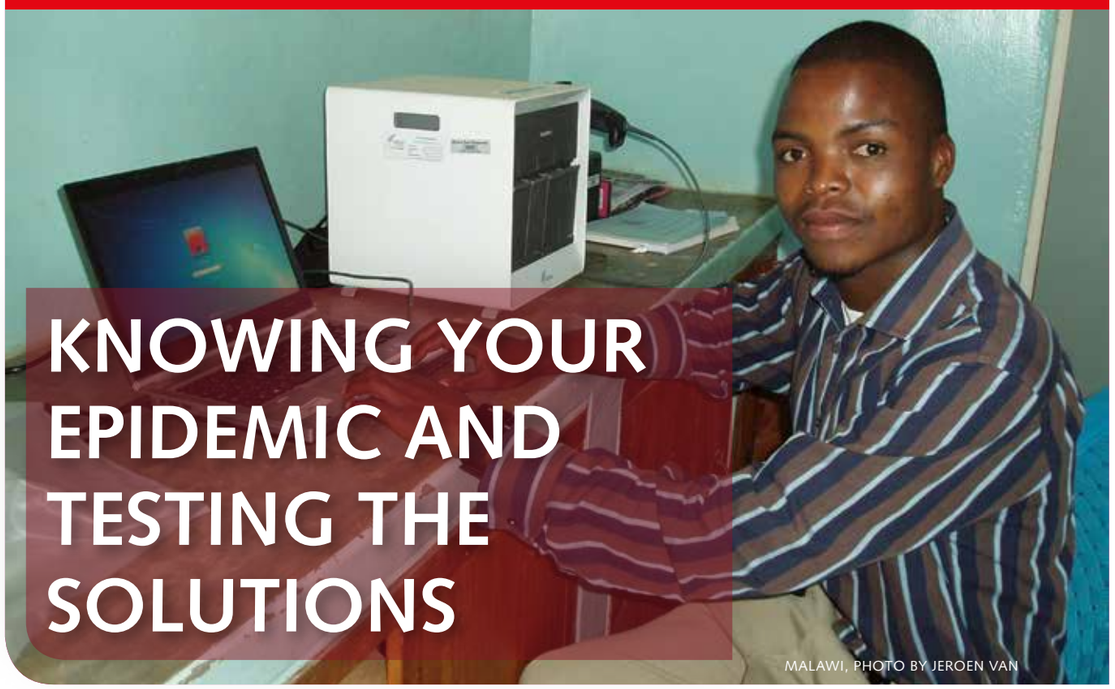
ZIMBABWE – NEW BIKE FOR VILLAGE HEALTH PROGRAM TO VISIT PATIENTS, PHOTO BY NETTY KAMP

quality drugs or interrupted intake of medication, to uncontrolled transmission of M/XDR-TB due to late diagnosis or poor infection control. Drug resistance surveys and operational research are vital in order to discover trends and causes of M/XDR-TB and to find remedial solutions. Implementation research is important in order to test which of these solutions work best, and how these solutions should be tailored to local circumstances. KNCV helps country programs and partners to ask the right questions and find the data that helps in improving the outcomes for the patient and eventually the entire program. ■

Implementation research on GeneXpert MTB/RIF

Not all doctors are immediately keen on using the new GeneXpert MTB/RIF test, even though it is praised worldwide for its accuracy and speed. We have assisted in several research projects that indicate that doctors often start TB treatment without waiting for the results of diagnostic tests. Often the sputum specimen has to be sent to a nearby village, which can result in a delay of days. In such instances, the doctor makes the clinical diagnosis and starts treatment right away. Another finding was that doctors had little faith in the test result, not being convinced by data on the performance of a new test. This kind of research helps choosing the right path of action: do the test results need to be delivered faster? And if so, how? Or is additional training more important?



KNOWING YOUR EPIDEMIC AND TESTING THE SOLUTIONS

MALAWI, PHOTO BY JEROEN VAN

To fight your enemy, you have to know your enemy. In the case of TB this means analyzing the data routinely collected by the National TB Program (NTP) to look at trends, numbers and age- or gender-specific rates, and conducting TB prevalence surveys and drug resistance surveys. You also need to find the best ways to combat that enemy, and test your weapons through operational or implementation research. KNCV has wide expertise and experience to help NTPs and other TB fighters to collect and interpret the data they need.

