statistics

Barry Kosloff,
Head Zambart Laboratories

Girish Nair,
Internal Audit Consultant

Gilbert Jikubi,
Human Resources Manager

Chapter One
OUR WORK

Studies

Current Studies

Dr. Kwame Shanaube,
Country Principal Investigator, TREATS

Tuberculosis Reduction through Expanded Antiretroviral Treatment and Screening (TREATS)

Introduction

The Tuberculosis Reduction through Expanded Access to ART and TB screening (TREATS) study with the aim of measuring the impact of a combination TB and HIV intervention when delivered to the entire population of 14 urban, high-prevalence communities in South Africa and Zambia was officially launched in March 2018.

Background

In 2017, nearly 2.5 million people who contracted TB lived in sub-Saharan Africa, and 665,000 of them died from the disease. For people living with HIV, TB is the most significant co-infection, and 40 percent of HIV deaths in 2016 were due to TB. The TREATS project [Tuberculosis Reduction through Expanded Anti-retroviral Treatment and Screening] was developed in response to this. TREATS aims to inform new policies and approaches for tackling the TB / HIV epidemic by providing invaluable new information for accelerating effective interventions. The study is being conducted by a consortium of organisations, some of whom were part of the largest ever trial of a combination HIV prevention strategy, known as HPTN 071 (PopART). The PopART trial was conducted across 21 communities in Zambia and South Africa, covering around one million people in total. PopART involved universal testing and treatment for HIV through house-to-house visits on an annual basis over four years – from 2014 – 2018. As part of PopART, all community members were also screened for TB. Building on PopART, TREATS will measure the impact of this combined TB / HIV intervention on tuberculosis ***– measuring prevalence of disease as well as incidence of infection.***

TREATS is a 4 year study and runs until 2021. It includes a social science component to better understand stigma related to TB; mathematical and economic modelling to provide answers for how future large-scale interventions can be undertaken effectively; use of the newest tools available for diagnosing TB infection and operating effectively on a large scale.

In Zambia, the study communities are spread across 4 provinces (Central, Copperbelt, Lusaka, Southern) and 6 districts (Kabwe, Ndola, Kitwe, Lusaka, Choma, Livingstone).

Infection Cohort

The Incidence of TB Infection Cohort Study (Infection Cohort) will determine the incidence of TB infection in a randomly selected cohort of adolescents and young adults (aged 15-24 years) living in the former PopART communities. The incidence of infection will be compared in the communities that received the PopART intervention compared to the communities that received standard of care.

Study Design

The study began in July 2018 and a random sample of adolescents and young adults were recruited in 8 communities. Activities included community engagement and invitation of participants to the clinic. At the clinic, informed consenting, collection of information on TB/HIV risk factors and TB symptoms took place. Individuals found with TB symptoms had their sputum tested using GeneXpert MTB/RIF. All participants were offered HIV antibody testing. TB infection was determined with the use the QuantiFERON TB Gold-Plus test.

2019 activities

The study entered the follow- up phase in the first half of the year. This means that participants were contacted and asked to come to the clinics to receive the results of tests undertaken during the baseline visit and reminded about the pending second yearly visit.

During the second part of the year, second yearly study visits were conducted at all the sites. Activities included participant follow-up, data collection and sample collection and testing.

Challenges and mitigation:

Retention was a challenge as some participants had relocated out of the study area, or were in school or work. To mitigate this, our staff made repeated participant follow-up, home visits, and transporting participants from home to the clinic as well as working over weekends.

Dr. Modupe Amofa-Sekyi,
TREATS Infection Cohort Study Manager

Prevalence Survey

The prevalence survey of the TREATS study will measure the impact of PopART interventions on the prevalence (old and new cases) of bacteriologically confirmed pulmonary TB in the former PopART interventional communities. The study will provide a comparison between the communities that received the PopART intervention with the communities that did not receive the intervention (standard of care communities)

The prevalence survey is a cross sectional survey targeting a population of participants aged 15 years and above residing in the former PopART communities.

Dr. Chali Wapamesa,
TREATS Prevalence Survey Study Manager

This is a large survey targeting a sample size of 4000 adults per community. These communities are divided into blocks that were randomly sampled until the targeted sample size is reached for that specific community. Participation in the study was voluntary and eligible participants were invited to come to the mobile field sites (MFS) by way of an invitation card with a barcode. The barcode helps to identify participants at each station at the MFS and is mandatory for accessing the services.

Mobile Field Sites (MFS):

The OneStopTB mobile trucks arrived in Lusaka in February 2019. Each MFS is staffed with a Core Team and Field Team. The Core Team consists of the Team Leader who is also a clinician, 2 radiographers, 2 laboratory technicians, 1 IT Technician and a driver. The team is assigned to the mobile truck for the duration of prevalence survey and will move with the mobile

truck to each community. The. They are supported by the field team that consists data collectors, data enumerators and a community mobiliser. The field team is recruited from each community in consultation with?? with the Community Advisory Board. The Core and Field Team are trained on the mobile truck set up, all data management systems and field procedures.

Communities:

The study communities in Zambia are located in 4 provinces (Lusaka, Central, Copperbelt and Southern) with a total of 12 communities: - Lusaka (Chipata, Chawama, Kanyama), Copperbelt (Chifubu, Chipulukusu, Ndeke, Chimwemwe), Central (Ngungu, Makululu) and Southern (Shampande, Dambwa, Maramba

Methodology:

The participants were invited to come to the MFS where further information about the study was provided and eligibility was confirmed before procedures commenced. The MFS was centrally located in a community, where the OneStopTB Platform (a truck,

containing a digital X-ray and Xpert® instrument) was stationed. Community mobilization activities were conducted to sensitize community members.

Participants aged 18 years and above provided written consent. Individuals below 18 years provide written assent and will need written consent from their parent or guardian before participating in the study.

The prevalence survey kicked off in Lusaka in February 2019, and moved to Ndola in August 2019. The survey will continue to Kitwe, Kabwe, Choma and Livingstone in 2020.

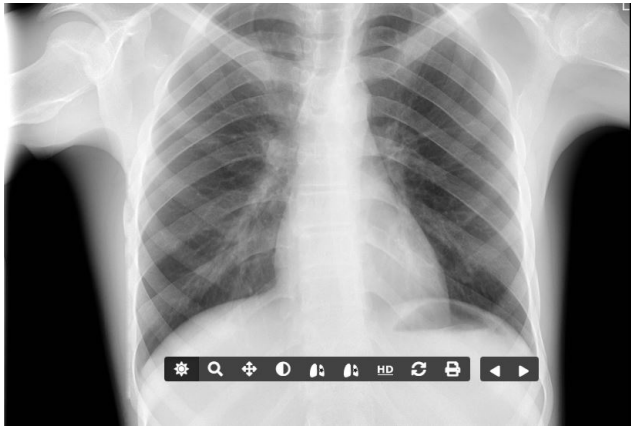
Intensive Diagnostic Phase (IDP) Phase

An Intensive Diagnostic Phase (IDP) was conducted in Chawama, Chipata and Kanyama during the Tuberculosis (TB) prevalence survey. The purpose of the IDP was to provide information on the optimal patient pathways for eligible participants as part of the algorithm for the TB prevalence survey and learn more on how to classify cases as active TB.

Computer Aided Detection for TB (CAD4TB) was used during the IDP. CAD4TB is a software programme that analyses the chest X-ray (CXR) and provides a score that indicates the likelihood of having TB. There is little to no information on changes in the CAD score over time though we do know that radiological changes are observed when TB patients complete their course of TB treatment. CXR was taken using

Portable X-Ray Machine

an innovative backpack X-ray that is very portable and could increase access to X-ray technologies by bringing it closer to the population and increasing access in high burden and remote areas.



TREATS Sub-studies

PX Study

The use of phylogenetic analysis in HIV prevention trials is relatively novel. The phylogenetic methodology which was developed during the recently ended HPTN-071-2 (phylogenetic study), an ancillary study to the main HPTN 071 (PopART) Trial was refined to provide an affordable method to not only sequence the HIV genome but also to provide a reliable measure of viral load and antiretroviral drug resistance testing for the same cost and on the same sample. The HIV Prevention Trials Network (HPTN) 071/PopART investigated the impact on HIV incidence of universal voluntary HIV counselling and testing (with referral to care) provided to a community through a house-to-house campaign, in combination with early ART for individuals who are HIV-positive, and other proven preventive interventions.

To progress this methodology and potentially make the method more applicable in resource-poor settings and for research studies, we conducted a small pilot study to compare the results of applying the methodology used to small volume blood samples taken using a finger-stick and stored either as dried blood spots (DBS) or in microtainers containing up to 0.5mls of capillary blood.

Individuals aged 15 years and above, residing in all communities within the TREATS TBPS (Zambia and SA), who have signed informed consent, and who wereHIV positives, self –reported and newly diagnosed at HTS (automatized decision algorithm on the EDC) were eligible to participate in the pilot study.

The pilot was conducted in two Communities; Chipata and Kanyama in Lusaka starting in December 2019 and will end in March 2020.

The total of 105 participants who gave consent were recruited in these two communities. The samples were shipped to Oxford University for analysis.

Pending results of the study, the PX study will be nested in TREATS TB prevalence survey.

TB Drug Resistance Survey (DRS)

2019 – 2020 TB DRS Activities

Demonstration of triple packaging of samples

Tuberculosis (TB) in Zambia continues to be one of the major causes of morbidity and mortality. Despite fairly good treatment success rates for drug susceptible TB (DS-TB), Drug Resistant TB (DR-TB) has continued to be a growing problem in Zambia. In settings without capacity for continuous surveillance based on routine drug susceptibility testing of new TB cases, it is recommended that a national survey should be conducted at least every 5 years.

The Ministry of Health contracted Zambart to carry out the 2019 – 2020 national TB drug resistance surveillance (TB DRS), which is the third of such surveys. Zambart had carried out the previous two drug resistance surveillance in 2000 and 2008. The TB DRS will contribute to the 2017 – 2021 National Tuberculosis Strategic Plan goal and objectives of moving towards elimination of TB in Zambia by providing information on the true burden and distribution of drug-resistant TB in Zambia.

The goal is to determine the current prevalence of anti-tuberculosis drug resistance in Zambia. The objectives of the current survey include: to determine the proportions and patterns of drug resistance to fluoroquinolones and second-line injectable agents (with focus on Amikacin and streptomycin) among patients with confirmed MDR-TB (TB resistant to Rifampicin and Isoniazid); to determine the associations between drug resistance and socio-demographic or clinical characteristics such as age, sex, or HIV status; to describe drug resistance trends over time compared to the 2001 and 2008 DRS; to determine concordance between phenotypic TB drug susceptibility testing and LPA; and to conduct whole genome sequencing on any case of drug resistant TB in order to find additional genetic mutations.

Preparation for the surveillance began in 2019 with the development of the protocol, which was based on the WHO protocol for national TB drug resistance surveys. The sampling frame was developed using the list of all diagnostic centres provided by the Ministry of Health together with the number of bacteriologically proven cases diagnosed in each centre in 2017. A 2 stage weighted cluster sampling was conducted with

Training

the Primary Sampling Unit being the diagnostic health facility and the Secondary Sampling Unit the individual bacteriologically-confirmed TB patients. A total of 50 clusters from 47 diagnostic centres were randomly selected from all ten provinces and 33 districts across Zambia, with three diagnostic centres having two clusters each. Each cluster is expected to recruit 22 consecutive bacteriologically confirmed TB patients. The target for the survey is 1,100 participants is to be recruited by September 30th 2020.

