

BNMT NEPAL

Serving the People of Nepal



ANNUAL REPORT 2077/78 (2020/21)

UNITING, ADAPTING AND INNOVATING THROUGH THE COVID CRISIS

Our Funders



BATTLE OF THE COVID19 PANDEMIC

The covid19 pandemic has made the world such a vulnerable place that no one is safe until everyone is safe.

To defeat this deadly disease, we all must get our shields ready.

Get yourself **VACCINATED**. This shield will not only help protect us but others as well.

A wise action can save many lives!





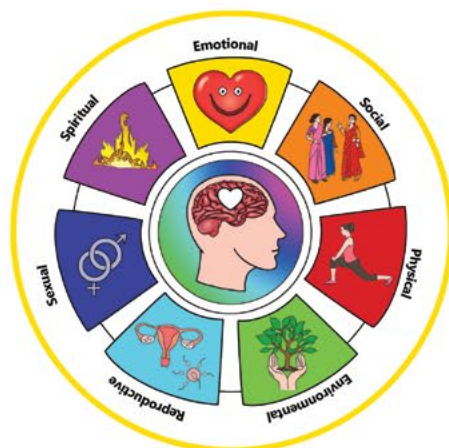
**Accelerating the
Elimination of
Infectious Diseases**



**Generating Evidence
to Inform Policy**

BNMT NEPAL

Serving the People of Nepal



**Improving
Mental &
Adolescent Health**



**Strengthening
Health Systems**

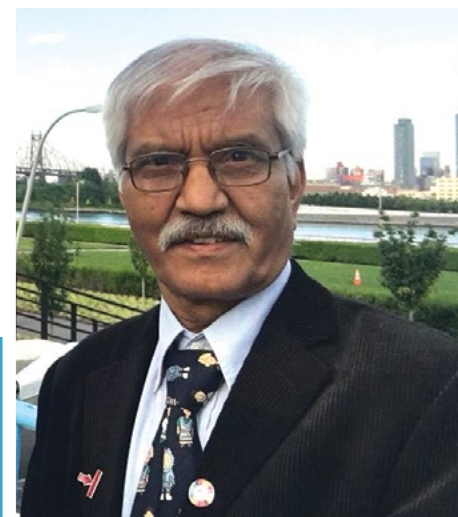


**Building Resilient
Prosperous
Communities**

Foreword from the Chairperson

Mr Mahesh Sharma

Chairperson
Birat Nepal Medical Trust



It has been almost two years of Covid pandemic that everyone struggled to maintain compassion, cooperation and partnership in order to respond to the challenges and the devastating effects of Covid at all sphere of life. Health system has remained at the centre of pandemic as there was a sudden surge for the need of health care at all levels. The health system in Nepal was slowly gaining momentum after restructuring of MoHP and peripheral delivery system after the federalisation country's political system five years ago in 2015. The pandemic has slowed down the restructuring process as the much of the attention of the system was focused in responding to the pandemic.

Responding to the pandemic in a very short time was a huge task to Nepal's health system which was already overstretched in meeting ever increasing health demand and other challenges. The MoHP, health professionals at all levels, local governments, development partners and NGOs all joined hand in responding to the pandemic. Holding centres/isolation centres were set up, testing services were expanded, hospital beds increased, oxygen plants were established at centre and periphery, additional health professionals, doctors and nurses were mobilised, preventive measures were expanded (including PPEs, sanitizers and masks) and many more innovative steps were taken. No health system is perfect, but health system in Nepal exhibited a fairly well resilient characteristics.

We are proud to be associated with MoHP and in joining the hand in Covid response led by the Ministry of Health. We supported emergency food relief, personal protective equipment, and laboratory and healthcare staff to government health services. During this period, we remained in close contact with Ministry and peripheral health authority so as to respond and adjust our

work to meet the need of the community.

Amidst the difficult situation, BNMT team were able to continue the field operations, continued to support TB patient (including nutrition support), facilitated community for newer TB case finding, supported youth for meeting their sexual and reproductive health challenges, and so on. We were also able to initiate two new programmes for genome sequencing in collaboration with Nepal Health Research Council and National Tuberculosis Centre which will further expand our understanding on tuberculosis and Covid which in turn is expected to help refine the national policy and response mechanism for controlling TB and addressing the challenges of Covid-19. In addition to this, we continued sharing our learnings and findings of our work and achievements through formal/informal publications at national and international forums, conferences and journals.

In days to come, we would be extending our hands for collaboration and cooperation with national and international partners in collectively responding to the health needs of Nepali people. We sincerely hope that international partners will continue their support to Nepal in responding to the crisis and other health need.

I sincerely appreciate all the partners who continued their support to BNMT in this difficult period through their financial, technical and moral support. My *naman* to the BNMT board members and staff at all levels for their hard work, commitments and resilience who collectively made all the achievements happen.

Message from the Acting Executive Director

Mr Raghu Dhital

Acting Executive Director
Birat Nepal Medical Trust



It is my pleasure to share the BNMT annual report for 2021. This year has been challenging for all, as Nepal continues to fight the global COVID-19 pandemic.

Amidst the challenges caused by the pandemic, we continued to succeed through this year, executing both ongoing and new projects across our districts and achieving all of our project targets successfully. We continue to work in close integration with the National TB Control Centre, retaining our long-established focus of supporting TB affected communities and individuals and bringing in innovations to strengthen TB control efforts. In addition, we have rapidly responded to the newly emerged COVID-19 pandemic and addressed chronic health and development issues affecting our communities, such as Sexual and Reproductive Health and Rights for adolescents, HPV screening and cervical cancer prevention. Moreover, we have been fortunate to receive support for new innovative work, which will develop our research capacity in infectious diseases and response preparedness in Nepal, through the COVID-19 gene sequencing project, Epidemic Intelligence and our TB gene sequencing project, Target TB. We were able to initiate new partnerships with exceptional partners like Nepal Health Research Council, GENETUP laboratory, TB Nepal, Centre for Molecular Dynamics-Nepal. We are looking forward to working together to serve the people of Nepal and solve our challenges together. I hope you will enjoy reading about these exciting new projects in the report.

Our Major Achievements this year include:

- IMPACT TB phase 2 project, under the active case finding for tuberculosis, tested 6,599 presumptive TB cases, diagnosed and supported to treatment 380 TB cases so far in four project districts with the supply of 5 additional GeneXpert machines and 10,000 cartridges for TB diagnosis.

- The Target TB project has started recruitment for TB gene sequencing, with 80 patients enrolled till June 2021.
- The TB recovery project has supported 100 families affected by TB with a nutritional support package designed in consultation with a nutritionist and TB survivors.
- The BNMT SUSTAIN project is providing staff support of 14 frontline health workers in 7 districts to support overburdened government health services during the COVID-19 crisis. The project also provided emergency PPE for frontline health workers and hygiene kits for covid19/TB patients in 7 districts.
- Epidemic Intelligence project has recruited 400 COVID-19 patients from Koshi hospital, Bheri hospital and Sukraraj Tropical hospital across Nepal and viral sequencing is underway.

All this was possible because of each and every staff members' hard work, effort and contribution. I would like to thank them from the bottom of my heart.

I sincerely thank all of our national and international partners, MOHP, NTCC, NHRC, HO, PHD, and local government authorities, for their tireless support and partnership towards BNMT. None of our achievements would be possible without their continued and earnest support. I would also like to deeply thank all of our kind donors for their continued support and trust for BNMT, especially during such a tough year for the world. We look forward to continuing our work together in brighter days to come.

Unity in the time of COVID

Dr Maxine Caws

A year unlike any other. The BNMT team, like everyone, has had to adapt and innovate to respond to the new context of COVID, while also facing personal challenges and the loss of family and loved ones. The strength of our team has shone through this often dark year in a remarkable way, bringing occasions of joy amidst the tragedy.

Together, and with the generous support of our international friends and collaborators, we have been able to continue our Community Based Active Case Finding- diagnosing and supporting throughout treatment people affected by TB. This year we have also launched a programme of food support to families affected by TB (TB Recovery). This project was designed in response to our research showing that one in three TB affected households suffer food insecurity, exacerbated by the catastrophic costs of having TB disease.

We have responded to COVID by supporting emergency food relief, personal protective equipment (PPE) for healthcare workers, and auxiliary laboratory and healthcare staff to government health services through the SUSTAIN project. We have adapted our response as the situation evolved in Nepal, in close consultation with communities, local government authorities and healthcare workers to ensure we utilize resources in the most effective way to meet critical needs.

Also this year, we have launched two advanced genetics projects for tuberculosis (TARGET TB) and COVID-19 (Epidemic Intelligence), in collaboration with the National TB Control Centre (NTCC) and the Nepal Health Research Council (NHRC). These projects will conduct large scale whole genome pathogen sequencing to improve our understanding of these devastating epidemics, which in turn will refine our future efforts to eliminate them. These projects will also build capacity and contribute to the wider development of cutting-edge infectious disease research in Nepal.



We have also published and presented many of our research findings at national and international conferences and in international peer reviewed journals. These include research on the socioeconomic consequences of TB, facilitators and barriers to healthcare access, policy translation and mathematical modelling of the TB epidemic. These contributions to the TB field will help inform resource allocation and policy development to accelerate elimination of TB.

This is a year which has reversed decades of development progress for many countries, and sadly, Nepal is no exception. Maternal mortality has soared, many girls have been taken out of education and pushed into child marriage as their families struggle to cope with loss of livelihoods due to COVID, childhood vaccination rates have plummeted and inequality and extreme poverty have intensified. Recovery from COVID will indeed be a long road for Nepal. BNMT will continue to work with communities to build the recovery, strengthen our capacity, and look towards a brighter future.

Our team has been our strength through this crisis, and I pay tribute to my extraordinary colleagues whose dedication, commitment and resilience is truly inspiring.

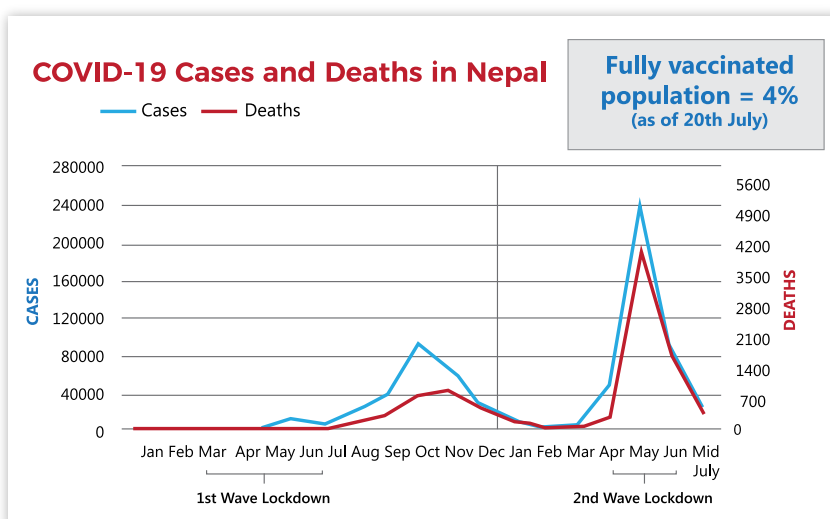
COVID pandemic and impact on Nepal

The global coronavirus pandemic has shaken the world with devastating effects on health systems, society, politics and economies around the world. Nepal, a developing country stands highly vulnerable with the pandemic hitting almost every sector of our economy.

The first wave of COVID in Nepal, March-November 2020, hit the economy hard and reversed a decade of development progress. Migrant labourers and daily wage earners were particularly hard hit, with lockdowns wiping out livelihoods overnight. Nepalese working in India, the Middle East and South East Asia faced a desperate struggle to return to their homeland. However, the number of cases and mortality remained relatively low in the first wave, raising hopes that Nepal would escape the health system collapses seen elsewhere, and leading to complacency and lack of adequate preparation for the second wave.

In March 2021, cases began to surge. This time the health services were rapidly overwhelmed, oxygen supplies ran out and exhausted doctors were forced to make heart-breaking decisions about who to prioritise for scarce ventilators and oxygen.

Throughout, as elsewhere, authorities have faced impossible choices between the catastrophic economic effects of lockdowns and protecting the health service and preventing deaths from COVID.



