KNCV TUBERCULOSIS FOUNDATION

ANNUAL REPORT 2021

KNCV TUBERCULOSIS FOUNDATION

KNCV
TUBERCULOSIS
FOUNDATION

ANNUAL REPORT 2021

KNCV
TUBERCULOSISFOUNDATION

CONTENTS

We work on over
60 projects and
assignments worldwide.

1. KNCV AT A GLANCE

KNCV Tuberculosis Foundation (KNCV) is an international non-profit organization dedicated to the fight against tuberculosis (TB) and related comorbidities; and to strengthen the fight against Anti-Microbial Resistance, Surveillance & Research.

Our mission is to end human suffering due to TB through the global elimination of tuberculosis.

Our vision is to save lives and accelerate the decline of the TB epidemic through the implementation of effective, efficient and sustainable specific strategies that combine patient-centeredness with epidemiological impact.

KNCV is guided by its strategic plan, which aligns with global policies and targets. Figure 1 on page 8 shows KNCV strategic focus, implementation approaches, and collaboration with other partners towards global TB targets. We carry out our work in 60 assignments worldwide.

How we work:

- Collaborate and coordinate with both national and international partners
- Work within the health care system (National TB Program/Ministry of Health), including private sector
- As a global KNCV network organization, comprising of branch offices and fully independent local affiliates. The KNCV Network works in partnership with all relevant stakeholders at country level.
- Documentation of best practices and capacity building to ensure scale-up and national ownership
- Dissemination of evidence via publications and conferences

"Despite all the odds, the year 2021 was successful with KNCV implementing over 60 different projects"

Mustapha Gidado,
Executive Director
of KNCV Tuberculosis Foundation

MESSAGE FROM OUR EXECUTIVE DIRECTOR

Despite all the challenges, 2021 was a year of opportunity and thanks to KNCV staff at all levels and the solid coordination and collaboration with our colleagues in the field (National TB programs, front line health care workers, community, and civil society groups), we worked with a positive attitude that resulted in regaining the declining performance of the TB programs. The global performance of the TB programs is still facing significant setbacks from the ongoing COVID-19 pandemic, but together with all our donors and partners, we are on a journey for recovery that requires urgency and focus.

KNCV acknowledged the changing world plus the new ways of working and has developed a resilient system and processes to adapt to these changes. This includes aligning strategies and projects with health system strengthening approach, mainstreaming digital technology and artificial intelligence, targeted community TB interventions (sub-national data analysis & hotspot mapping), integrated laboratory platforms including genome sequencing as part of pandemic preparedness and AMR stewardship, and finally decentralization of staffing and strengthening the KNCV network organization globally.

Despite all the odds, the year 2021 was successful with KNCV implementing over 60 different projects (varying in scope, coverage, and budget) but all in line with the KNCV strategic plan and innovation pathways. I am pleased with the current progress of, to name but a few, the following interventions: Patient-Centered Framework approach to TB program planning, Digital Adherence Tools, BPaL regimen, the 3HP regimen, and the ongoing introduction of the genome sequencing using Oxford Nanopore-MinION. Evidence and best practices generated within the year were disseminated at the appropriate global TB platforms including 41 peer-reviewed scientific publications.

Thanks to our resource mobilization diversification, the adopted data driven efficiency measures and the overall implemented risk mitigation strategies, the year ended financially with net positive results and a good audit report.

While cognizant of the continued challenges of COVID-19 and the emerging situation in Ukraine, we are on course in the year 2022 to deliver on our strategic objectives within a balanced budget. In addition to strengthening the resilience of our system, the KNCV network in partnership with all stakeholders, will contribute to the acceleration of the performance of the TB programs in line with the TB UNHLM targets.

"We all have an opportunity to act, and we must act now to reduce the suffering related to TB and other comorbidities."

Mustapha Gidado,
Executive Director
KNCV Tuberculosis Foundation

3. RESULTS REPORT 2021

Activities and achievements on the innovation pathways in 2021

KNCV supports people-centered approaches in the elimination of TB and related health problems, with innovation at the heart of KNCV work.
Working towards this aim, KNCV applies three strategies, 1) evidence generation, 2) policy development and strategic planning and 3) building supportive systems. This drives the innovation process: from conceptualization and development of innovations, to the implementation of demonstration projects and technical assistance to scale-up, as illustrated in figure 1.
KNCV is driving innovations along nine pathways, including optimization and scale-up of the use of existing and innovative approaches. We do this against the background of increasing health coverage and social protection, country ownership and collaboration with partners. The progress made on each of the pathways is detailed below, along with descriptions of how the projects implemented by KNCV contribute to achieving, together with stakeholders, the stated KNCV development objectives.
In 2021, the COVID-19 pandemic continued to derail the progress made over the past decade by overburdening health systems and diverting attention and funds away from TB Elimination. During this period, KNCV has continued advancing much needed innovations, while adapting strategies and shifting to approaches that mitigate against the impact of COVID-19 on people with TB and the functioning of national TB programs.
This included continuation of the approach adopted in 2020 of provision of personal protection measures, supporting outreach services for diagnosis and treatment and remote engagement with national TB programs (NTP), remote training and mentoring. At the same time, lessons were learned from the COVID-19 response for application in TB Elimination and vice versa.
The COVID-19 pandemic highlighted the weaknesses of the healthcare systems around the globe. At the same time, the global response demonstrated the ability to develop new diagnostics, vaccines, and effective treatments at an unimaginable pace. Despite the continued COVID-19 pandemic pressure on the healthcare systems, KNCV continued moving forward and expanding its area of expertise and country support.
In total in 2021 KNCV implemented 64 projects, ranging from very small single topic technical assistance projects to multi-country projects of several years duration.

Figure 1: Strategic map of KNCV action for TB Elimination.

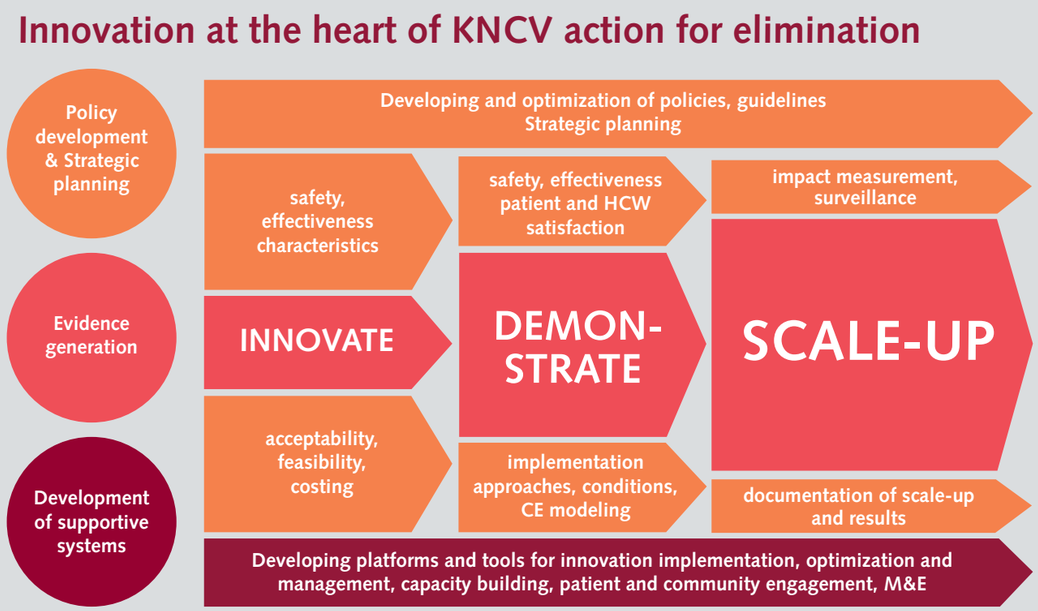


Figure 2 shows that all KCNV strategies are well represented in the project portfolio. Some projects apply more than 1 strategy.

KNCV STRATEGIC APPROACHES

Supportive systems, 26

Policy development & strategic planning, 18

Evidence generation, 34

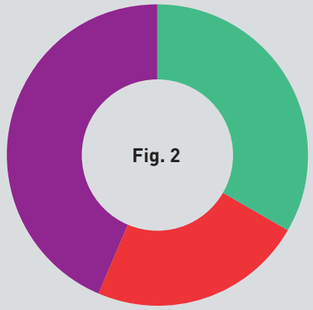


Figure 3: The implemented projects cover all KNCV innovation pathways, with an increase in projects related to vaccine readiness and stigma, compared to 2020.

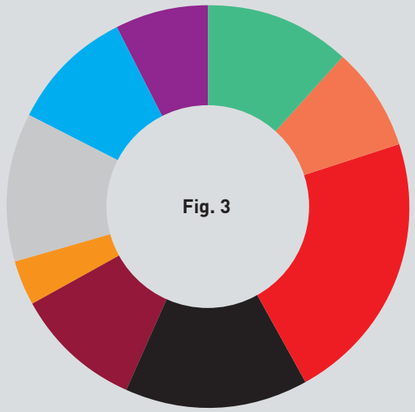
KNCV INNOVATION PATHWAYS

Strengthening of health systems and multisectoral solutions along the patient pathway, including health financing and country ownership, 13

Development of electronic information systems and digital health solutions along the patient pathway, 9

Improving patient centered treatment of active TB, including drug resistant TB, 24

Innovation and optimization of diagnostic technologies and strategies, 16



Improving and developing the evidence base for TB Elimination including methodologies for epidemiological measurements and surveillance systems, 11

Building system-readiness for the deployment of new or improved TB vaccines, 4

Improving management of TB infection, 13

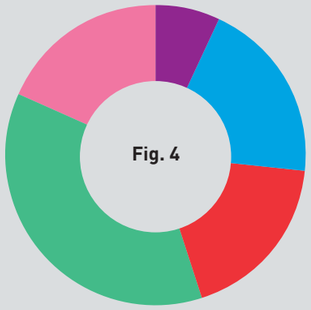
Early identification of all patients with (DS/DR) TB in all age groups and vulnerable or at-risk populations, 11

Reducing stigma of TB and associated diseases, 8

Also KNCV cross cutting themes are well represented in the portfolio as shown in figure 4

KNCV CROSS-CUTTING THEMES

TB/DM, 5
TB/HIV, 14
Childhood TB, 13
AMR stewardship, 26
COVID-19, 13



The following sections report on the progress made along the KNCV innovation pathways in 2021, while highlighting the projects that enabled this progress.

Innovation pathway

1

Improving and developing the evidence base for TB Elimination including methodologies for epidemiological measurements and integrated disease surveillance

Aim for 2025

Desired landscape by 2025: countries will have the tools to make valid TB burden estimates, perform meaningful surveillance of TB (and HIV, DM, COVID and AMR as needed). Evidence and models will be available to design an optimized mix of interventions for TB elimination and capacity will be present in key countries for their use.

In 2021, KNCV developed an improved tool to estimate the sub-nation TB burden, through a collaboration with the NTP of Nigeria. The TB Small Area Estimation (SAE) methodology developed with the Nigerian Institute of Disease modelling (SAE-IDM) was employed to generate Local Government Area level predictions of TB burden in Nigeria. Intensified case-finding among the under-served in Nigeria, using the Wellness-on-Wheels trucks (mobile units with Chest X-ray and Xpert testing) provided a unique opportunity to validate the methodology. We found the SAE predictions were moderately correlated with case-finding from the Wellness-on-Wheels trucks. Nigeria is expanding the deployment of SAE; the methodology will be published for application elsewhere.

As an extension to previous work, in 2021 KNCV continued to develop novel ways to conduct TB prevalence surveys (TBPS). For this, KNCV collaborates on the TREATS study (Tuberculosis Reduction through Expanded Antiretroviral Treatment and Screening for Active TB), which is measuring the success of a 'universal test and treat' project called PopART in reducing the prevalence and incidence of TB in Zambia and South Africa. These findings will help inform new policies and approaches for tackling the TB-HIV epidemic.

KNCV also continued work in epidemiological modeling of TB, contributing to a paper in Clinical Infectious Diseases on revisiting the natural history of TB, which, based on annual mortality rates reported by studies from the prechemotherapy era, now differentiates the duration of disease by type of disease (1.57 years for smear-positive and 5.35 years for smear-negative TB).
Health economic modeling continued in collaboration with the Global Alliance for TB drug development (TB Alliance) which supported our work on modelling the five-year budgetary impact of gradual introduction of the BPaL regimen against the status. We demonstrated that the BPaL regimen can save significant costs compared with the conventional regimens to treat people with TB with XDR-TB in high drug-resistant TB burden settings. This supports the rapid adoption of the BPaL regimen to address the significant programmatic and clinical challenges in managing people with TB with extensive forms of drug-resistant TB in countries with a high burden of drug resistant TB.

Also, together with colleagues from the University of Sheffield, we modeled the impact of implementing SOS stool testing with Xpert at the primary healthcare level in Ethiopia and Indonesia. Implementation would be cost-effective and potentially cost saving and would reduce

In the framework of the TREATS project, an intensified diagnostic phase (IDP) survey was done, in which different diagnostics were assessed for their applicability in TBPS, with till now the following outcomes:

1) A new algorithm was designed for diagnosing TB, specifically to limit the number of cultures needed; further discussions on standardizing the diagnostic algorithms in TBPS with WHO are expected in May 2022.

2)Testing C-reactive protein (CRP) seems appropriate for triaging who should be tested with Xpert, but its suboptimal accuracy warrants further studies.

With the event of the COVID-19 epidemic, COVID-19 testing was added to the protocol, aiming to provide insight in the transmission

morbidity and mortality among children. As reviewers, we were also involved in a study conducted by M. Gaeddert and C. Denkinger on the economic impact of SOS stool testing in Uganda, South Africa, and India. That study concluded that SOS stool testing was cost-effective if at least 7 out of every 100 children tested would be diagnosed with TB.
Under the ASCENT project, KCNV is working with the LSHTM on economic modelling of digital adherence technologies interventions. Preparations for data collection was finalized in 2021.

Innovation pathway

2

Building system - readiness for the deployment of new or repurposed TB vaccines

Aim for 2025

Desired landscape by 2025: Evidence and tools to develop vaccine delivery strategies will be available and used by countries to prepare the deployment of new or repurposed vaccines.

In 2021, KNCV worked on multi-disciplinary assessments and preparedness planning to advance the development of TB vaccination strategies. Together with the LSHTM and others, KNCV conducted a qualitative study on the "Potential implementation strategies, acceptability and feasibility of new and repurposed TB vaccines" in South Africa, India and China. The results were presented at the 52nd Union Conference as an E-poster.
In addition, funded by EDCTP, through the Tuberculosis Vaccine Initiative (TBVI), KNCV developed the first TB Vaccine Clinical Trial Directory for Sub-Saharan Africa. The directory was launched at a virtual event organized by EDCTP. Directory of TB vaccine clinical trial sites in sub-Saharan Africa - EDCTP. The results were also presented at the 52nd Union Conference as an E-poster. KNCV participated in and supported the development of the meeting report of the 2021 Virtual Global Forum on Tuberculosis Vaccines.

Innovation pathway

3

Improving the early management of TB infection

Aim for 2025

Desired landscape by 2025: Tools and guidance are developed and implemented widely, such that safe and effective TB preventive treatment is provided to all people who may benefit according to their risk of developing TB, with service delivery models following a people-centered approach.

During 2021 KNCV continued improving the early management of TB infection through evidence generation, policy development and the availability of (global) tools as shown by the three following examples.

In the Netherlands, KNCV finalized the ZonMW funded TB ENDPoint project, finding effective approaches to making treatment of TB infection accessible to migrants, generating the evidence resulting in policy recommendations.

Summary of the ENDPoint project: the Netherlands is a low TB burden country. A large proportion of the people with TB were not born in the Netherlands. Therefore, one focus area of interest for TB prevention are migrants. To optimize TB prevention among migrants in the Netherlands, the TB-ENDPoint project (2015-2021) studied the implementation, impact and cost effectiveness of TBI screening and TPT among newly arriving immigrants and asylum seekers and among settled Eritrean migrants. The TB-ENDPoint project successfully collaborated with relevant stakeholders in the Dutch TB care and prevention field, such as the National Institute for Public Health and the Environment (RIVM), the Central Organization for Asylum seekers (COA), and the Netherlands Association of Community Health Services (GGD GHOR NL). In the 2015-2018 period, the TB-ENDPoint project has concluded three mixed methods implementation studies among the three populations of interests. For these studies, the project adopted a participatory approach in which the researchers collaborated closely with the TB care staff of Public Health services in designing and executing the protocols of three implementation studies among the three populations of interest. Consequently, in 2021, the project finalized its impact and cost effectiveness study. Finally, on 7 December 2021, the TB-ENDPoint project celebrated its successful closure by organizing an international symposium. The following day, TB-ENDPoint researcher Ineke Spruijt successfully defended her PhD thesis. You can watch the symposium via this link.

Results of TB-ENDPoint project and implications for Dutch TB policy
The TB-ENDPoint project found that TBI screening of immigrants, asylum seekers and settled migrants from a high TB prevalence country is practically feasible and can reach high uptake and completion of TBI screening and TPT if culturally and lingual sensitive information and education is provided to the population of interest. The impact and cost effectiveness analysis showed that the TBI screening (compared to current chest X-ray screening policies) was cost effective among immigrants and asylum seekers from high TB burden countries (TB incidence >200/100,000). For the other populations of interest, the TBI screening did have more impact on quality of life than chest X-ray screening and reduction in test and interpreter costs could potentially improve cost effectiveness. Following the results and advice from the TB-ENDPoint project, Dutch TB policy makers are preparing implementation plans for the TBI screening among asylum seekers <12 years. Additionally, based on the outcomes of the TB-ENDPoint project, the Commission Practical TB Control advised to also implement the TBI screening among asylum seekers from high TB burden countries. TB policy makers are debating whether this advice could also be given for regular immigrants.

Left to right: Dawit Tesfay Haile (TB-ENDPoint research assistant), dr. Connie Erkens (TB-ENDPoint project leader), prof. dr. Frank Cobelens (promotor), dr. Ineke Spruijt (TB-ENDPoint researcher), dr. Jeanine Suurmond (co-promotor), Niesje Jansen (TB-ENDPoint advisor), dr. Susan van den Hof (co-promotor)

Internationally, KNCV supports expanded access to innovative TB preventive treatment of three months duration (known as 3HP) for people living with HIV, and for children between two and five years old. This treatment replaces an earlier treatment of six months duration. With this aim, KNCV collaborates in the Unitaid funded IMPAACT4TB project. The project seeks to establish 3HP as an affordable, quality-assured, less-toxic therapy suitable for wide introduction in countries most affected by TB. KNCV supports country implementation and operational research in Ethiopia, Indonesia, Malawi and Tanzania. This project contributes to global evidence generation, policy development and the development of supporting systems and strategic planning to scale up the use of 3HP in demonstration countries and beyond. Such shorter, better tolerated TB preventive treatments are essential to achieving TB elimination in the countries concerned and globally.