Training for survey implementation began with Lusaka Province in September 2019 and by the end of December all 47 diagnostic centres were trained, with each Province being trained in one session. Participant recruitment began for each Province immediately on completion of the training and the first participant was recruited on 27th September 2019.

USAID Eradicate TB (ETB) Project

Zambart is one of the six (6) consortium members of the five-year (2017 -2022) USAID sponsored Eradicate TB (ETB) Project. The lead partner on this project is PATH-Zambia. Other partners include Afya Mzuri, CITAM+, African Society for Laboratory Medicine (ASLM), and Initiatives Inc. ETB works in partnership with the Ministry of Health (MoH), through the National TB and Leprosy Program (NTLP), to strengthen the national response to control TB in Zambia.

The project works in 6 provinces— Central, Copperbelt, Luapula, Muchinga, North-Western, and Northern. Zambart's role on this project is to build the capacity of MoH provincial and district-level staff to conduct operational research (OR) on TB service delivery within their local context. Two Zambart staff are working on the ETB project. A summary of ETB-Zambart's 2 key achievements from 2019 is presented below.

1. Disseminating Operational Research Findings for District TB Studies (Cohort 1)

The first cohort of district-level staff was trained in 2018. Four district teams, consisting of 18 trainees, were selected to participate based on a range of criteria, including their district's high TB notification rates, high-risk catchment populations, and recommendations made by the National Tuberculosis and Leprosy Control Program. Each team included clinical and laboratory staff; some included district and provincial-level directors. The teams were given intensive hands-on mentorship to develop a research proposal, analyze data, and write study reports over the course of the year.

The studies conducted by the districts covered a wide range of topics, from critically examining the TB patient care cascades, from screening to diagnosis and treatment; to identifying reasons for low sputum sample referrals in rural districts; and identifying factors associated with poor treatment outcomes among drug-susceptible TB patients.

ETB disseminated findings from four OR studies locally at both the district level for each participating district and during a research

dissemination meeting hosted by the Zambian National Health Research Authority (NHRA) in Lusaka, 5th December 2019. Over 100 people attended the meeting, including Provincial Health Directors for Central, Copperbelt and Northern Provinces, and DHDs from the 4 study districts. Dr. Chimzizi, who represented the NTLP manager, urged DHDs to work with the OR trainees to implement recommendations from the four studies. He also pledged the support of the NTLP manager in areas that needed the attention of the national office. ETB continues to support trainees to prepare manuscripts for possible publication.

On the international front three of the studies were accepted as poster presentations during 50th Union Conference on Lung Health, held in Hyderabad, India, 30th October–2nd November 2019. ETB staff worked with OR trainees from Kapiri-Mposhi, Ndola, Chingola and Mpulungu districts to create 4 poster presentations. ETB also presented a poster on the experiences from implementing the OR training program, and an e-poster about an integrated HIV-TB specimen courier system implemented in the Northern Province of Zambia.

Zambart OR staff, and one trainee from Kapiri-Mposhi District traveled to Hyderabad to present these research posters on behalf of all trainees.

2. *Training and Mentoring Provincial/District TB staff (Cohort 2)*

The project received over 100 applications for the second cohort of operation research training. In May 2019 the project conducted an introductory workshop for top applicants, in order to select 10 proposals to develop further.

Trainees were taught how to present a problem statement and identify a research question. On the final day, each participant made a presentation before a panel of NTLP and ETB representatives. At the end of these presentations, the panel chose well-defined research topics which were in line with Zambia's TB national operational research priorities.

An intensive 6-day proposal development workshop was conducted for following staff from the selected districts: TB Focal Point Person, Clinical Care Officer, Public Health Specialist, Laboratory Coordinator, and Health Information Officers. The objective of this training was to draft research proposals on the topics listed in the table below. On a daily basis, each district team had a session with facilitators to review proposal drafts.

Between October—December 2019, 5 research proposals successfully passed through an

extensive review process by various stakeholders that included PATH Headquarters in Seattle, USAID-Zambia, University of Zambia Biomedical Research Ethics Committee (UNZABREC) and the Ministry of Health, through the National Health Research Authority (NHRA).

Cohort 2: Districts and proposed study topics

DISTRICT	OR TOPIC
Chililabombwe	An assessment of the extent to which follow-up sputum smear microscopy is performed for drug-susceptible pulmonary tuberculosis patients in Chililabombwe District
Itezhi Tezhi	Mortality and associated risk factors among TB patients in Itezhi Tezhi, Central Zambia
Mansa	GeneXpert MTB/RIF under-utilization: Knowledge, attitude, and practices of health care workers in Samfya District
Mpongwe	Investigation of losses along the sputum sample referral system in rural Mpongwe District, Copperbelt, Zambia
Kitwe	Factors Contributing to Low Childhood TB Case Notification In Kitwe District, Zambia

Above: ETB staff Josphat Bwembya (c) Presenting an oral poster on behalf of Mpulungu District as the NTP Manager, Dr. Patrick Lungu (L) looks on.

Right: Part of the Zambian delegation giving support to Chama Chongo (second from left) of Kapiri-Mposhi during her poster presentation at the 50th Union Conference

Above: Josphat Bwembya and Ramya Kumar, Zambart ETB OR staff at the 50th Union Conference

Above: Cohort 1 Operational Research Trainees disseminate their research findings at the Zambia National Health Research Authority forum. December 2019

Yathu Yathu Qualitative Work 2019

Mwelwa Phiri,
Yathu Yathu Study Manager

The "Yathu Yathu" ("For us, by us") is a cluster-randomised trial evaluating the impact of delivering community-based, peer-led comprehensive sexual and reproductive health (SRH) services for adolescents and young people aged 15 – 24 on knowledge of HIV status and coverage of SRH services. The study is being conducted in two peri-urban communities in Lusaka, Zambia

At the beginning of 2019, the Yathu Yathu qualitative research team focussed on rapidly analysing formative research data that was collected between November and December 2018. Key milestones attained regarding the formative research data included, a presentation of the findings at the trial steering committee meeting, two poster presentations at the 2019 international AIDS conference and the 3rd international workshop on HIV and adolescents. As of December 2019, a draft manuscript focusing on the process of engaging adolescents and young people (AYP) and lessons learnt from the formative research was written and its publication is planned for next year.

The beginning of the study implementation saw the expansion of the team through recruitment of two social science research assistants. The team has since conducted ten observations of the delivery of HIV and sexual and reproductive health (SRH) services in the Yathu Yathu hubs in the study communities and ten focus group discussions with AYP accessing services in the hubs, those living in the control zones, parents and guardian and services providers. Additionally, a new approach of qualitative data collection (mystery shopper observations) was used in the study. This method required the use of service end users (AYP) to carry out semi-structured observations of how

services are delivered whilst accessing services at the hubs. The purpose of all these activities was to explore the acceptability and feasibility of the intervention, identify challenges and document lessons learnt to improve service delivery during the pilot phase of intervention implementation. We have since provided feedback to the study teams about the key issues that need to be addressed to improve service delivery.

Poverty dynamics study in Zambia – 2019 to 2020

Over half (57.5%) of Zambia's population was under the $1.90 poverty line in 2015, with poverty rates much higher in rural areas and amongst female-headed households. Many are thus likely to be trapped in chronic poverty. Unfortunately, limited research to date prevents us from qualitatively assessing poverty dynamics in Zambia, as well as the degree to which various constraints are prevalent and how they can be overcome to tackle chronic poverty, promote escapes from poverty and prevent impoverishment.

To find some answers, contracted by the Overseas Development Institute (ODI), an independent think tank on international development and humanitarian issues based in the UK, Zambart's social science team working with the Institute for Economic and Social

Research (INESOR) at the University of Zambia, conducted a study funded by DFID to understand poverty dynamics in Zambia. This study was aimed at collecting qualitative research data to understand how some households permanently escape poverty over time, why others who had escaped poverty fall back into it and why others are stuck in poverty over long periods of time. The study is linked to an analysis of the 2015 Living Conditions Monitoring household surveys (LCMS) and the Rural Agricultural Livelihoods Surveys (RALS) of 2012, 2015 and 2019 carried out by the Indaba Agricultural Policy Research Institute (IAPRI) and the Central Statistical Office of Zambia (CSO).

To conduct this study, following the acquisition of the necessary research permissions, a research design workshop bringing all partners together to discuss objectives, the research approach, methods and plan was conducted. This was then followed by a preliminary analysis of secondary quantitative data sources from LCMS and RALS to identify poverty trends and associated factors for further exploration

in qualitative fieldwork. This quantitative analysis was also used to help re-design and finalise the qualitative research design of the study. This finalisation process included selecting of sites for field work on the basis of the panel data and other survey results as well as the team discussing the final logistical data collections plans. In addition, a study reference group of policy makers and practitioners was constituted. This reference group was created to provide a platform for engaging policy makers with the latest evidence that were to emerge from the study on key policy issues, and ensure that the interests of the chronically poor and vulnerable were taken into account in policy and programme design. The first reference group meeting was held on 24th September 2020.

Once a final design of the qualitative study had been developed, the team with support from Dr Lucia da Corta, a research associate in the Equity and Social Policy programmes at ODI, had a protocol training workshop at Zambart. This was then followed by a pilot test of qualitative data collection tools by the team in one Lusaka urban community. Using experiences from the pilot, the team conducted a review process of all tools in readiness for data collection in all the other study communities.

On the 18th November, the team then started the data collection process. By December 2019 fieldwork had been carried out in a total of seven communities in seven provinces. Community leaders, gender groups and a range of households were interviewed during life histories, focus group discussions and key informant interviews. Data collection from the three remaining communities (across three provinces) is planned to be completed by March 2020 and the final analysis and completion of the study is planned for mid to late 2020. The national report will combine findings from quantitative and qualitative analyses and from an additional modelling component forecasting poverty led by the University of Denver.

The Sepo III Study: Advancing Chronic Disease Models of Care for People Living with HIV in Resource Poor Settings, 2017 to 2020

Sepo III was a qualitative study funded by CIHR working with the University of Zambia and the Universities of Toronto and McMaster in Canada. Its aim was to identify and showcase 'promising practices' (e.g. policies, programs, services, community initiatives, or other innovations) providing support for young people (0-24 years of age) living with HIV as a chronic illness. The main objectives of the study objectives were to:

- Identify diverse promising practices providing support for young people (0 – 24 years) living with HIV as a chronic illness
- Explore and develop an understanding of each promising practice using a self-management framework
- Provide opportunities to share information and practices among the study sites and others stakeholders

A case study design was used in this study, and seven

case studies were identified and selected from four districts across three provinces (Southern, Western and Lusaka) in Zambia. The seven sites included: one youth led organization, two hospitals (1 in a rural setting), one government ministry and one university student centered organization, one community based NGO and one initiative supporting key populations. A total of about 166 people participated in the study, either as service providers or clients.

Researchers visited each site for a minimum of two weeks and data were collected through in-depth interviews (IDIs), focus group discussions (FGDs) and observations of service providers, clients and community spaces. Researchers also reviewed relevant documents and policies when available. All the data collected from the respective study sites were written up into case study reports.