Lockdowns and reassignments of health staff and equipment have also had a severe impact on delivery of all essential health services, including TB. Maternal mortality has increased dramatically, with 258 recorded deaths among women in pregnancy or childbirth from March 2020-June 2021, compared to just 51 in the previous 12 months. The increased social, economic and structural vulnerability for poor and marginalized population is further pushing women and girls into child

marriages, exacerbating poverty, violence, and inequality. Access to sexual and reproductive health services such as family planning services, menstrual hygiene products, antenatal care and institutional delivery have been severely impacted. Unwanted pregnancies, unsafe abortions, maternal mortality, abuse, violence, stress, depression and suicide have escalated dramatically.

It is clear globally that high vaccination coverage is the only effective strategy for countries to defeat COVID and recover economically. Unfortunately, Nepal has struggled to secure sufficient vaccines, despite early success in rapidly administering 2 million COVISHIELD vaccine doses donated by India, and promises of future donations from the COVAX facility. As of end June 2021, only 4% (Source: John Hopkins University and Medicine) of the Nepali population had received full vaccination. Procuring additional vaccines, whether by purchase or donation, is the urgent priority for Nepal's COVID response.

Throughout the COVID crisis in Nepal, BNMT has worked in close co-ordination with the local government and communities to support procurement and distribution of PPE for frontline health workers. Our emergency response has also distributed food, essential medicines, and sanitation to the most vulnerable families experiencing food insecurity due to loss of livelihood. We have also been disseminating COVID19 awareness information via all of our platforms. Early in the pandemic, BNMT identified a critical gap in the ability of authorities to collect and rapidly

disseminate accurate information on the COVID situation. BNMT therefore supported the development of the Hamro Swasthya web portal and mobile application with our technical and government partners. This application became a key tool in monitoring and managing the epidemic response of the government and received ICT Award (Information Communication Technology Award) in the title "Jury Mention ICT Award 2020".

With support from the Wellcome Trust, BNMT has also initiated the Epidemic Intelligence consortium, to conduct whole genome sequencing for the SARS CoV2 virus which causes COVID, monitor the emergence and spread of new virus variants, and build in-country pathogen surveillance and sequencing capacity for future pandemic responses. (www.epiintelproject.org)

As Nepal prepares for the inevitable third wave of COVID and an uncertain economic future, BNMT will continue to innovate, adapt and support our communities to protect, recover, and rebuild together.

BNMT RESPONSE TO THE COVID EMERGENCY



WAVE 1 SUSTAIN: Emergency Support and Sustenance to Communities Affected by Crisis

Birat Nepal Medical Trust (BNMT Nepal) with funding support from the Britain Nepal Medical Trust and Nick Simons Foundation launched SUSTAIN project 'Emergency Support and Sustenance to Communities Affected by Crisis' with the objective of providing immediate relief to vulnerable and TB affected families. We designed the project in consultation and collaboration with the Ministry of Health and Population, the local district authorities and community stakeholders. Project SUSTAIN was implemented in Morang, Chitwan, Pyuthan, Bardiya, Mahottari districts of Nepal. The project has supported emergency procurement and distribution to the most vulnerable families via supply of Personal Protective Equipment (PPE), soap, hand sanitizer and thermometers for the front-line health workers; Food, sanitation materials and essential medicines for families experiencing food insecurity due to loss of livelihood;



1300
families affected with TB
received nutritional package



304
health workers
received PPE package



4
radio jingles
broadcasted in local FMs



WAVE 2 SUSTAIN: Emergency Support and Sustenance to Communities Affected by Crisis



As health services were rapidly overwhelmed by the second wave of COVID in Nepal, there was a critical need to strengthen supplies of personal protective equipment to protect frontline health workers and preserve health service delivery. Supported by BNMT-UK and Americares, BNMT designed SUSTAIN wave 2 to rapidly supply emergency PPE to frontline public health facilities and to provide salary for additional laboratory staff and auxiliary health workers to assist overburdened facilities during the crisis


1024

Re-usable PPE Set


80700

Surgical Masks


3830

KN95 Masks


50400

Surgical Gloves


2902

Face Shields


4972

Hand Sanitizers


45

Pulse Oximeter


100

Shoes Covers


100

Head Covers


800

Hygiene Kit Sets Distributed


13

Additional health service staff for COVID19 hospital and GeneXpert centre for 5 months


1373

Health Workers Benefitted



Handover of PPE in Chitwan district



Hygiene Kit distribution in Morang



EPIDEMIC INTELLIGENCE CORONAVIRUS SEQUENCING SURVEILLANCE IN NEPAL



www.epiintelnepal.org

Humanity is in a deadly race with SARS CoV-2, the virus that causes COVID-19 disease. As the COVID-19 pandemic engulfed the world in 2020 with unprecedented social, economic and political consequences, the scramble began to develop effective vaccines which could protect us from infection and slow transmission of this lethal new virus. The first key step towards vaccine development was the sequencing by Chinese scientists of the viral RNA. This allowed scientists to understand the components and structure of SARS CoV-2 and to find an Achilles heel- the part of the virus which could most easily be attacked by our immune systems. The target of choice for COVID vaccines was the 'Spike' protein which projects from the surface of the virus and attaches to our own cells.

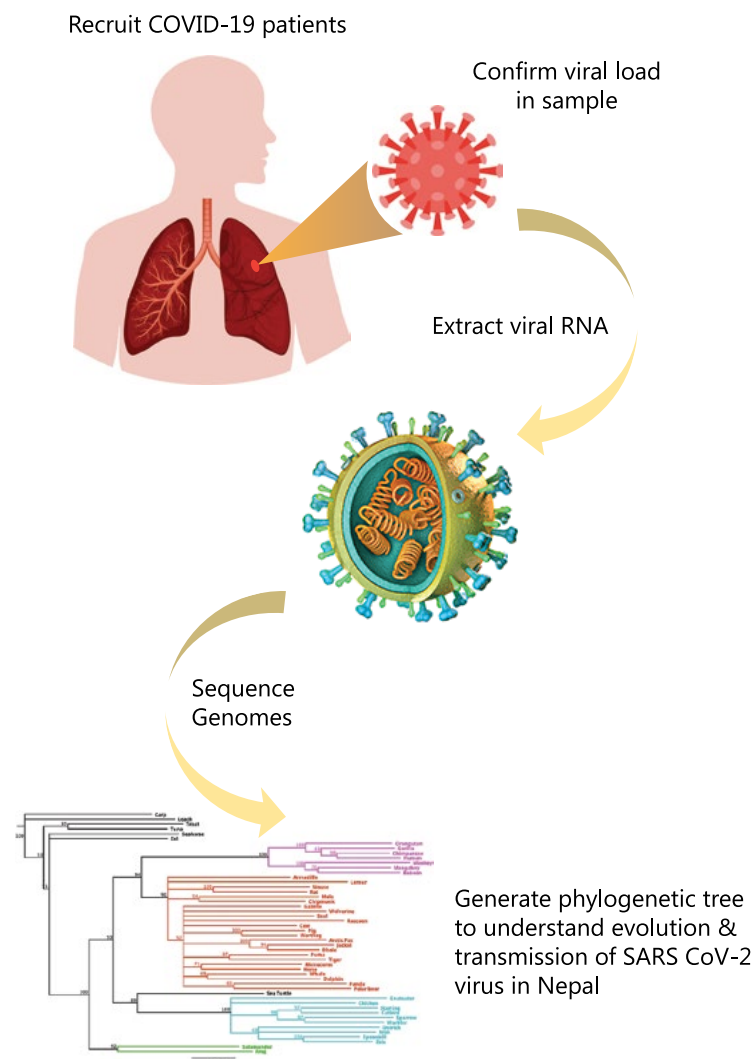
In autumn 2020, the world cheered as multiple vaccine trials began to report high levels of protection against COVID-19 and the battle began to manufacture and distribute enough vaccines to protect the world. However, in autumn 2020, reports also began to emerge of 'variants' of the SARS CoV-2 virus- new strains of the virus which carry one or more changes in the RNA sequence and which can change the structure and behaviour of the virus. Sometimes these changes help the virus to evade our immune system by changing the shape of part

of the virus our immune cells recognize, or help the virus to spread more quickly between people. The vaccines we have developed may also be less protective against some emerging new strains. It is of urgent importance therefore that we understand how and where new variants of SARS CoV-2 are emerging and spreading, including here in Nepal.

The Epidemic Intelligence project will be a collaboration between consortium partners BNMT, Centre for Molecular Dynamics Nepal, Nepal Health Research Council, Oxford University Clinical Research Unit, Nepal and Liverpool School of Tropical Medicine, UK and University of Cambridge, UK. It is funded by the UK medical research charity, the Wellcome Trust.

We will collect and sequence 1,500 SARS CoV-2 samples from patients with their consent, from three areas spanning Nepal: Bheri hospital in Nepalgunj (Western Nepal), Koshi hospital in Biratnagar (Eastern Nepal) and Sukraraj Tropical Infectious Diseases Hospital in the capital city, Kathmandu (central Nepal).

We will also follow-up these participants at three and six months to understand the frequency and symptoms of long-term complications of COVID-19 illness in the Nepali population.





This project will help to build in-country capacity to rapidly sequence any new pathogens which cause diseases, as well as old enemies like dengue, malaria, TB and typhoid, and to build Nepal's capacity to protect itself against future disease epidemics with molecular surveillance.

TB READY Project Understanding the Impact of COVID-19 on TB patients and care providers in Nepal



NIHR | National Institute for Health Research



Farrar Foundation fellows Kritika Dixit (Research Manager) and Rajan Paudel (Research Assistant)

"My father lost his job due to the COVID-19 pandemic. My mother was fired from her daily waged work after people learned that I had tuberculosis (TB). Their loss of work brought a huge financial burden to our family, especially to buy our daily meals. Amidst this hardship and my experiences of painful side effects and emotional breakdown for five months, my health care provider informed me that I was not responding well with my treatment. This news devastated me. They asked me to immediately test my sputum sample in a 'big machine' at the health center, a five-hour bus ride from my home. Because there was a lockdown and public vehicles were not available, my parents had to sell our only buffalo just to hire a private van to go to the health center and give my sputum sample. The result showed I had developed an advanced form of TB. My life then started becoming more miserable."



As Sabina was sharing her story, her mother was sobbing hearing her daughter speak about her arduous journey. For people like Sabina, the outbreak of the COVID-19 pandemic intensified the difficulties in accessing TB services,

especially for the poorest people. The stringent measures during the pandemic such as lockdown and travel restrictions also presented tough challenges in the conventional management of TB for the TB care providers. Therefore, it is important to understand the multitude of ways in which the pandemic has affected the access to diagnosis and the ability to complete the long treatment course for people with TB, so that we can make services more resilient and accessible for people like Sabina's family during future crisis events.



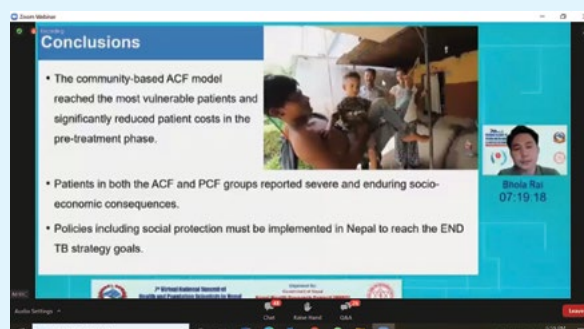
TB READY will document the impact of the COVID-19 pandemic on TB service delivery to communities in nine districts of Nepal: Illam, Jhapa, Morang, Sunsari, Udayapur, Chitwan, Mahottari, Pyuthan and Bardiya. The study will compare and analyze indicators including TB tests performed, case notification rate, and TB treatment outcomes, which will evaluate the impact of the pandemic on the national TB program. To complement these findings, we will also conduct exploratory in-depth interviews with people affected by TB, TB care providers, community health volunteers and TB focal persons. The interviews will help us understand the difficulties that people with TB faced in accessing services and completing treatment, and also the challenges the TB care providers experienced to diagnose and treat people with TB. The findings will be used to develop recommendations for strengthening TB service resilience and emergency preparedness in Nepal.

The study is being conducted over three years from January 2021 to understand the longer-term impact of the pandemic on TB services. In depth interviews with 60 participants have been completed to date, or 90 planned. TB READY builds on the foundations of our previous work to understand the barriers and facilitators to TB treatment, which was funded by the Wellcome Trust.

TB READY is funded by the Royal Society of Tropical Medicine and Hygiene, National Institute for Health Research and the Farrar Foundation as early career researcher grants to Kritika Dixit.