Summary of achievements of the IMPAACT4TB project by 2021

Regarding TPT for people living with HIV: in 2021, all four KNCV IMPAACT4TB countries (Ethiopia, Indonesia, Malawi and Tanzania) had policies to provide PLHIV with TPT including 3HP. In practice, three of the countries (excluding Tanzania) already provided access to 3HP for PLHIV. In the first nine months of 2021, across these countries 7,079 PLHIV started this innovative TB preventive treatment and expansion is underway:

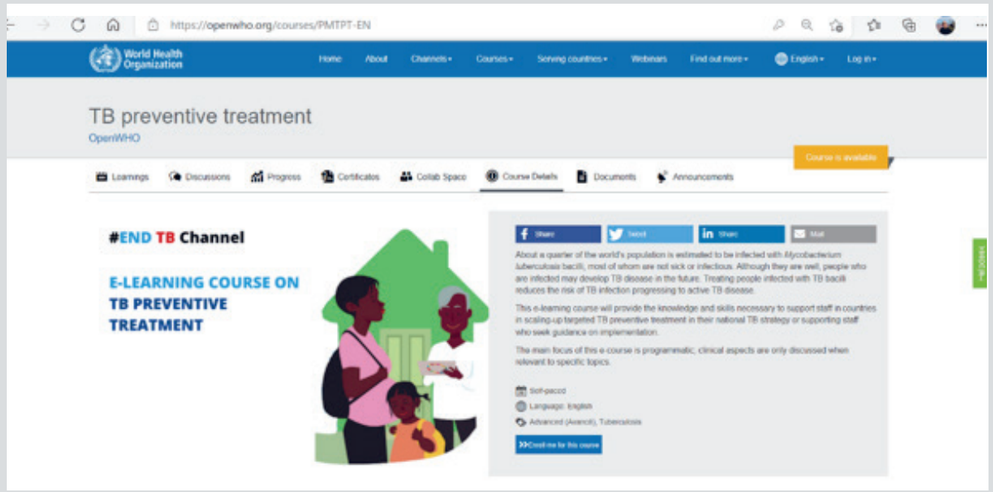
- In Malawi, national roll-out of 3HP for PLHIV newly enrolled on ART was announced in October 2021.
- In Ethiopia, the project moved to Phase 2 and scaled up to 3HP provision to 77 facilities.
- In Indonesia, based on the positive results from their pilot, an expansion plan was developed for 2022.
- In Tanzania, KNCV was key in providing the TB Expert Committee evidence on 3HP which is leading to adoption of 3HP and roll out nationally by 2023 with operational research on 3HP planned for 2022 funded by the GFATM.

Regarding TPT for children: three countries included > 2-year-old children in national guidelines with 3HP as a recommended regimen (excluding Tanzania). Currently however, only Ethiopia and Indonesia provide 3HP to children 2-5 year old as Malawi awaits the shipment of a child-friendly formulation. In the nine months of 2021 for which data is currently available, 199 of <15-year-old contacts started 3HP in Indonesia; in Ethiopia, the total number of household contacts <15 initiating 3HP in 2021 was 1,958.

We collected some quotes from the field in Malawi: "In Malawi, clients are now appreciating that "3HP is much better, easier to take, without side effects and few doses compared to IPT." Similar sentiments were reflected by the National TB control Program: "3HP is preferred among clients because if you can take 12 doses of 3HP weekly compared to 182 doses of isoniazid daily, it is much easier. This means that more people will complete a TPT regimen, and more TB will be prevented". One of the medical officers also said that "there are less side effects reported by client's who are taking 3HP as compared to the number of side effects that are reported by clients taking isoniazid daily. Those on rifapentine feel much better than clients who are on isoniazid daily and adherence is higher in clients on 3HP as compared to those on isoniazid daily."

At the global level, in 2021 KNCV finalized the development of the WHO E-MODULE for TB preventive treatment (TPT) funded by the World Health Organization and the Dutch government. The module is an important tool for the dissemination of WHO's latest guidelines on the programmatic management of TB preventive treatment. The learning course is intended for the leadership of national TB programs and persons who provide guidance to countries on the uptake of WHO guidelines; for example, managers of national TB programmes, technical staff at ministries of health, WHO staff, staff of technical agencies, consultants and anyone supporting countries and major subnational units in the development

and implementation of TB preventive treatment policies and guidelines.
The self-paced e-module introduces the participants to all aspects of programmatic management of TB preventive treatment including: administrative planning, technical coordination, establishing target populations, defining algorithms, weighing benefits vs. risks, determining if individuals are eligible for preventive treatment (e.g., ruling out TB disease and contrai-ndications), counselling and adherence support, monitoring for adverse events, recording and reporting as well as monitoring and evaluation. It is structured with multi-media including videos and graphics. Each section has a quiz and supplemental study materials and references. It is now available on the Open WHO platform (openwho.org).



Project summary of the WHO funded study "Alternatives to sputum for TB testing in Indonesia and Ethiopia" (ASTTIE) was completed, showing that the SOS stool processing method was easy to perform and acceptable for use in the routine laboratory, that stool collection was acceptable by parents and nurses, and that stool Xpert Ultra was sensitive and specific in Ethiopian children seeking care for signs and/or symptoms of presumptive pulmonary TB in 24 health facilities in Addis Ababa.

Innovation pathway

Early diagnosis and access to care in all people with active TB

Aim for 2025

Desired landscape by 2025: Evidence based methodologies and models of care will be available for diagnosis and treatment follow-up of people with TB and TB infection, as close as possible to the homes of the people with TB, with community ownership.

Under this innovation pathway, KNCV focuses on improving access to diagnostic services for children, people living with HIV and people with diabetes. We linked community based approaches for diagnosis of TB to the provision of preventive treatment for those without active TB disease.

In Ethiopia, volunteer women groups supported access to care and TB preventive treatment in Ethiopia.

Project summary Women groups against TB in Ethiopia, funded through the STOP TB Partnership/TB REACH Wave 7. Young children are at increased risk of contracting tuberculosis from adults with infectious forms of the disease. Infection can be prevented by giving daily or weekly medicines for 3-6 months. Despite the availability of such, many children in Ethiopia die of TB. We collaborated with volunteer women groups to improve TB preventive treatment uptake in two districts in Ethiopia.
The women were organized under indigenous associations called "Iddirs". The primary purpose of the Iddirs was to provide support to each other during times of adversity, especially when death occurs in the family. With training and orientation by KNCV advisors, the women were convinced that they can prevent TB associated deaths.
Based on the information the Iddirs received from health workers at the nearby health facility, they went to the homes of people with TB with known TB infection. During the visits, the women educated the household members about the importance of TB preventive treatment for children. The women then checked if child household contacts had TB symptoms and referred them to the nearby health facility for further evaluation. Those without active TB disease received preventive treatment from the health center. The women followed them through regular home visits and reported to the health center when they identified side effects or other problems with the treatment. Upon successful completion of treatment, the mothers or guardians of children received a certificate of completion. Through this approach, these volunteer women identified and supported preventive treatment for 937 children under five years of age between July 2020-June 2021 in Gamo & Goffa zones in southern Ethiopia, and in a slum sub-city in Addis Ababa. Of these, 99% successfully completed the treatment. To our knowledge, this is the highest recorded treatment success rate.

In 2018, KNCV presented the Simple One-step (SOS) stool processing method for application in combination with Xpert MTB/Rif (Ultra) testing. In 2021, the first paper was published on the pioneering work done in Ethiopia [1]. Additional work was done in 2021 as detailed below, which showed the SOS stool processing method is robust and easy to use in settings where Xpert tests can be performed; see a more detailed description of this work under section 6, the innovation pathway on diagnostics.

Summary of results of bidirectional screening for DM and TB in Ethiopia
To develop simplified tools that can contribute to early detection of DM in people with TB. Of 2381people with TB tested for DM, 197 (8.2%) had DM, and a half of these were unaware of their status at baseline. The risk scoring tool that comprises socio-demographic and clinical risk factors combined with diabetes symptoms predicted DM diagnosis with moderate accuracy. This tool can be used for prioritizing people with TB who need immediate testing for DM, avoiding consequences of delayed treatment of DM. The results are published in a peer reviewed journal.

To assess if routine use of chest X-rays can lead to detection of more TB among people with DM.
Of 7,394 people with DM screened both by x-ray and symptom checklists, 28 were confirmed to have TB of whom 20 were newly diagnosed. Thirteen of the newly detected people with TB were among those with symptoms while seven people with TB had no symptoms. If chest ray was not used, we would have missed over a third of the people with TB disease, highlighting the importance of routine chest X-ray screening in DM care settings. The findings are shared with the ministry of health in Ethiopia as a basis for decision making on wider application of this methodology; a manuscript is under preparation for publication.

In 2021, funded by Stichting Mondiale Tuberculosebestrijding, KNCV partnered with national TB programs in strengthening integrated services for TB and diabetes mellitus (DM). This project in Ethiopia illustrates an innovative model of integrated care. The project focused on validating a risk scoring checklist to contribute to early detection of DM in people with TB, and on assessing the use of routine use of chest X-rays for TB screening in people with DM. The project illustrates the KNCV approach to evidence generation in real program settings for local and global policy making.

KNCV is also studying the implementation requirements for the new Fuji LAM test for an easier diagnosis of TB in people living with HIV, further reported under pathway 6.

5 Innovation pathway

Reducing TB and COVID-19 stigma

Aim for 2025

Desired landscape by 2025: the application of evidence-based stigma reduction tools is mainstreamed in National Strategic Plans and major donor or domestically funded programs.

It is globally recognized that TB stigma has considerable negative impact on TB care and prevention programs. TB stigma has the power to impede the progress in the fight against TB. KNCV's past work on stigma includes the development and validation of stigma measurement tools and the development and adaptation of approaches to reduce the stigma surrounding TB. These approaches are designed to address TB stigma in communities, among those living with the disease and TB stigma in health facilities, including the stigma experienced by health workers caring for people with TB. In 2021 KNCV continued this pathway, also applying the lessons learned on TB stigma for application in the COVID-19 pandemic, with many TB workers being drawn into fighting the COVID-19 pandemic.
Our stigma work in 2021 consisted of evidence generation, strategic planning and policy development and preparations for the design of situation specific TB stigma interventions. At the global level KNCV worked on the development of the section on TB stigma and discrimination of the first guideline on social protection, currently under development by WHO.
In Ireland, Nigeria, Netherlands, Pakistan, and Philippines KNCV assessed the stigma experienced by health care workers engaged in the COVID-19 response. In Sudan KNCV assisted national level planning and the development of an action plan for the national TB stigma response. In Malawi KNCV provided technical assistance to the NTP to assess the drivers, facilitators, and manifestations of TB stigma in Malawi, as preparation for future stigma reduction interventions.
These three projects are described more in detail below.

Mental health and COVID-19 stigma among healthcare workers, Funded by Sonnevanck
Following the COVID-19 pandemic, many healthcare workers (HCWs) were designated to work as COVID-19 frontline responders. COVID-19 HCWs experience extreme working conditions, which include long working hours and traumatizing events while caring for people. Despite their crucial role in fighting the pandemic and caring for people, COVID-19 HCWs are no exception to perceiving or experiencing stigma. Studies have linked COVID-19 stigma to a lack of understanding of how COVID-19 transmits, a desire to assign blame, fear of illness and death. The lack of social support, stigmatization,

and harassment can severely impact the mental health of HCWs, which negatively affects job satisfaction and quality of patient care.
However, the available evidence on the mental health and stigma of COVID-19 HCWs was mainly generated from quantitative studies. Hence, there was a need for more in-depth understanding and evidence on the underlying processes and causes of impeded mental health and stigmatization of COVID-19 HCWs. Therefore, in 2021, Sonnevanck provided funds to KNCV for a qualitative study. For this study, KNCV researchers organized 53 in-depth interviews with HCWs from five different countries (Ireland, Nigeria, Netherlands, Pakistan, and Philippines). The preliminary results on stigma show that the main driver of experienced and self-stigma is fear of infection. The majority of COVID-19 HCWs expressed that they were avoided or excluded in public and from families and friends out of fear for infection. The severity of this form of experienced stigma varied from being asked to leave a public building to an engagement being ended by the now ex-partner. Most COVID-19 HCWs also self-isolate themselves out of fear of infecting family members. The HCWs perceive these forms of experienced and self-stigma as understandable, and sometimes necessary, because they have first-hand experience with the severe disease the virus can cause. The fear of COVID-19 has not only caused avoidance and isolation but led to severe discrimination of HCWs being refused or evicted from their residence by their landlords. Some HCWs expressed that the stigma led to feelings of loneliness, sadness, and disrespect which affected their mental health.
Furthermore, many COVID-19 HCWs expressed that they experienced a lot of stigma within health facilities: for example, they are being avoided and excluded by non-COVID-19 HCWs or asked by managers to wait outside the office. Following this study, we were able to identify the similarities between COVID-19 and TB stigma. These similarities will be used to adapt in the KNCV's stigma reduction tool: the TB Allies approach. In the coming years, KNCV will use this, and other tools, to accomplish her mission to fight both COVID-19 and TB stigma in both communities and healthcare facilities.

Philippine HCW: "I eventually started hiding this illness to avoid discrimination because a lot of people stay away from me, because they are afraid that they might get that COVID-19 from me. I am the carrier, so. […] You even start feeling depressed, and even angry with your family."

Nigerian HCW: "I did not tell them I worked in the isolation center, I hid my identity because when they know where we work, they embarrass us and call us CORO. Saying we should not come near them or sit beside them."

Irish HCW: "… I was told to if I could get another apartment because they wouldn't want to be infected. And if I'm in the kitchen, they don't come around, you know? […] I was actually looking for a house when I was confronted. […] Some of the agencies or people I met in the house like, 'Okay, can I know your name'? […] I said I am a nursing student, I came for a top-up nursing program. That alone will make them not want to give me the house. So I had to go back home and talk with my flat mates and make them understand that they should just bear with me for the moment."

Project Summary National Strategy to reduce TB stigma in Sudan; assigned by/funded by WHO

Despite its relative low TB incidence, especially when compared to neighboring countries such as South-Sudan, Central African Republic, and Chad, TB is a well-known disease among the Sudanese. In Sudan, TB is labelled and called "Sadrya" and "Sol". These labels have been endorsed by the community as "bad". Previous studies and reports in Sudan showed that TB stigma and discrimination are barriers to seeking care and adhering to anti-TB treatment. Consequently, the Sudanese National TB Program has collaborated with KNCV to develop a TB Stigma Reduction Strategy. The goal of this strategy is to reduce the stigma of people with TB and TB healthcare workers, and consequently improve mental health in these groups, accessibility of TB services, and uptake and completion of TB treatment.
As a first step in developing this strategy, we conducted a literature review which concluded that TB stigma is deeply rooted in the Sudanese community with complex dimensions. It occurs in both sexes, rural and urban areas, and all social classes. TB stigma negatively impacts people with TB, families, and healthcare services, including TB control program activities. To improve the mental wellbeing of people with TB and the quality of care, a set of evidence-based comprehensive cultural and lingual sensitive interventions were recommended. Firstly, the implementation of KNCVs "Photovoices" and health education messages were recommended to address and reduce TB stigma in the community. Secondly, implementation of KNCVs "Allies Approach" and the adaption of TB stigma education in curriculums was recommended to address and reduce TB stigma in health services and among health providers. Finally, to address and reduce TB stigma among people with TB, a stigma vulnerability and impact checklist for healthcare workers was recommended to secure accurate and appropriate referral to psychological support. Additionally, implementation of KNCVs "From the Inside Out" package was recommended to help individuals identify, understand, and address self-stigma and anticipated stigma. A virtual workshop was conducted to discuss the draft action plan and to get input from the country team on the operational plan, the technical assistance plan and M&E plan. The final product was a complete action plan addressing TB stigma in Sudan as part of their strategic plan and agreed upon by all key stakeholders involved.

Project Summary National Strategy to reduce TB stigma in Sudan; assigned by/funded by WHO

Despite being a high TB burden country, Malawi does not yet have a comprehensive stigma strategy in place. Over the past years some information has been gathered on the occurrence and impact of TB stigma in Malawi and the National TB Control Strategy 2020-2025 recognized high levels of stigma against people with DR-TB. In the final quarter of 2021 and as part of the USAID funded Malawi LON project, KNCV initiated a collaboration with partners in Malawi to assess the drivers, facilitators, and manifestations of TB stigma in Malawi through a literature review. This showed stigma is widely recognized by the NTP, service providers and consortium members. However, there is limited understanding on the ways it affects health seeking behavior, access to care and case management. One study suggested that stigma experienced by TB clients results in financial stress and fear of job loss. Ideas about how TB spreads and its association with HIV are identified drivers of TB stigma; this effect was found more in men than women. In collaboration with the NTP and local partners, KNCV is using these outcomes to adapt KNCV's "Allies Approach" to the Malawi setting and plans to implement the tool to reduce TB stigma in Malawian health facilities.

Innovation pathway

6

Innovation and optimization of diagnostic technologies and strategies for diagnosis and treatment for TB infection, TB, DR-TB in health facility and community settings

Aim for 2025

Desired landscape by 2025: Evidence-based methodologies and algorithms will be available for diagnosis and treatment follow-up of people with TB, DR-TB and TB infection of all ages as close as possible to the homes of the people seeking care.

In the framework of the COVID-19 pandemic and response, KNCV supported countries to build on work done earlier on the introduction and scale-up of the use of the Xpert diagnostic platform. KNCV supported countries to mobilize resources for procurement of additional COVID-19 tests and additional Xpert machines that can be deployed in their Xpert network and expanding the networks.

At a global level, in 2021 KNCV finalized the development of the WHO E-MODULE on the diagnosis of TB, funded by the World Health Organization and the Dutch government. The module is an important tool for the dissemination of WHO's latest guidelines on TB diagnosis. The learning course is intended for the leadership of national TB programs and persons who provide guidance to countries on the uptake of WHO guidelines on TB diagnosis; for example, managers of national TB programmes, leaders of national TB reference laboratories, technical staff at ministries of health, WHO staff, staff of technical agencies, consultants and anyone supporting countries and major subnational units in the development and optimization of diagnostic networks for TB.
The self-paced e-module introduces the participants to all relevant aspects of diagnostic network optimization. It is structured with multi-media including videos and graphics. Each section has a quiz and supplemental study materials and references. It is now available on the Open WHO platform (openwho.org).
Despite the COVID-19 situation, KNCV made important steps in the further development of the SOS stool method, which is a method for painless and non-invasive TB diagnosis for children. Based on preliminary findings different sides in early 2020, WHO recommended stool as one of the possible samples used for the diagnosis of TB, causing increased interest in the SOS stool for Xpert method. During 2021 the SOS stool method for TB diagnostics in children continued to prove its credibility in terms of performance combined with ease of use.
The PODTEC study, successfully finalized in 2021, showed the robustness of the SOS method.

KNCV developed the standard operating procedures, a remote training methodology and materials and implementation tools for projects implemented in Ethiopia, Indonesia and Vietnam.
The pilot project in Vietnam for the programmatic implementation of the SOS stool processing method for diagnosis of TB showed the success of this method under field conditions for children and PLHIV who cannot produce a sputum. This led to a decision by the NTP for full roll-out in the ten implementing sites.