Towards the end of data collection period, in May 2019, a knowledge translation event was held in order to create a platform through which all the case studies could share information and their experiences. Each case study was represented by 1 service provider, 1 volunteer and 2 young people living with HIV. During this event, case study representatives were given their respective case study reports for their comments and reactions on the information captured about their initiative. Data collection finished in September 2019 and the study will finish early in 2020

Completed Studies

(HPTN 071 PopART) Phylogenetic study

The Phylogenetic Study was an ancillary study to the main HPTN 071 (PopART) trial. This trial was aimed at examining patterns of HIV transmission on a population level and identify factors associated with HIV transmission in all the 12 HPTN 071 study communities in Zambia. In addition, the study also aimed to identify demographic, clinical and epidemiological factors that contributed to HIV transmission and evaluate the presence and spread of antiretroviral drug resistance in the study communities.

Research has shown that the HIV epidemic in Sub-Saharan Africa is very variable with the risk of acquiring HIV depending on factors such as age, sex and geographical location. The phylogenetic study was designed to investigate the aspects that were thought to affect the success of the PopART intervention in reducing HIV incidence. It specifically studied the role of the following factors in shaping HIV transmission in PopART communities:

- Transmission from individuals with acute and early HIV infections
- Contributions by specific age groups and sex
- Transmission occurring outside the trial communities
- Levels of ART drug resistance

This was the largest phylogenetic study of HIV conducted using state-of-the-art molecular technologies to analyse the impact of interventions for HIV prevention on a population level. Samples and data were collected from two overlapping sources

from the HPTN 071 trial communities. The results from this study can help inform future interventions and ongoing research so that programmes can be more effective in stopping HIV transmission.

The study was divided into 4 main stages:

1. Sample and data collection
2. Laboratory preparation and training
3. Analysis of samples to obtain HIV sequence data
4. Phylogenetic and statistical data analysis

The first two stages were conducted in Zambia between July 2016 and July 2018 where participants were consented, and samples collected. A total OF 5,692 participants above 18 years were recruited and consented from health care facilities and 2, 317 from the population cohort.

The first two stages were done in Zambia. We continued to collect follow up data up to the end of 2018. Stage three and four of the study only began once all the samples were shipped and laboratory sequencing and statistical analysis performed at Oxford University between July 2018 and in 2019. Results from this ground-breaking study will be disseminated in early 2020.

Researchers from Zambart and the London School of Hygiene and Tropical Medicine, Imperial College London, and the University of Oxford worked closely on this trial with the HIV Prevention trial Network (HPTN). This study was funded by the US National Institutes of Health, office of the United States Global AIDS Coordinator, and the Bill and Melinda Gates Foundation.

Community ART

The Community ART study was an ancillary study to the main HPTN 071 (PopART) study that compared different models of ART delivery amongst stable HIV+ patients in two urban settings in Zambia. Although community models of ART delivery have shown promising outcomes in relation to care and adherence to treatment, additional data is required from innovative community based models of care to support long term retention in care as number of patients now on treatment has increased in the context of universal treatment.

Community models of ART delivery are aimed toward reducing the cost of stable patients to attend the clinic. However it is still not known whether these models of care are feasible in urban resource limited settings or whether care will be as good as the standard quality care provided by local health facilities and therefore conducting this study is innovative as it will be a first study in an urban setting to rigorously evaluate different models of ART delivery and information obtained will be critical for the continued scale up of differential service delivery models and also provide policy makers with evidence on operational feasibility, acceptability and cost-effectiveness of HIV delivery models. The two models of care include Home delivery where patients are visited in their homes by community HIV providers (CHiPS) who offer adherence support, counselling and deliver pre-packed medications for 3 months. In the clubs a group of 20-30 patients meet at a selected venue in the community where CHiPs provide adherence counselling and deliver pre-packed drugs. In both models patients only have to go to the clinic once every 6 months for their clinical review and laboratory tests.

The study was conducted in 2 HPTN 071 urban communities and comparing 2 models of care (Home based ART delivery and Adherence clubs) to the standard of care. The primary objective of the study was to compare viral suppression at 12 months in HIV+ patients receiving care via community ART

models with those receiving care in the clinic (standard of care). The secondary objectives were to compare the two models of care with the standard of care with respect to retention to treatment, feasibility, lost-to-follow-up, acceptability and cost effectiveness of the models of care.

Recruitment

Between May and December 2017, a total of 2,499 eligible participants were identified across the two study communities in Lusaka, Zambia who were eligible for inclusion in the trial and of these 2, 48 (99.6%) consented to participate and only 10 (0.4%) declined consent. Of those who consented majority were female (N= 1,757, 71%) and 29% (N=732) males.

781 (31.4%) stable participants were assigned to the standard of care (health care facility); 852 (34.2%) in the Home delivery arm and 856 (34.4%) to the adherence clubs. Overall, 95.6% of participants opted for the two intervention models that they were assigned to.

Participants were followed up in the intervention models from the time of recruitment up to May 2019 when the study ended. At the end of the study, all the participants who were receiving care in the home delivery and adherence club models were transitioned to continue receiving care at the local health facility.

Following the study completion, data was analyzed, and primary results are expected to be disseminated in early 2020.

Our preliminary findings regarding uptake and preferences towards these models of care showed that decentralizing ART care out of the facilities is acceptable and preferred by many people living with HIV and utilization of community health care workers to provide adherence support and pre-packed medications is feasible and acceptable by patients.

HIV Self-Testing II

Case studies to investigate the process of delivering HIV self-testing services through five models of distribution in Zambia

In STAR II, Zambart developed case studies of four promising models of HIV self-testing (HIVST) distribution. The purpose of these case studies was to conduct an in-depth evaluation of the process of distributing HIVST through the four models.

In this study, Zambart continued to work together with other partners to conduct STAR II activities. These included Society for Family Health (SFH) and Ministry of Health staff who led the implementation of HIVST kit distribution using different models, London School of Hygiene and Tropical Medicine (LSHTM), Population Services International (PSI), World Health Organization (WHO), and Liverpool School of Tropical Medicine. STAR II was conducted in 50 peri-urban and rural communities across Zambia.

In 2019, our primary focus was to complete the recruitment of individuals into the two groups until we reached the targeted numbers of approximately 450 individuals per group. The study team followed-up these individuals 1 month after the initial interview to measure the use of HIVST kits distributed through secondary distribution. Approximately 3 months after the first interview, we also followed-up the intended users to measure linkage to confirmatory testing, HIV care or preventive services.

Data collection ended in July, 2019 after which the study teams carried out data analysis and report writing.

Preliminary findings and lessons learned

Community- led model

1. HIVST distributed through small shops ("Tuntembas") was highly acceptable. Factors influencing acceptability of the model included the fact that it was convenient for busy people. The distribution points were also easy to reach since they were located in the community and were open for longer hours than the health facilities. They were accessed at little or no cost and some HIVST users went back multiple times to the distributors to seek clarifications.
2. However, while utilization of available resources within the community (structure and personnel) lowered operational costs, some challenge was experienced with the model such as the additional workload for the distributors who were "tuntemba" owners. They were required to serve both HIVST clients and customers who came to buy goods from their "tuntembas". Some HIVST clients required more information and even counseling. Frequent stock outs were also experienced at the beginning of the program.

Workplace distribution

1. HIVST distribution in the workplace was feasible and acceptable. Work place champions (WPCs) usually used available avenues to promote HIVST. These included emails, memos, department meetings, safety meetings, commemoration days and other related activities such as condom distribution. The workplace environment was considered more relaxed and this improved HIVST uptake. HIVST kits were distributed from any available space mostly during lunch breaks and towards the end of the day. Availability of HIV/ health/ wellness policies and active involvement of management facilitated easy introduction of the HIVST program.
2. Two significant challenges of the model were the increased workload for WPCs and linkage to prevention services and care. Some workplaces had only WPC. HIVST distribution was not viewed as an additional task by their supervisors and they were required to perform their usual tasks in the manner they did before the introduction HIVST.

Secondary distribution of HIVST- cohort

Table 1: Recruitment for the period November 2018 – July, 2019

	Distribution model	
	ANC clinic N(%)	ART clinic N(%)
Target Sample size (Index)	450	450
Index approached for recruitment	538	127
Index individuals consented	516 (95.9)	122 (96.1)
Month 1 follow-up interviews completed	452 (84.0)	83 (65.4)
Month 3 follow-up interviews completed	452 (84.0)	64 (50.4

Recruitment challenges

1. Recruitment of index participants in the ART clinics was much more difficult and slow. Among the reasons for low recruitment in the ART clinic include low number of individuals being offered HIVST for secondary distribution to their partner and the low numbers of individuals initiating treatment each week. To try and increase recruitment we moved to a second clinic but we still experienced the same challenges as those highlighted above.
2. It was very challenging to contact and interview the intended users and conduct the Month 3 interviews. The majority of these individuals were men and not available at home during the day. To try and address this, RAs worked in the evenings and at weekends. They also followed some intended users at their work place and conducted interviews from there.

Lessons learnt for the secondary distribution model

1. Secondary distribution worked well in ANC but was harder to implement in ART due to logistical and programmatic constraints
2. For the intended users followed up, most were happy with the experience and linked appropriately to care
3. Linkage to prevention was very low and needs more emphasis

QFT Access Usability (Ellume) Qualitative Study

QFT access usability study was an observational study embedded in the ongoing TREATS study in Zambia to evaluate the usability of the QFT access system for the detection of TB infection in 100 participants in a total of 6 laboratories, (the Zambart Central laboratory and 5 regional laboratories).

QFT access system is a simpler version of the QFT-plus, easy to use, with assay processing and read-out requiring shorter time, no laboratory needed and tailored to the requirements of low resource regions with high rates of TB. QFT access has the potential to be a scalable solution for low-resource, high-burden areas for early screening of TB infections, which can lead to more effective treatment and containment in these settings.

The TREATS infection cohort provides a unique platform within which to evaluate its ease of use and potential to improve TB control in regions with limited infrastructures.

Data collection was from October 2019 to November 2019

Zambart

Research and Development to Improve Health for All

Departments

Social Science Unit, 2019

Dr. Ginny Bond
Head - Social Science Unit and Professional Development

Overview

The influence of social context on public health has been a critical component of Zambart's research for the last twenty years. There is a vibrant social science unit at Zambart, led by Virginia Bond (LSHTM overseas staff) and Musonda Simwinga. Their combined areas of interest encompass the following areas:

- community engagement and social science linked to randomised control trials,
- health-related stigma and
- capability to manage HIV and TB across communities and different age and sub-groups.

Within the social science unit, other researchers are developing interests in other public health research areas including:

- HIV self-testing
- community delivery of HIV treatment
- HIV self-management,
- masculinity and health,
- adolescent health (sexual and reproductive health and HIV)
- disability
- mental health and TB.

Methodological approaches are both qualitative and quantitative. The unit has a broad mix of social science disciplines and is very committed to capacity building, interdisciplinary research and community involvement in research from concept to dissemination stages. In 2019, two staff completed Masters in Public Health and three staff were participating in Masters, three in PhDs and two in undergraduate degrees. Many also participated in an internal academic writing workshop and some attended international conferences including AIDS Impact in London.

In 2019, the unit's work was either;

- nested within community randomised trials on HIV prevention with adults and adolescents (PopART and P-ART-Y)Tuberculosis, stigma and HIV Self-Testing,

or

- carried out as stand-alone qualitative studies on the long term management of HIV and disability, interventions for young people

living with HIV and poverty dynamics.