PARTICIPATION IN 7TH VIRTUAL SUMMIT OF NEPAL HEALTH RESEARCH COUNCIL

BNMT Nepal was pleased to attend the 7th National Summit of Health and Population Scientists in Nepal organized by Nepal Health Research Council (NHRC) from 1-2 July 2021. On behalf of the organization, our members Kritika Dixit, Research Manager and Bhola Rai, Project Manager presented the findings of IMPACT TB, with the titles, 'Barriers and facilitators to accessing and delivering tuberculosis services during the COVID-19 pandemic' and 'Active case finding reduces patient costs in pre-treatment phase' respectively. Govinda Chaudhary Majhi, District program Coordinator, Pyuthan, also presented a poster on 'Lessons learnt from the use of drone in tuberculosis diagnosis: a pilot project in Nepal.'





IMPACT 2 TB: OPTIMISING INTERVENTIONS TO ACCELERATE TB ELIMINATION IN NEPAL

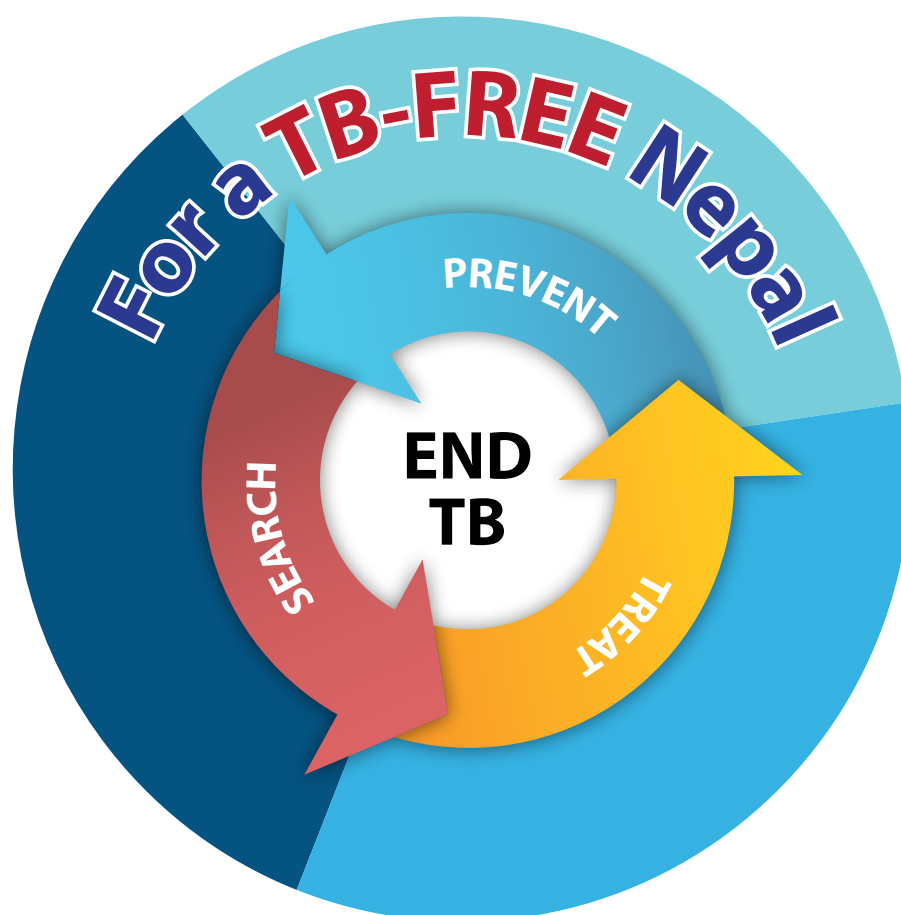
www.impacttbproject.org; twitter.com/impact_tb



Every day in Nepal 45 people still die of TB- a preventable, curable disease. Every TB death is an unnecessary tragedy in the 21st century. Seventy thousand Nepali people fall sick with TB every year- causing families to spiral into extreme poverty, suffer stigma, ostracism and long term health consequences. Every case of TB can and should be prevented. Every person with TB should receive prompt, free and comprehensive diagnosis and care. However, implementing comprehensive TB coverage is complex in a country like Nepal, with many competing demands for limited health resources, challenging geographic terrain and a fragile health infrastructure.

IMPACT TB implements, refines and optimizes complex novel field interventions for TB, in partnership with the National TB Programme, government and community stakeholders. The evidence gathered from our district-level pilot interventions informs scale-up strategies at national level, through comparative evaluation of different intervention strategies. Our data includes yield data, health economic evaluations from patient and health system perspectives, mathematical models of the epidemic, and qualitative evaluations to gather views from stakeholders including policymakers and people affected by TB.

The national TB prevalence survey, conducted by the National TB Control Centre (NTCC) in 2018, revealed that almost 40,000 cases of TB every year are missing from national notification data. Ensuring that these 'missing' cases have access to timely diagnosis, treatment and cure is an urgent priority of the national strategic plan to End TB in Nepal. A strategy called Active Case Finding for TB can help to close this diagnostic gap and optimizing case finding strategies for Nepal is at the core of the IMPACT TB project.



Through the BNMT TB REACH wave 5 project in 2017-2018, we showed that using an advanced molecular test for TB, called GeneXpert, we can diagnose a lot more cases of TB than using the old approach of smear microscopy. Although microscopy is cheaper it is less accurate and GeneXpert scale-up is essential if we are going to find every case of TB, everywhere. Following on from this work, in the Horizon 2020 EU funded phase I of the IMPACT TB project, we showed that placing three GeneXpert machines in each district, combined with a comprehensive community based active case finding strategy, we can further improve access to TB diagnosis and cure, increase case finding, and reach remote communities at higher risk of devastating social and economic consequences of TB. We also showed that our active case finding strategy can dramatically reduce costs and consequences of having TB for TB affected families.

Now in IMPACT TB phase II, which is generously supported by the Nick Simons Foundation, we are implementing comprehensive community based active case finding with a network of three GeneXpert machines in each IMPACT district.

We conduct active case finding in partnership with the network of Female Community Health volunteers, who ensure every diagnosed case is enrolled to treatment in the government programme and supported to complete the six-month treatment.

However, to truly accelerate TB elimination in Nepal, we also need to scale-up TB preventative therapy to stop the disease before people become sick. In highly TB endemic countries like Nepal, many people carry the TB bacteria in their lungs, but remain healthy and unaware of the infection. However, if they become weaker due to things like malnutrition, other illnesses, or simply becoming older, the bacteria can 'wake-up' and begin to multiply. As they fall sick with TB they can also begin to spread the infection to other people around them without knowing it. TB preventative therapy can eradicate the bacteria before they become sick. Until recently though, TB preventative therapy required 6-9 months of daily medicine and was not feasible on a large scale in Nepal, especially in remote districts. A new effective treatment, is available though, recommended by the World

Health Organization. This treatment is simpler and requires just 12 doses- once each week for three months. This new treatment is called 3HP and IMPACT TB is piloting the implementation in partnership with the National TB Control Centre to understand how to scale-up TB preventative therapy in Nepal. This new effective treatment will be started in Chitwan and Bardiya districts later this year. The data from this pilot study will be used to optimize design of scale-up plans for Tb preventative therapy in adults under the National Strategic plan for TB.

The IMPACT TB infrastructure is also supporting other BNMT projects which address different aspects of TB treatment and cure: TB Recovery (nutritional support to TB affected households), ASCOT (pilot implementation of three socioeconomic support models for TB), TB READY (evaluating the impact of COVID pandemic on TB service delivery), DroTS (drone optimized transport system for TB in rural Nepal), and TARGET TB (TB genome sequencing to understand transmission dynamics).

Together these projects are building our understanding of the TB epidemic in Nepal and optimizing approaches to accelerate TB elimination.

The chaos caused by the COVID-19 pandemic struck just as BNMT was about to launch field activities of IMPACT TB 2. This resulted in a 12-month delay to the project. However, in March 2021, we launched intensified active case finding in our four project districts: Chitwan, Pyuthan, Bardiya and Mahottari. Despite the severe second wave of COVID-19 in Nepal throughout March, April and June, we were able to achieve our case detection targets and have already diagnosed and enrolled to treatment over 200 cases of TB in the project districts.

The reasons people with TB cannot access care are complex and often multifactorial. Many of these causes are linked to, and exacerbated by poverty. In the 21st century, we know how to solve TB, but we need sustained, commitment, funding and action to achieve a TB free world for all our children.


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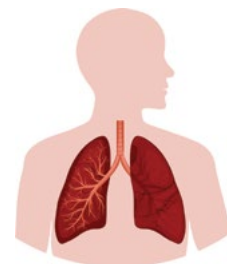
5 GeneXpert machines supplied


COUGH
2277

screened for TB


2136

tested for TB


128

identified with TB

GeneXpert machine handover

To strengthen the TB diagnostic network in our IMPACT TB districts and increase equity of access to advanced TB testing, BNMT installed five new 4-module GeneXpert machines in Bardiya, Pyuthan and Mahottari districts in March 2021.





TARGET TB: Understanding TB transmission dynamics to optimally target interventions and accelerate the END-TB strategy



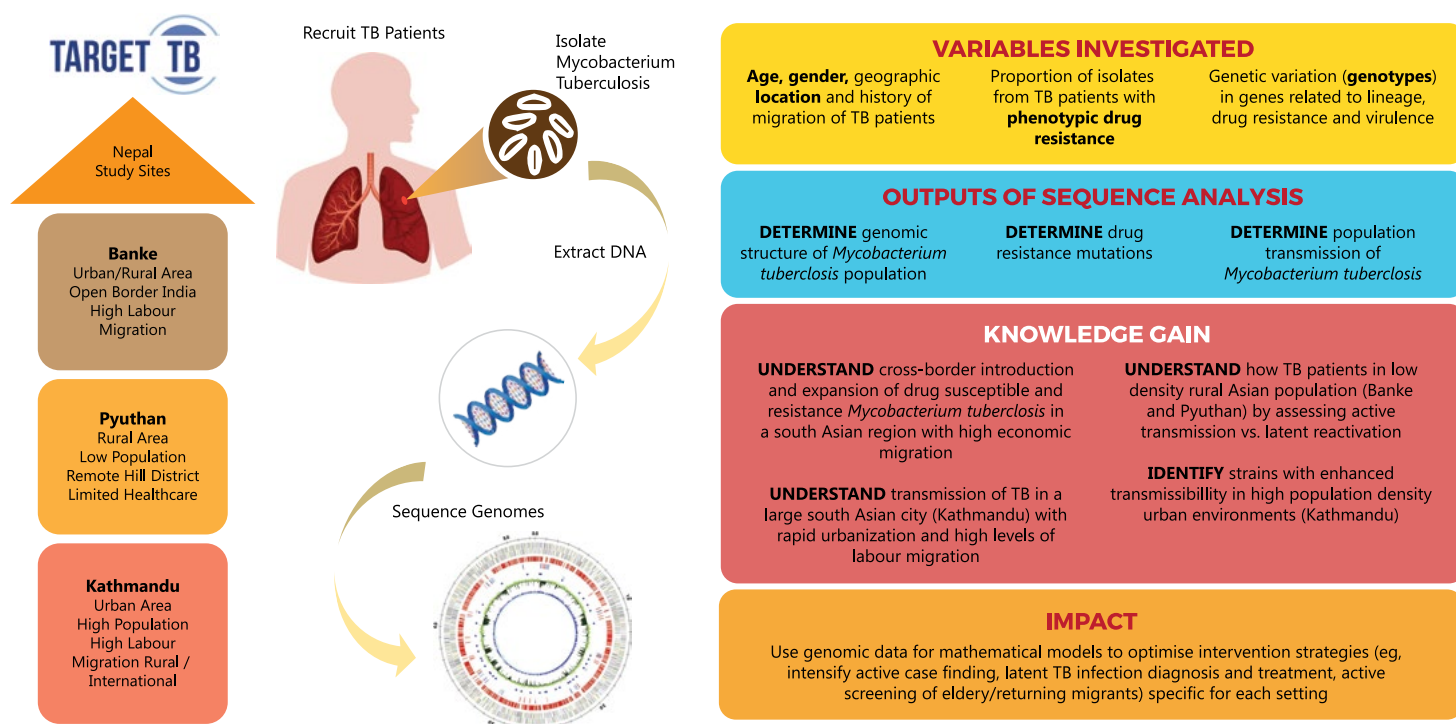
To accelerate the elimination of TB from countries like Nepal we need to improve our understanding of how and where TB transmission is occurring in communities, so that we can improve the way in which we design interventions such as active case finding and preventative therapy.