Project summary of the PODTEC study on the robustness of the SOS stool method completed recruitment. Analysis showed that the method is robust. Results show no, or minimal impact on Xpert results when varying the timing of the stool processing or storage and transportation conditions. The only critical step seems to be the amount of stool to be added to the sample reagent buffer.

Project summary of the PODTEC study
Technical assistance to piloting the programmatic implementation of the SOS stool processing method for diagnosis of TB in Vietnam. The project was funded by the Global Fund and was completed in close collaboration with the NTP of Vietnam. Despite the COVID-19 restrictions the project was successfully implemented. The pilot demonstrated that after distance training and continued online support for several months after the training, laboratory staff were able to successfully conduct the SOS stool test. The method performed well, with non-determinate Xpert results below 5% .

The SOS stool test was also successfully conducted on adults with HIV. The NTP of Vietnam took a decision to continue using the SOS test and roll out the method.

In 2021 the methods and results have been submitted for publication. Next step is inclusion of the SOS-stool processing method in guidance for routine use by the Global Laboratory Initiative (GLI) and WHO.
Meanwhile, many countries expressed interest in the routine implementation of SOS method. With USAID funding, KNCV supported Ukraine to implement the method in late 2021 and gradually scale up the testing.

Funded by WHO, under the ASTTIE study, KNCV is also studying the implementation requirements for the new Fuji LAM test for an easier diagnosis of TB in PLHIV. The study showed that adding FujiLAM testing of urine to the diagnostic algorithm for TB among PLHIV would lead to an increase in TB case finding in this group.

Together with partners, KNCV was awarded the EU funded (EDCTP) Triage Test for All Oral DR TB Regimens (T2riad) project, an exciting new project, a multi-center and multi-country operational study to assess the effectiveness, feasibility, acceptability, and cost effectiveness of the GeneXpert MTB/XDR (Xpert MTB/XDR; Cepheid) assay for rapid triage-and-treatment with short, all- oral drug-resistant TB (DR-TB) treatment. This is expected to make the diagnostic processes much easier and shorter, increasing patient's chances to be cured.

In 2021, several projects have been established with innovative methods of diagnostics, focused not only on TB but more broadly on other infectious diseases. The five-year Netherlands National Postcode Lottery (NPL) project is designed to introduce nanopore sequencing technology to Tanzania, Kyrgyzstan and Vietnam. This project focuses on diagnostics for COVID-19, TB and other infectious diseases of public health concern. In 2021, it was in its preparatory phase. The complexity of the project and the differences in the countries' context require careful preparations before the deployment of the nanopore sequencing technology to the three countries. Two reference-level laboratories, based in the Netherlands, support the development of the laboratory protocols and SOPs.
In 2021, KNCV supported five countries involved in the LIFT-TB project (Leveraging Innovation for Faster Treatment of Tuberculosis) (see section 7, innovations on patient-centered treatment and care). KNCV is one of the implementing partners of the LIFT-TB initiative led by the TB Alliance and funded by the Republic of Korea. LIFT-TB aims to broaden adoption and scale up of improved tuberculosis (TB) treatment regimens. KNCV conducted assessments of bacteriological laboratories that provide diagnostic services for clients treated with the BPaL regimen. The result of assessments will help a LIFT-TB coalition partner, ITRC Korea, to provide targeted support to the laboratories. Further, it will help them to extend their services by providing drug susceptibility testing for new or repurposed drugs, such as pretomanid, delamanid and bedaquiline.
KNCV continues to support the diagnostic side of active TB drug-safety monitoring and management (aDSM): in 2021, KNCV signed a memorandum of understanding with the Korean Green Cross Laboratories and through their generosity, a project to improve aDSM was launched in Vietnam and Kyrgyzstan. This project

focuses on the quality of non-bacteriological diagnostics and monitoring tests for people with TB such as clinical hematology and biochemistry testing and building the bridge between laboratories and clinicians. Baseline assessments were initially delayed due to the focus on COVID-19 in the participating countries, but in time for project completion in 2022.

Another project focusing on the people-centered implementation aDSM during the treatment of people with drug resistant TB is supported by the SMT. It is implemented in collaboration with the NTP of Kazakhstan and aims for decentralized monitoring of the cardiac rhythm (ECG). This is necessary as people with DR-TB receive drugs that may prolong the QT interval and cause disturbance of the cardiac rhythm. If such a condition remains unnoticed, this may lead to death of the patient. Therefore, people with TB regularly travel large distances to have cardiac check-ups. Thanks to the innovative technology in cardiac rhythm monitoring, using a portable ECG recording device paired with a smartphone, the remote monitoring of QT intervals done by people with TB in the convenience of their homes is possible. Recorded ECGs are sent to clinicians for evaluation and decision-making if QT interval abnormalities are detected. The project will evaluate the feasibility and acceptability by people with TB and HCW of the use of mobile ECG devices and, if successful, will develop recommendations for the programmatic implementation.
Since 2014, KNCV is the authorized service provider (ASP) for GeneXpert in Nigeria. As such, KNCV supports the functioning of the Xpert network in the country. In 2017, the Xpert MTB/RIF test was endorsed as the initial TB diagnostic in Nigeria; since then there has been a yearly increase in the procurement of GeneXpert instruments and cartridges, eventually aimed to ensure access in the entire country. In 2021, additional tests became available in Nigeria for the Xpert platform, such as HIV Viral load/EID, CT-NG, Carba R, HCV, HPV, SARS CoV-2, Breast Cancer STRAT 4, HBV Viral load and the MTB/XDR Cartridge. These tests and more will be further scaled up both in test numbers and additional facilities. The introduction of GeneXpert machines in collaboration with the private sector under so-called “Public Private Mix” (PPM) programming will increase the demand for additional test menus.

Innovation pathway

7 **Improving people-centered treatment of active TB, including drug resistant TB**

Aim for 2025

Desired landscape by 2025: BPaL and subsequent fully oral DR TB regimens are implemented in key countries and up to date generic implementation tools packages for regimen change are available for all countries.

Following KNCV’s data collection in 2019, in 2021 publications were finalized and accepted for publication on the acceptability, feasibility, and costing of the innovative treatment regimen of 6 months duration, for people with complicated forms of drug resistant TB, developed by the TB Alliance (the BPaL regimen). This life-saving treatment replaces a treatment of 4-6 drugs of a 20-month duration. This marks a revolutionary shortening of the treatment of serious forms of drug-resistant TB, improving the lives of people with TB and their families, and reducing the burden of drug-resistant TB on health systems.

In 2021, KNCV continued moving forward assisting countries to implement the BPaL regimen- in accordance with WHO guidelines, under operational research conditions. KNCV supported

Ukraine (together with the local NGO OATH) and Tajikistan with Canadian TB REACH funding through the Stop TB Partnership, Nigeria with SMT funding and Ukraine, Kyrgyzstan, Uzbekistan, Vietnam, Indonesia, Philippines and Myanmar with funding from the Korean development agency (KOICA), through a collaboration with the TB Alliance and the Korean International TB Research Centre (ITRC).
With input from partners, KNCV developed a web-based operational research data base for the BPaL operational research for all countries that are interested in its use.

Summary of country achievements on BPaL introduction.

Ukraine, Tajikistan, and Nigeria were the first countries that, with KNCV's support, managed to provide access to this six month, three-drug, fully oral treatment (the BPaL regimen) for patients with serious forms of drug-resistant TB.
Ukraine enrolled 145 patients, Tajikistan 13 patients, and Nigeria 13 patients over the period 2020 – 2021. The large majority of patients were cured without any serious safety issues.

Another five countries, Kyrgyzstan, Myanmar, The Philippines, Uzbekistan, Vietnam started enrollment in late 2021/early 2022. As of January 2022, 98 patients are on the BPaL treatment in these five countries. Indonesia will start enrollment in mid-2022. KNCV ensures coordination of the support in the BPaL introductions with all technical partners including WHO GTB, TDR, WHO EURO, GDF, Stop TB partnership, USAID, and the project partners, TBA and ITRC. Harmonized data collection across the countries was closely coordinated with partners, especially WHO EURO in the European countries.

It is structured with multi-media including videos and graphics. Each section has a quiz and supplemental study materials and references. It is now available on the Open WHO platform (openwho.org).

Under the USAID funded iDEFEAT TB project in collaboration with the Union, KNCV supports India's National TB elimination program in institutional strengthening for management of drug-resistant TB, including clinical support and advice system, and international experience sharing via webinars.

In 2021 KNCV continued through the ASCENT project (see description under section 8, innovations in Digital Health and Information Systems Solutions) the development of evidence for scale-up of the utilization of digital adherence support tools, especially relevant for people with drug resistant TB. Digital adherence support tools are meant to provide tailored support people throughout their treatment, empowering them to complete their treatment till cure.

In 2021, UNITE4TB, a large public-private partnership for the development of new anti TB medicines and treatment regimens, was awarded by the European Union Innovative Medicines Initiative to a larger consortium, of which KNCV is a member. Partners are academic institutions, small and medium-sized enterprises, public organizations, and pharmaceutical companies. UNITE4TB was launched in July 2021 and over the next seven years, the consortium will be active in approximately 40 trial sites on four continents (Europe, Asia, Africa and South America), with the goal of delivering novel phase two clinical trials that will accelerate the development of new TB drugs and regimens. Achieving this goal will facilitate fulfilment of one of the main unmet needs in the TB field: better-tolerated drug regimens of shorter duration that can be deployed to tackle tuberculosis across various drug-resistance patterns and co-morbidities. KNCV will support the implementation of innovative patient support technologies such as digital adherence technologies (DATs)

throughout the project. These technologies are particularly helpful during clinical trials to support optimal medication adherence in a way that is acceptable and comfortable for the patient, while recording information on the intake of the treatment, important for analysis of study results.

In 2021 global attention increased for the threat of anti-microbial resistance, including drug resistant TB for global health and well-being, realizing that anti-microbial drugs are a public health good that needs stewardship. Over the years KNCV has been in the forefront of the development and implementation of a systematic stewardship approach to ensure responsible introduction of new drugs and regimens for TB, safeguarding both patient safety and the preservation of the TB drugs as a public good. With antimicrobial resistance rising in the world, KNCV did a systematic review of evidence on measures ensuring the responsible introduction of new TB drugs and antimicrobial resistance stewardship, resulting in a manuscript on the lessons learnt from drug-resistant tuberculosis programs applicable for wider AMR stewardship and vice-versa. The findings will be disseminated through a scientific publication and through the KNCV network, including AMR-Global, of which KNCV is a founding member, together with AIGHD (Amsterdam Institute of Global Health Development) and others.

When supporting strategic and action planning in countries, or the development of proposals for funding, KNCV provides technical assistance and advocates for countries to use TB medicines that are easy to dose and administer for children, the so-called child-friendly formulations, for all forms of TB.

In the Netherlands, KNCV continued supporting individual people with TB and their families with donations from the Special Needs Fund, through their public health nurses or social workers from the TB clinics. Through the fund we supported 113 people with TB with e.g. travel allowance to facilitate sick visits to relatives who were hospitalized in the TB clinics. Through its contacts with the people working in the field, KNCV also systematically monitors structural barriers for access to TB services and care and provides assistance or (policy) advice for removing these barriers.

Innovation pathway

8 **Development of electronic information systems and digital health solutions along the patient pathway**

Aim for 2025

Desired landscape 2025: Evidence-based, people-centered digital health solutions are available & targeted to support TB prevention, diagnosis, treatment and care, as well as TB program management and strategic planning.

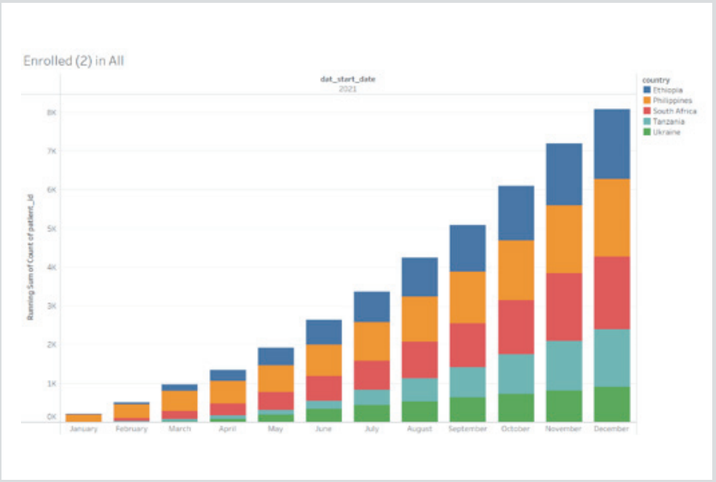
In 2021 KNCV continued to move forward developing evidence and tools for the application of digital adherence tools to support patient centered care and treatment. This year KNCV finalized the first adherence project funded by the Bill and Melinda Gates Foundation and developed and signed a follow-up grant with BMGF, to support the further utilization of Digital Adherence Technology (DAT)-driven interventions. The initial project focused on supporting Tanzania, Philippines, and Ukraine on introducing DATs and working together with additional funders (Stop TB Partnership) and global stakeholders in the development of an implementation package for the introduction of DATs. In the follow-up grant starting 2022, we will further support the Global DAT Task Force (that was set-up

as part of the ASCENT project, see below) and provide country level technical assistance to multiple countries in different stages of implementing DATs. Ranging from early pilots to scale-up and expansion activities. KNCV's DAT activities are aimed to improve patient-centered treatment (as described under section 7 on innovations in patient centered treatment and care), by providing digital tools that enable people with TB to take ownership over their own treatment.

Through the Unitaid funded and supported ASCENT project, KNCV is developing evidence for the use of digital adherence support tools in the framework of patient centered treatment support packages. ASCENT is led by KNCV in consortium with The Aurum Institute, London School of Hygiene and Tropical Medicine, and PATH. The project is implemented in Ethiopia, Tanzania, Ukraine, the Philippines and South Africa. The aim of the project is to make digital adherence technologies (DAT) such as smart pill boxes and video DOT available to all people with TB worldwide. This project contributes to improving patient centered TB treatment and care by supporting people with TB with self-management of daily TB medication and enabling decentralization of TB adherence support to settings more convenient to the daily life of people with TB. ASCENT exemplifies the development of electronic information systems and digital solutions along the patient pathway: while people with TB utilize one of the three DAT suited to their TB classification and technology literacy, providers access real-time adherence information via a centralized dashboard and can pinpoint which people with TB may require additional remote or in-person support. Highlights from 2021 include official start of the research phase in all countries to build the global evidence base on acceptability, feasibility, and effectiveness of DAT use; enhancement of the technology infrastructure to support in-country sustainability; and expansion of NTP use of the platform to additional projects in two countries (Philippines and Ukraine). To date, ASCENT has enrolled over 9.500 people with TB worldwide. More details on ASCENT are available on the project website, www.digitaladherence.org.

Through this project KNCV also contributes to global collaboration and policy development on digital adherence tools: under the ASCENT project a Global DAT task force was established under the wings of the Stop TB Partnership, bringing together global public and private partners and donors in this field. This taskforce is hosted and administered by KNCV.

Total Patient Enrolment ASCENT 2021



Mehamed is a father of one daughter, husband and merchant of used clothes. He lives in Addis Ababa (Ethiopia) and was diagnosed with tuberculosis (TB) at the age of 27. Shortly after his diagnosis, he started his treatment supported by a smart pillbox provided by the ASCENT project. This piece of digital adherence technology (DAT) is supporting him in his adherence and increases the success of his treatment. "Every morning at 06:00 AM, the box sends me an alarm and I take my pills. Every time I take them, Teshome (my nurse) receives a message that informs him I took my medication. He encourages me by calling and messaging me that I'm doing well. On the 14th day of my treatment, the box blinks a yellow light to remind me that I need to go back to the clinic to refill my medication. After two of those visits, I will get enough medication to last me a month. It's like having a personal private doctor!"

While mostly focusing on the Digital adherence tools, KNCV also supported digital health facilitated sample transportation. Under the PODTEC project in Ethiopia, KNCV, in collaboration with Yayasan KNCV Indonesia (YKI), one of the KNCV affiliated NGOs, finalized the operationalization of SITRUST, a custom built and flexible mobile application and web platform developed by YKI, that facilitates laboratory sample transportation, digital tracking of samples and the communication of test result. Through SITRUST, in pilot areas, samples are now more readily collected and sent for TB testing, resulting in a higher number of people with TB diagnosed with TB from the areas concerned.

In line with strengthening country data systems and driving data ownership, through the People Centered Framework Approach Grant (PCF4NSP), funded by the Bill & Melinda Gates Foundation, KNCV expanded on the use of DHIS2 to develop a PCF DHIS2 dashboard. The dashboard was developed as a solution to fill the data system gaps identified by countries during the data consolidation process – one of the steps in the PCF4NSP process. The PCF DHIS2 dashboard can be seamlessly integrated into a country's existing DHSI2 HMIS, used at different levels of the health system – national and subnational levels, and serves readily accessible people-centered data in an easy to view format available for participatory decision making and the wider use of consolidated data along the continuum of care. KNCV is working with early adopter countries, such as Rwanda, to support implementation, and will support roll-out in other countries in 2022.

Innovation pathway

Strengthening of health systems and multisectoral solutions along the patient pathway

Aim for 2025

Desired landscape by 2025: The patient-centered framework approach is well documented and mainstreamed in planning, budgeting and program optimization; the PCF is widely implemented for all aspects of TB programming beyond the first adopter countries;
Service quality assurance and assessment tools are available and used for quality health insurance mechanisms in demonstration countries.
WHO and KNCV have strong ongoing collaboration on the provision of quality blended learning packages on best practices for TB Elimination, used around the world.

9

In 2021 KNCV continued strengthening health systems by applying people-centered approaches in planning as well as in program optimization in the public and private sector. KNCV supported people-centered guideline development and planning in the Netherlands, worked on engaging private health care providers in TB diagnosis and care in Nigeria and continued, together with global partners, to evaluate and further develop the People-Centered Framework (PCF) approach for national and sub-national planning. This approach enables countries to analyze and plan their TB programming in a people-centered way, solicit better stakeholder engagement as well as commitment from the outset and helps to optimize resource allocations. KNCV developed an online community of practice PCF Knowledge Hub [https://pcf4tb.org] to facilitate better access to situation analysis and planning tools, as well as promote experience sharing, linking and learning. The tools and resources were informed by and co-created in close collaboration with early adopter countries (Uganda, Rwanda, Ethiopia, and Nigeria) and relevant partner organizations (WHO & Linksbridge)

Support to guideline development in the Netherlands
Since 1953 KNCV has facilitated and supported the national meetings and working groups of the Committee for Practical TB control (CPT) in the Netherlands and ensured access to relevant guidelines, protocols, and regulations. Since 2004 this was done with a subsidy of the Ministry of Health/RIVM. In January 2022 this role was handed over to the RIVM. By this transition to the Central Bureau of Infectious Diseases of the RIVM, TB control and the control of general infectious diseases will reinforce each other. Also, in the future KNCV consultants will remain active members of the CPT and will continue to contribute to guideline development, based on research and experience in the Netherlands and abroad.