Dissemination of study results

1. **HPTN 071 (PopART) trial and the stigma ancillary study**

   The social science unit led the local community dissemination process for these studies. These community based activities occurred ahead of the global dissemination of both the main trial and the stigma ancillary study.

   PopART and Stigma Ancillary Dissemination – Community Dialogue

   In March 2019, the final HPTN 071 (PopART) study results were presented at the 2019 annual Conference on Retroviruses and Opportunistic Infections (CROI). Prior to the conference, the results were embargoed and had only been shared with the study leadership. Driven by an explicit commitment to disseminate first nationally, including critically to the communities that participated, and also puzzled by the results, the social scientists (including the community engagement team) determined to disseminate and discuss the main trial and stigma ancillary findings with communities. The social science and community engagement teams together with 3Cs consultants designed a community dialogue process that aimed to simplify complex PopART trial results into straight forward community specific presentations. A pilot dissemination was then conducted in Z8 community by the team, and approach adjusted for the other remaining communities.

   On the 18th March 2019, the team then had to split into two teams and visited all the 11 communities and disseminate the results to community members. These dissemination meetings were attended by a mixed group of members of the community of different age groups including adult and adolescent community advisory board members, neighbourhood health committee members and other representatives from the communities. Half a day was spent with each community presenting and discussing the primary trial outcomes and stigma primary findings for that community, using participatory and small group work approaches. The main aim was to ask communities about community level trends and what community members thought were the factors that contributed to the way the intervention performed in each community and changes in stigma over time. These discussions were documented and analysed and fed into the main PopART presentations at district and national level dissemination meetings.

   Other than community dialogue, the PopART social science team focused on two key priority analyses, looking at the influence of community structures as places themselves on HIV and behaviour change linked to the trial intervention. The stigma staff similarly focused on key priority analyses understanding the relationship between stigma and Universal Test and Treat as a strategy, asking did PopART change, reduce or increase stigma. These analyses were presented at the AIDS Impact Conference in London in July 2020 in a special stigma session.

2. Sepo III study on HIV self-management amongst adolescents living with HIV

3. PhD on young women living with HIV and a

4. Study of the involvement of people with disabilities in disability policy.

New Grants

Towards the end of 2019, the social science unit was awarded two new grants as follows:

1. Urban infrastructure and water and sanitation, working with the School of Engineering at the University of Zambia and the University of Stellenbosch in Western Cape, funded by the British Academy.
2. HIV self-testing funded by LSHTM under a partnership scheme, ISSF (International Strategic Support Fund). This proposal was led by Bwalya Chiti and a Ugandan colleague, Andrew Ssemata, from the MRC/UVRI and LSHTM Uganda Research Unit. This will be across country study to assess the knowledge, acceptability and social implications of distributing HIVST by young trained counsellors to AYP aged 15 to 24 years in Zambia and Uganda.
3. In November 2019, Zambart with UNZA was part of a PhD capacity building opportunity with two other African universities (University of Makerere in Uganda and University of Nairobi in Kenya) to recruit people with a significant disability to do research on disability. This initiative is funded by DFID, UK and led by a Research Programme Consortium at LSHTM called Programme to Evaluation and Inform Disability Action (PENDA). The successful Zambian candidate will be co-supervised by Zambart, UNZA and LSHTM and based at Zambart.

The end of HPTN 071/PopART trial and the associated ancillary studies meant losing some social science staff whilst retaining others on new grants, and by the end of 2019, the social science unit was smaller with a total of 10 social scientists. Activities towards the end of the year focused on grant writing and writing up priority papers from the trials.

Zambart

Research and Development to Improve Health for All

Data/ICT and Statistics

Ab Schaap,
Head - Data/ICT and Statistics

Reorganization of data department ("diaspora of data department")

The data department has always been a centralized unit within Zambart. Although most data staff worked on specific studies, our desks were in one and the same room within Zambart head office. Communication between data department and study managers and PI's during all phases of the life-cycle of a project (from design to publications) was predominantly done by the head of unit. This organizational structure resulted in a cohesive data unit where staff were closely collaborating, sharing experiences and helping each other, but also a unit isolated from researchers and where a full understanding what was going on 'at the other side' was lacking.

So we decided to try out another organizational structure whereby the data person becomes integral part of the research teams. Study managers, researchers, social science staff and the data staff share the same office thereby facilitating a better communication within the study team. The data person is involved in and contributes to the whole life-cycle of the project, he/she is present in all trainings, meetings and calls, and remains responsible for development of data collection tools, data management, monitoring and evaluation of the progress of the study, preparations of data sets for statistical analysis etc. A smaller team is left with study cross-cutting tasks like support in statistical analysis, spatial data (maps), database administration (who has access to which data) and system administration.

The re-organization has resulted in a complete reshuffling at Zambart so that like half of head office staff had to move their desk to another office. So far this re-organization seem to be successful but a full evaluation is planned in 2020 together with the research directorate.

Field data collection using electronic devices (tablets, phones, laptops) are nowadays business as usual at Zambart. What is new is the use of (electronic) cards. In the Yathu Yathu trial we work with adolescents and young people (aged 15-24). During door-to-door visits in the community we offer a so-called Prevention Points Card (PPC) to everyone in that age group, we record their name, age, sex and we take a picture of their face. After that initial household visit the participant can use the card by attending community hubs where sexual and reproductive health services are offered. By accessing those services they can collect prevention points that can be used to get rewards like soap, deodorant, vouchers for barber shop/hair saloon etc. During the initial phase of the project about 40% of the adolescents and young people in intervention zones have used this card to access services.

New colleagues

In 2019 we had the privilege of having two new staff members join our department. Thomas Gachie is from Kenya and has completed an MSc in Medical Statistics at the London School of Hygiene and Tropical Medicine. He is now employed as a statistics research fellow at the LSHTM and is based at Zambart. Thomas is analyzing the TB screening component of PopART and works on laboratory testing data collected for the TREATS TB prevalence survey.

In the TREATS study one of the capacity building efforts was strengthening the research capacity of Zambians (2 PhD, 1 MSc Medical Statistics, and 2 MSc by distance learning). Hudson Mumbole was awarded the fellowship to study MSc medical statistics. He completed the first year in Medical Statistics at the LSHTM in September 2019. For the second year he is based at Zambart to “learn on the job”. Hudson is working of the TREATS Infection cohort data looking at a new blood test to measure TB-infection and helping study managers to do a risk factor analysis.

Zambart Laboratories

Barry Kosloff
Head Zambart Laboratories

The Zambart laboratories consists of the Central Laboratory situated at Zambart Head Quarters in Lusaka and consists of a biosafety level 3 TB laboratory and 5 Regional laboratories in 5 towns along the line of rail. Two of the Regional labs (Livingstone and Kabwe) are housed in container labs, while three are embedded within the main hospital laboratory (Choma, Kitwe, and Ndola). In addition, as part of the TREATS project, Zambart has two mobile labs which consist of a truck with both laboratory and digital x-ray facilities.

The Zambart laboratory has the capacity to perform TB culture processing, molecular testing, rapid tests and fourth generation testing for HIV and other immunological tests, CD4 Counts, GeneXpert assays such as Xpert MTB/ RIF Ultra and HIV viral load, plasma processing, QuantiFERON® TB Gold-Plus for TB infection, and microscopy. The Central laboratory is also equipped with a repository containing several ultra-low temperature freezers for long-term storage of samples.

Some of the activities carried out include the following:

TREATS Infection Cohort

Participant blood samples collected in the field and sent to the lab were incubated, processed and plasma stored in freezers at -80°C at both Zambart Regional Laboratories and Zambart Central Laboratory. All frozen plasma aliquots from regional laboratories were shipped to Central laboratory for QuantiFERON® TB Gold-Plus (QFT-Plus) ELISA assay testing once a month using a supplies truck which has battery-powered freezers installed to enable the shipping of frozen samples. The QFT-Plus ELISA assay is a test done on blood products to test for latent TB infection.

Data capture for all specimens received is done centrally in a sample registration database at Zambart House. QFT-Plus ELISA test results that had been quality controlled (Qced) and verified were imported from the lab on to a shared drive for the data team to extract and link with field data and proceed with subsequent analysis

TREATS TB Prevalence Survey

Intensive Diagnostic Phase (IDP) of the TREATS Prevalence Survey took place between March and September 2019 in three Lusaka communities – Chawama, Chipata and Kanyama. The purpose of the IDP was to carry out intensive case-finding of TB disease and subsequent Rifampicin drug resistance in the target communities, where mobile labs were set up at Mobile Field sites to perform GeneXpert testing, while TB culture processing was being done at the Central laboratory in the Biosafety Level III Laboratory

National TB Drug Resistance Survey

Recruitment of participants for TB DRS commenced on 27th September 2019 and is expected to run for twelve months.

Two sputum samples submitted from each survey participant are transported to the Zambart Central lab from the 47 randomised TB Diagnostic Centers across the country via a dedicated Courier system. The sputum samples are tested for TB disease and drug resistance first using which is a faster way of testing for TB disease and Rifampicin drug resistance. The samples are then subjected to TB culture processing for further identification of the disease causing agent and drug resistance; testing for not only Rifampicin, but also other TB drugs which include Isoniazid, Ethambutol and Streptomycin.

Decontaminated sediments and cultures identified as positive for TB are stored in the freezer at -20°C. Some of the stored samples with identifiable drug resistance are to be subjected to sequencing at a later stage, and some will be sent to the Uganda Supranational Reference Laboratory (SRL) for EQA.

Laboratory Accreditation

Zambart Central Laboratory has embarked on attaining laboratory accreditation according to ISO15189, and engaged in quality manual training, compliance and implementation activities. The process is expected to take xx months to final accreditation is achieved

The Laboratory is also involved in annual Proficiency Testing activities for different lab assays and tests performed at Zambart Central lab and testing panels are received from the College of American Pathologists (CAP) and Uganda Supra-National Reference Laboratory (SRL).

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Research Support Units

Community Engagement Unit

Dr. Musonda Simwinga
Head – Community Engagement Unit

Stakeholder and Community Engagement

Introduction

Stakeholder and community engagement activities were conducted for the different studies during the period under review (2019). Community and social mobilization activities included; church and health facilities-based sensitization, door to door sensitization, community announcements, and meetings with key community-based stakeholders alongside IEC materials distribution.

The CE team conducted both community preparedness and exit meetings for the TB Prevalence Survey (TBPS) Intensive Diagnostic Phase (IDP) communities.

Tuberculosis Reduction through Expanded Antiretroviral Treatment and TB Screening (TREATS) is aimed at measuring the impact of the PopART study on TB incidence (new cases of TB) and prevalence (old and new cases). During the period under review, two Work Packages (WPs); the **Incidence of TB Infection Cohort** - WP2 and the **TB Prevalence Survey** – WP3 were implemented under TREATS. The adolescent and adult Community Advisory Boards (CAB) members were instrumental in community mobilization, participant recruitment and follow-up activities.