One advanced technique to help us understand patterns of disease transmission is to look at the DNA sequence of the bacteria which causes the disease (called *Mycobacterium tuberculosis*) and examine how it differs between bacteria collected from different people, and how it changes over time. This technique is called 'whole genome sequencing'. Target TB will be the first large scale whole genome sequencing project for TB in Nepal. It is being conducted by BNMT in collaboration with the National TB Control Centre, GENETUP laboratory, TB Nepal, the University of Melbourne, Australia and Liverpool School of Tropical Medicine, UK.

TB is endemic in Nepal, and many people carry TB bacteria in their lungs, a condition called latent TB. If people become ill or weaker, due to old age or malnutrition for example, the bacteria can start to make them sick, and they develop active TB disease which they can spread to other people when they

cough. Due to economic hardship, many Nepalese are forced to travel abroad seeking work to countries like India, Malaysia and the Middle East. Often working in low paid jobs like construction, security and hospitality industry, they often have no access to healthcare, live in overcrowded slum housing conditions and are vulnerable to malnutrition and diseases associated with poverty, such as TB. When employment finishes, as happened unexpectedly to thousands during the COVID-19 pandemic, migrants often return home with untreated or partially treated health conditions, and this can introduce new strains of TB to communities.

The target TB project will collect and sequence TB bacteria from patients in three areas of Nepal to help us understand how much TB in Nepal is introduced from other countries, and how often it is caused by strains of bacteria which have been circulating here for a long time, and how those strains are changing over time. We will also look at patterns of resistance to the drugs used to treat TB, which we can also understand from the genetic sequence. We will collect TB bacteria from people who give us their permission to do so, in three very different areas of Nepal to see how patterns of transmission vary in different areas of Nepal.



Nepalgunj is a crowded city in the far West Banke district of Nepal, bordering Uttar Pradesh in India. Many people travel to and from India for work and leisure across the open border here.

Pyuthan district is a remote rural hilly district where many people are farmers and the population density is low. Many young adults from this district travel abroad or to Kathmandu for work and there is a high proportion of elderly residents. Kathmandu is the densely populated capital city of Nepal which has high levels of rural to urban migration and international labor migration. Many people live in overcrowded slum housing and face a daily struggle for income.

The project began in January 2021 and will complete in December 2023. Ethical approval for research involving human participants was granted by the Nepal Health Research Council and the University of Melbourne Research Ethics Committee. The project launch and orientation meeting were held in February 2021. Recruitment began in March 2021.

The first TARGET TB participant was a 60 year old man visiting GENETUP clinic for health services. He gave consent to the study but declined the compensation offered to research participants, instead kindly asking us to donate it to other TB patients in need.





TB RECOVERY: NUTRITIONAL SUPPORT FOR FAMILIES AFFECTED BY TB IN NEPAL



Poverty and malnutrition make people more vulnerable to TB infection, and even once people are receiving the correct treatment, undernutrition due to poverty can make recovery slower and long term health consequences more common. Treatment for drug susceptible TB takes six months and during this time ideally people should receive a healthy, balanced and nutrient rich diet to aid recovery. However, for most Nepali patients with TB, the economic hardships caused by income loss due to sickness make it harder than ever to eat adequate and nutritious food. Poverty and food insecurity can also make other people in the family more vulnerable to TB infection and illness. Data from our IMPACT TB project published last year showed that a third of families affected by TB experience food insecurity due to the illness.



The TB Recovery project, funded by the Australian John Burge Trust Fund, is designed to address this critical need and help families affected by TB to improve their nutritional intake during the period of treatment, to improve their overall health and wellbeing and reduce their vulnerability to long term health, social and economic consequences of TB disease.

The project began with focus group discussions, led by a nutritional consultant, with TB patients and also with the Female Community Health Volunteers who work to improve access to health services and outcomes in communities across Nepal. We asked each group about the ideal composition and timing of food support packages to families affected by TB, and together designed a balanced, locally appropriate nutritional support package for distribution that meets the needs of patients and their families, and supports enhanced nutrition for recovery from TB. There is a vegetarian or non-vegetarian package, according to the preference of the recipients. We hope that this support package will enhance

biomedical outcomes from TB, while also reducing catastrophic costs for affected families and reducing vulnerability to TB in family members.

The project will support the nutritional food packages to TB affected families throughout treatment in three districts (Makwanpur, Pyuthan and Banke). The project will also train female community health volunteers in nutritional needs for TB patients and recognising families at risk of food insecurity due to TB. The project started from March 2021 and ends in September 2022. Following consultation meetings with District Health Offices and local stakeholders, the project has begun enrolment and will support 50 TB affected households in Makwanpur, 50 in Pyuthan and 100 in Banke district through the female community health volunteer network.

Achievement:



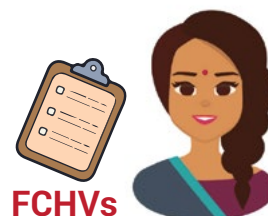
44

TB patients received the nutritional support



230

Family members of TB patients received the nutritional support



FCHVs

12

Female Community Health Volunteers trained on nutritional aspects of TB care



ECONOMIC EVALUATIONS OF TB ACTIVE CASE FINDING INTERVENTIONS

Kritika Dixit (Research Manager) and Dr Noemia Siqueira (Health Economist)

Economic Evaluations of TB Active Case Finding Interventions

Join us to explore cost analyses of active case finding programs with theoretical and practical examples!



February 4th, 2021



8:00 - 9:30 AM EST/
12:00 - 1:30 PM GMT



Dr. Hamidah Hussain
Program Director
IRD Global

Pakistan



Dr. Kevin Schwartzman
Director, Respiratory Division
McGill University Health Center

Canada



Ms. Kritika Dixit
Research Manager
Birat Nepal Medical Trust

Nepal



Dr. Noemia Siqueira
Research Associate
University of York

Nepal



Mr. Ntwali Placide Nsengiyumva
Researcher
McGill University Health Center

Canada



Mr. Sovannary Tuot
Research Manager
Khmer HIV/AIDS NGO Alliance

Cambodia



Dr. Tushar Garg
Senior Researcher
Innovators In Health

India

OPEN TO ALL TB REACH GRANTEES



In 2017, BNMT was awarded a grant by TB REACH to increase TB case diagnosis in Nepal by implementing community-based active case finding (ACF) models. During the project we also conducted a health economic evaluation of the costs TB patients incur during their disease, which can be catastrophic for impoverished families. A cost analysis was developed by using the WHO patient cost tool to compare the socio-economic burden of TB in patients diagnosed through active case finding with the standard passive case finding approach (PCF). We were

invited to share our findings in the webinar 'Economic evaluations of TB active case finding interventions' hosted by McGill International TB Centre in February 2021.

The webinar aimed to share experience from TB REACH grantees in India, Pakistan, Cambodia and Nepal. From Pakistan, Dr Hussain, (IDR Global Pakistan), presented the cost-effectiveness of an ACF model engaging the private healthcare sector to increase TB case. The study showed how crucial the involvement of the private sector and bidirectional partnerships are to end TB. Dr Garg, (Innovators in Health, India), shared experience showing the importance of community health workers to improve cost efficiency of ACF in the context of extreme poverty and a weak health system. From Cambodia, Mr Tuot, Khmer HIV/AIDS NGO Alliance, showed evidence that ACF reduces costs and averts disability adjusted life years.

We jointly presented our economic analysis from Nepal that compared costs incurred by TB patients diagnosed by either active or passive case finding in Pyuthan and Bardiya districts. The ACF strategy significantly reduced medical and non-medical costs and lost income during the pre-diagnosis period. Importantly, we also showed our ACF strategy reduced the prevalence of catastrophic costs in the most vulnerable populations. Recruitment of local interviewers proved vital to overcome language and geographical barriers during this project.

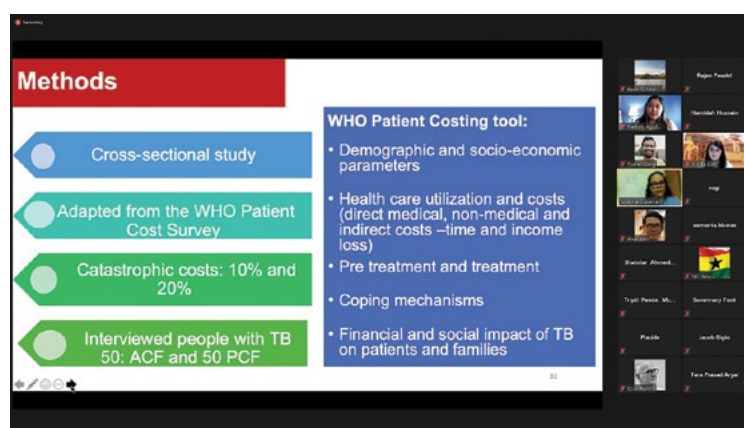
This work has been published in *Infectious Diseases of Poverty* and can be freely accessed online:

www.ncbi.nlm.nih.gov/pmc/articles/PMC6889665/

A video recording of the webinar is available here:

http://tbreach.paitbgroupp.org/wp-content/uploads/2021/02/Cost-webinar_Feb4_recording.mp4

The webinar highlighted the potential of ACF scale-up to improve efficiency of health systems in resource constrained countries, reduce patient costs and reach the undiagnosed TB patients in our communities. This event was attended by TB REACH grantees and researchers from all over the world. We thank TB REACH for the invitation to attend this exciting seminar and share our work with our fellow researchers in TB around the world.



STRENGTHENING LABORATORIES

Professor Andrew Ramsay, TB Scientist, St Andrews University Medical School, Scotland



The COVID-19 pandemic has shown us all how high quality, accurate and rapid diagnostic testing is the keystone of any infectious disease response. Over the past 5 years BNMT has been conducting joint activities with the National TB Programme to strengthen the laboratory diagnosis of tuberculosis in Nepal.

Laboratory capacity building has been a key component of several BNMT projects, including- the IMPACT TB, IMPACT 2 TB, TB REACH, and the Global Fund activities in Province 1. This capacity building has included the provision of essential equipment such as Olympus microscopes to health posts, installation of advanced molecular diagnostic GeneXpert machines at district hospitals and primary health centres, and the training of laboratory staff in sputum smear microscopy and GeneXpert operation. Heat, humidity, dust and electrical surges all take their toll on delicate laboratory instruments in Nepal and regular servicing and maintenance of equipment is essential. Many health facilities have broken microscopes in their store cupboards and together with BNMT I have been able to restore many of these to operation and show staff how to preserve optimal condition of the microscopes.

Regardless of the laboratory method used to investigate TB it is most important to ensure that patients submit a good quality sputum specimen containing material that has been coughed up from deep in the lungs. Patients often submit samples that are mainly saliva which can lead to a false negative diagnosis. Simple explanation and demonstrations can improve the quality of samples and the accuracy of testing. To address this problem, with BNMT I have been working with laboratory staff and the female community health volunteer network providing training on how patients can be instructed and helped to provide good specimens. If the patient has TB, this will help ensure that they get diagnosed and started on appropriate treatment. I have been supporting BNMT in this work since 2018. Although the COVID pandemic has temporarily curtailed international exchange visits, the BNMT projects IMPACT 2 TB, TB READY and TARGET TB continue to identify and address laboratory strengthening needs in close collaboration with experts at the National TB Control Centre and the provincial and district level government health services. A strong, effective laboratory network will be at the heart of Nepal's efforts to END TB.