ZonMw funded GL development nursing care
KNCV is the project lead in the ZonMw funded project to develop a guideline for nursing care for people on treatment for TB and LTBI. Together with the Dutch TB nurses association, other stakeholders and TB survivors we worked on the first phase of the development of this guideline. We plan to have a draft of the guideline at the end of 2022.

Capacity building in the Netherlands
In 2021, KNCV organized a basic course in TB control, including training in contact tracing for new TB nurses. For public health medical technical staff we also organized a basic course, including a skills lab. For the same target group we organized together with their professional organization the yearly refresher course. For the ministry of Justice we developed and organized TB training for medical staff at prisons plus the new way of screening prisoners.
We contributed to the yearly refresher course for TB doctors, TB nurses and to the training of other diverse groups.

Public-private partnerships in Nigeria; funded by the GFATM
Although it has been slowly and steadily increasing, Nigeria has the lowest TB treatment coverage rate among highest burden TB countries. In 2021, merely 27% of the estimated people having TB disease were notified in Nigeria. The reasons for this are multi-dimensional but include:
1. inadequate health financing by the government,
2. relatively high costs for medical services,
3. limited social protection and insurance schemes,
4. chronic health care worker strikes across the country due to low pay and poor working conditions,
5. health beliefs,
6. dysfunctional diagnostic network,
7. inadequate reporting of people diagnosed and put on treatment.

Further, placement of the diagnostic and treatment services provided in the country is largely mismatched to where people who are sick with TB first seek care. In 2021, KNCV continued a collaboration with the Institute of HIV Virology in Nigeria (IHVN) funded by the Global Fund to engage private health care providers in TB diagnosis and care. In 2021, KNCV engaged 861 private-for-profit and faith-based providers in TB diagnosis and care via linkage coordinators in five Nigerian states.
This work resulted in early detection and treatment of TB (including multi-drug resistant TB and TB among PLHIV) in adults and children in Nigeria closer to where they first presented with TB symptoms for care. Furthermore, we engaged patent medicine vendors (PMVs) who sell over-the-counter drugs in TB detection; Nigerians with TB symptoms often first present to these informal medical workers to resolve their symptoms.

Name of person or organization:	Nankyer Hosea, KNCV Linkage Coordinator, Jos South LGA
Location of event where photo was taken:	Kugiya, Jos South LGA, Plateau State
Date:	06/10/21
Brief description or the context of the photo:	Linkage Coordinator, Jos South LGA onducting an outreach with one of the spokes he manages (Yomisi Clinic) in Bukuru.

Name of person or organization:	Martins PMV Shop
Location of event where photo was taken:	Gboko, Benue State
Date:	22/4/21
Brief description or the context of the photo:	Mentorship and OSDV visit by Dr. Theresa Aniagolu, PO, KNCV International

People-Centered-Framework Approach for TB Programming

The People-Centered Framework approach enables countries to analyze and plan their TB programming in a people-centered way, solicit better stakeholder engagement as well as commitment from the outset and helps to optimize resource allocations. KNCV funded by the Bill and Melinda Gates Foundation, working with global partners (including WHO), and National TB Programs piloted the PCF approach in 9 countries – Cambodia, Ethiopia, Ghana, Indonesia, (Kenya) , Malawi, Rwanda, Tanzania, Uganda, and Vietnam - to serve as proof of concept and solicit buy in from country programs, policy makers and donors alike.

Findings show that overall, the PCF approach allowed countries to evaluate their TB program in a more systematic and holistic manner than they had done before - successfully identifying gaps, priority problems, root causes and appropriate interventions along the patient pathway and care continuum. The respondent interviewed also highlighted the fact that the PCF approach makes the evaluation and planning process much more people-centered by directing more attention to the patient needs, experiences, and preferences.
However, it was acknowledged that it takes time to introduce a novel approach and way of thinking to all stakeholders. Countries also struggled with availability of all the relevant quality data, with several respondents proposing a system of continuous data collection integrated with routine surveillance systems, setting up evidence inventories and applying the approach also at sub-national levels.

To better support countries with the implementation of the PCF approach, KNCV working with other partners have designed and developed the PCF Knowledge Hub website (PCF-KH) – a practical step-by-step guide, toolbox, and user forum (peer-to-peer support) platform complementary to the WHO People-centered framework for tuberculosis program planning and prioritization. It includes the PCF Handbook - step-by-step implementation guides for the key components of the PCF Approach, and provides the necessary instructions, resources, tools and "tips & tricks" required to support countries implementing the PCF for TB programming process. Also included is the PCF DHIS2 Dashboard which can be seamlessly integrated into a country's existing DHSI2 HMIS, used at different levels of the health system – national and subnational levels, and serves readily accessible people-centered data in an easy to view format available for participatory decision making and the wider use of consolidated data along the continuum of care.

At the global level, in 2021 KNCV finalized the development for WHO of three E-MODULE on the diagnosis of TB, funded by the World Health Organization and the Dutch government. The modules are important tools for the dissemination of WHO's latest guidelines on TB diagnosis the programmatic management of TB Preventive Treatment and the programmatic management of Drug-resistant TB. The learning courses are intended for the leadership of national TB programs and key-resource persons who provide guidance to countries on the uptake of WHO guidelines on se topics; for example, managers of national TB programs, leaders of national TB reference laboratories, technical staff at ministries of health, WHO staff, staff of technical agencies, consultants and anyone supporting countries and major subnational units in strategic planning and the development of policies and guidelines.

The self-paced e-module introduces the participants to all relevant aspects of the three topics, based on the latest WHO guidelines. It is structured with multi-media including videos and graphics. Each section has a quiz and supplemental study materials and references. It is now available on the Open WHO platform. (LINK). Since the unofficial launch of the courses thousands of subscriptions were recorded till the end of the year. The official launch was scheduled for World TB Day in March 2022.

Quotes from Country NTPs on the PCF Approach:

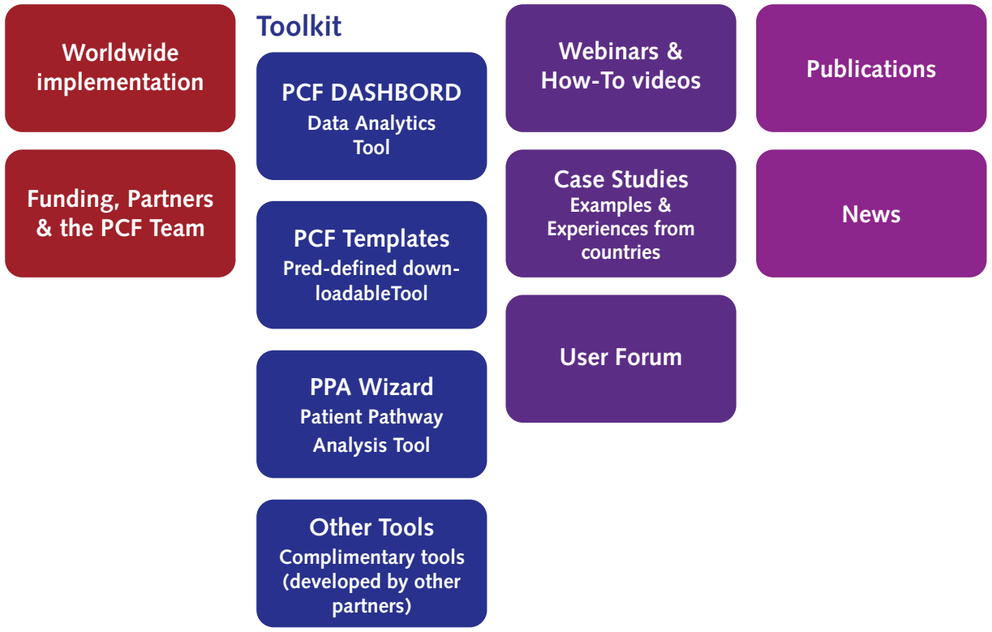
"The PCF Approach leads to real gap identification based on the care cascade analysis. This was not done in previous NSPs. The PCF helped identify gaps in the care continuum, and how to improve. Same with prevention gaps, especially for prevention among children, and how LTBI management is assured. Also, the modelling showed which interventions to prioritize to impact on the TB epidemiology." (NTP Manager)

"Being data driven, it provided a structure and forced us to use this structure [for gap analysis and mitigation]. Patient perspectives, stories and access barriers to care are considered." (NTP Advisor)

"Forecasting along cascade of care, put things into focus. Thought processes focus on specific issues and align them to the broader health care systems in general. It helps to examine to what extent you can make changes and impact and influence the whole system." (NTP Manager)

"The PCF told us to think beyond what we were doing, where the patients were missed, and where they seek care. Most of the patients seek care where there is no service, we learned that we need to bring the service close to community and patient." (NTP Advisor)

People-Centered Framework



Summary of KNCV activities in the Netherlands

Next to our activities in the Netherlands mentioned previously in the pathways, KNCV also works in the Netherlands in the areas listed below.

Patient support
KNCV continued supporting individual people with TB and their families with donations from the Special Needs Fund, through their public health nurses or social work from the TB clinics. Through the Fund we supported 113 people with TB with e.g. travel allowance to facilitate sick visits to relatives who were hospitalized in the TB clinics. Through its contacts with the people working in the field, KNCV also systematically monitors structural barriers for access to TB services and care and provides assistance or (policy) advice for removing these barriers.

Research
In 2021 KNCV finalized the ZonMW funded TB ENDPoint project, finding effective approaches to making treatment of TB infection accessible to migrants, generating the evidence resulting in policy recommendations.

Stigma reduction
Health care workers engaged in the COVID-19 response were interviewed in a Sonnevanck funded qualitative study to assess the stigma experienced by them. Health care workers from the Netherlands were included, next to people from four other countries (Ireland, Nigeria, Pakistan an Philippines).

4. M&E SECTION 2021

Monitoring progress towards UNHLM and End TB top 10 indicators and global targets

The KNCV 2020-2025 strategic M&E framework monitors progress towards the common global goals to which KNCV contributes as well as advances on the KNCV strategic roadmap. The narrative report details how these advances are made.

For the countries where there are KNCV country offices or local affiliated entities, KNCV monitors the national progress towards the End TB 2025 targets. KNCV contributed to these achievements by providing technical assistance for the development, demonstration and/or scale-up of strategic innovations. Along the innovation pathways, KNCV supported evidence generation and use, strategic planning, policy development and the building of supportive systems and human resource capacity.

Table 1 presents the 2021 Global TB report (GTBR 2021) data with color coding for progress towards End TB 2025 targets: the darker the green, the closer the country is to achieving the UN HLM target.
For comparison the table from last year annual report is added (table 2).

The 2020 data presented below show the different ways in which countries were affected by the COVID-10 pandemic. Notification (TB treatment coverage, indicator 1) clearly decreased in the countries that were heavily affected by COVID-19; also the treatment success rate (indicator 2) for patients enrolled in 2020 slightly decreased compared to 2019. However, the percentage of patients diagnosed with rapid tests, including testing for drug resistance, stayed the same or increased in most countries, probably showing the continued expansion of the use of the WHO recommended rapid molecular tests, like the Xpert platform and TrueNat (indicators 4 and 7). It is encouraging to see that in most countries contact investigation continued (indicator 6) although in several countries TB preventive treatment was not provided (and/or reported, indicator 5). The enrolment rate for patients diagnosed with drug resistant TB shows a mixed picture, with some countries not able to start treatment for all diagnosed DR TB patients. Access to HIV testing did not deteriorate during this period.

Specific innovations contributing to reaching UN HLM and End TB top 10 indicators and global targets

KNCV plays an important role in the development and/or introduction of innovations through a number of projects. In 2021 an online platform was utilized across projects for quantitative data collection of KNCV strategic indicators.

Over 8000 patients supported through digital adherence technologies (DAT)

KNCV is introducing and rolling out Digital Adherence Technologies (DAT)

Table 1

UN HLM Indicator	Ethiopia	Indonesia	Kazakhstan	Kenya	Kyrgyzstan	Malawi	Nigeria	Philippines	Tajikistan	Tanzania	Uzbekistan	Viet Nam	Netherlands	UNHLM Targets
1) TB treatment coverage	71%	47%	74%	51%	62%	56%	30%	43%	52%	64%	55%	58%	87%	**≥90%**
2) TB treatment success rate	90%	83%	90%	86%	81%	88%	88%	86%	91%	93%	90%	91%	86%	**≥90%**
3) Catastrophic costs due to TB		38%		***27%			***71%	***42%		*****45%		**63%		**0%**
4) Newly notified patients diagnosed with rapid tests		38%	96%	70%	59%	30%	54%	60%	84%	23%	91%	47%	80%	**≥90%**
5) LTBI treatment coverage - **PLHIV (newly enrolled)**	42%	0%	91%	78%	48%			49%	93%					**≥90%**
- children aged <5	31%	4%	47%	46%		59%	12%	6%	100%	62%	85%	5%	100%	**≥90%**
6) Contact investigation coverage	93%	3%	100%	10%		90%	89%				100%			**≥90%**
7a) - % of bacteriologically confirmed TB cases tested for rifampicin resistance - **New cases**	95%	58%	100%	85%	92%	52%	67%	85%	100%	65%	100%	85%	87%	**100%**
7b) % of bacteriologically confirmed TB cases tested for rifampicin resistance - **Previously treated cases**	67%	79%	100%	92%	94%	66%	91%	95%	100%	73%	100%	98%	54%	**100%**
8) DR-TB Treatment Coverage	100%	66%	123%	102%	95%	113%	76%	78%	98%	95%	106%	89%	100%	**≥90%**
9) HIV Status among TB Patients (TB_STAT)	81%	50%	98%	98%	94%	99%	95%	33%	97%	100%	100%	84%	72%	**100%**
10) Case fatality ratio (CFR)	15%	12%	6%	24%	6%	26%	35%	5%	12%	20%	6%	6%	5%	**≤5%**

Testing for drug susceptibility is only possible among bacteriologically confirmed cases.

Catastrophic costs are provisionally defined as total costs that exceed 20% of annual household income.

**2016

***2017

*****2019

Table 2

UNHLM Indicator	Ethiopia	Indonesia	Kazakhstan	**Kenya	Kyrgyzstan	Malawi	**Nigeria	**Philippines	Tajikistan	Tanzania	Uzbekistan	*Vietnam	Netherlands	UNHLM Targets
1) TB treatment coverage	71%	67%	98%	60%	87%	62%	27%	68%	74%	59%	73%	60%	60%	**≥90%**
2) TB treatment success rate	96%	94%	91%	87%	91%	88%	87%	92%	91%	92%	92%	93%	87%	**≥90%**
3)* Catastrophic costs due to TB				27%			71%	35%		45%		63%		**0%**
4) Newly notified patients diagnosed with rapid tests		27%	92%	63%	75%	22%	57%	37%	85%	23%	74%	32%		**≥90%**
5) LTBI treatment coverage - **PLHIV (newly enrolled)**		12%	40%	82%	67%	26%	73%	54%	76%	6%	77%	44%		**≥90%**
- children aged <5 years	33%	9%	18%	39%	19%	61%	16%	3%	100%	39%	64%	20%	100%	**≥90%**
6) Contact investigation coverage	89%	3%	100%	100%	100%	89%	88%		83%		100%		100%	**≥90%**
7) % of bacteriologically confirmed TB cases tested for rifampicin resistance - **New cases**	36%	52%	98%	76%	93%	44%	79%	57%	100%	79%	100%	75%	81%	**100%**
- Previously treated cases	85%	100%	92%	86%	95%	40%	100%	89%	100%	92%	100%	100%	87%	**100%**
8) DR-TB treatment coverage	100%	48%	121%	136%	89%	98%	83%	82%	73%	97%	108%	93%	100%	**≥90%**
9) HIV Status among TB Patients (TB_STAT)	83%	51%	99%	98%	95%	99%	97%	33%	98%	99%	100%	86%	63%	**100%**
10) Case fatality ratio (CFR)	15%	11%	3%	23%	5%	26%	35%	5%	10%	23%	8%	6%	6%	**≤5%**

Testing for drug susceptibility is only possible among bacteriologically confirmed cases.

Catastrophic costs are provisionally defined as total costs that exceed 20% of annual household income.

*2016

**2017

***2015

****2018

in the framework of comprehensive people-centered support for people on TB treatment (graphic 1).
Following preparations and piloting in 2019, in 2021, more than 8,000 patients were supported with DAT during their treatment, across demonstration areas in Ethiopia, Philippines, South Africa, Tanzania, and Ukraine.

Access to the 6-month BPaL regimen for seriously DR TB patients

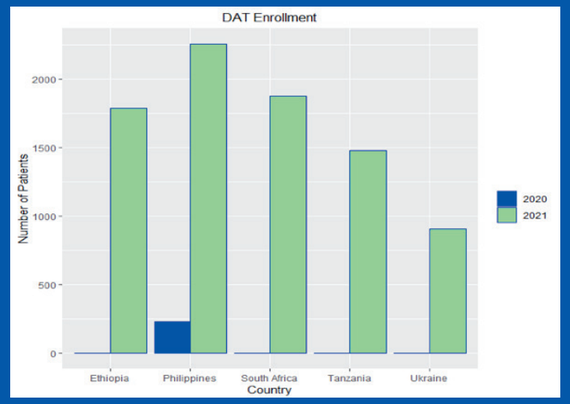
Cumulatively, since 2020 eleven countries had started introduction of the life-saving new BPaL regimen with KNCV support. By the end of 2021 eight countries had enrolled patients with KNCV support as indicated in graphic 2.

Over 7000 people on 3HP - scale-up of short TB preventive treatment with 3HP

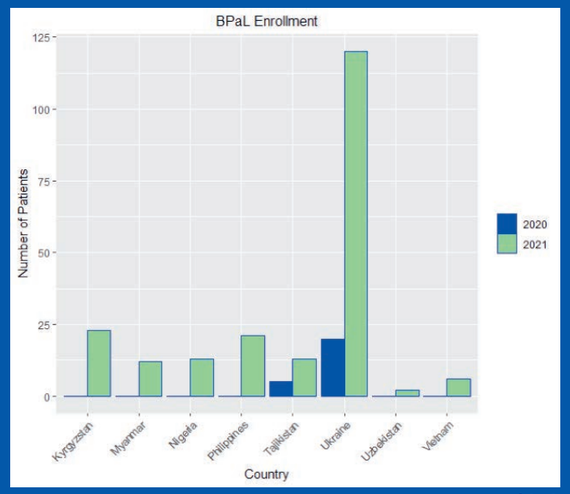
KNCV supported policy development and capacity building for the new 3HP regimen for the treatment of TB infection (TB preventive treatment) in four countries. In 2021, over 5,000 PLHIV and 2,000 Household Contacts of TB patients were enrolled on preventive treatment using the new regimen across Ethiopia, Indonesia, and Malawi, see graphic 3.