Incidence of TB Infection Cohort Study

The Incidence of TB Infection Cohort successfully conducted its second visit participant follow-up activities. The second participant visit follow-up phase started with combined adult and adolescent Community Advisory Board (CAB) meetings in all the 8 study sites. The meetings aimed at updating the CABs on the progress of the study, informing and

consulting the CABs on the participant's follow-up plan and general preparation of the communities for the second follow-up phase. Challenges included; relocation of participants to far communities or towns, some parents or guardians withdrew consent for their adolescent, some participants were in boarding schools away from the study community during the scheduled visit period, some participants were imprisoned, some decided to withdraw consent due to blood draw (sometime due to the association of blood draws with satanism), and some participants lost interest in continuing to be part of the study. To address some of these challenges the Community Engagement team worked over the weekend to find participants who were not found in the community during and more study information was given to those who had associated the study with satanism. Adolescents CABs played a vital role in explaining the importance of remaining in the study to participants who wanted to withdraw and to parents who wanted to withdraw consent for their adolescents. The CABs also helped to locate many participants who had relocated within the study community which resulted in a favourable number of participants retained in the study.

TB Prevalence Survey

TB Prevalence Survey implementation started in 2019 with the three IDP communities namely, Chipata, Chawama and Kanyama. Following mapping of the communities by zone to identify Mobile Field Site (MFS, community preparedness activities were conducted a few days before participant recruitment activities began. Community preparedness activities included; training of local Community Mobilisers (CMs), stakeholder meetings involving Health Facility Staff, adolescent and adult CABs and Neighbourhood Health Committees (NHCs). The stakeholder meetings aimed at introducing the survey and obtaining feedback from stakeholders. The TB Prevalence Survey targeted people aged 15 years and above who were residents and had been in the community for at least a period of 9 months in the last twelve months or longer. Eligible community members were invited by card to visit the MFSs to access TB screening and testing services and HIV testing using a mobile van equipped with chest X-ray and a laboratory.. The main challenge was the low number of individuals who visited the MFS in response to the invitation. Apart from community sensitization in every new sample area, CABs played an important role in reminding those invited to visit the MFS to complete the enrolment process. CABs also acted as witnesses during the consenting process for the illiterate. The community engagement team hekld regular meetings with the CABS to update them on the progress of the survey and obtain their feedback.

Preparations For the Yathu Yathu Study

Yathu Yathu Community Engagement (CE) Manual development

The Yathu Yathu Community Engagement (CE) manual was developed by adapting existing Zambart resources and was adopted for use after review by Yathu Yathu research staff.

Community preparedness meetings

The CE team conducted eight community preparedness meetings with key community stakeholders that included the Adolescent Community Advisory Board (ACAB), Community Advisory Board (CAB), Neighbourhood Health Committee (NCH) members and representatives of Community Based Organizations (CBOs) working with adolescents and young people (AYP). Topics discussed during the meetings included an overview of the Yathu Yathu study, the role of CE, ACAB, CAB and other stakeholders as well as potential facilitators and inhibitors of the study. A list of questions from participants was generated and added to the frequently asked questions (FAQ) document. Community members accepted the study and pledged willingness to contribute to the success of the study.

Develop Representative Structures to Ensure Community Input in the Study.

Identification of key stakeholders

The CE team conducted mapping and identification of key stakeholders (ACAB members, local leaders, service providers, CSOs, CBOs). A list of key stakeholders produced during the PopART study was reviewed and updated with the help of the CAB and ACAB. Fifty three (53) stakeholders were identified and contact information banked into the data base.

Review of Adolescent Community Advisory Boards membership

The CE team did not form a new ACAB for the study and opted to renew the membership by developing selection criteria which were reviewed and approved by the existing ACAB. Key community stakeholders were approached to provide names of potential members, which s included health workers, police officers, school children, representatives of youth led organisations, young people living with HIV and volunteer community health workers. Following an interview, 20 new members were admitted to the ACAB.

Increase Community Awareness of the Yathu Yathu Study/ demand creation, SRH, HIV/AIDS and HIV Prevention Strategies

Community sensitization activities

The CE team conducted community sensitisation activities aimed at raising awareness about the Yathu Yathu study. The main community sensitisation activities conducted were door to door sensitisation sessions and community announcements using a megaphone. Another highlight was the community dialogue meetings with adult community members and adolescents and young people (AYP). Community dialogue meetings are a platform for community members to discuss various immerging issues related to the study. Some of the Issues discussed include condom use and family planning. ACABs and youth friendly corner (YFC) members assisted the CE team to conduct some of the community sensitisation activities. ACAB and YFC members were engaged to assist identify and actively refer AYP who were enrolled on the study but had not yet visited the Yathu Yathu hubs.

Information Education and Communication (IEC) Materials

IEC materials are an important element of communicating with study participants and the community in general. In line with this, the Community Engagement team spearheaded adaptation and development of IEC materials. The process involved reviewing Ministry of Health approved IEC sexual and reproductive health IEC materials by a team of Yathu Yathu research staff and Adolescent Community

Advisory Board (ACAB) members and development of study specific IEC materials. The IEC materials adapted and developed included brochures, posters booklets, leaflets and information guides. Graffiti images were painted at the Yathu Yathu Hubs as part of IEC.

Strengthen Relationships with Community Stakeholders CAB and ACAB Meetings

Routine monthly CAB and ACAB meetings were held with aim of the meetings of providing information on study progress and obtain their feedback. Emergency meetings were also held to respond to emerging issues related to the study and to agree on the recommended actions. Examples of the issues discussed include condom distribution and disposal, rumours about Satanism and the Yathu Yathu study, and civil unrest related to attacks on community members by unknown individuals in various parts of the country.

Meeting with Kanyama Support Group of Adolescents and Young People (AYP) Living with HIV.

The Zambia Network of Young People Living with HIV (ZNYP+), a local network of AYP living with HIV which aims to address specific gaps in the HIV response and address needs of AYP living with HIV.

Zambart held a meeting with the Kanyama support group of Adolescents and Young People living with HIV in Lusaka. The aim of the meeting was to link the Kanyama support group members with ZNYP+ and discuss sexual and reproductive health and HIV. The members of the group were consulted about the possibility of forming adherence support groups for AYP living with HIV, and included discussions about their experiences of HIV, and sexuality. The meeting was attended by 25 adolescents and young people living with HIV and was facilitated by two (2) ZNYP+ members and two (2) Yathu Yathu staff.

Research Governance

Chepela Ngulube,
Regulatory Affairs Officer

Research governance is the in house department that is charged with ensuring that all studies conducted by Zambart are of the highest integrity and quality. The department ensures that good research ethical practices are maintained. The department oversees training in research ethics, Good documentation practices, and Good clinical practices. The department is the focal contact between the researchers and the regulator/ECs and the sponsor appointed monitors and auditors".

The major activities carried out by the department in 2019 were development of training manuals, training of two study teams, support visits, routine monitoring and auditing of the studies, quality assurance and control, logging of consent forms, and archiving of study material for completed studies.

The training curriculum consisted of:

- Information giving and consenting procedures
- Good documentation practices
- Good Clinical Practices

- Foundations of Research Ethics
- Research Integrity

The department also developed flash cards for informed consenting and documentation practices to assist study teams as they conducted these procedures.

Support visits

The TB prevalence survey treats study teams in Lusaka (Kanyama, Chipata, and Chawama), Ndola (Chipulukusu and Chifubu) and Kitwe (Ndeke and Chimwemwe) received support visits during which guidance and corrections were provided to address issues that were noted during the visits.

Routine monitoring

Routine monitoring activities include verification of data recorded and observations of procedures such as sputum collection and HIV testing. The findings were presented to the study teams and corrective and preventative actions discussed and implemented

Routine monitoring visits were made to the TREATS TB Prevalence sites in Lusaka, Ndola and Kitwe, and the TREATS infection cohort sites in Lusaka (Chawama and Kanyama), Livingstone (Dambwa), Ndola (Chifubu) and Kitwe (Chipulukusu).

Quality Assurance and Control procedures

To ensure that quality was maintained in all studies, dependent on the study, completed source documents received 10-100% Quality control checks so as to ensure completeness and accuracy of the data collected.

All completed consent forms were logged on consent logs.

Archiving of the studies of the Self-testing Africa study, phase 1 commenced in 2019.

Health Economics

Lawrence Mwenge,
Health Economist

Introduction

The Health Economics Unit (HEU) aims to contribute positively to the performance of health systems in Zambia and surrounding regions through informing health policy and enhancing technical and managerial capacity. Its foundation is grounded on the need for research excellence in health economics and related health system issues in developing world. HEU has been conducting a number of economic analysis alongside other public health studies at Zambart. Zambart has been conducting health economics related research since late 1990.

The HEU aims to carry out high quality research in health economics, health policy and systems research.

Currently, we conduct research in the following areas:

- Economic evaluation of key public health priorities including HIV prevention and treatment and TB programmes.
- Health care financing.
- Scaling-up access to priority interventions.
- Application of behaviour economics in healthcare evaluation.

This report outlines key research activities which were undertaken by the unit.

2019 Health economics Research highlights

Economic analysis of Oral HIV self-testing strategies

In the period under review, the team conducted economic analysis of 5 models of Oral HIV-self testing (HIVST) under STAR phase two (STAR II); facility-led model through antenatal care, ART and outpatient departments, retail outlets and workplace models. STAR II project is an extension of STAR implemented in Zambia, Malawi, Zimbabwe, Lesotho, Eswatini and South Africa. The team worked with the economics teams from London School of Hygiene and Tropical Medicine and other project countries under the leadership of Prof Fern Terris-Prestholt.

In Zambia, economic evaluation of HIVST distribution was conducted alone side case studies which were done in 3 urban communities of Lusaka. We calculated both full costs in 2018 United States dollars (US$)

Table 1 presents the economic cost of HIVST distribution by models. Costs of facility-led HIVST distribution models, through OPD, were calculated as **$60,853.34, $53,348.08** and **$35,995.06** with cost per kit distributed at **$12.00, $4.07** and **$6.87** for community 1, community 2 and community 3, respectively. For the ANC model, the costs were calculated as $7,450.21 for community 1, $8,047.14 for community 2 and $6,534.17 for community 3 resulting in cost per kit distributed of $13.21, $6.29 and 8.69, respectively. The costs of distributing HIVST kits through ART model were $4,029.21, $11,667.86 and $1,041.36 with cost per kit distributed of $23.98, $8.29 and $9.06 for community 1, community 2 and community 3, respectively.

The costs of distributing HIVST kits through retail outlet (informal small scale business) models were calculated as $35,303.03 and $21,167.97 in community 1 and community 2 resulting in per kit distributed costs of $19.84 and $63.76, respectively. Data analysis for workplace model is underway.

Economic analysis of TREATS

As part of cost-effectiveness modelling, we conducted cost analysis of TB services in 6 study sites (Lusaka: Chipata and Chawama, Kabwe: Ngungu, Ndola: Chipulukusu and Chifubu, Kitwe: Ndeke). Costs are presented in 2018 US$. Data collation has been completed. Data analysis is underway: preliminary results from four sites show that TB sputum testing costs US$7.73 (US$3.33-12.94) and US$25.72 (US$13.29-36.27) using florescent microscope (FM) and gene expert (Xpert), respectively. Annual cost per patient was calculated at US$114.74 (US$92.38-131.62).