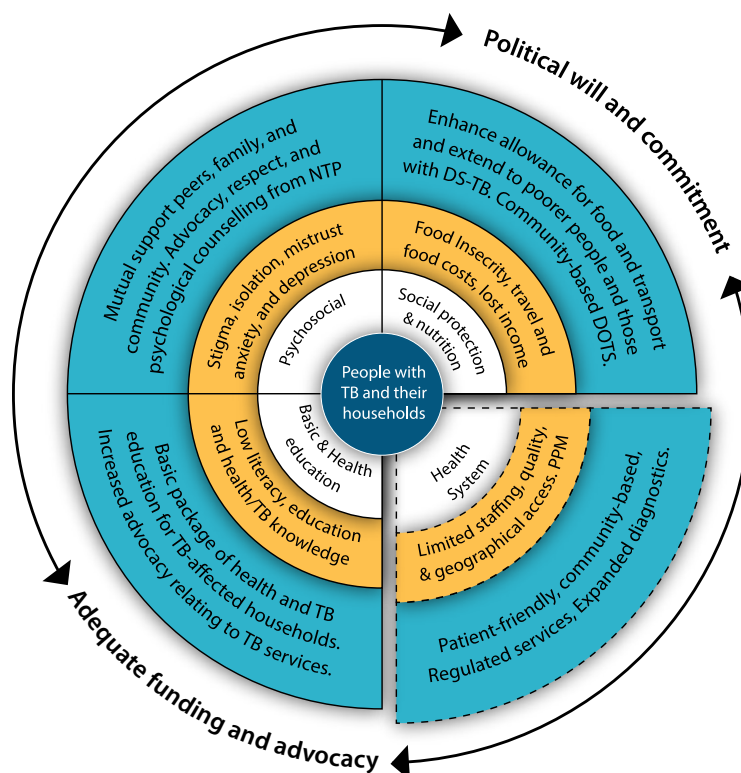
DEVELOPING A LOCALLY APPROPRIATE SOCIO-ECONOMIC SUPPORT PACKAGE FOR PEOPLE WITH TUBERCULOSIS IN FOUR DISTRICTS OF NEPAL

Kritika Dixit, Research Manager and Farrar Foundation fellow

Kumar Thapa is a father of three young children, a husband, and the only son of seventy-year-old parents. Kumar, the breadwinner in his family, used to work as a daily waged worker until he was bedridden with chronic cough, fever, and weight loss. He spent his family savings on medical fees, transportation to go to the clinics and buy medicines from pharmacies, yet he did not feel better. This situation badly affected the mental health of Kumar's family and exacerbated their financial condition. They faced a struggle even to secure a daily meal. After two months, he coughed blood and was diagnosed with tuberculosis.

Tuberculosis (TB), commonly known as the disease of the poor, is an ancient disease in Nepal. Every year approximately 60,000 people get diagnosed with TB and 16,000 people lose their lives, the majority of whom are poor, informal workers, and live in rural areas. Like Kumar, having the disease can also worsen impoverishment through costs of accessing care and loss of income. Such costs can become "catastrophic", leading patients to abandon treatment, develop severe forms of TB, including drug-resistance, or death. In 2015, WHO developed the End TB Strategy that aims to eliminate catastrophic costs and ensure provision of socioeconomic support for TB-affected households. However, Nepal, recently graduating to lower-middle-income status, has almost no social security

provision to protect and cure people like Kumar, who are at most risk of incurring TB-related costs, experiencing impoverishment, and the severe socioeconomic consequences of TB. Nepal also does not have adequate evidence





concerning the design and implementation of optimal policies to address this problem. To fill this knowledge gap and generate evidence on the feasible and locally appropriate socioeconomic support package for TB-affected households in Nepal, Dr Tom Wingfield partnered with BNMT for his Wellcome Trust Seed Award.

The Seed Award study was implemented within the infrastructure of the larger EU-Horizon 2020 funded “IMPACT-TB” project, which is a study evaluating proven TB active case-finding (ACF) interventions in Nepal and Vietnam (grant 733174, <http://www.impacttbproject.org/>). This study was led by the BNMT team in Chitwan, Dhanusha, Mahottari and Makwanpur districts where the burden of TB is higher. One of our objectives was to measure the socioeconomic impact of accessing and engaging with TB care on TB-affected households. To do this,

the study interviewed 221 patients who were diagnosed with TB and 120 people who do not have TB and collected data on socioeconomic position, nutritional status, quality of life, coping strategies, or linkage to social protection of TB-affected households. These data were complemented by gathering information from seven discussion programs among 43 stakeholders, including patients and leaders of community and TB programs. These discussions enabled us to understand their perception of existing barriers to access TB diagnosis and care in Nepal and identify the potential ways to facilitate TB diagnosis and care in the country. The image shows a summary of these findings and the complexity of the challenges in providing comprehensive TB care.

These findings were shared in a workshop organized with 80 national stakeholders, including people with TB. These interactions among stakeholders contributed to the design of feasible and locally appropriate sociocultural and economic interventions for TB-affected households to further evaluate in Nepal. We are now piloting these shortlisted interventions in Pyuthan, Chitwan, Morang, and Mahottari from March 2021 with funding from the UK Joint Global Health Trials, (Grant number: MR/V004832/1). This pilot study aims to mitigate the socioeconomic impact for people like Kumar and support him to improve access and engagement in TB diagnosis and treatment. The study will also provide detailed information for the design of a larger randomised controlled trial for which we will seek funding.

I led this Seed Award study as BNMT Project Manager and the study is also the foundation of my PhD thesis at Karolinska Institute, Sweden. I was awarded travel scholarships from the Royal Society of Tropical Medicines and Hygiene, UK (RSTMH) and The Tuberculosis Modelling and Analysis Consortium (TB MAC) to share the findings in European Conference of Tropical Medicine and International Health and TBMAC annual meeting, respectively. The study methods I learned during the Wellcome Trust SEED award also informed the design of my next successful funding application - to understand the impact of COVID-19 on TB services in Nepal, which was funded by the RSTMH and the Farrar Foundation. The findings from this study have been published in scientific journals and presented at national and international conferences- details are given in the publication section on pages.

ASCOT PROJECT: ADDRESSING THE SOCIOECONOMIC CONSEQUENCES OF TB

Poverty drives TB rates and TB intensifies poverty due to the catastrophic costs of being ill and seeking care. WHO has set targets to end catastrophic costs for people affected by TB through providing social and economic (socioeconomic) support to people with TB but progress to meet this has been slow globally. With key stakeholders in Nepal, we designed locally-appropriate socioeconomic support packages for TB-affected households during the Wellcome Trust funded SEED award project which we will now field-test in a small number of participants.

ACTIVITIES



Pilot three different socioeconomic support intervention and control arm (25 in each)



Interviews with people affected by TB on TB-related costs, socioeconomic impact of TB, and coping strategies



Focus group discussions and key informant interviews with stakeholders on consequences of TB and challenges in delivery of socioeconomic support



Workshop with the diverse stakeholders developing recommendations for improvement of the interventions and for funding of the large-scale trial

The Medical Research Council (MRC, UK) funded ASCOT project is a mixed-methods study that aims to field-test socioeconomic support packages for TB-affected households to refine implementation strategies for testing in Nepal. This will inform design of a definitive, large-scale trial for future funding applications. The 18-month project will be carried out in four districts with high TB and poverty: Chitwan, Mahottari, Morang, and Pyuthan. The project is partnered with Liverpool School of Tropical Medicine; University of York; Karolinska Institutet.

CONGRATULATIONS TO DR OLIVIA BIERMANN, IMPACT TB PHD STUDENT AT KAROLINSKA INSTITUTE, ON ACHIEVING HER DOCTORAL DEGREE!

Olivia joined the IMPACT TB team in 2017 to undertake doctoral research, embedded within the policy translation work package led by Karolinska Institute of Sweden. She already had a wealth of experience navigating the complex maze of translating evidence-to policy-to implementation, and brought many inspiring ideas to the project.

During the project, she undertook fieldwork with BNMT, visiting the impact project districts to conduct key informant interviews, focus group discussions and to understand the complexity of systems level field interventions such as the IMPACT TB community based active case finding. She also undertook similar field work in Vietnam. Her thesis has generated six research publications to date, and also contributed to the WHO revised guidelines for systematic screening for tuberculosis, released in 2021. Her inspiring engagement style also refined the design of BNMT project dissemination activities, through project briefs, policy briefs and social media bite-size video disseminations.

We congratulate Dr Biermann on the award of her doctoral degree and wish her every success in the next stage of her career. Hoping to see you again soon in Nepal!



*"Hello World,
I am Dr Olivia Biermann!"*

GLOBAL POLICY TO LOCAL IMPLEMENTATION: EXPERIENCES FROM ACTIVE TUBERCULOSIS CASE-FINDING IN HIGH-BURDEN COUNTRIES

Dr Olivia Biermann, Karolinska Institutet



The full thesis is available here:

<https://openarchive.ki.se/xmlui/handle/10616/47542>

At a global level, tuberculosis (TB) is still one of the deadliest infectious diseases, affecting an estimated 10 million people every year, primarily people living in poverty in low and middle-income countries. One way of finding these people, treating them and preventing the spread of the disease is active case-finding (ACF). ACF involves finding people who are at a particularly high risk of having TB but who have not sought care, such as people with HIV or those living with a person who has TB or in crowded conditions in prisons or slum areas, to offer them screening.

There has been much discussion about the benefits and risks of ACF; the potential benefits lie in early detection and treatment as well as stopping transmission, while feared risks include stigmatisation and false positive diagnoses. There are guidelines from the World Health Organization stating that ACF should be implemented for certain risk groups, but many recommendations are conditional and open to interpretation.

In my PhD thesis, I examined how global experts, national TB programme managers from the 30 high TB burden countries, health workers and people with TB view ACF and what they believe facilitates and hinders ACF policy development and implementation. The thesis includes a review of published studies, a survey, interviews and two field studies linked to IMPACT TB in Vietnam and Nepal.

One conclusion I draw in the thesis is that a balanced consideration of the potential benefits and harms of ACF is needed to make sound decisions and implement ACF in a way that finds people with TB at an early stage of the disease. What constitutes a good strategy depends on where, how and when the screening is to take place. At the same time, money, personnel and more scientific studies are needed for ACF to be implemented in an optimal way. I am really grateful to have had the opportunity to collaborate with BNMT as part of my PhD. I especially enjoyed the data collection with Kritika and Bhola, as well as Tara, Manoj, Govinda and Ram. Thanks to Suman and Raghu, and the whole BNMT team for your support and for teaching me so much.

MALARIA ACTIVE CASE DETECTION IN UPPER RIVER VALLEY OF PROVINCE 1, NEPAL

The remaining malaria transmission in Nepal is mostly concentrated in the upper river valley, forested and border areas, and where forest goes, temporary migrants and seasonal workers reside. BNMT conducted a short malaria screening and detection project funded by Global Fund through Save the Children in the upper river valley of Province 1. The aim was to interrupt local transmission in order to ensure zero indigenous cases of malaria. The project was conducted in three municipalities of Bhojpur, Okhaldhunga and Shankhuwasabha districts; selected as per case load and number of migrants according to HMIS report of 2018/2019. The project screened 317 fever cases and did not find any malaria, which is encouraging for malaria elimination efforts.



From the 'Darkest Days of my Life' towards a brighter future: the story of a 22-year-old Nepali woman with MDR TB

I was constantly getting high fever and losing weight for 2 months when I was referred for TB diagnosis by one of the BNMT volunteers, who also happens to be my neighbor. She collected my sputum and later informed me that I was diagnosed with MDR TB. I had no idea what MDR TB meant as I had never anyone with MDR TB before. I couldn't believe what I heard, I had no idea what caused me the disease and having to take medicine for 2 years was definitely not something I ever planned to do at this age in my life. I had just completed my fashion designing course and had a job interview scheduled in few days. Unfortunately, I had to let it go and get enrolled in for the treatment.

Though my diagnosis wasn't much of a big deal, the journey after that have been extremely tiresome. As soon as I started my medication, I started experiencing some side effects. I could barely leave my room and was always nauseous. I would vomit every other day and slowly I also lost by ability to hear properly. My vision was also affected, and my doctor suggested that I was having some issues in my liver for which I had to change my medication in the mid-way. I wasn't just suffering the physical side effects rather was mentally exhausted. I didn't want to leave my room, would find myself lost in middle of a conversation and struggled every day with the suicidal thoughts and panic attacks while I tried to sleep. Had it not been for the constant support from my family, I don't think I could have survived. My family didn't just help me overcome the darkest days of my life, they also fought with the relatives that would make cruel remarks about how I must have been engaged into taking drugs that I got the disease. The statements from relatives were so harsh that I could never instill the confidence in me to come out to my friends and share my problem. Not just relatives and neighbor, once I had to visit a new doctor as my

regular care provider was out of the city. As soon as he saw my file and read that I was a MDR case he threw my file to the floor and left the room. I was petrified and was in a state of deep shock. I couldn't understand what happened and returned home without checking-up that day. That was the worst I have ever felt in my life. The stigma and ignorance that surrounds Tuberculosis is surreal.

Amidst all that, small but significant recovery bought about by the medication instilled the hope in me that I could probably recover from the disease and continue to achieve my aspirations. Two years was a long time but I didn't want the disease to take away my entire life. All of my friends were enjoying their lives and pursuing their career. I would feel demotivated at times, however then would remind myself of how I could really cover up for all that once I got better and motivated myself. The only happy memory that I have of my treatment was the day I was free from it. I was relieved and felt that I was finally able to breathe. All my symptoms were gone however I still have the hearing problem, and I am taking medication for my liver issue. But that's getting better day by day. I have never felt this strong in my life, and also have started exploring job opportunities.