Shortly after the beginning of implementation of 3HP in Malawi in 2020, impurities were discovered in the drug which led to a prolonged suspension of 3HP for 8 months.

Rollout of 3HP resumed in June 2021. Ethiopia as one of the first countries shifted to the use of a patient friendly drug formulation for the 3HP regimen, combining isoniazid and rifapentine in 1 tablet, reducing the number of tablets that need to be taken once weekly.



graphic 1

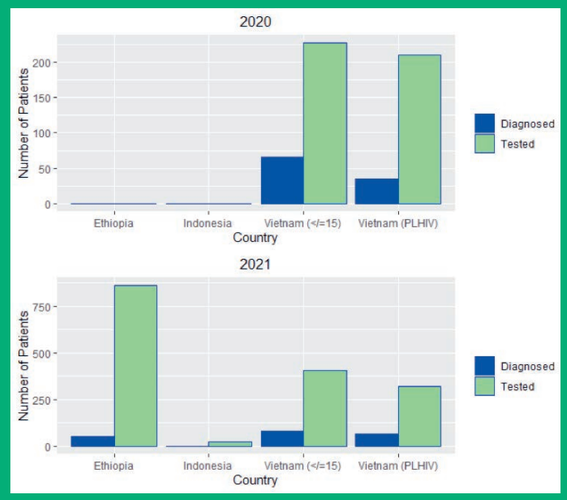


graphic 2

graphic 3

Good results diagnosing TB in children and PLHIV with the stool test in Vietnam

Vietnam was the first country which, with KNCV support, piloted the SOS stool Xpert test under programmatic conditions and started enrolling patients diagnosed by the SOS stool Xpert test as shown in graphic 4. Indonesia and Ethiopia are applying the SOS stool Xpert test in research settings. In 2021, 1610 people were tested using the SOS stool Xpert test and 195 were diagnosed across the three countries. Of those diagnosed, 81 were children.



graphic 1

KNCV strategic indicators

1. Peer reviewed publications

During 2021, 41 scientific publications were (co-) developed by KNCV, covering a wide range of topics. Figure 5 shows that scientific work was published furthering all strategic pathways, especially regarding pathway 7 on improving patient-centered treatment of active TB and pathway 9 on strengthening of health systems and multi-sectorial solutions along the patient pathway. This is the first year that KNCV published work on vaccine readiness.

Figure 5: KNCV publications on the strategic pathways N=41

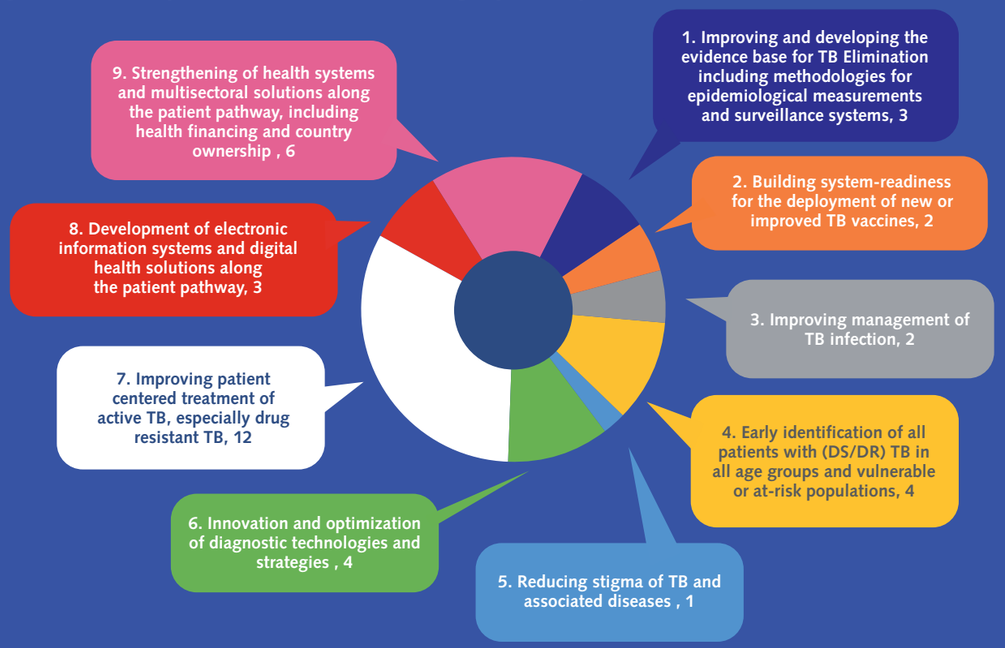


Figure 6: KNCV publications on crosscutting priority topics N=24

2. Technical briefs, tools and generic implementation support materials

Apart from peer reviewed scientific publications, KNCV developed several tools to support policy development and strategic planning (4), the development of supportive systems (9) and evidence generation (1). Overall, 13 knowledge products and tools have been developed, including implementation guidance for diagnostic tools and digital adherence tools. Training packages and modules were designed in areas such as TB DM and PMDT. These documents are available on the KNCV website www.kncvtbc.org.

Resources on operational implementation guidance for DATs including training, procurement and ordering developed by KNCV under the ASCENT project have been published on www.digitaladherence.org. The resources are already being used for non KNCV DAT projects in Nigeria and Philippines. Procurement information has also been added to the new Global DAT Task Force website for global use.

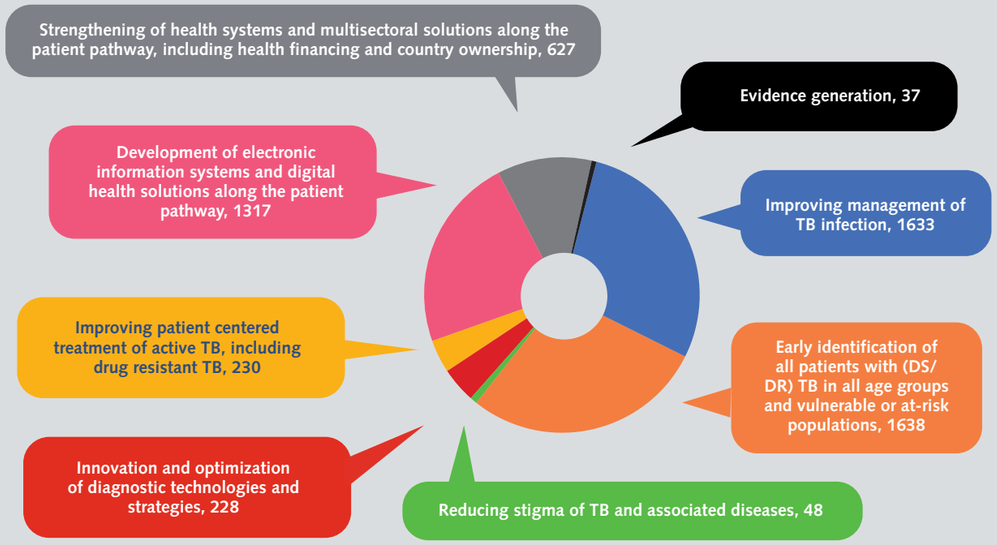
The IMPAACT4TB project provides guidance on the short course preventative treatment – 3HP on www.impaact4tb.org.

The People Centred Framework handbook, comprehensive interactive manual and toolbox for strategic planning and programming and learning resources are available at www.pcf4tb.org.

3. Training of the health workforce

In 2021, KNCV was directly involved in the training of over 4,500 health staff. KNCV developed and delivered training packages using both cascade and direct training models to facilitate the rapid dissemination of knowledge, adapted to local contexts. Training was provided to 1,887 males and 2,158 female staff and healthcare workers (sex disaggregation is unavailable for three of the training sessions) in areas related but not limited to: clinical management, diagnostics, TB preventative therapy, randomized controlled trials and digital adherence technology. In addition, capacity

Figure 7: Training per innovation pathway



of NTPs, local organizations, and health care workers prepared these partners to identify gaps, develop work plans, and implement and monitor interventions.

Figure 7 shows the number of people trained within each innovation pathway. As several projects overlap multiple innovation pathways, the same healthcare worker may be trained within more than one pathway. This does not include the utilization of the trainings developed for the OpenWHO training platform, on which we will report separately as soon as dates are available (from 2022 on).

4) Community Empowerment

Engaging community members remains a key feature of KNCV work. Leveraging community and patient perspectives ensures that interventions and the process of implementation fit the local context. In addition, community and patients are important to advocate for accountability to ensure people-centeredness and sustainability. In 2021, KNCV engaged with 1336 community members.

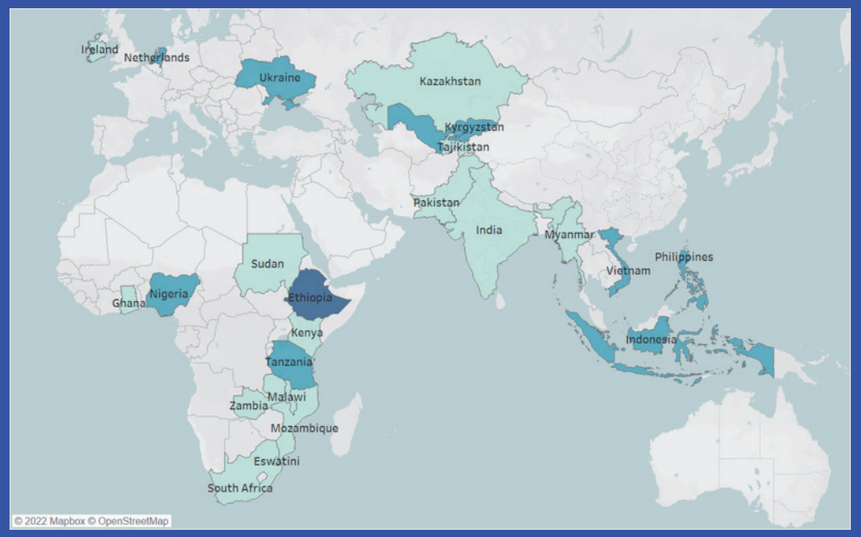
In Ethiopia, 247 community members were engaged in integrated refresher training on community TB care, 143 females and 104 males. 125 Iddir leaders and secretaries were engaged, and the Iddir focal persons in collaboration with HCWs conducted a two-day orientation session for community volunteers, attended by 268 people.

The ASCENT project engaged a total of 550 females and 271 males. In Tanzania, community members were engaged through DAT operationalization training delivered to facility health care workers and they were also trained on the role they will play during the implementation of the project. Community members had an opportunity to observe how patient consent is being obtained in the project and the way in which they will contribute towards feedback generation from patients on digital adherence technologies. In the Philippines, patient group representatives and patients participated in a user design and differentiated care pathway workshop.

5) **KNCV Geographical reach**

In 2021, KNCV operated in 64 projects in 24 countries across Africa, Central Asia, East Asia and Europe, including several major projects in addition to smaller assignments. In all countries KNCV worked with the national level NTP and its partners. Figure 8 illustrates the intensity of KNCV engagement in each country. Countries colored in light green had up to three projects operating in 2021, while the darker green had between four and nine projects. The darkest green shown for Ethiopia represents the thirteen projects which were operating in 2021. In addition, fifteen projects were operating at a global or regional level.

Figure 8: Project Countries



6) The number of collaborating partners and implementing sites

KNCV collaborated with over 100 local and global partners throughout 2021, supporting implementation of projects in over 3,000 health facilities and sites. Linkages with other projects in TB and HIV/AIDS, NTPs, and other partners expanded the impact of KNCV work. Coordination, collaboration, and complementarity with TB stakeholders at all levels drives the success of projects and improvements in global and national performance in TB.

7) Media expressions on KNCV-led activities

Highlighting the work of KNCV activities at both project and global level via media channels remained very significant in the absence of traditional face to face communication and networking events during 2021. KNCV led activities were mentioned 70 times in the media during 2021. The KNCV Dream Fund project has received considerable attention in the Dutch media. The project's technical lead was interviewed on "NOS Radio 1 Journaal", and on the 8 o'clock national news "NOS Journaal" at the Dutch Broadcasting Foundation. The technical lead was also interviewed on the TV show "Koffietijd" shown on RTL4, a Dutch broadcasting network.

Annex 1 provides the overview of scientific articles published in 2021 with KNCV (co-authors).

5. ORGANIZATIONAL REPORT

5.1 Social Report – HRM

Q4 2021, saw the start of the implementation of those actions and recommendations which emerged from the organizational structure evaluation. This will continue in the coming year.
Three people in key positions left the organization at the beginning of the year causing some challenges. Due to the COVID-19 pandemic, the travel resumption plan remained on hold and remote working remained the norm. This impacted the mental and physical well-being of employees and new ways of working needed to be implemented.
To improve the prevention and follow-up of sick leave, we contracted a new Health & Safety Service in 2021. We decided upon a way forward in geographic preferences when employing new employees, depending on the type of position, the market situation and cost of employment, which will be part of a new recruitment policy.

Below is an overview of our HRM Social Report (Table 3). In addition, we can confirm the following:
- No volunteers were contracted at The Hague office in 2021
- Sick leave at The Hague office was 3,68 percent in 2021 versus 2,2 percent in 2020.

Table 3: HRM Report total 2021 -KNCV country offices

	Inflow staff	Outflow staff	Total headcount as per end of year	Total number of sick leave days
Central Office The Hague	3	3	50	284
Nigeria	6	2	23	41
Ethiopia	38	16	65	67
Malawi	5	2	13	0
Tajikistan	0	1	1	0
Tanzania	5	4	13	0
Philipines	8	1	11	1
Kazakhstan	0	0	2	0
Vietnam	0	0	2	0
TOTAL	65	29	180	393

5.2 Works Council Report – Chair WC

2021 saw another year of living and working in the COVID-19 pandemic. Again, the organization and individuals were requested to demonstrate flexibility and perseverance.

With the introduction of an evaluation of the organizational structure, 2021 was also the start of a year of change. This evaluation was executed with inclusivity as central to the process. All colleagues were asked for input and the Works Council was involved in the entire evaluation process. The evaluation resulted in a detailed report which highlighted those themes, topics, and recommendations that required improvement. In November 2021, the Works Council provided advice on a proposed new organogram. The Works Council is supportive of the improvements which began in 2021 and looks forward to remaining involved in the continuation of these processes.
The Works Council and the Executive Director held 5 official meetings (the so-called OV meetings), one of which was together with the Board of Trustee members.

The Works Council members are Job van Rest (chair), Edine Tiemersma (vice-chair), Rachel Powers, Andrii Slyzkyi and Kelly Schut. We look forward to continuing our support to in 2022, whilst keeping the perspective of both, the individuals, and the organization in mind.

5.3 Integrity systems and report 2021 – HRM

Codes of Conduct

KNCV has several codes of conduct which guide the ethical behavior of staff and protect their employment with the organization. These are:
- General Code of Conduct.
- Code of Conduct for the use of e-mail, social media, internet, and telephone facilities.
- Policy and protocol for undesirable behavior at work.
- Policy on fraud, money laundering and trafficking in persons (2018).
- Whistle-blower policy.

To further enhance a safe workplace, nurture a positive social work environment and to comply with laws and regulations, HRM started the implementation of an Integrity System and plans actions to make Diversity, Equality, and Inclusion (DEI) more prominent in the workplace culture.
The integrity system is in place to prevent unacceptable behavior and where it should occur, to handle it with due care and accountability. HRM will organize sessions for all staff, based in The Hague and in our country offices and affiliates to create awareness on integrity, on our codes of conducts, and on how to handle unacceptable behavior or actions. A session will also be held to instruct on ethical behavior in specific cases.

5.4 Quality systems and report 2021

KNCV considers quality an essential hallmark of all the work that is executed. To ensure quality in our activities, deliverables and results the organization relied on and assured compliance to processes that support standardized, high-quality performance.
This includes standards of excellence and review processes for key KNCV technical functions, such as technical assistance through consultancies at country-level, contributions to development of high-quality strategic plans, policies and implementation tools and trainings, study protocols, reports, and publications, etc. KNCV tracks and reports on the outcome of its work and provides systematic technical quality review for deliverables generated in the projects implemented by KNCV.

A team of dedicated staff ensure quality project management. Apart from daily attention to quality project management, in The Hague and at country level, all projects are systematically assessed on a quarterly basis for achievement of implementation milestones and financial status. Should significant deviations from the plans occur, the situation is assessed jointly by technical and operational staff and leadership and action is taken to ensure project objectives are reached. For the projects and programs funded by institutional donors, interim reports are sent to the funders and the projects are evaluated for effectiveness and efficiency.

To ensure that KNCV staff are up to date on the latest technical developments in TB control and elimination, the Technical Division organizes quarterly meetings where technical staff from the KNCV network gather in technical discussions on innovations in alignment with the priorities as set out in the Strategic Plan and the periodically updated Theory of Change.

To sustain the quality of internal management and processes within the organization, KNCV uses a cycle of strategic and annual planning, and control cycle. This process has been described in the document ‘KNCV Governance and Management Framework 1 Applying ‘Good Governance’ which can be found on the KNCV website.

External auditing of the administrative and financial operations is carried out by PricewaterhouseCoopers Accountants N.V. The independent auditor was

appointed by the General Assembly in 2011. The directors have regular progress meetings with the independent auditor. Every year, the independent auditor reports their findings to the Audit Committee. All audit reports and management letters are shared with the Board of Trustees. In addition, some donors require project level audits to be carried out. When applicable this is done by auditors appointed by the donor.

Compliance with governance standards is assured using guidelines from the sector organization, Goede Doelen Nederland.

5.5 Risk Management

As an organization we are exposed to risks. Operational risks are monitored on an ongoing basis in the Management Team and as part of periodic reporting during the planning and control cycle, e.g. quarterly reports. The Executive Director reports on risks to the Board of Trustees on a regular basis. Once a year a comprehensive risk analysis is done, assessing risks, controls, and mitigating actions. This assessment involves senior management, and the report is reviewed in the Management Team meeting. The internal risk analysis and significant changes and/or improvements in internal controls are reviewed with the Audit Committee and the full Board of Trustees.

5.6 Resource Mobilization, Private Fundraising, and advocacy

Resource Mobilization
In 2021, we saw our past efforts in broadening and diversifying our fundraising portfolio come to fruition with an increasing number of projects funded by new Philanthropy Foundations, institutional donors, and the private sector. Next to our long-standing partnerships with USAID, Unitaid, and the Global Fund, we also launched our dream fund Project, Never Again a Pandemic. This 11-million-euro five years project is supported by the Dutch Postcode Lottery. This is on top of the structural support we received from the Dutch Postcode Lottery which enables us to explore new markets. KNCV will continue this path to explore opportunities for impactful partnerships as we navigate the ever-changing funding landscape.

Private donors
We are grateful to our private donors who support our mission. These loyal supporters have often experienced TB personally in their lifetime and know the devastation this disease can cause.