Economic analysis of Yathu Yathu trial

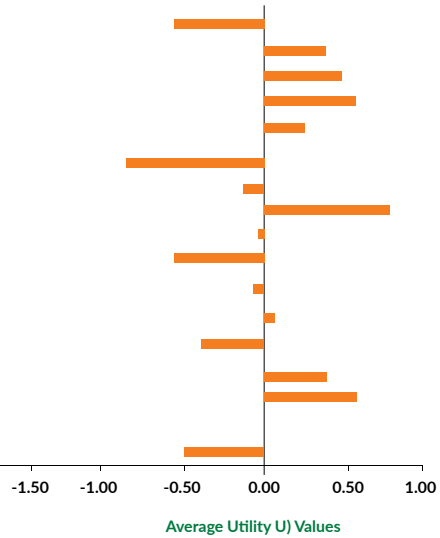
In 2019, we also commenced economic analysis of Yathu Yathu trial. Yathu Yathu is community randomized trial which is designed to deliver peer-led comprehensive sexual and reproductive health (SRH) services to adolescents and young people (AYP) in Lusaka, Zambia. The trial is sponsored by London School of Hygiene and Tropical medicine (LSTM) with funding from Medical Research Council, UK.

Table 2: Economic costs by HIVST distribution model

Distribution model	Number of HIVST kits distributed	Full economic costs (US$)	
		Total	Cost per kit distributed
Community 1			
Pool facility model (urban clinic)	5805	$72,332.76	$12.46
Out-patient department (OPD)	5073	$60,853.34	$12.00
Ante natal care clinic (ANC)	564	$7,450.21	$13.21
Anti-retroviral therapy (ART) clinic	168	$4,029.21	$23.98
Retail outlet	1779	$35303.03	$19.84
Community 2			
Pool facility model (1st level hospital)	15790	$73,063.09	$4.63
Out-patient department (OPD)	13104	$53,348.08	$4.07
Ante natal care clinic (ANC)	1279	$8,047.14	$6.29
Anti-retroviral therapy (ART) clinic	1407	$11,667.86	$8.29
Community 3			
Pool facility model (1st level hospital)	6083	$43,593.70	$7.17
Out-patient department (OPD)	5239	$35,995.06	$6.87
Ante natal care clinic (ANC)	729	$6,534.17	$8.96
Anti-retroneeds to be addedoviral therapy (ART) clinic	115	$1,041.36	$9.06
Retail outlet	332	$21167.97	$63.76

In 2019 as part of Yathu Yathu formative research, we conducted discrete choice experiments (DCEs) to elicit young people's preferences for SRH service delivery. DCE findings were triangulated with qualitative findings to inform final design of Yathu Yathu interventions. The results show that AYP are more likely to access SRH services which include a comprehensive package of HIV and contraceptive services plus other health services and provided by a combination of medical staff and peer supporter (lay) workers at a more youth-friendly space. Figure 1 shows participant's relative preferences for SRH service delivery characteristics. Bars with positive values represents positive preference as positive to bars with negative values. The longer the bar the stronger the preference.

Location	Yathu Yathu in the community
	yathu yathu space at the clinic
	OPD at the clinic
Provider	Medical staff plus PSW
	PSW
	Medical
SRH service package	Health services and non-health services package
	SRH (including HIV) & other health services package
	HIV & other SRH services package
	HIV services only
Service differentiation by gender	No difference
	Differetiation
Youth Friendliness	No edutainment
	presence of edutainment
Opening Time	Weekends only (08:00-18:00hrs)
	Monday to Friday (12:00-20:00hrs)
	Monday to Friday (08:00-17:00hrs)



Chapter Two

OUR PEOPLE

Introduction

Gilbert Jikubi,
Human Resources Manager

The Human Resources Department (HRD) plays a key role in developing the human capital of Zambart, by recruiting highly qualified professionals, facilitating staff procedures, continuous training of the human resources, providing expertise and consultancy in the organization restructuring field, and providing highly efficient services in the Human Resources and administration fields. All these efforts contribute directly to the implementation of Zambart's strategy and the execution of its mission. The key activities undertaken by the Human Resources Department and the performance of Zambart in relation to staffing related matters during the last twelve months is highlighted below.

1. Establishment

Zambart's establishment as at 31 January 2019 was 163 compared to 274 as at 31 January 2018 showing a decrease in establishment of 40% with the biggest decreases in staff being in the field teams due to the completion of the field activities for the HPTN 071/PopART study during the 3rd and 4th quarters of 2018.

2. Staff Wellness

Zambart Management has continued to promote and support employee health through the Employee Wellness program which was designed by the staff and included a program of exercise and promotion of regular health checks such as blood pressure monitoring.

3. Health Insurance

Zambart complied with the new National Health Insurance Act of 2018 from 1st October 2019 when it came into effect. The Act provides for the financing for the national health system and provide for a universal access to quality insured health care services. Zambart in addition has continued to maintain insurance cover for its employees with a reputable health insurance company.

4. Mandatory Training

Zambart continued to ensure all new staff received the appropriate level of mandatory training as required for their post during 2019. The HR and RD teams undertook a huge piece of work to ensure the Zambart was meeting the requirements.

Zambart during the period under review continued to support employees pursuing masters (02) and doctorate (05) studies in health related fields either directly or indirectly. Zambart continued to include scholarship opportunities in research proposals submitted for funding.

Lawrence Mwenge,
PhD student within the Health Systems and Policy Unit in the School of Public Health of the University of Zambia (UNZA). His thesis is titled: Economic analysis of incentivised sexual and reproductive health (SRH) service delivery among adolescents and young people in Zambia.

Dr. Mohammed Limbada ,
Final year PhD student at the London School of Hygiene and Tropical Medicine in infectious and tropical diseases. Dissertation: Effectiveness of community models of ART delivery (DSD) to facility based care in an urban high HIV burden setting.

Dr. Modupe Amofa-Sekyi,
TREATS Infection Cohort Study Manager

Mwelwa Phiri,
PhD student at the London School of Hygiene and Tropical Medicine
Topic: Adolescents and young men and their access to Sexual Reproductive Health Services (SRHS)

Dr. Chali Wapamesa,
Masters' Student at the London School of Hygiene and Tropical Medicine

Chepela Ngulube,
Masters' Student at the London School of Hygiene and Tropical Medicine in Clinical Trials

Tila M. Mainga
PhD student at the London School of Hygiene and Tropical Medicine
Topic: Experiences and Challenges of Mental Distress and Tuberculosis in Zambia

5. Employee Relations

Ensuring open channels of communication is key approach to ensuring a satisfied workforce. Management has made available to employees various fora to enable communication of issues along the chain including unit meetings, All- staff meetings, the suggestion box monitored by the ED, a whistle blowing policy, and an open-door approach. In order to ensure that conditions of service offered to employees continue to be competitive, Zambart participated in a salary survey in October 2019 organized by the NGO/INGO group. The results of the report indicated that Zambart was among the top six employers among the group that were surveyed. The report helped Zambart to focus on continuously improving the terms and conditions of service for its employees.

6. Employment Code Act of 2019

The enactment of the new labour law Employment Code Act of 2019 which repealed and replaced the Employment Act, the Employment (Special Provisions) Act, the Employment of Young Persons and Children Act and the Minimum Wages and Conditions of Employment Act, required Zambart to review a host of its policies and the terms and conditions of employment in order to remain compliant. The HR team spearheaded the review of Zambart policies and ensured compliance to the new Act by 1st of September 2019.

7. Recruitment

The HR team put in a great deal of work to ensure the successful recruitment and on-boarding of more than 80 new employees for the TREATS study in Ndola and Kitwe.

8. Learning and Development

The Executive Director and her team of Directors continued to support senior managers in various aspects of leadership development. The team has been through considerable change in 2019 with more emphasis on internal controls by establishing an Internal Audit Department.

A 360 degree feedback system continued to be used on senior management during the period under review.

9. Human Resource Support

The HR team and the Research Directorate continued have meetings to review the activities of the field teams and re-organized and realigned the teams for effective performance. The HR team continued to support to the field teams on various HR related matters.

The HRD continued to monitor the use of electronic Time Sheets and Payslips and established that it had cut the cost of operations by almost 25% in 2019.

10. What's ahead in 2020

The HR team will continue to be innovative and continue to look for ways and means to reduce personnel costs while improving the employment conditions.

Chapter Three
OUR COMMUNICATION

Stakeholder Engagement

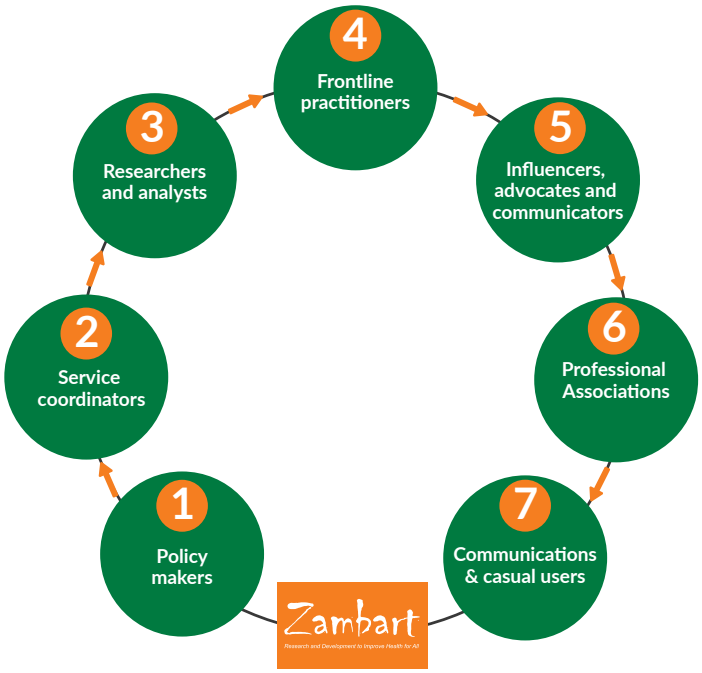
All our work is driven by the needs of our stakeholders. Strengthening relationships with stakeholders and using community and media engagement and technology to build audiences for our studies and study results continued to be a strong focus in 2019.

Our Strong Strategic Partnerships strategy has a clear goal— strengthening existing partnerships and developing new ones while continuing our purpose to be internationally recognized as Africa's leading public health research and training organization.

We undertook extensive stakeholder engagement that included two strategic media engagement workshops. This is in line with our goal to build capacity in science reporting among the media fraternity. As a result of the project, we have expanded our engagement with the media from different organisations through consultations and briefings on forthcoming study results releases. We also increased our engagement by attending and presenting at conferences and inviting experts to speak to Zambart staff about developments in public health research.

We also continued our strong engagement through our network of advisory groups and through our website and social media platforms.

Zambart's Stakeholders



Key funders and partners — majority of this stakeholder engagement takes place at the operational level

1. **Policy makers**

   Government policymakers at all levels (local, district, provincial and national) including policy officials and agencies with similar or complementary responsibilities

2. **Service coordinators**

   Governments and other organisations conducting service-level planning and looking to benchmark and improve their performance

3. **Researchers and analysts**

   Academics and professionals looking to 'deep dive' into issues and build stronger evidence

4. **Frontline practitioners**

   Health and other practitioners and providers looking to use local area data in their day-to-day work (e.g. doctors, nurses, clinicians, preventative health sector)

5. **Influencers, advocates and communicators**

   Journalists, consumer groups, non-government organisations (NGOs) and others looking to influence health and policy or local planning, and educate the community

6. **Professional associations**

   Professional associations (e.g. Zambia Medical Association) that advocate on behalf of their members to government, research institutions and other bodies on issues of health and policy and

7. **Communities and casual users**

   Communities looking to use authoritative data to inform their decisions and casual users looking for 'quick grabs' (e.g. Students and tertiary schools, parents looking for information on sexual reproductive health services).