All the people, who have suffered like me or are on-going treatment, I would like to let you know that you will get better and there's a better life awaiting you ahead. Continue taking your medications and take care of your mental health. And to the communities that see numerous cases, we are not our disease, and anyone can potentially suffer from it in the future which is why, let us aware ourselves and address the stigma that surround Tuberculosis and work to create a supportive and enabling environment for all the people living with Tuberculosis.

OUR PUBLICATIONS 2021

ASKING QUESTIONS AND QUESTIONING ANSWERS



Gurung et al. . How to reduce household costs for people with tuberculosis: a longitudinal costing survey in Nepal. Health Policy Plan 2021; 36(5): 594-605.

Patient cost evaluation of IMPACT TB phase I, showing the socioeconomic impact of TB on patient households in Nepal is both severe and sustained. Active case finding both significantly reduces pre-treatment costs and successfully reaches the most diasadvantaged and vulnerable community members.



Gurung et al. Comparative Yield of Tuberculosis during Active Case Finding Using GeneXpert or Smear Microscopy for Diagnostic Testing in Nepal: A Cross-Sectional Study. Trop Med Infect Dis 2021; 6(2).

Our TB REACH wave 5 project findings, showing that Active case finding using GeneXpert has higher yields that smear microscopy (5.5% vs 2%) and lower number needed to test (18 for GeneXpert and 53 for smear). The project diagnosed 1,092 cases and contributed 22% additional to NTP case notification.

Biermann et al. 'A double-edged sword': Perceived benefits and harms of active case-finding for people with presumptive tuberculosis and communities-A qualitative study based on expert interviews. PLoS One 2021; 16(3): e0247568.

This qualitative study of expert perceptions highlights gaps in the evidence base surrounding active case finding for tuberculosis and identifies the need for further research, debate and analysis regarding the benefits and harms of TB active case finding, to inform optimal design of interventions for given contexts.



Biermann et al. Building on facilitators and overcoming barriers to implement active tuberculosis case-finding in Nepal, experiences of community health workers and people with tuberculosis. BMC Health Serv Res 2021; 21(1): 295.

This evaluation of facilitators and barriers to TB active case finding implementation in Nepal, identifies the key ingredients to successful community based active case finding, from the perspective of community health workers and people affected by TB.

Biermann et al. Active case-finding policy development, implementation and scale-up in high-burden countries: A mixed-methods survey with National Tuberculosis Programme managers and document review. PLoS One 2020; 15(10): e0240696.

The perspectives of National TB Programme managers from high burden countries on the development, implementation and scale-up Active TB case finding. Highlighting the resource constraints and other challenges which prevent effective scale up despite prioritisation in national strategic plans.





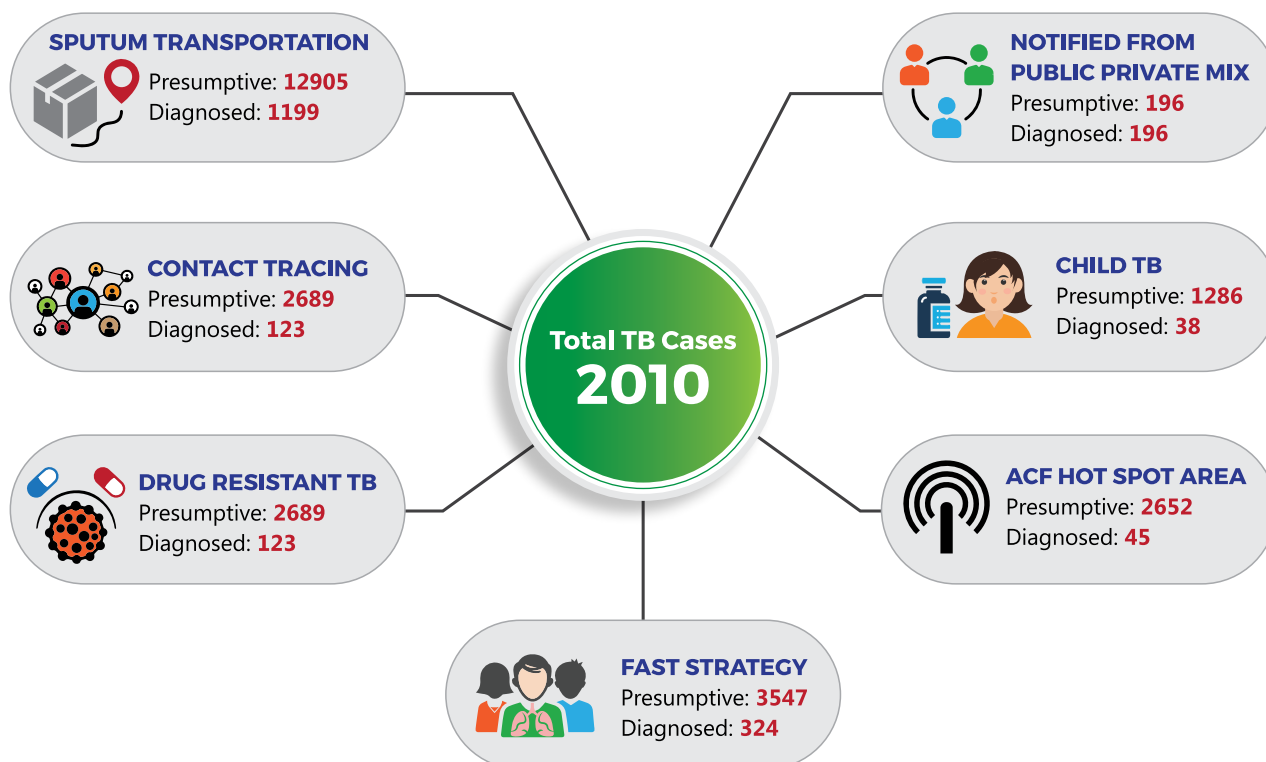
GLOBAL FUND NATIONAL TB PROGRAM

Tuberculosis remains a major public health problem in Nepal, creating massive morbidity and mortality with huge socio-economic burden to the country. Considering this fact, the government of Nepal has recognized the National Tuberculosis Program as priority one health programs in Nepal. The government has adopted and committed to the END-TB goals but dramatic acceleration of investments and progress will be needed. It is estimated that nearly half of TB cases are still being missed by the program every year which is a major concern requiring focused and tailored interventions.

National TB support program had the objective of supporting National TB program in achieving its goal of End TB strategy. Birat Nepal Medical Trust

(BNMT Nepal) worked in partnership with Save the Children International, National Tuberculosis Centre, Government Health System and Local Palikas as a sub recipient to carry out the National Tuberculosis Programme in Ilam, Jhapa, Morang, Sunsari and Udayapur districts of Nepal in close coordination with Ministry of Social Development, Provincial Directorate of Health, Health Office, Palikas and others nongovernmental organizations. The project targeted contacts of TB patients (PBC, DR), Malnourished Children, socio-economically vulnerable people. The project funded by Global Fund/Save the Children International started in January 2018 and ended in March 2021.

ACHIEVEMENTS



Saraswati: A friend indeed for TB Patients

Mrs. Saraswati Bagdas is a dedicated Female Community Health Volunteer, working in Jhapa district of Nepal. She has worked as health volunteer to support her community for over thirty years. Saraswati lives with 10 family members and the family depends on seasonal labour in tea gardens for income. Managing their needs with a small income is a daily struggle. Despite this, Saraswati devotes her time to serve the community health needs. During the implementation of Global Fund /Save the children supported Tuberculosis program of BNMT Nepal, Saraswati was one of the fantastic community Out Reach Workers who conducted TB screening in the community and formed the backbone of the project's success. Saraswati identified people with TB symptoms, counselled them and collected their sputum samples and ensured they received timely diagnosis and care where necessary. Through her efforts, she tested 200 TB people for TB within her catchment area and identified five new TB cases, including two Multidrug resistant TB cases. Her work ensured these urgent cases received effective treatment and care through the national TB programme. She will always support patients throughout their diagnosis and the long six-month treatment to help them on the road to recovery. She supports TB patients who cannot attend the clinic daily for medicines by bringing the TB medicine to them. Saraswati is a model example of the famous female community health volunteer network of Nepal and their dedication to serve the health needs of the community- thank you Saraswati from all of us!





DROTS NEPAL (DRONE OPTIMIZED THERAPY SYSTEM)



DrOTS Nepal
(DRONE OPTIMISED THERAPY SYSTEM)

Medical cargo drones have huge potential to solve many of the transport challenges of rural Nepal. BNMT, with technical partner Nepal Flying Labs, has established a drone transport network in Pyuthan district of far west Nepal. The DrOTS project (Drone Optimized Therapy System) allows health care workers to rapidly transport sputum samples from remote areas to central laboratories equipped with advanced molecular testing for TB (the GeneXpert test). BNMT has installed three GeneXpert machines in Pyuthan and to date linked eight rural health posts using the drone network, and mapped four more in the North of the district. The system uses QR codes for precision landing and enables healthcare workers to operate the drones through a simple user interface and flight protocol, supported by a qualified drone pilot at the central hub. Community health Volunteers screen close contacts of TB cases for symptoms, and when indicated, collect sputum samples for delivery to nearby health facilities and drone transport. The drones have safely transported over 1,900 sputum samples and 62 TB cases have been identified and enrolled to treatment.

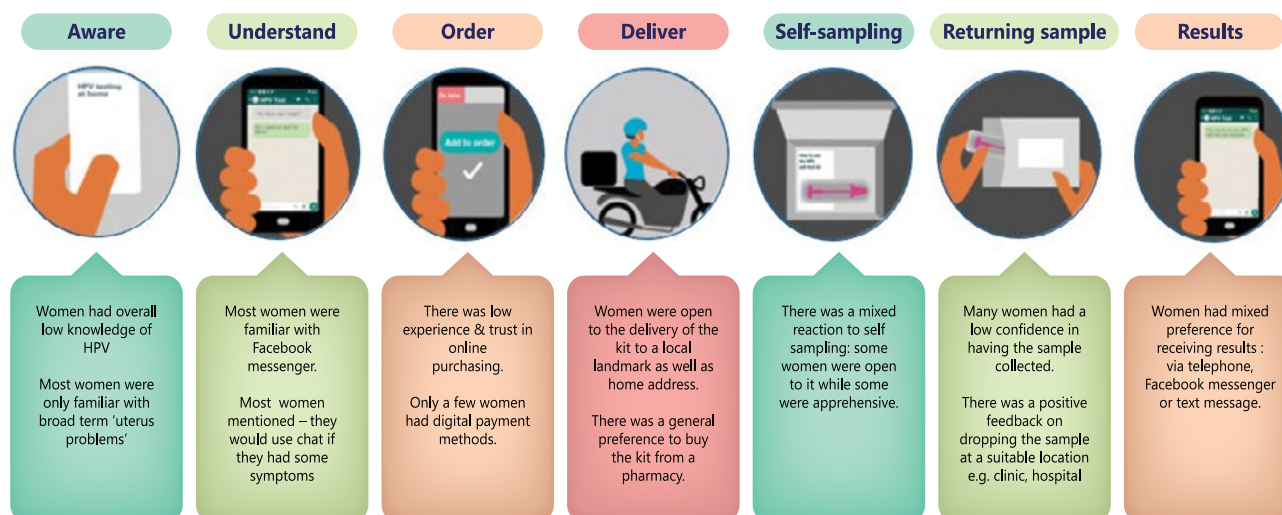
BNMT also conducted Focus group discussions with district government Health Workers, Community members and female community health volunteers to explore their knowledge and perception of using drones for in TB diagnosis. The findings show that drones are an effective and efficient tool in sputum transportation in rural communities, saving community health workers many hours per sample and ensuring patients get rapid access to appropriate treatment.

Nepal is a beautiful, mountainous country where 80% of people live in rural areas and 50% live in remote, mountainous regions with poor access to health care. Due to lack of roads and transport, if people in remote areas fall sick, they may have to walk for hours to reach nearest health facility- an even harder challenge for the elderly and the sick. This project has demonstrated that drones can dramatically improve access to healthcare in Nepal's remote regions.

BREAKING THE STIGMA: AN ALTERNATIVE APPROACH TO CERVICAL CANCER SCREENING IN NEPAL

Research Results

Proposed journey - Feedback from users



No women should die of cervical cancer, and yet it is the most common cause of cancer deaths in women worldwide. Most of these deaths (85%) tragically occur in young women in low and middle income countries due to poor access to screening services, weak sexual and reproductive health education and lack of awareness in the population. Cervical cancer is preventable with vaccination against the humanpapilloma (HPV) virus and in August 2020 the World Health Assembly adopted the global strategy for cervical cancer elimination. In unvaccinated populations, such as Nepal, access to screening for early detection and treatment of high risk strains of humanpapilloma virus (HPV) infection can prevent cancer developing and early testing for precancerous cells leads to early detection, treatment, and prevents fatal illness. Yet, sadly, every year in Nepal over 1,300 young women die unnecessarily from cervical cancer.