We send regular updates using varying channels to keep our nearly 10,000 valued private donors informed about our work at both local and international levels. These donors contribute to the annual unearmarked fundraising. The current upward trend sees more and more legacies which include NGOs as beneficiaries. At KNCV, we are raising awareness and hope to engage more of our donors to consider participation in our legacy program. Many donors who have had the misfortune of experiencing TB first-hand, often wish to leave all or part of their legacy to help in the continued fight to eliminate TB. To ensure that their TB stories are not forgotten, we have created a platform called Dwalen in Verhalen, where we encourage former TB patients and/or others (both donors and non-donors) to share their personal TB experiences.

Advocacy
Next to fundraising and resource mobilization for KNCVs work, we engage in advocacy on the domestic and international levels contributing to our mission of ending TB.

In 2021, we were successful in securing the commitment of the newly elected Government to developing a Dutch Global Health strategy and embedding specifically its commitment in UN declarations to End TB and HIV by 2030. This was a result of KNCV-initiated advocacy efforts together with NGOs, the private sector and academia. Next to this commitment, our advocacy efforts with other stakeholders and with the support of Dutch MP, and TB Ambassador, Anne Kuik, resulted in investments for R&D and product development towards ending poverty related diseases.

5.7 Communication with stakeholders and the public

Creating transparency, and accountability in all our processes is the focus of our communication with stakeholders. The overall goal of our corporate communication is to support our mission and uphold our guiding principles:
- We are transparent and report on our successes and lessons learned:
- We strive to communicate pro-actively
- We aim to communicate through unambiguous and consistent key messages;
- We tailor our communication messages and media to reach our different target groups

KNCV uses national and international (social) media to profile our work in fighting TB. Through the media (online and offline) we aim to reach the

public, professionals, politicians and policymakers. We strive for transparency and dynamic interactions. We encourage and provide an opportunity to all stakeholders, including private donors, to share their opinions and ideas by telephone, e-mail, or post. On the rare occasion that we receive complaints, they are addressed and formally registered and monitored on a quarterly basis.

Given the public's stake in the KNCV mission, the organization maintains two-way channels of communication. We encourage and facilitate external stakeholders to play an instrumental role in shaping our strategic direction. KNCV staff engages in a variety of stakeholder consultations at the global, regional, and country levels.

This includes formalized processes such as with the WHO and as a WHO Non-State Actor partner, Stop TB Partnership Board meetings, high-level meetings with donors and the annually convened End TB summits with representatives from the TB high burden countries. Stakeholders have an opportunity to exchange thoughts with the Executive Director, the Management Team, and KNCV staff including during the General Assembly.

5.8 Corporate Social Responsibility and Sustainable Development Goals

5.8.1 KNCV's mission in TB control directly contributes to SDG 3 (Good Health and Well-being) and makes a tangible contribution to SDG 1 (Reducing Poverty). An important part of our work in TB control is related to stigma reduction, which also includes gender bias and sexual orientation. Thereby we promote SDG 5.

5.8.2 In its operations, KNCV aims to minimize its environmental footprint, where possible. We try to balance our strategic goal of a world free of TB with environmental, social, and governance (ESG) responsibilities. In our operations we avoid paper wastage by enforcing double-sided black and white printing as much as possible and the use of environment friendly printing toner. Obviously, an important side-effect of our work in southern countries is the emission of CO_2 because of the number of flights we take. We have decided not to financially compensate for this emission, since this would take funding away from our core objective. Pre-COVID we aimed to combine missions and reduce the number of trips we make. Going forward we will continue to make optimal use of online facilities and modes of delivering trainings and technical assistance.

5.8.3 As an employer, we promote equal employment opportunities.

5.8.4 The KNCV Investment Policy was reviewed and adapted towards the end of 2020. During 2021 the management of the investments of our financial reserves was placed under an ESG mandate. This is further elaborated in the Notes to the Annual Accounts under the section "Accounting policies - assets and liabilities".

5.9 Information Security and issues report 2021

KNCV adheres to the policy on the obligation to report data leaks "meldplicht datalekken in de Wet bescherming persoonsgegevens (Wbp)" introduced on 1 January 2016 and the "Europese Algemene verordening gegevensbescherming (AVG)".

KNCV has a data security policy and a procedure on how to report data leaks in place. This includes an inventory of types of sensitive information within KNCV, drafting of 'bewerkersovereenkomsten' with suppliers and preparing a checklist with action points. KNCV has appointed a data security officer. The website was made compliant to AVG requirements. All data processing processes have been inventoried and checked against AVG requirements.

In 2021 a potential issue rose with a third-party supplier. We immediately acted and contacted all involved parties and strengthened our internal procedures to minimize the risk going forward. We are implementing a process to centralize all ICT activities to have a coordinated ICT risk management.

6. KNCV GOVERNANCE

6.1 KNCV supervisory governance structure

KNCV has a two-tiered supervisory governance structure: the KNCV Association of Members (convened annually for the General Assembly) with the overarching supervisory mandate and a Board of Trustees with a delegated supervisory mandate and an advisory role to management. The Board of Trustees meets periodically throughout the year and joins the extended management retreat for strategic dialogue ahead of the annual planning cycle.

KNCV Association of Members
The following professional associations end endowment funds comprise the KNCV Association of Members:
- GGD/GHOR Nederland
- Nederlandse Vereniging van Artsen voor Longziekten en Tuberculose
- Nederlandse Vereniging voor Medische Microbiologie
- Stichting Medisch Comité Nederland-Vietnam
- Vereniging van Artsen Werkzaam in de Tbc-bestrijding
- Verpleegkundigen & Verzorgenden Nederland, Platform Verpleegkundigen Openbare Gezondheidszorg
- Dr. C. de Langen Stichting voor Mondiale Tuberculose Bestrijding
- Mr. Willem Bakhuys Roozeboomstichting
- 's-Gravenhaagse Stichting tot Steun aan de bestrijding van Tuberculose
- Stichting Suppletiefonds Sonnevanck

KNCV has two honorary members: Dr. H.B. van Wijk and Dr. Wim Waal. Honorary members are individuals who made a significant contribution to TB control and/or to KNCV as an organization.

Supervisory governance during 2021 - a brief overview
In 2021, the General Assembly met on May 6, 2021. The Assembly approved the Annual Report and Accounts 2020 and granted discharge over 2020 to the Executive Director and Board of Directors for Executive Management and Supervisory Governance, respectively.
In 2021, the Board of Trustees met on 8 February, 19 April, 21 September, and 30 November and attended the extended MT-BoT extended management strategic retreat on July 9. The annual BoT self-assessment for 2021 was conducted in an Executive Session preceding the Board of Trustees meeting on 8 February 2022. On December 7, 2021, the Chair and Vice-chair of the Board of Trustees attended a meeting between Works Council and Executive Director. A more elaborate account of supervisory governance by the Board of Trustees over the year 2021 follows below in the letter from the Board of Trustees Chair and Vice-chair.

Composition of the Board of Trustees
Table 4 presents the membership of the Board of Trustees as per May 2022 and an overview of other positions held by the Members. The self-assessment, conducted early February, 2022 confirmed that all requisite competencies are available within the current composition of the Board of Trustees. Table 5 provides a mapping of competencies available within the Board of Trustees.

Table 4: Positions held by Members of the KNCV Board of Trustees

Member	Positions held
Mirella Visser (Chair)	Founder and Managing Director Centre for Inclusive Leadership. Vice Chair Supervisory Board MPD (Media Pensioen Diensten). Chair Board of Directors PSI-Europe. Strategic advisor Dutch Women's Council (NVR). Former member European Integration Committee Advisory Council on International Affairs (Dutch Ministry of Foreign Affairs).
Jan Hendrik Richardus (Vice-chair)	Professor Emeritus Infectious Diseases and Public Health at the Department of Public Health of Erasmus MC, University Medical Center Rotterdam. He is a member of many scientific advisory committees and steering groups in the Netherlands and overseas, including membership of the Technical Advisory Group for Leprosy of the World Health Organization. He is the primary investigator of several national and international research projects.
Johan van 't Hag (Chair Audit Committee)	Member Executive Committee at Dümmen Orange, responsible for Strategy, Product management and M&A. Until 2019 served as CFO at several participations of private equity fund in health care. He was previously employed at Unilever in various senior financial and international management positions in Rotterdam, Stockholm, and Hamburg.
Tjipke Bergsma	Acting CEO of Terre des Hommes Netherlands. Previously, amongst others, CEO of War Child Holland and Deputy CEO of Plan International. Active in various non-executive roles such as Member of the Supervisory Board of the Dutch Review of Books and Member of the Supervisory Board of Refugee FM.
Wieneke Meijer	Medical doctor, Consultant Physician in TB-control of the Municipal Public Health Service (GGD) in Amsterdam, Utrecht and Gooi & Vechtstreek. Chair Committee for Practical TB Control Netherlands (CPT).
Rolph van der Hoeven	Professor Emeritus Institute of Social Studies (ISS, Erasmus University, The Hague), and Member of the United Nations Committee for Development Policy (UN-CDP). Earlier functions include Member of the Committee Development Cooperation (COS) of the Dutch Advisory Council for International Affairs (AIV), Chief Economist at the United Nations Children Fund (UNICEF) and Director for Policy Coherence at the International Labour Organisation (ILO), with postings in Lusaka, Addis Ababa, New York and Geneva.
René Stumpel	Director of Public Health Gooi & Vechtstreek, with comprehensive responsibility for public health in this region. Serves in the KNCV Board of Trustees on behalf of the collective Municipal Health Services (GGD) in the Netherlands, reinforcing the operational linkage between KNCV and the Dutch TB control system as embedded in the Municipal Health Services.

Table 5: Competency mapping Board of Trustees

	Mirella Visser	Jan Hendrik Richardus	Johan van 't Hag	Tjipke Bergsma	Rolph van der Hoeven	Wieneke Meijer	Rene Stumpel
Medical and Public Health (incl TB control)		●				●	●
Academic TB research		●					
IT and innovation	●					●	●
Funding, accountability, and control			●	●	●		
International Development Cooperation				●	●		
Strategy, Organization and Management	●		●	●			●
Fundraising (public and institutional					●		
Fundraising (corporate and private)	●		●	●			

6.2 Supervisory governance report letter from the chair and vice-chair BOT

The Board of Trustees has taken note of the severe impact of the COVID-19 pandemic on TB programs across the globe and the operational consequences for the organization as it adapted its project implementation and switched to remote technical support and training modalities. In our oversight, we have supported the organization in the transition and structural adaptations.

In our assessment KNCV had, at the end of 2021, successfully streamlined its core business and back-office operations while delivering its strategic agenda along the innovation pathways and met the expectations of a complex and diversified multi-donor project portfolio. The ambitious target of achieving budgetary balance by 2022 had been achieved by end of year 2021. Operational break-even has been reached in project operations and the financial result was further enhanced by one-time financial gains. We highly commend the organization for attaining a balanced financial situation by the end of 2021, in line with the original set timeline.

The DreamFund grant, awarded to KNCV by the National Postcode Lottery for the 'Never again a Pandemic' project, confirms the relevance of KNCV's strategy 'Innovate, Demonstrate and Scale-up', its technical stature and relevance to future public health challenges, also beyond the TB remit. The Board of Trustees fully appreciates the National Postcode Lottery for entrusting the organization with the ambitious aim of the DreamFund grant.

In Dutch TB control, the Board of Trustees observed KNCV's evolving role. In 2021 KNCV transferred the hosting of the Committee Practical TB Control (CPT) to the public authority at RIVM. This transfer was marked during a commemorative event marking the durability of KNCV's initiative in 1952 and subsequent hosting across seven decades. KNCV's focus is unabated in support of and assuring quality standards in the Netherlands. At a European level KNCV, jointly with WHO Euro and the European Centre for Disease Control (ECDC), continues to play a convening role in the Wolfheze Workshops.

Board of Trustees 2021
During the year, the Board of Trustees met per its regular cycle of four meetings and the annual strategic retreat with management. The Audit Committee met twice, ahead of the Board of Trustees meetings in which the Annual Accounts 2020 and Annual Plan and Budget 2022 were approved. An additional meeting of the Audit Committee, in its capacity as Investment Committee, was held in January to guide the shift to a sustainable and ethical (Environmental, Social and Governance, or ESG sensitive) investment portfolio.

Board of Trustees' supervisory tasks included the regular planning and control cycle as well as guidance along organizational development trajectories. Following the reorganization, the Board of Trustees emphasized the need to bring closure, to the one and a half years of financial and operational transition per 2020. An internal assessment conducted by the organization in 2021 confirmed refinements to the structure and operating practices. The Board of Trustees provided counsel, attending a meeting between management and the Works Council, and values the inclusive and constructive process in which the refining adaptations were shaped and agreed.

Board of Trustees developments
May 2021, Vice-chair Ton van Dijk (BoT member since 2013) and former Chair of the Audit Committee Maria van der Sluijs-Plantz (BoT member since 2015) stepped down upon completion of their two appointment terms in the Board of Trustees. The Board of Trustees and General Assembly expressed gratitude for their wise counsel and dedicated service to the organization.

Following a thorough search and nomination process, as led by the Board of Trustees, the General Assembly, in May 2021, appointed two new members to the Board of Trustees, Rene Stumpel and Tjipke Bergsma, and re-appointed Jan Hendrik Richardus for a third term. In September the Board of Trustees appointed Jan Hendrik Richardus as Vice-chair.

In its annual self-assessment in February 2022, the Board of Trustees reflected on the interaction with the Executive Director and Management, positively assessed its supervisory governance over 2021 and the competencies reflected within the Board of Trustees. The Board of Trustees observes a constructive and open interaction both within the Board of Trustees and with the Executive Director and Management. While looking forward to reinstating face-to-face meetings, the Board of Trustees is confident that the current supervisory governance is effectively executed in an unimpeded and well-informed manner. Based on a mapping of competencies (table 5), there is a balanced and diversified set of competencies reflected amongst the members of the Board of Trustees.

Looking ahead at 2022
KNCV continues to set itself ambitious targets in support of fighting and ending TB as a public health threat. In 2022, KNCV will conduct a mid-term review of its strategy to calibrate its specific aims and targets within a transformed and transforming public health landscape. Building on a solid financial and organizational foundation, the Board of Trustees is confident that KNCV will continue to play its valued role in strengthening TB programs as they embed innovations in health systems for more effective, integrated, and patient-centered care.

In closing, the Board of Trustees acknowledges the substantial challenge COVID-19 and the reorganization have posed on all staff, management, and leadership. We commend and express our gratitude to all KNCV staff for their commitment to carrying out the important activities in fulfilment of KNCV's mission to contribute to End TB.

Mirella Visser
Chair of the Board of Trustees

Jan Hendrik Richardus
Vice-chair of the Board of Trustees

7. FINANCES

7.1 Financial Highlights 2021

FINANCIAL FIGURES

The financial figures for the last 5 years are shown below in table 6:

FINANCIAL FIGURES IN EUR	Actual 2017	Actual 2018	Actual 2019	Actual 2020	Actual 2021	Budget 2021	Average 2019-2021
Total income	**92,779,228**	**92,917,978**	**63,406,298**	**15,461,600**	**15,909,515**	**14,927,700**	**31,592,471**
Expenses - mission related goals	90,797,664	91,131,600	62,156,837	15,290,893	13,467,707	14,079,000	30,305,146
Expenses - fundraising	1,077,406	961,092	788,677	584,820	809,793	870,000	727,763
Expenses - administration and control	1,533,118	1,164,083	1,164,550	1,097,524	675,073	1,094,040	979,049
Total Expenses	**93,408,188**	**93,256,775**	**64,110,064**	**16,973,237**	**14,952,573**	**16,043,040**	**32,011,958**
Balance of income and expenses	-628,960	-338,797	-703,766	-1,511,637	956,942	-1,115,340	-419,487
Net investment income	219,111	-215,843	543,197	199,438	482,661	38,281	408,432
Balance of income and expenses	**-409,849**	**-554,640**	**-160,569**	**-1,312,199**	**1,439,603**	**-1,077,059**	**-11,055**

The actual income increased from Euro 15.5 million in 2020 to Euro 15.9 million in 2021. The income was also higher than budgeted income of Euro 14.9 million. The income was impacted by two major events:

1. KNCV recorded an additional Euro 582 thousand as extraordinary income. This income relates to funds received and commitments taken over from "Stichting Voorzieningenfonds Oud Personeelsleden K.N.C.V.", which was liquidated in 2021. All rights and responsibilities to these funds were given to KNCV Tuberculosis Foundation to be utilized for the continuation of the dissolved foundation's work. This part of the result will be allocated to this fund.

2. KNCV also recorded an additional Euro 640 thousand as extraordinary income in 2021. This income relates to the approval of the USAID NICRAs for 2019 and 2020, which were officially approved by USAID on March 15, 2022; In 2019 we made an accrual of Euro 585.181 as an obligation in case USAID would not approve the reorganization expenses that was included in the NICRA calculation. In 2020 an additional income was reported to USAID for the CTB project of USD 63.318. This additional income was not included in 2020. Upon USAID's approval these accruals were reversed and materialized as an additional income for year 2021.

Without this extraordinary income, the actual income related to daily operations decreased from Euro 15.5 million in 2020 to Euro 14.7 million in 2021. This income was also lower than budgeted income of Euro 14.9 million.

The cost efficiency initiative, driven by better data analysis, resulted in the lower expenses for administration and control both. The expenses decreased from Euro 1.1 million in 2020 to Euro 0.7 million in 2021. Net investment income increased from Euro 0.2 million in 2020 to Euro 0.5 million in 2021, against a budget of Euro 38 thousand.

The effect was as mentioned a positive net result/ surplus of Euro 1.4 million compared to last year's deficit of Euro 1.3 million and against a budgeted deficit of Euro 1.1 million. A proposal for allocation of the net result for 2021 is presented within the Annual Accounts.