Communication strategies

We began developing a comprehensive Communication Strategy which looked at our digital communication assets - website and social media platforms. The concept is split into 2 strategies: social media and website, and these strategies will enable us to better organise content and curate our information in a manner designed to attract as many users to the sites. The goal of the website strategy is to develop a more interactive website, while the social media strategy will act as a blueprint for the role and growth of social media. We aim to apply the best practice for our social media platform outputs to improve the quality of our messages, increase our audience reach and build on the depth of engagement with our stakeholders.

Collaborating with our stakeholders

To successfully perform our work, we rely on forging and maintaining positive,

productive relationships with the many stakeholders across the country and internationally.

The multi-disciplinary nature of our work is reflected in the composition of the workforce and the diverse range of organisations with whom we collaborate, and whom in some cases we have entered into an agreement or a memorandum of understanding (MoU).

Reaching our audiences

We continued to make our work widely available and easy to understand through increased use of publications, study disseminations and conference presentations. Our information is available free of charge on our website.

Study Disseminations

These are key to the core of Zambart's commitment to sharing results of with our various stakeholders, and are held at the end of each study.

Social media

Facebook

Facebook (@ZambartResearch) was our primary social media platform for communicating with our stakeholders in 2019. We had 3620 followers as at 31st December 2019—an increase from the previous year.

Twitter

Twitter (@ZambartResearch) is another social media platform we started to use for communicating with our stakeholders in 2019. We hope to publish more tweets and gain more followers in the coming year

Media Engagement Series

In March 2019, we conducted our first media engagement workshop that provided an opportunity for Lusaka based journalists to learn more about our work and gain more insight into science reporting. Attendees were presented with information about our research projects, insights into new and innovative projects and a tour of the central laboratory based at Zambart House. They were also given a chance to interview Zambart staff. The second one was held in October 2019 and involved taking journalists to visit some of our study sites around the country, accompanying a team from the TB Union who were filming a documentary on the TREATS study.

In 2020, we will host further workshops, with a more TB/HIV focused workshop in development.

Our website

Our website at www.zambart.org.zm is our main channel for Zambart information including our PDF reports, other study related outputs, our studies and corporate information.

There were 8,921 sessions on our website in 2019—a slight drop from the previous year.

Media coverage

We issued 3 media releases in 2019. Media coverage increased steadily over this period due to several high profile releases, including results on the HPTN 071 (PopART) study and ancillary studies. The inclusion of regional-level data in some publications also contributed to increased coverage by local media outlets.

Compared with 2017–18, our coverage increased most notably in 2019 for radio, television and print coverage.

Chapter Four
FINANCIAL OVERVIEW

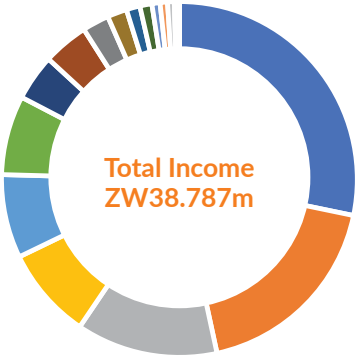
Frank Mbozi,
Finance Manager

Income

Total income declined from Kw86.07million in 2018 to Kw38.78million in 2019. This decline was due to the reduction in funding from HPTN071/PopART project.

Implementation of the TREATS study and the Yathu study continued and their combined contributed made up 31.21% of the income for the year. PopART contributed 28.25% on the annual income as the study was winding up.

The year under review saw scaled up fundraising initiatives with a few contracts such as the TB Drug Resistance survey (TB-DRS- MOH), poverty dynamics study (ODI, DFID) coming along during the year and others such as the Urban Infrastructure (British Academy, GCRF), the Female Genital Schistosomiasis (NTD SC, DFID), the PopART analysis (Gates via



- Popart (28.25%)
- TREATS (18.35%)
- Yathu Yathu (12.86%)
- Drug Resistant Survey (8.37%)
- STAR II (7.60%)
- Popart PX Study (7.21%)
- Eradicate TB (4.19%)
- Popart Phylogenetic (4.14%)
- Popart Stigma Study (2.43%)
- TB.018 Vaccine Trials (1.78%)
- Poverty Dynamics Study (1.24%)
- BILHIV (1.09%)
- TB Meningitis (0.74%)
- Tellisgnhe (0.67%)
- SEPO III (0.61%)
- SMH Foundation (0.29%)
- Ellume (0.12%)
- SHINE UTH (0.05%)

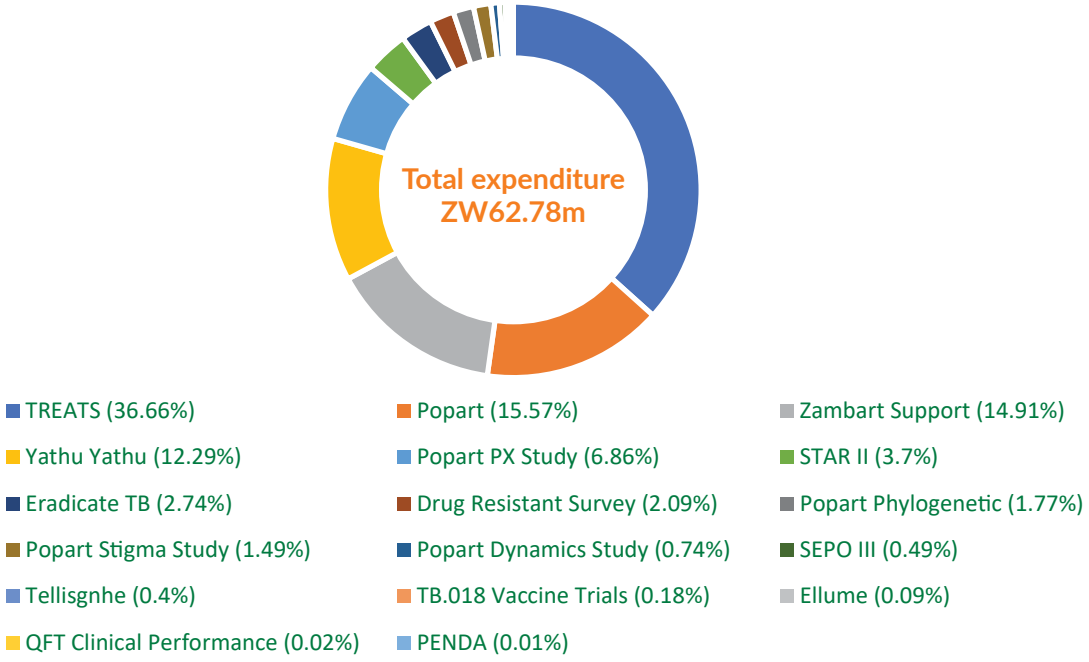
LSHTM), the stigma analysis (Gates via LSHTM) and the AMPHEUS study (Oxford University) to commence early in 2020. There were other smaller initiatives that we managed to win during the year.

Expenditure

Total expenditure declined by 13% from the previous financial year. The main reason for this decline in expenditure was the phasing out of the PopART funding that accounted for the larger portion of the previous years' expenditure.

TREATS study accounted for 36.7% of the total expenditure with PopART accounting for 15.6% and Yathu Yathu 12.3%. Zambart support accounted for 15% of the total expenditure and 18% of the direct study costs.

The chart below shows the total expenditure by study plus Zambart Support costs



Organisational Development and financial assurance

In 2019 the internal audit department was fully implemented . The role of internal audit is to provide assurance to the directors on the internal control environment and so strengthen financial probity and compliance to internal and external regulations.

Zambart embarked on automating its internal processes and procedures during the year under review. The purpose of this drive is to go towards being paperless and enable management to review and approve various transactions from wherever they may be, over the internet.

For a start, we engaged Better ways Innovations, a renowned IT solutions company to develop the procurement system and good progress was made in this regard during the year. It is envisaged that once the automated procurement system is implemented, we can move to other processes such as payment process and other HR related processes.

The yellow book and the statutory audits were conducted in 2019 and Zambart received a positive bill of health in both audits for the year 2018.

Condensed financial statements for 2019

Zambia Condensed Financial Statement for the years ended 31 December 2019		
	2019	2018
	ZMW	ZMW
Revenues		
The money that we received		
Donors grants	38,787,484	86,074,357
Audit adjustment	-	(2,264)
Interest income and other	3,905,135	4,687,339
	42,692,619	**90,759,432**
Expenses		
How we spent		
Personnel Costs	37,415,650	51,372,474
Operational Costs	25,362,898	20,740,688
Less financing costs	0	19,689
	62,778,548	**72,132,851**
Our financial position		
Revenue over expense	(20,085,926)	18,626,581
Equity and reserves, at 1st January	31,453,379	12,196,399
Change in net assets	3,512,770	612,399
Equity and reserves, at 31st December	**14,862,220**	**31,435,379**

Notes:

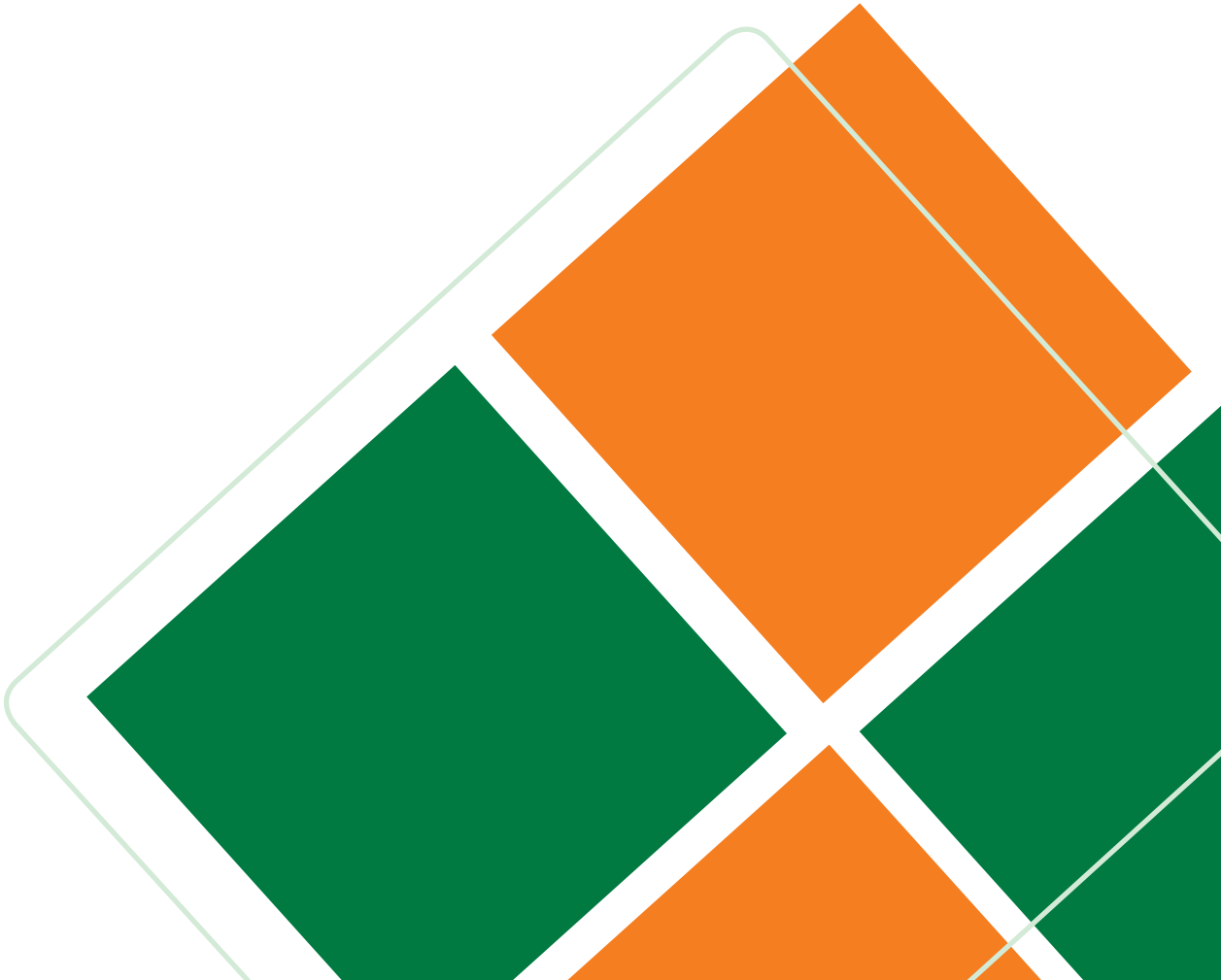
1: 2018 income figure adjusted to alighn with audited financiakl statement for 2018