The Breaking the Stigma project aimed to address one of the major barriers to cervical cancer testing in Nepal- access to testing services- by partnering with a London- based organization who are experts in delivering rapid, discrete and confidential user-initiated online sexual health testing services (sh24.org.uk).

As digital connectivity is rapidly increasing in Nepal- a process accelerated by the COVID-19 pandemic- we wanted to explore the potential of expanding the SH24 online service delivery model to Nepal, and ensure we adapted the approach to fit the local context and culture. We used an approach called 'Human Centric Design' to conduct consultations and in-depth interviews with three groups of young, digitally connected women in the Kathmandu valley: women who had experienced cervical cancer, women who are potential service users and healthcare professionals involved in service delivery. This gave us a rich understanding of barriers, practice, challenges and perception around cervical cancer and self-testing or healthcare in Nepal. We conducted an iterative design process whereby we adapted our model to the information gained from the participants, and then again consulted a new group for further feedback.

The research highlighted that urban Nepali women have very limited knowledge regarding



cervical cancer and there was no knowledge of the connection between HPV infection and cervical cancer. Screening tests for health conditions and preventative medicine are not widely utilized in Nepal, even among wealthier individuals, which contributes significantly to the late diagnosis and high fatality of cervical cancer in this population. The research also generated significant insights into the optimal design of such a user-initiated self-testing service in Nepal. Most women expressed a preference to buy the kit from a shop or pharmacy before ordering it online, which contrasts with the UK setting. The preferred method for instructions on how to use the self-sampling kit was online videos, rather than a pictorial leaflet. Discussions with the potential users also demonstrated that it would be important to build trust in the sample collection service regarding confidentiality before users were willing to adopt the service. Finally, for the final stage in the pathway, equal numbers of the women expressed a preference for receiving results via telephone, Facebook messenger or text message, with a confidential download option also popular. Few women wished to receive results by email.

Through the research we were able to demonstrate that there is a clear chronic unmet need for access to quality information and confidential testing services for HPV and cervical screening among women in Nepal. An online delivery pathway for self-sampling is feasible in urban Nepal and this research gave rich insights into how such a service can be optimally designed to meet the local user needs.

Eliminating cervical cancer deaths in Nepal will need a multi-pronged, comprehensive and sustained approach. Utilizing advances in digital technology and improving education are undoubtedly essential tools to accelerate progress towards a Nepal where no young women dies of cervical cancer.

READ IT PROJECT: THE RESEARCH, EVIDENCE AND DEVELOPMENT INITIATIVE (READ-IT): EVIDENCE SYNTHESIS FOR SUSTAINABLE DEVELOPMENT

Evidence synthesis is a powerful research process that allows researchers to combine and analyse all the data from multiple research projects around the world on a chosen topic, and draw conclusions based on all the available evidence. This enables us to identify knowledge gaps, establish evidence driven policy and practice, and assist policymakers and practitioners in their decision-making.

There are many applications for the findings of evidence synthesis, such as policy briefs, systematic reviews, and updating clinical practice guidelines based on new evidence.

BNMT is partnering with Professor Paul Garner and his team of experts at the Centre for Evidence Synthesis for Global Health at the Liverpool School of Tropical Medicine, UK, to identify questions of local importance to Nepal and conduct high-quality, comprehensive evidence reviews.



The international READ-IT consortium (www.evidence4health.org/about-read-it), is a Foreign, Commonwealth and Development Office (FCDO) funded project led by the Liverpool School of Tropical Medicine Cochrane Infectious Diseases Group. It has partners in the UK, South Africa, Norway, Sri Lanka, India and Nepal (BNMT, Nepal). The project aims to generate high-quality evidence through systematic reviews to inform policy decisions by the government on important public health problems for each country. The READ-IT consortium will also build local capacity in countries to apply the latest advances in methodology to evidence synthesis and policy translation. After extensive discussion and consultation with stakeholders, Khem Pokharel and the BNMT READ-IT team have identified three priority topics for Nepal which we are now addressing.



Topic 1: Do Vitamin A supplements for children in Nepal reduce mortality in the current context?: Updating the evidence

Vitamin A supplementation is a nationwide program of Nepal, which started in 1993. The program aimed to reduce child mortality attributed to vitamin A deficiency based on evidence from several clinical trials and WHO recommendations. However, since 1993, Nepal has developed significantly and many of the underlying causes of childhood deaths have dramatically decreased, including nutritional deficiency and diseases like measles. The READ-IT review will analyse the latest data from multiple sources to provide evidence to the government considering if the current universal childhood vitamin A supplement programme should continue or be modified in Nepal.

The BNMT team has developed a protocol for the systematic review and meta-analysis in consultation with stakeholders and expert review from the internal READ-It Consortium Committee. The protocol is now registered on the International Prospective Register of Systematic Reviews (PROSPERO; www.crd.york.ac.uk/prospere) and the results will be available early next year.

Topic 2: Calcium supplementation in pregnant women with low calcium intake: should we prescribe calcium to prevent pre-eclampsia?

In 2019, eighty women died from birth related complications in Nepal. Despite huge reductions in maternal mortality in the last two decades, the risks of childbirth remain high, especially in rural areas where there is no access to skilled emergency care. Eclampsia is the second leading cause of maternal deaths in Nepal and occurrence may be reduced by calcium supplementation in populations with a low dietary calcium intake. In 2012-2013 Nepal piloted Calcium supplementation to pregnant women in Dailekh district of mid-western Nepal, following the recommendation of the World Health Organization but the programme was not subsequently scaled-up due to several challenges for implementation, lack of consideration for policy and unavailability of funding. We therefore aim to conduct a critical reappraisal of the global evidence with relation to the Nepali context and determine if there is evidence to support a national policy on calcium supplementation in pregnant women to reduce pre-eclampsia and maternal mortality. As the first stage in this process, the BNMT READ-IT team conducted a National stakeholder's consultation in March 2021 using the Evidence to decision-making framework. We are now synthesising the data for analysis and expect to share findings with stakeholders in autumn of 2021.

Topic 3: Effectiveness of community-based suicide prevention interventions in reducing suicide

Mental health has long been a neglected issue in Nepal, with few mental health professionals and almost no access to care and support for those suffering from mental health disorders. A nationwide survey in 2019 showed that one in ten Nepali adults suffered mental health disorders. The suicide rate is one of the highest in the world. The Global School based students' health survey showed 13% of Nepali adolescents had suicidal ideation and 10% had attempted suicide. However, there is very limited evidence on which interventions are truly effective at reducing or preventing suicide, particularly in the South Asian cultural context. We, therefore, aim to conduct a systematic review of research evaluations of suicide prevention interventions. The review will provide evidence to inform the development and implementation of a suicide prevention strategy with the government of Nepal.



BNMT READ-It team: Samjhana Shrestha, Saki Thapa and Dr Khem Pokharel (from left)



AMPLIFY CHANGE: ADVANCING SEXUAL AND REPRODUCTIVE HEALTH OF ADOLESCENTS OF SINDHUPALCHOWK, NEPAL



AMPLIFYCHANGE

Sexual and reproductive health is a fundamental component of wellbeing for everyone. In Nepal, the onset of adolescence can bring not only physical changes, but also new vulnerabilities to human rights violations, particularly in the areas of sexuality, marriage, and childbearing. There are substantial stigmas and taboos around adolescent sexuality which create barriers in access to essential information and services.

Since March 2019, BNMT has been working in the Indrawati Rural Municipality of Sindhupalchowk, Nepal to improve access to sexual reproductive health services and education for adolescents, funded by Amplify Change. The project has directly reached over 2,500 individuals in the community including school adolescents, their parents, teachers, female community health volunteers, health service providers, and civil society organizations. The major objective of the project was to empower three civil society organizations (Community Development and Environment Conservation Forum; Shree Sindhu Punarjagaran Sangh; Shree Indrawati Community Service Centre) by



Strengthened 3 downstream delivery partners and successfully engaged parents, students, and teachers in a discourse about SRHR and advocated for Comprehensive Sexually Education (CSE) in schools, reducing communication barriers and breaking the silence on SRH issues in the community.



Delivered SRHR training and orientation to school adolescents, enhancing their awareness of menstrual health hygiene, child marriage, sexuality education, and empowering them to make free and informed decisions in their lives.



Engaged adolescents in a dialogue with their parents and teachers on sexual and reproductive health topics which helped them communicate with their parents and teachers, share their difficulties and create mutual confidence and trust.



Advocates for SRHR of adolescents and basic human rights, importance and necessity to adopt Comprehensive Sexuality Education to address identified gaps through stakeholders involvement and a series of meetings and talks.

providing capacity building training and mobilizing them to advocate for sexual and reproductive health rights as a basic human right within the communities.

Creating and reaching new advocacy spaces: Advocacy for sexual reproductive health and rights in Sindhupalchowk

As a result of the advocacy work of the project, Indrawati rural Municipality organized a week long awareness campaign on Gender based violence and child marriage. The one-week public awareness campaign was organized in seven locations of the Municipality from 10-15 March, 2021 and included

cultural competitions such as cultural dance and folk songs based on the topics of child marriage and gender based violence, cultural performance by folk artists and drama by artists. Altogether 42 teams competed in cultural competitions and 7 winners from 7 places were announced. Municipal level competition final will now be held among these 7 finalists. More than 4,500 community members were engaged in this program.

Relief support to pregnant and lactating mothers of Indrawati Rural Municipality affected by Covid-19 pandemic

This year, in the midst of the Covid-19 pandemic, the project initiated a relief program for pregnant and breastfeeding mothers in seven wards of the Indrawati Rural Municipality. BNMT Nepal supplied food and sanitary materials to 151 pregnant and breastfeeding mothers. At the same time, recipients received information and counselling regarding reproductive and maternal health issues and rights. The project also advocated for the recognition of the vulnerability of this groups' access to sexual and reproductive health needs during times of crisis.



1200

Community people sensitized on SRHR via forum theatres



52

Municipal and ward representatives advocated for improved SRHR of adolescents



231

Representatives of Civil Society Organizations capacitated on SRHR and mental health awareness for sustainability



423

Students made aware on mental wellbeing via interactions, orientations and IEC/BCC



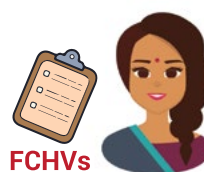
40

Health workers oriented on mental health



332

Parents of adolescents oriented on SRHR and Comprehensive Sexuality Education



FCHVs

64

FCHVs and mothers groups oriented/ capacitated on SRHR



140

Teachers reached and oriented on school mental health and SRHR



151

Pregnant and lactating mothers supported with COVID-19 relief nutrition & sanitation packages



31

Teachers, school principals, Civil Society Organizations representatives, school nurses, advocated on Comprehensive Sexuality Education & adolescents SRHR

BUTTERFLY PROJECT



Puberty can be an exciting, confusing or often bewildering time to navigate as young people struggle to understand the hormonal and functional changes happening in their body. In Nepal, adolescents often receive very little information about puberty, including menstruation. This is often due to traditional cultural beliefs that discussing sexual health issues and providing young people with information can lead to premarital sex or encourage promiscuous behaviour. In addition, there is a deeply rooted stigma and many taboos around menstruation in Nepali society, which can lead many women to believe they are in some way 'impure' or 'unclean' during menstruation. Although the national school curriculum includes a sexual reproductive health module, embarrassment, lack of confidence among teachers and weak teaching materials often leads them to skip or skim this sensitive topic. Many girls miss significant time at school, or drop out altogether, due to the onset of menstruation and lack of access to clean, private toilets and sanitary hygiene products. This can have life-long consequences and BNMT is addressing the problem through improving education about sexual health, providing sanitary hygiene products and upgrading school toilet facilities in Sindhupalchowk district with support from Amplify Change. The Butterfly project will augment this work and test an intervention to support teachers in providing high quality, accessible lessons on menstruation and menstrual health.

The Menstrupedia comic is a friendly, accessible guide to periods which can help both boys and girls to understand the changes which occur during puberty and the natural biological processes responsible for monthly menstruation. It is important to educate both boys and girls to ensure that future generations of fathers, husbands and brothers receive accurate information and are able to support the elimination of discriminatory or stigmatizing traditions.