7.2 Financial statements

BALANCE SHEET KNCV TUBERCULOSIS FOUNDATION PER 31 DECEMBER 2021

All figures in Euro

Assets		31/12/2021		31/12/2020	
Office construction work		21,192		27,496	
Office inventory		52,078		66,213	
Computers		6,724		31,970	
Tangible fixed assets	B1		79,995		125,679
Accounts Receivable	B2	2,408,537		3,198,061	
Investments					
-Shares	B3	2,472,140		1,832,844	
-Bonds	B3	3,815,267		4,022,626	
-Alternatives	B3	428,963		372,602	
Cash and Banks	B4	23,402,314		7,479,172	
Current Assets			32,527,221		16,905,305
Total			32,607,216		17,030,984

Liabilities		31/12/2021		31/12/2020	
Reserves and funds					
- Reserves	B5				
Continuity reserve		7,706,627		7,486,804	
Decentralization reserve		608,833		608,833	
Earmarked project reserves		1,916,160		1,060,048	
Unrealized exchange differences on investments		386,947		559,688	
Fixed Assets reserve		79,995		125,679	
			10,698,562		9,841,052
- Funds					
Earmarked by third parties	B6	953,804		374,376	
			953,804		374,376
Reserves and funds			11,652,366		10,215,428
Various short-term liabilities	B7				
-Taxes and social premiums		318,731		292,226	
-Accounts payable		312,145		372,275	
-Other liabilities and accrued expenses		20,323,974		6,151,055	
			20,954,850		6,815,556
Total			32,607,216		17,030,984

STATEMENT OF INCOME AND EXPENDITURE KNCV TUBERCULOSIS FOUNDATION 2021

All figures in Euro

		Budget 2021	Actual 2021	Actual 2020
Income				
- Income from individuals	R1	900,000	777,827	994,667
- Income from companies	R2	0	811,885	416,593
- Income from lotteries	R3	1,356,000	1,645,969	1,428,386
- Income from government grants	R4	1,681,900	4,136,451	6,185,306
- Income from allied non-profit organizations	R5	400,200	607,366	201,875
- Income from other non-profit organizations	R6	10,545,600	7,853,914	6,196,871
Total fundraising income		14,883,700	15,833,412	15,423,698
- Income for supply of services	R7	37,000	76,118	37,902
- Other income	R8	7,000	-15	0
Total income		14,927,700	15,909,515	15,461,600
Expenses				
Expenses to mission related goals	R9			
- TB control in low prevalence countries		628,600	706,097	717,873
- TB control in high prevalence countries		11,484,000	11,397,466	12,896,917
- Research		1,289,800	741,391	941,636
- Education and awareness		676,600	622,753	734,467
		14,079,000	13,467,707	15,290,893
Expenses to fundraising				
- Expenses private fundraising		213,300	161,794	229,523
- Expenses share in fundraising with third parties		356,200	363,208	27,905
- Expenses government grants		300,500	284,791	327,392
		870,000	809,793	584,820
Administration and control				
- Expenses administration and control		1,094,040	675,073	1,097,524
Total Expenses		16,043,040	14,952,573	16,973,237
- Net investment income	R10	38,281	482,661	199,438
Surplus / Deficit		-1,077,059	1,439,603	-1,312,199
Spent on mission compared to total expenses		87.8%	90.1%	90.1%
Spent on mission compared to total income		94.3%	84.7%	98.9%
Spent on private fundraising compared to income		5.8%	5.1%	3.8%
Spent on administration and control compared to total expenses		6.8%	4.5%	6.5%

Result appropriation

Surplus / Deficit appropriated as follow			
Continuity reserve	-614,659	219,823	-1,133,030
Decentralization reserve	-300,000	0	-97,924
Earmarked project reserves	-150,000	856,112	-74,984
Unrealized differences on investments	0	-172,741	43,653
Fixed Assets reserve	0	-45,684	-46,948
Earmarked by third parties	-12,400	582,093	-2,966
Total	-1,077,059	1,439,603	-1,312,199

EXPENSE ALLOCATION KNCV TUBERCULOSIS FOUNDATION 2021

All figures in Euro

Expenses

	Budget for the year ended 31 December 2021	Actual for the year ended 31 December 2021	Actual for the year ended 31 December 2020
Grants and contributions	20,500	18,256	14,096
Contributions to allied organisations	0	0	1,461,542
Purchases and acquisitions	9,330,000	1,917,965	2,799,703
Outsourced activities	0	1,031,718	862,892
Publicity and communication	445,100	301,315	353,274
Personnel	5,302,935	9,477,833	9,476,613
Housing	176,600	180,961	177,684
Office and general expenses	698,151	1,978,624	1,746,373
Depreciation and interest	69,313	45,902	81,059
Total	16,042,599	14,952,574	16,973,236

Allocation to destination

	Related to the mission goals			
	Low prevalence countries	High prevalence countries	Research	Education and Awareness
Actual for the year endend 31 December 2021				
Grants and contributions	0	18,256	0	0
Contributions to allied organizations	0	0	0	0
Purchases and acquisitions	433,217	1,118,101	2,536	1,142
Outsourced activities	0	1,031,718	0	0
Publicity and communication	0	0	0	311,149
Personnel	238,160	7,488,435	638,211	263,001
Housing	7,503	113,988	21,748	9,795
Office and general expenses	25,270	1,597,377	73,250	35,124
Depreciation and interest	1,948	29,591	5,646	2,543
Total allocated	706,098	11,397,466	741,391	622,754

Allocation to destination

	Income fundraising			Administration & Control
	Private fundraising	Share in third parties activities	Grants	
Actual for the year endend 31 December 2021				
Grants and contributions	0	0	0	0
Contributions to allied organisations	0	0	0	0
Purchases and acquisitions	689	358,030	2,686	1,539
Outsourced activities	0	0	0	0
Publicity and communication	-9,834	0	0	0
Personnel	103,791	4,779	242,738	498,716
Housing	5,911	86	8,507	13,196
Office and general expenses	59,702	291	28,652	158,195
Depreciation and interest	1,535	22	2,208	3,426
Total allocated	161,794	363,208	284,791	675,072

CASH FLOW STATEMENT KNCV TUBERCULOSIS FOUNDATION 2021

All figures in Euro

		Actual 2021		Actual 2020	
Surplus excl interest		1,442,316		-1,312,428	
Interest paid/ received	R10	-2,713		229	
Total surplus		1,439,603		-1,312,199	
Depreciation - Fixed Assets	B1	46,978		81,635	
Cash Flow from income and expenditure			1,486,581		-1,230,564
Accounts receivable	B2	789,524		4,110,190	
Funds earmarked by third parties	B6	-2,665		-2,447	
Non-current liabilities		-		-	
Current liabilities	B7	14,139,294		-5,721,251	
Increase/ (Decrease) net working capital			14,926,153		-1,613,508
Cash flow from operational activities			16,412,734		-2,844,072
Investments	B3	-488,298		-346,739	
Disinvestments fixed assets	B1	0		0	
Investments fixed assets	B1	-1,294		-34,687	
Cash flow from investments fixed assets			-489,592		-381,426
Net cash flow			15,923,142		-3,225,498
Cash and banks as at 1 January	B4		7,479,172		10,704,670
Cash and banks as at 31 December	B4		23,402,314		7,479,172
Increase/ (Decrease) Cash on hand			15,923,142		-3,225,498

For further information we refer to our audited Annual Accounts.

7.3 Outlook - Budget 2022

To finance this income, we are budgeting to spend in total Euro 18.7 million. Euro 16.8 million on mission related expenses, Euro 1.0 million on acquisition of funds and Euro 0.9 million on management and control. We expect a negative income on investments of Eur 73.6 thousand. The deficit of Euro 190 thousand is budgeted to be spent from earmarked reserves and funds. The budgeted balanced result is in line with our Long-term Financial Plan 2021-2024, where we forecasted a deficit of Eur 41 thousand for 2022.

Table 7: KNCV Budget for 2022 as per Guideline 650

2022 GUIDELINE 650			
	Actual 2020	**Actual 2021**	**Budget 2022**
Income:			
- Income from individuals	994.667	777.827	950.000
- Income from companies	416.593	811.885	-
- Income from lotteries	1.428.386	1.645.969	1.356.000
- Income from government subsidies	6.185.306	4.136.451	3.486.452
- Income from allied non-profit organizations	201.875	607.366	375.000
- Income from other non-profit organizations	6.196.871	7.853.914	12.451.313
Total fundraising income	**15.423.698**	**15.833.412**	**18.618.765**
- Income for supply of services	37.902	76.118	7.655
- Other income	0	-15	-
Total income	**15.461.600**	**15.909.515**	**18.626.420**
Expenses:			
Expenses to KNCV Tuberculosisfoundation's mission			
- TB control in low prevalence countries	717.873	706.097	294.552
- TB control in high prevalence countries	12.896.917	11.397.466	15.062.367
- Research	941.636	741.391	778.016
- Communication and advocacy	734.467	622.753	684.205
Expenses to acquisition of funds			
- Costs for own fundraising activities	229.523	161.794	302.400
- Costs for joint fundraising activities	-	-	-
- Costs for activities by third parties	27.905	363.208	356.162
- Costs to acquire subsidies	327.392	284.791	342.296
Management and control			
- Costs for management and control	1.097.524	675.073	922.922
Total expenses	16.973.237	14.952.573	18.742.920
Result before income from investments	1.511.637-	956.942	116.500-
- Income from investments	199.438	482.661	73.600-
Net result	**1.312.199-**	**1.439.603**	**190.100-**

	Actual 2020	**Actual 2021**	**Budget 2022**
Change in expenses to KNCV's mission compared to previous year	26%	88%	125%
Ratio total expenses versus total income	109,8%	94,0%	100,6%
Ratio expenses for fundraising versus fundraising income	3,8%	5,1%	5,4%
Ratio continuity reserve versus organizational expenses	0,98	1,22	1,02
Ratio expenses on mission versus total expenses	90,1%	90,1%	89,7%
Ratio expenses to the mission versus total income	98,9%	84,7%	90,3%
Ratio expenses management and control versus total expenses	6,5%	4,5%	4,9%

For further information we refer to our audited Annual Accounts which are available at kncvtbc.org.

ANNEX 1
KNCV PARTNERS IN 2021

KNCV Tuberculosis Foundation thanks all partners for their collaboration and support.

In the Netherlands:
- ABN AMRO Group
- Academic Medical Centre Amsterdam (AMC)
- AFEW International
- Aids Fonds
- Amref Flying Doctors
- Amsterdam Institute for Global Health and Development (AIGHD)
- AOUTH Obufemi Awolowo University Teaching
- Hospitals
- Center for Infectious Disease Control Netherlands (CIb), at National Institute of Health and Central Bureau for Fundraising
- Centraal Orgaan opvang asielzoekers (COA)
- Cepheid
- Committee for Practical TB Control (CPT) Netherlands
- Coördinatiecentrum Expertise Arbeidsomstandigheden en Gezondheid (CEAG), Ministry of Defense;
- Cordaid
- Delft Imaging Systems BV
- Dr. C. de Langen Stichting voor Mondiale
- Tuberculosebestrijding (SMT)
- Dutch Global Health Alliance
- EDCTP
- Erasmus University Rotterdam
- FIND Foundation for Innovative New Diagnostics
- Goede Doelen Nederland
- GGD GHOR Nederland
- 's-Gravenhaagse Stichting tot Steun aan de Bestrijding der Tuberculose
- Hivos
- IAVI International Aids Vaccine Initiative
- IOM International Organization for Migration
- KIT Royal Tropical Institute
- KLM Royal Dutch Airlines - KLM Flying Blue program
- LAREB
- Leids Universitair Medisch Centrum
- LSHTM London School of Hygiene & Tropical Medicine
- Maastricht University
- Mainline
- Madurodam Support Fund (Stichting Madurodam Steunfonds)
- Medical Committee Netherlands-Vietnam
- Ministry of Foreign Affairs
- Ministry of Health, Welfare and Sports
- Ministry of Security and Justice - Penitentiary Services
- (Ministerie van Veiligheid en Justitie - Dienst Justitiële Inrichtingen)
- Mr.Willem Bakhuys Roozeboomstichting
- Municipal Public Health Services in the Netherlands (GGD)
- Muncipality The Hague
- Nationale Postcode Loterij
- Nederlandse Loterij
- Nederlandse Vereniging van Artsen voor Longziekten en Tuberculose (NVALT)
- Nederlandse Vereniging voor Medische Microbiologie (NVMM)
- Netherlands Ministry of Foreign Affairs/Development Cooperation (DGIS)
- Netherlands Ministry of Health, Welfare and Sport (VWS)
- Netherlands School of Public and Occupational Health (NSPOH)
- NWO-WOTRO
- OGD
- Our private donors
- PharmAccess Foundation
- Pharos
- Radboud University Nijmegen
- Rijks Instituut voor Volksgezondheid en Milieu (RIVM)
- Royal Tropical Institute (KIT)
- SGF Samenwerkende Gezondheidsfondsen
- Stichting Loterijacties Volksgezondheid (SLV)
- Stichting Suppletiefonds Sonnevanck
- Stop Aids Now!
- Taskforce Health Care
- Topsector Life Sciences and Health
- Tuberculosis Vaccine Initiative (TBVI)
- University Medical Center Groningen
- Vereniging van Artsen werkzaam in de Tbc-bestrijding (VvAwT)
- Verpleegkundigen & Verzorgenden Nederland, Platform - Verpleegkundigen Openbare Gezondheidszorg (V&VN/OGZ)
- VriendenLoterij
- WEMOS
- ZonMW

And many others…

Local KNCV Partner organizations
Tuberculosis Foundation Ethiopia
Yayasan KNCV Indonesia
KNCV Tuberculosis Foundation Kenya
KNCV Tuberculosis Foundation Nigeria
KNCV Tuberculosis Foundation United States

Local KNCV Partner organizations
- Action Aid, Malawi
- Adelaide Supranational TB Reference Laboratory
- AIDS Center of Almaty City, Kazakhstan
- AFEW Kazakhstan
- ALERT, Ethiopia
- Almaty City healthcare department
- American Thoracic Society (ATS)
- Armauer Hansen Research Insititute (AHRI), Ethiopia
- Association of Family Doctors, Kazakhstan
- Aurum Insititute, South Africa
- Avenir Health
- Bill & Melinda Gates Foundation
- Centers for Disease Control and Prevention (CDC)
- Clinton Health Access Initiative (CHAI)
- Club des Ami Damien (CAD) Democratic Republic Congo
- Damien Foundation Belgium (DFB)
- Development Aid from People to People (DAPP) Malawi
- Development Aid from People to People (DAPP), Zimbabwe
- Duke University, USA
- DZK (German Central Committee against Tuberculosis)
- EGPAF
- Eli Lilly MDR-TB Partnership
- Ethiopian Public Health Institute (EPHI)
- European Centers for Disease Prevention and Control (ECDC)
- European and Developing Countries Clinical Trials Partnership (EDCTP)
- European Union (EU)
- Federal Office of Public Health (Switzerland)
- FHI 360
- The Finnish Lung Health Association (Filha)
- Foundation for Innovative New Diagnostics (FIND)
- German Leprosy Relief Association (GLRA)
- Regional GLCs (Green Light Committees)
- Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund)
- GHC Global Health Committee
- Gondar University, Ethiopia
- GSK Biomedicals
- Hain Life Sciences
- Haramaya University, Ethiopia
- Harvard Medical School
- Indonesian Association against Tuberculosis (PPTI)
- Initiative Inc, Democratic Republic Congo
- Institute of Human Virology, Nigeria
- International Union Against Tuberculosis and Lung Disease (The Union)
- IRD (Interactive Research and Development)
- Japan Anti-Tuberculosis Association (JATA)
- John Hopkins University School of Medicine
- Karolinska Institute, Sweden
- Kazakhstan Union of People Living with HIV (PLHIV)
- Kazakhstan Prison System
- Korean Institute of Tuberculosis
- Korea International Cooperation Agency (KOICA)
- La Fondation Femme Plus, Democratic Republic of Congo
- Latvia TB Foundation
- Leprosy Mission International
- Les ambassadeurs de Sud-Kivu, Democratic Republic of Congo
- Ligue National Contre la Lèpre et la Tuberculose du Congo (LNAC)
- Liverpool School of Tropical Medicine (LSTM)
- London School of Hygiene and Tropical Medicine (LSHTM)
- Makerere University, Uganda
- Malawi TB Research Network
- Management Sciences for Health (MSH)
- Maternal and Child Health Integrated Program (MCHIP), Zimbabwe
- McGill University
- Médecins Sans Frontières (MSF)
- Mekelle University, Ethiopia
- Ministry of Health (in many countries)
- MSH Management Sciences for Health
- Namibian Red Cross Society
- National Agency for Control of AIDS (NACA), Nigeria
- National TB Reference Laboratories in the countries
- Netherlands-African partnership for capacity development and clinical interventions against poverty-related diseases (NACCAP)
- National TB Control Programs (NTPs) in many countries
- NGO Doverie Plus, Kazakhstan
- NGO Zabota, Kazakhstan
- Office of the US Global AIDS Coordinator
- Organization for Public Health Interventions and Development (OPHID) Trust, Zimbabwe
- Partners in Health (PiH)
- Penduka, Namibia
- Population Services International (PSI)
- Private Health Sector Program, Ethiopia
- Program for Appropriate Technology in Health (PATH)
- Project Hope (in Kazakhstan, Kyrgyzstan, Namibia, Tajikistan)
- Qiagen
- Reach Ethiopia
- Regional Center of Excellence on PMDT, Rwanda
- Regional Health Bureaus (Ethiopia)
- Rehabilitation and Prevention of Tuberculosis (RAPT), Zimbabwe

Annex 1

- RESIST-TB
- Resource Group for Education and Advocacy for Community Health (REACH), India
- Riders for Health
- Sanofi
- St Peter specialized Hospital, Ethiopia
- Stellenbosch University
- Stop TB Partnership
- Swiss Tropical and Public Health Institute
- TB Alliance
- TB Europe Coalition
- TB Proof
- Tuberculosis Modelling and Analysis Consortium (TB MAC)
- Tuberculosis Operational Research Group (TORG), Indonesia (including representatives of University of Indonesia, Padjadjaran University, Gadjah Mada University, Universitas Seblas Maret, Diponegoro University, University of Surabaya, Udayana University, and others)
- Tuberculosis Research Advisory Committee TRAC, Ethiopia
- UNICEF - University Clinical Centre
- Unitaid
- United Nations Development Program (UNDP)/Global Fund
- United States Agency for International Development (USAID)
- University of Antwerp, Belgium
- University of California San Francisco (UCSF)
- University of Cape Town - SATVI
- University of Gadjah Mada, Indonesia
- Vanderbilt University, USA
- World Health Organization (Headquarters and Regions)
- Zimbabwe National Network of People Living with HIV (ZNNP+)

ANNEX 2
POLICY BODIES IN WHICH KNCV WAS ACTIVE IN 2021

In 2021, KNCV was actively involved in:

- Important global WHO forums, such as: STAG-TB (Strategic and Technical Advisory Group); Global Task Force on TB Impact Measurement; Global Task Force on Latent TB Infection; Expert Committee on LTBI (product profiles); Global Task Force on New TB Drugs and Regimens.
- WHO Guideline development work: member of Guideline Development Group revision of the MDR TB treatment Guideline; support development Companion Handbook for DR-TB, WHO/TDR Short Generic Protocol for Operational Research, Guidance document on subnational TB incidence estimation (under preparation). Revision of interim guidance on bedaquiline and delamanid for the treatment of MDR-TB (technical resource person to the Guideline Development Group).
- Several regional WHO TB Technical Advisory Groups on TB Control (SEARO; WPRO); WHO- Euro Childhood TB Task Force; Members/chair of regional GLC s in SEARO, EURO, WPRO.
- Stop TB Partnership's Coordinating Board.
- Several Stop TB Partnership working groups, sub-working groups and task forces, such as: GLI (Global Laboratory Initiative); GDI (Global Drug resistant TB Initiative); GDI DR–TB Research Task Force; GDI DR STAT Task Force; TB/HIV Co-infection (STBP); TB-Infection Control Working Group; Public Private Mix Working Group; Childhood TB Core Group;
- The Union: Europe Region Executive Committee; TB/HIV Working Group; TB & Migration Working Group, Ethics Working Group; Nursing and Allied Professionals sub section (secretariat)
- 50th Union World Conference on Lung Health 2019 in Hyderabad; review abstracts and chairing symposia
- Global Fund: NGO Developed Countries Delegation to the GF Board; CCM (Country Coordinating Mechanism) of Kazakhstan; Friends of the Global Fund Europe (member of the Advisory Committee); in 11 countries KNCV is a member of CCM-Global Technical Working Groups on TB and TB/HIV
- Alliances, Associations, Coalitions: TB Alliance SHA (Stakeholders Association); TB Europe Coalition (member Oversight Advisory Committee).
- Research Collaboration: TB Science; RESIST-TB (Research Excellence to Stop TB Resistance) Steering Committee.
- Wolfheze: Program Committee; Working Groups (Collaborative TB/HIV activities; New drugs and regimens, Patient Centred Care).
- Steering Committees, Professional Associations in the Netherlands: CPT (Netherlands Committee for Practical TB Control); GGD (Municipal Public Health Services) Tuberculosis Steering Committee in the Netherlands; V&VN/OGZ (Professional Association of Nurses), TB Control Committee; MTMBeVe (Professional Association of Medical Technical Assistants).
- Board member or/advisor to Foundations, NGOs in the Netherlands: Eijkman Stichting; 's-Gravenhaagse Stichting tot Steun aan de Bestrijding van Tuberculose; SMT (Stichting Mondiale Tuberculosebestrijding); Stichting Lampion (nationwide information point for care for undocumented immigrants); MCNV (Medical Committee Netherlands Vietnam)
- KNCV staff were also on the Editorial Board of:
- IJTLD (International Journal of Tuberculosis and Lung Disease).
- Periodical "Tegen de Tuberculose" (Against Tuberculosis).