2: Fixed asset additions for the year was K364, 103 and fixed assets were revalued by K3,148,667

Active studies during 2019

STUDY	FUNDER
Popart: Cluster randomised trial of the impact of the combination prevention package on population- level HIV incidence in Zambia and South Africa	National Institute of Health, USA/LSHTM
	BMG Foundation via 3ie /LSHTM
HPTN 071 Sub study: HIV-related stigma and discrimination among health workers in sub-Saharan Africa in the context of universal combination HIV prevention and treatment:	National Institute of Health, USA/ LSHTM
HPTN 071 Sub study: Phylogenetics in PopART	National Institute of Health, USA / LSHTM
Eradicate TB study	PATH Zambia
Aeras TB Vaccine trials: A Phase IIb, double blind, randomised, placebo-controlled study	The international AIDS vaccine initiative
TB Drug Resistance Survey	Ministry of Health, Zambia
Telisinghe study: Can community-wide active case finding for tuberculosis and universal testing and treatment for HIV control the African tuberculosis epidemic?	LSHTM
Poverty dynamics study	Overseas Development Institute (ODI)
QFT Access usability study	QIAGEN GmbH
Programme to Evaluate and Inform Disability Action (PENDA)	LSHTM (DfID)
SEPO III - Advancing Chronic Disease Models of Care for People Living with HIV in Resource-Poor Settings	University of Toronto

STUDY	FUNDER
Tuberculosis Reduction through Expanded Anti-retroviral Treatment and Screening for active TB (TREATS) study	EDCTP II
HIV Self-Testing Africa Region (STAR II)	Population Services International via LSHTM
Yathu Yathu - A Cluster Randomised Trial of community-based SRH and HIV services for adolescents and young people in Zambia	MRC via LSHTM



THANK YOU

Aeras/GSK

British Academy

Berth Israel Deaconess Medical Centre

Bill & Melinda Gates Foundation

Delft Imaging Systems, Netherlands

Desmond Tutu TB Centre- Stellenbosch University

Department For International Development

European and Developing Countries Clinical Trials Project II

Family Health International 360 (FHI360)

Global Challenge Research Fund

Imperial College

International Initiative for Impact Evaluation (3IE)

London School of Hygiene and Tropical Medicines (LSHTM)

Medical Research Council- UK

Ministry of Health, Zambia

National Institute of Health, USA

Neglected Tropical Disease Support Center

Overseas Development Institute

PATH Zambia

Population Council, Zambia

Population Services International/UNIT AID

SHM Foundation

The University of Toronto

The University of Zambia, School of Public Health

University Teaching Hospital, Lusaka

The international AIDS Vaccine Initiative

The University of Oxford

Zambart Research Directorate Draft Strategic Framework

Vision

To be internationally recognized as Africa's leading public health research and training organization

Mission

1. To conduct high quality health research
2. To train world class health researchers

Values

Zambart's key values are Excellence, Quality and Compassion.

Strategy

The Zambart research directorate strategy is made of 7 key strategic priorities:

1. High Quality Health Research: Expand beyond HIV& TB into other areas of health research
2. Strong Strategic Partnerships: Strengthening existing partnerships and developing new ones
3. Great Global Reputation: being visible and well known locally, regionally and globally
4. Demonstrable Policy Impact and Influence: Locally and internationally
5. Financial Sustainability
6. Robust Training and Consultancy arm: a self-sustaining business providing services to others
7. Great place to Work: inspired people working in a great environment

Streategic Priorities And Targets

1. High Quality Health Research: Expand beyond HIV& TB into other areas of health research

Zambart has traditionally been known for research in the field of TB and HIV and this is where we have all of our expertise. The focus on this area of work will remain and it is anticipated that ongoing and new studies will continue this work. However, there is also a strong desire to move into other areas of research and this will necessitate developing new relationships with individuals and institutions who have the necessary expertise.

Key Performance targets 2020:

1. To have won at least 2 new major research grants in the field of TB/HIV by 2020
2. To have successfully first authored at least 10 papers from the HPTN 071 PopART trial, and 10 papers from the other research studies that are ongoing
3. To have made at least one new linkage with an area of public health beyond TB/HIV

Key performance targets 2025:

1. To have at least 3 grants in research areas that are beyond TB/HIV
2. To have attracted one senior researcher in an area not related to TB or HIV

2. Strong Strategic Partnerships: Strengthening existing partnerships and developing new ones

Zambart developed out of a strong partnership between the London School of Hygiene and Tropical Medicine and the University of Zambia, School of Medicine. The strong partnership between the two institutions has continued and has developed as the University of Zambia, School of Public health has been developed and as significant changes in funding and structure have occurred at LSHTM.

Zambart has also enjoyed strong partnerships with other institutions including Stellenbosch University, Imperial College, HPTN and Johns Hopkins University. Over the past two years Zambart has developed new partnerships with KNCV, Qiagen, Sheffield University and the Union and these need to be nurtured and expanded.

In order to continue to function nationally and internationally Zambart needs to strengthen and expand these relationships.

Key Performance targets 2020:

1. To have a meaningful partnership with the University of Zambia, School of Public Health, evidenced by a functional MoU, joint appointments for at least 3 staff members, joint post-graduate and masters students.
2. To have developed a renewed relationship with LSHTM evidenced by visits from senior LSHTM faculty, increased student placements, ongoing postgraduate students
3. To partner in at least one new grant with a recently formed partnership.

Key Performance Targets 2025:

1. To have at least two new strategic partnerships with institutions nationally and internationally
2. To have a new relationship with LSHTM such that Zambart is recognized at the top of the list of strategic partners

3. Great Global Reputation: Being visible and well known locally, regionally and globally

Zambart is well known in some fields but entirely unknown in others. Going forwards Zambart should be a nationally and internationally recognizable brand that symbolizes quality research.

Reputation in the field of research develops from academic engagement with publications, conference presentations and also broader media engagement.

Key Performance targets 2020:

1. A new recognizable brand which represents the key research strategies
2. At least 10 papers in high impact journals with Zambart authors first or last
3. At least 5 media mentions and 1 specific media article

Key Performance targets 2025:

1. At least 2 invited plenary talks at international conferences
2. The majority of papers are first or last authored by Zambart staff
3. Zambart research conference

4. Demonstrable Policy Impact and Influence: Locally and internationally

For our research to have meaning we need it to be adopted into health policy locally and internationally. This is achieved by networking with key policy makers and policy making institutions such as Ministry of Health, WHO, UNAIDS, PEPFAR etc.

Engagement and networking with stakeholders locally and internationally requires Zambart to have representation on key committees and technical working groups and to contribute to guidelines development groups

Key Performance targets 2020:

1. Zambart visible and proactive member on at least 3 national technical working groups
2. Zambart staff invited to participate in at least one international guidelines working group
3. At least 3 requests for assistance with policy or guidelines

Key Performance targets 2025:

1. More than 3 different Zambart staff members invited to attend WHO guidelines or policy groups
2. Stakeholder engagement is a key part of our activities in all programmes

5. Financial Sustainability

As a research organization Zambart needs to sustain itself financially via research grants. A constant income is challenging but needs to be maintained to ensure consistency in the administration of Zambart and to allow security and career progression for staff. This is best provided via a diverse portfolio of grant holders and funders, so that funding is not reliant on one individual or donor.

Key Performance targets 2020:

1. Robust grant writing pipe line in operation
2. At least 10 grant proposals submitted by at least 4 different individuals, to at least 3 different funders
3. At least two successful new grant applications

Key Performance targets 2025:

1. A strategically balanced and inclusive grant portfolio with no funding gaps for the previous 3 years
2. At least one additional member of staff submitting a grant proposal annually, so that the pool of grant writers is now more than 8

6. Robust Training and Consultancy arm: A self-sustaining business providing services to others

Recognizing the limitations of purely grant funding, and acknowledging the potential value of some consultancies, Zambart would like to form a "for profit" company which would allow it to provide training courses on specific topics as well as to act in a consultancy capacity. This may include laboratory work, epidemiological surveys or qualitative work.

This "Zambart Ltd" would function alongside the research arm without detracting from it in terms of person time and would provide additional security for individuals if grant funding is limited. The company would not only build on Zambart's reputation but also enhance Zambart's reputation with stakeholders.

Key Performance targets 2020:

1. "Zambart Ltd established as a for profit entity, with all corresponding articles and policies
2. At least one consultancy bid completed

Key performance targets 2025:

1. "Zambart Ltd" fully functional and contributing towards common funding of Zambart
2. At least 2 training courses offered with demand from, and attended by, international students
3. At least 3 consultancies completed

7. Great place to Work: Inspired people working in a great environment

Zambart needs a committed, focused and inspired team working together to achieve its goals. Zambart has its own facilities but these need to grow and adapt to meet the needs of the organization.

Key Performance targets 2020:

1. A healthy pipeline of staff progressing through career development, in all fields, supported and funded by a capacity development team.
2. Updated facilities including a fresh look for Zambart house, improved maintenance and environment as well as state of the art video conferencing facilities.

Key Performance targets 2025:

1. Dedicated funding line for career development.
2. At least one new building/infrastructure development.

Excellence, Quality And Compassion

Key elements underpinning all of the strategic priorities of the research directorate are excellence, quality and compassion. Zambart aims to conduct all of its activities to the highest standards of research and ethics. The motivation for all that Zambart does is to improve the health of the people of Zambia and the rest of the world.

Research Governance

To ensure the highest possible standards in research Zambart will build a research governance department that is world leading. This department will provide guidance and leadership in all aspects of research governance and training and will monitor all research activities to ensure the highest possible standards.

All staff members will receive annual research ethics training and all studies will contribute towards the ongoing development of the research governance department. By 2025 Zambart will have its own ethics committee and will also provide research monitoring and support to other institutions planning research in the region.

Giving back to our communities

The communities in which we work are key partners in everything we do. Zambart will develop relationships with our research communities that represent true partnerships. Zambart will be a world leader in community engagement and will act as an inspirational model for others in the field.

Publications

Peer reviewed publications 2019

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