The BNMT Butterfly project, will use this comic book guide to periods to enhance school-based education about menstruation and how to manage it. We will partner with experts in period education, Putali Nepal (www.putali-nepal.com), to provide the comic and expert-led classes to grades 5-7 in schools of Indrawati municipality, Sindhupalchowk district, in addition to the standard government curriculum. We will assess the impact of the comic on knowledge, attitude and practice (KAP) amongst the students when we use the Menstrupedia comic.

We will also conduct some focus group discussions (FGDs) with selected students who would like to participate to understand how students perceive and respond to the comic and if it is a valuable addition to the teaching curriculum for them. We hope this project will help us to understand how to improve education about menstruation in Nepali schools, and to remove the prevalent fear, stigma and misconceptions surrounding this natural process. This work has been kindly supported by a personal donation from our ex-trustee, Mr Frank Guthrie. Thank you Frank!





BLANKET DISTRIBUTION PROGRAM

The Chepangs are an indigenous group of people who traditionally reside in the hills of Nepal, often in hard to reach areas. The community has one of the highest illiteracy rates and lowest access to health care and education among the peoples of Nepal. Many Chepang people work as daily wage earners and have lost their livelihoods due to economic consequences of the pandemic which has further impoverished this vulnerable community. Therefore, this winter has brought extreme hardship, with many people unable to afford to buy warm clothes and using old ragged blankets to cover themselves in cold nights.



With the objective of assisting the Chepang community of Makwanpur district during this critical time, we consulted with community leaders regarding the most urgent needs, and subsequently planned a distribution of warm blankets with the funds raised by one of our founding members, Ms Rosemary Boere and our former intern, Ms Sarah Gregory. With the necessary coordination with Health office and municipality, 32 warm blankets were distributed to the Chepang households in Raksirang Rural Municipality 03, Ghattekhola, on 1st January 2021 with the active presence of health office and local government.



The recipients were delighted to receive the blankets. The need for warmer clothing was evident as many recipients were shivering and clothing was clearly inadequate for the weather. The Rural Municipality chairperson regarded this as a great humanitarian work and the local government and the health office.

Our sincere thanks to Ms Rosemary and Ms Sarah for their generosity in raising funds for the Chepang.

KHANDBARI (1985 -1987): MY TIME WITH BNMT

Anne Goldie



Many moons ago when the world was a different place, when there were no mobile phones, when the internet was not buzzing around our ears with every piece of information we needed to know or not know, when there were few roads and when I was a young girl in my twenties, I worked for BNMT in the Eastern hills of Nepal, based in Khandbari, in Sankhuwasabha.

I was employed as a Women's Literacy Coordinator as part of the Community Health Programme. This was a new role which was exciting and challenging - to work with groups of women participating in Adult Literacy classes, run morning and evening in the various villages in the districts of Chainpur and Khandbari.

Education is the most powerful weapon to change the world. I saw this written on the wall of a school in Nepal recently and it resonates with truth.

The discipline and determination of the women and girls who came every morning from 6-9 am was heartwarming and very rarely did they miss class. Some boys would come too, and often some of the husbands- just to see what was going on. Nothing could be done without the support of the men in the community and in most cases they were supportive. Rain or shine the participants turned up until the course was finished. So many subjects were covered from water, to school, to smoking, to vaccinations, to marriage and the home. Many of the traditions surrounding village life and customs were revealed to me and discussed. The flow of information onto the participants' children and families was a natural ripple effect of these classes. How could this not be a good thing?

The Community Health Programme employed some of the women teachers in the committees and instead of being quiet bystanders some felt confident to air their views. Two of the significant effects of the project were dispelling of myths around vaccinations and the building of smokeless stoves in earnest, backed by the women of the households. The connection between smoky kitchens and diseases like TB became understood, and if the women were driving the change they could often persuade the men.

During my time with BNMT our daughter Ester Maya was born in Patan hospital and I then understood completely the fears surrounding so many things to do with childhood illness and indeed childbirth. When it came time for my own child to receive her first DPT vaccination from the thermos flask carried by the Health workers, I was terrified. Would she get ill? Would she get a fever? Was the needle clean?! It was a huge learning curve for me and I was so grateful for my two years in the hills of Khandbari and the friendships and connections I made.

BNMT today is working as always in its Community Programmes to enable women to find a strong voice. There is still a long way to go to bring equality into the lives of women and girls and many of the same issues and taboos I encountered remain prevalent today. I am incredibly grateful that I was part of the Women's Community Health Programme at the very beginning and also now to be part of the new Butterfly Project which will begin this year in Sindhupalchowk.



WORLD TB DAY 2021 COMMEMORATION

Awareness of COVID-19 has dominated so much of our lives in the last two years, but tuberculosis, one of our oldest foes, continues to cause untold suffering and death. The BNMT World TB Day activities 2021 had to be adapted to the current COVID control guidelines on social distancing, but despite this, BNMT staff and partners



organized a wide array of events to spotlight the impact TB continues to have on so many lives. In coordination with the local government and health offices, In Pyuthan district we used our drones to fly an 'END TB' banner over the district and conducted an awareness event with the priests at the famous pilgrimage site Swargadwari. In Banke district, our community health workers adapted a famous folk duet performance 'Lok dohori' with the TB awareness lyrics. In Bardiya and Chitwan districts, we distributed nutritious food packages to families affected by TB patients in partnership with local government health representatives. In Mahottari district, we worked with a Mithila artist Mr Bijay Dutta to design and paint traditional Nepali Mithila art based murals featuring TB awareness messages on the walls of Gaushala and Ramgopalpur Primary Health Centers. In Makwanpur district, BNMT staff organized an inter-school quiz contest on TB knowledge Brochures, banners and 'parcha' with TB messages were also disseminated throughout these districts in coordination with the local/provincial government. This year, BNMT also designed and distributed colorful T-shirts, themed



with END TB messages unique for each district. At the central level, a team attended National Tuberculosis Control Center event, continuing our commitment and unity to fight against the disease. To promote the END TB theme on social media, we produced two videos, one giving voice to the healthcare workers engaged in the struggle against TB every day, and another highlighting the achievements of IMPACT TB phase I. Our video was shared on social media by the Stop TB Partnership. Our events received widespread coverage in local newspapers, television and social media and achieved our aim of highlighting the ongoing need for strong investment, commitment and unity to END TB in our communities.



Singing and dancing on folk duet with TB awareness lyrics in Banke



Nutritional food package distribution in Bardiya (left) and Chitwan



Commemoration in Chitwan

STRENGTHENING ONCOLOGY SERVICES

With funding support of The Institute of Cancer Research, London, The Royal Marsden NHS Foundation Trust, prostate cancer laboratory equipment was handed to Director of Bir Hospital, Prof Dr Shanta Sapkota. The equipment included 1 PCR Hood (Model: HCB-1300V) and 1 Laboratory Centrifuge (Model: R – 12C)



This support was in continuation to the sponsorship by Royal Marsden Hospital UK for six fellowships for Nepali oncologists to train at Royal Marsden hospital, UK., with logistics and administrative support from Britain Nepal Medical Trust, UK. The fellowship included a three-month exchange visit to understand the latest advances in technology and treatment for oncology care and to exchange expertise with UK consultants and healthcare teams. Thanks to BNMT UK and Dr Gillian Holdsworth for all the support!

Our Friends Around The World



Our grateful thanks to Rosemary Boere and other friends of BNMT who have raised money this year which has enabled us to support emergency relief to families in need during the COVID crisis. This year, Rosemary's funds from the sale of her plants have supported winter blankets for the Chepang community, food relief and an educational scholarship for a teenager affected by MDR TB to complete her education. Seeds that are growing good things.



Thank you to Frank Guthrie for his generous gift of 10,000 GBP to support the Butterfly project strengthening menstrual education for adolescents in Sindapulchowk district.



"It has been a real pleasure to work with the wonderful researchers at BNMT over recent years, and I look forward to continuing our important work into the future."

Ewan Tommeney, Liverpool School of Tropical Medicine, UK

"I would like to commend the dedicated BNMT staff that have successfully implemented the TB Recovery project, and launched the Target TB project in 2021, it is my great pleasure to work with you all."

A. Professor Sarah Dunstan, University of Melbourne



"Working with BNMT has been one of the best experiences that I have had both professionally and personally. The team is vibrant, dynamic, well-organised, and delivers high quality research and other projects. Individual members are gifted, warm, fun, caring, and have great integrity."

Dr Tom Wingfield, Liverpool School of Tropical Medicine, UK

"I feel beyond grateful having had the opportunity to work with and learn from my colleagues at BNMT who warmly welcomed me to the team. I hope to see you all very soon!"

Dr Olivia Biermann, Karolinska Institutet

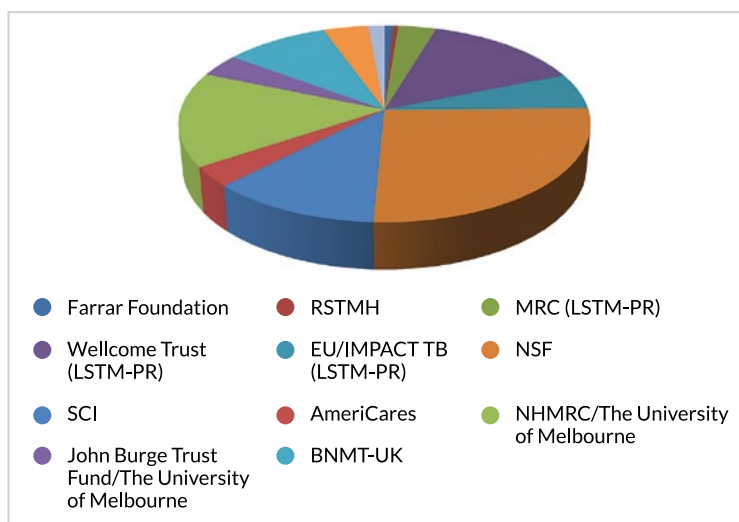


FINANCIAL OVERVIEW

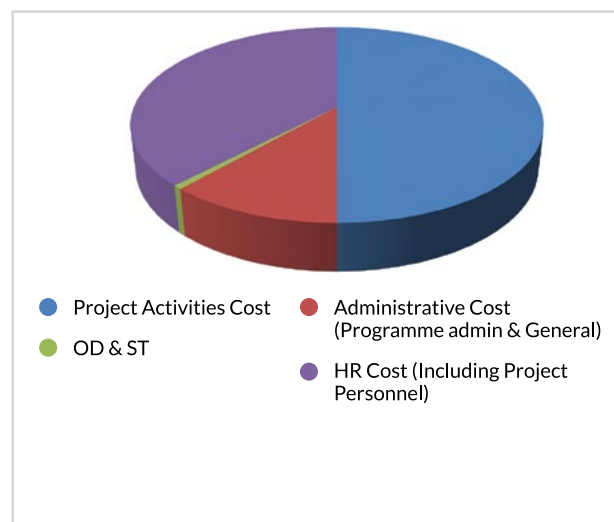
BIRAT NEPAL MEDICAL TRUST Balance Sheet as at 3/31/2078 (July 15, 2021)

Details	2077/78		2076/77	
	Amount (NRS)	Amount (NRS)	Amount (NRS)	Amount (NRS)
Fixed Assets:				
Tangible Assets		8,940,808		11,306,080
Current Assets:				
Debtors	16,763,660		5,899,504	
Investments	-		-	
Cash in Hand	42,247		22,247	
Cash at Bank	98,213,251		44,069,072	
	115,019,158		49,990,824	
Liabilities and Payables:	6,169,832		8,400,296	
Net Current Assets		108,849,326		41,590,528
Total Assets less Liabilities		117,790,134		52,896,608
Charity Funds				
Restricted Fund		81,055,126		26,064,545
Unrestricted Fund		36,735,008		26,832,063
		117,790,134		52,896,608

Total Income : NRs 161,167,441



Total Expenditure : NRS 95,669,192



Gallery



Advocacy about tuberculosis in World TB Day in Chitwan district



Sharing and planning meeting of IMPACT 2 TB and Target TB in Pyuthan district



Team refreshment in Pyuthan district



Discussion with female community health volunteers in Pyuthan



Case report from collection from COVID19 patients in Bardiya district



GeneXpert machine handover in Mahottari district



Interview with a patient in Pyuthan



PPE and medical supplies handover to local government in Mahottari district



BNMT NEPAL

Serving the People of Nepal

Birat Nepal Medical Trust (BNMT Nepal)

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