ANNEX 3
SCIENTIFIC PUBLICATION LIST 2021

1. Gronholm PC, Nosé M, van Brakel WH, Eaton J, **Fiekert K** et al. Reducing stigma and discrimination associated with COVID-19: early stage pandemic rapid review and practical recommendations. Epidemiol Psychiatr Sci. 2021 Jan 28;30:e15. Abstract

2. Mitchell EMH, Adejumo OA, Abdur-Razza H, **Ogbudebe C, Gidado M** et al. Hybrid Approach to Estimation of Underreporting of Tuberculosis Case Notification in High- Burden Settings With Weak Surveillance Infrastructure: Design and Implementation of an Inventory Study. JMIR Public Health Surveill 2021 (7)l iss. 3 l e22352. Abstract

3. Tadesse BT, Foster BA, Latour E, Lim JY, **Jerene D** et al. Predictors of Virologic Failure Among a Cohort of HIV-infected Children in Southern Ethiopia. Pediatr Infect Dis J. 2021 Jan;40(1):60-65. Abstract

4. Gurung SC, Rai B, Dixit K, **Levy JW, van Rest** J et al. How to reduce household costs for people with tuberculosis: a longitudinal costing survey in Nepal. Health Policy Plan. 2021 Jun 3;36(5):594-605. Abstract

5. McQuaid CF, Vassall A, Cohen T, **Fiekert K**, White RG et al. The impact of COVID-19 on TB: a review of the data. Int J Tuberc Lung Dis. 2021 Jun 1;25(6):436-446. Abstract

6. **de Vries G, van de Berg S**, van Dam A, Hasanova S, Pareek M et al. Collaborative tuberculosis/HIV activities in the European Region. ERJ Open Res. 2021 Jan 18;7(1):00721-2020. Abstract

7. **Lyakurwa D**, Lyimo J, **Mulder C, Pelzer PT, Koppelaar I** et al. Assessment of training and mentoring for DR-TB care decentralization in Tanzania. Hum Resour Health. 2021 Apr 26;19(1):56. Abstract

8. **Jerene D**, Tiberg I, Hallström I. How Can Clinical Outcomes among Adolescents Living with HIV in Ethiopia be Improved? Healthcare Professionals' Perspectives. Compr Child Adolesc Nurs. 2021 May 7:1-10. Abstract

9. **de Haas P,** Yenew B, **Mengesha E, Slyzkyi A, Gashu Z** et al. The Simple One-Step (SOS) stool processing method for use with the Xpert MTB/RIF assay for a child-friendly diagnosis of tuberculosis closer to the point-of-care. J Clin Microbiol. 2021 Jun 2. Abstract

10. McQuaid CF, Foster N, Quaife M, **Levy J**, Tadesse AW et al. Digital adherence technology for TB: focus on livelihoods as well as lives. Int J Tuberc Lung Dis. 2021 May 1;25(5):416-417. No abstract available.

11. **de Vries G**, Gainaru D, Keizer S, Mahler B, Radulescu I et al. Human reading versus computer automated reading of chest X-rays in a tuberculosis screening programme in Romania. Eur Respir J. 2021 Mar 10:2004628. No abstract available.

12. Gurung SC, Dixit K, Rai B, **Paudel PR, Levy JW** 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 Apr 14;6(2):50. Abstract

13. **Tesema E, Wares F, Bedru A, Negeri C, Molla Y,** et al. Experiences of introducing new drugs for drug-resistant TB at the ALERT Hospital, Addis Ababa, Ethiopia, 2017–2019. Public Health Action 2021 June; 11(2): 50–52. Full paper

14. Monedero-Recuero I, Gegia M, **Wares F**, Chadha S, Mirzayev F. Situational analysis of 10 countries with a high burden of drug-resistant tuberculosis 2 years post-UNHLM declaration: progress and setbacks in a changing landscape. IJID 2021;108: 557–567. Full paper

Scientific Publication List 2021

15. Ragonnet R, Flegg JA, Brilleman SL, **Tiemersma EW**, Melsew YA et all. Revisiting the Natural History of Pulmonary Tuberculosis: A Bayesian Estimation of Natural Recovery and Mortality Rates. Clin Infect Dis. 2021 Jul 1;73(1). Abstract

16. Shiferaw MB, Amare D, Alem G, **Asefa D,**

Annex 3

Klinkenberg E et al. Prevalence of active tuberculosis disease among healthcare workers and support staff in healthcare settings of the Amhara region, Ethiopia. PLoS One 2021 Jun 11;16(6). Abstract

17. Suliman S, **Pelzer PT**, Shaku M, Rozot V, Mendelsohn SC. Meeting report: Virtual Global Forum on Tuberculosis Vaccines, 20-22 April 2021. Abstract

18. **Spruijt I**, Joren C, van den Hof S, **Erkens C** et al. Tailored approaches facilitate high completion of tuberculosis infection treatment among migrants. Eur Respir J 2021. Abstract

19. Churchyard G, Cárdenas V, Chihota V, Mngadi K, **van den Hof S** et al. Annual Tuberculosis Preventive Therapy for Persons With HIV Infection: A Randomized Trial. Ann Intern Med. 2021 Aug 24. Abstract

20. **Charlie L**, Saidi B, Getachew E, Wanjiru CL, Abebe M et al. RN Programmatic challenges in managing multidrug-resistant tuberculosis in Malawi. Int J Mycobacteriol. 2021 Jul-Sep;10(3):255-259. Abstract

21. **van de Berg SEJ, Pelzer PT, van der Land AJ**, Abdrakhmanova E, Ozi AM et al. Acceptability, feasibility, and likelihood of stakeholders implementing the novel BPaL regimen to treat extensively drug-resistant tuberculosis patients. BMC Public Health. 2021 Jul 16;21(1):1404. Abstract

22. Mehra N, Tunje A, Hallström IK, **Jerene D**. Effectiveness of mobile phone text message reminder interventions to improve adherence to antiretroviral therapy among adolescents living with HIV: A systematic review and meta-analysis. PLoS One. 2021 Jul 22;16(7). Abstract

23. Mahler B, **de Vries G**, van Hest R, Gainaru D, Menezes D, Popescu G, Story A, Abubakar I. Use of targeted mobile X-ray screening and computer-aided detection software to identify tuberculosis among high-risk groups in Romania: descriptive results of the E-DETECT TB active case-finding project. BMJ Open. 2021 Aug 24;11(8). Abstract

24. Ngoc NB, Vu Dinh H, Thuy NT, Quang DV, **Tiemersma E** et al. Active surveillance for adverse events in patients on longer treatment regimens for multidrug-resistant tuberculosis in Viet Nam. PLoS One. 2021 Sep 7;16(9). Abstract

25. Conroy O, Wurie F, Collin SM, Edmunds M, **de Vries G** et al. Barriers and enablers to implementing tuberculosis control strategies in EU and European Economic Area countries: a systematic review. Lancet Infect Dis. 2021 Sep;21(9):e272-e280. Abstract

26. **Van de Berg SEJ, Erkens C, Mulder C**. Tuberculosis contact investigation following the stone-in-the-pond principle in the Netherlands - Did adjusted guidelines lead to improved efficiency? Eurosurveillance 2021. Accepted for publication. Abstract

27. Dixit K, Biermann O, **Levy J, van Rest J**, Chandra Gurung S et al. Barriers and facilitators to accessing tuberculosis care in Nepal: a qualitative study to inform the design of a socioeconomic support intervention. BMJ. 2021 Oct 1;11(10). Abstract

28. **Odume B**, Nwokoye N, **Spruijt I, Slyzkyi A**, Dim C et al. Diagnostic Accuracy of TB-LAMP for Diagnosis of Pulmonary Tuberculosis among Adult Presumptive TB in Nigeria. GJMS Vol. 11(2), pp. 122-129, 2021 Abstract and Full paper

Scientific Publication List 2021

29. Shaikh N, **Pelzer PT**, Thysen SM, Roy P, Harris RC et al. Impact of COVID-19 Disruptions on Global BCG Coverage and Paediatric TB Mortality: A Modelling Study. Vaccines 2021, 9, 1228. Abstract and Full paper

30. **Tiemersma EW**, Ali I, Alemu A, Avong YK, Duga A et al. Baseline assessment of pharmacovigilance activities in four sub-Saharan African countries: a perspective on tuberculosis. BMC Health Serv Res. 2021 Oct 8;21(1):1062. Abstract and Full paper

31. Gebregergs GB, Sinishaw MA, Assefa M, **Fiseha D, Klinkenberg E** et al. Evaluation of the postal service for referral of specimen of drug resistance tuberculosis in Amhara region, Ethiopia; mixed method. Afr Health Sci. 2021 Jun;21(2):619-627. Abstract and full paper

32. Tunje A, **Jerene D**, Kristensson Hallström I. Antiretroviral Therapy and Retention in Care Experiences and Needs of Adolescents Living with HIV in Southern Ethiopia. HIV AIDS (Auckl). 2021 Nov 26;13:999-1007. Abstract and full paper

33. Tadesse AW, Mohammed Z, **Levy J, van Kalmthout K, van Rest J** et al. Evaluation of implementation and effectiveness of digital adherence technology with differentiated care to support tuberculosis treatment adherence and improve treatment outcomes in Ethiopia: a study protocol for a cluster randomised trial. BMC Infect Dis. 2021 Nov 10;21(1):1149. Abstract and full paper

34. Kipiani M, Graciaa DS, Buziashvili M, Darchia L, **Mirtskhulava V** et al. Xpert MTB/RIF Use Is Associated With Earlier Treatment Initiation and Culture Conversion Among Patients With Sputum Smear-Negative Multidrug-Resistant Tuberculosis. Open Forum Infect Dis. 2021 Nov 6;8(12): ofab551. Abstract and full paper

35. \Dagnaw A, **Sahlie M**, Mulugeta H, Shine S, Bediru W et al. Magnitude of Intestinal Parasite Infection and Associated Factors Among Pregnant Women Attending Antenatal Care Service in Shewarobit Town Health Facilities, North Shoa Zone, Amhara Region, Ethiopia. Infect Drug Resist. 2021 Nov 24;14:4921-4930. Abstract and full paper

ABBREVIATIONS

3HP 3 Month Rifapentine + Isoniazid course
99DOTS A mobile phone technology for monitoring and improving TB medication adherence
aDSM Active Drug safety management and monitoring
AFC Global Fund Audit and Finance Committee
AIDS Acquired Immune Deficiency Syndrome
AIGHD Amsterdam Institute for Global Health and Development
AIV Advisory Council for International Affairs
AMR Antimicrobial Resistance
ASCENT Adherence Support Coalition to end TB
ASTTIE Alternatives to Sputum for TB Testing in Indonesia and Ethiopia
AVG Algemene Verordening Gegevensbescherming (Dutch GDPR)
BPaL 6 Month treatment for patients with advanced forms of drug-resistant TB
BSD "Basis Score voor Directiefuncties" - Basic Score for Management positions
CBF Centraal Bureau Fondsenwerving (Central Bureau for Fundraising in the Netherlands)
CBO Community Based Organization
CDA Christen Democratic Appel
CEA Cost Effectiveness Study
CGHI Clingendael Global Health Initiative
CIb Centrum Infectieziektebestrijding (Center for Infectious Disease Control)
COS Committee Development Cooperation
CP Community Pharmacists
CRP C-reactive protein test
CPT Commission for Practical TB Control
DAT Digital Adherence Therapy
DEI Diversity Equity and Inclusion
DGHA Dutch Global Health Alliance
DM/TB Diabetes Mellitus/Tuberculosis
DR-TB Drug-Resistant Tuberculosis
ECDC European Centre for Disease Prevention and Control
ECOSOC Economic & Social Council
ED Executive Director
E-Detect Early Detection of Tuberculosis in Europe
EDCTP European and Developing Countries Clinical Trials Partnership
ETBE Ethiopia TB Elimination project
F&O Finance & Operations
FIND Foundation for Innovative New Diagnostics
FTE Full-time equivalent
Fuji LAM Test Test for easier diagnosis of TB in PLHIV
GDN Goede Doelen Nederland
GeneXpert® (See Xpert MTB/RIF assay, below)
GF Global Fund to Fight Aids Tuberculosis and Malaria
GF COP Global Fund Community of Practice
GGD Municipal Public Health Services
GGD GHOR Nederland Association of GGD's (Municipal Public Health Services) and GHOR (Regional Medical Emergency Preparedness and Planning offices) in the Netherlands
GTBR 2019 2019 Global TB Report
HIV Human Immunodeficiency Virus
HRH Her royal Highness
HRM Human Resource Management
HSS Health System Strengthening
ICT Information and Communication Technology
IDP Intensive Diagnostic Phase
IHVN Institute for Human Virology of Nigeria
ILO International Labour Organization
IMPAACT4TB Increasing Market and Public health outcomes through scaling up Affordable Access models of short Course preventive therapy for TB
IRB Institutional Research Board
ISS Institute of Social Studies
IT Information Technology
ITRC International Tuberculosis and Research Center
JZ International Jordan/Zalaznick International
KNCV Koninklijke Nederlandse Centrale Vereniging tot bestrijding der Tuberculose
KOICKA Korea International Cooperation Agency
LIAE Love in Action Ethiopia
LIFT-TB project Leveraging Innovation for Faster Treatment of Tuberculosis
LON USAID funding Mechanism for Local Organizations
LTBI Latent Tuberculosis Infection
LSHTM London School of Hygiene and Tropical
M&E Monitoring and Evaluation
MATS recording and reporting App
MDR-TB Multidrug-resistant Tuberculosis
MOH Ministry of Health
MPD Media Pension Diensten
MSH Management Science in Health
NGO Non-Governmental Organization
NSP National Strategic Plan
NTBLCP National Tuberculosis and Leprosy Control Program
NTP National Tuberculosis Program
OATH Organization for Appropriate Technology in Health
ODA Official Development Assistance
OR Operational Research
OR Works Council (ondernemingsraad)
OSF Optimized Sucrose Flotation
PDP Product Development Partnership
PATH Program for Appropriate Technology in Health
PAVIA PhArmaco Vigilance Africa
PCF People Centred Framework for TB programming
PCR Polymerase Chain Reaction
PDP Product Development Partnership
PEPFAR U.S. President's Emergency Plan for AIDS Relief
PFZW Pensioenfonds Zorg en Welzijn (Pension fund for health care)
PLHIV People Living with HIV
PMDT Programmatic Management of Drug-Resistant TB
PMV Patent Medicine Vendor
POC diagnostics Point of Care test
PODTEC Painless Optimized Diagnosis of Tuberculosis in Ethiopian Children
PopArt Clinical studyon combining HIV/TB prevention and interventions
PPA Patient Pathway Analysis
PPM Public Private Mix
PSI-Europe Population Services International - Europe
PWC Price Waterhouse Coopers
R&D Research & Development
REDCap Research Electronic Data Capture
RR-TB Tuberculosis resistant to Rifampicin
RIVM Rijksinstituut voor Volksgezondheid en Milieu (National Institute for Public Health and the Environment)
SA South Africa
SGF Samenwerkende Gezondheidsfondsen
SITRUST Sistem Informasi Treking Untuk tranSporTasi system
SMS Short Message Service
SMT Dr. C. de Langen Stichting voor Mondiale Tbc-Bestrijding/Stichting Mondiale Tuberculosebestrijding (Dr. C. de Langen Foundation for Global TB Control)
SOS stool test Simple One Step stool test
SPK Stool Processing Kit
SRHR Sexual and reproductive Health and Rights
SSGA State Street Global Advisors
STAG-TB Strategic and Technical Advisory Group
STP Stop TB Partnership
STTA Short term technical Assistance
TA Technical Assistance
TB Tuberculosis
TBA TB Alliance
TB-LAMP a molecular diagnostic test
TB MAC Modelling and Analysis Consortium
TBCTA Tuberculosis Coalition for Technical Assistance
TBI Tuberculosis Infection
TBVI Tuberculosis Vaccine Initiative
TCO Total Cost of Ownership
TD Technical Division
TIME TB Impact Model and Estimates
TOT Training of Trainer
TPT Tuberculosis Preventive Treatment
TREATS Tuberculosis Reduction through Expanded Antiretroviral Treatment and Screening for Active TB
TSRU Tuberculosis Surveillance and Research Unit
UK United Kingdom
UNHLM United Nations High Level Meeting
UNICEF United Nations Children Fund
UNION International Union Against Tuberculosis and Lung Disease
Unitaid International organization that invests in innovations to prevent, diagnose and treat HIV/AIDS, tuberculosis and malaria more quickly, affordably and effectively.
USAID United States Agency for International Development
USD US Dollar
VOT Video Observed Treatment support
Wbp Wet bescherming persoonsgegevens
WHO World Health Organization
WHO ERC World health Organization Research Ethics Review Committee
WHO Euro World Health Organization European Region
WHO GTB World Health Organization Global Tuberculosis programme
WHO/TDR World Health Organization special programme for research and training in tropical diseases
WNT Wet Normering Topinkomens
WOW Wellnesson Wheels
WP Work packages
Xpert An automated diagnostic assay/test that can identify TB and resistance to rifampicin
XDR-TB Extensively Drug-Resistant Tuberculosis
X-ray Diagnostic method
YKI Yayasan KNCV Indonesia
Xpert An automatic diagnostic assay/test that can identify TB and resistance to Rifampicine
YKI Yayasan KNCV Indonesia
ZonMw Dutch Organization for Health research

KNCV TUBERCULOSIS FOUNDATION

ANNUAL REPORT 2021