Assisting with prevalence surveys

In each annual Global TB Report, the World Health Organization (WHO) provides estimates on the global and national prevalence, incidence and mortality rates for TB. These data are used by the Global Fund to fight AIDS, Tuberculosis and Malaria and other donors to decide on funding allocations, or by the United Nations to monitor progress to the Global Millennium Development and Sustainable Development Goals. But these estimates have uncertainties, because they are largely based on interpretation of indirect data. TB prevalence surveys provide better information that is also evidence-based. They are a rich source of data that can help NTPs adjust their strategies to make a bigger impact. ▸

TESTING WHAT CAUSES THE ADVERSE REACTION, KYRGYZSTAN

Global Task Force on Impact Measurement

The WHO leads the Global Task Force on Impact Measurement, which provides technical guidance to the WHO, its member states and technical partners on when and how to conduct a prevalence survey. KNCV has been a member of this Task Force since the very beginning. The costs of prevalence surveys are substantial, and their implementation is very demanding on national staff and partners. The Task Force has therefore developed a set of guidelines, including standard operational procedures, and coordinates and organises close external technical assistance in all phases of a survey to ensure that the end results are accurate and valid.

ETHIOPIA, PHOTO BY NETTY KAMP

Surveys can identify "hidden" or under-reported patient populations, as well as information on health-seeking behavior and barriers to care.
Conducting a prevalence survey – which requires screening and testing 50,000 to 100,000 people – takes up to three years, from the first preparations to final publication of the results.

Research: answers in Ethiopia

Operational research helps to identify flaws in TB control and illustrates ways to overcome them. We asked health care workers in Ethiopia how long it generally took to diagnose a patient, from the moment that sputum was collected for testing. They could only guess, as they did not actually know. We demonstrated to them how to find the answer in their own clinical records. This proved to be a real eye-opener, since diagnosis took much longer than they had guessed. Knowing this, they started asking themselves why it took so long, and if and how the diagnosis could be expedited. By analyzing their own data, they found new inroads to improving their services to patients and being more effective in stopping the epidemic by reducing the time it takes until a TB patient is treated.

Research: electronic data

Digital systems can make data collection and management much easier. Together with our partners in USAID's TB CARE I program we developed the first digital TB data management system in Africa, called TIBU, which means 'to treat' in Swahili. The patient-based real time system, accessible on tablets with a mobile phone internet connection, makes it easier to collect, transmit and analyze information. With TIBU, a patient can easily complete his/her treatment in another clinic while ensuring that the clinic workers receive all necessary information. KNCV also developed an e-training course for data management, with guidelines for maintaining data quality and using this data for monitoring and evaluation.

KNCV has expertise in supporting NTPs in all stages of the survey: from protocol design, budgeting and planning to implementation, quality monitoring, data analysis and publication. We have supported prevalence surveys in Eritrea, Vietnam, Bangladesh, Pakistan, Tanzania, Rwanda, Ethiopia, Kenya, and Zambia.

Assisting with epidemiological (epi-) assessments

KNCV also supports country epidemiological assessments. This means looking at trends and changes in numbers of TB patients, both in society at large and in particular social groups, mostly by using data that is already available. A recent epi-assessment is a requirement for a country application to the Global Fund. KNCV has conducted epi-assessments in Zimbabwe, Rwanda and Ethiopia, among others. Together with WHO and others partners, we have developed standardized terms of reference for such an assessment.

TEENAGERS AT TB CLINIC IN KAZAKHSTAN, PHOTO BY BERT TOMSON

PAPER BASED RECORDING IN MALAWI, PHOTO BY JEROEN VAN GORKOM

Building research capacity

KNCV builds research capacity in the countries where it is needed through a comprehensive package of assisting in developing a national research agenda and research programs, operational research courses, supervision of Master and PhD students and mentoring of local researchers. We train national research trainers. Data is extremely important, but collecting data has little meaning if you don't know how to use it. We train people on all levels to not only obtain the right data, but also to analyze and interpret it in a systematic way. We also help implement strategies to make sure the data are used properly at all levels, while taking into consideration issues such as confidentiality and research ethics.

Monitoring and evaluation

In order to ensure that new technologies – either digital technology or new diagnostic tests– are used to their full potential, we assist in the development and application of monitoring and evaluation tools. In order to improve treatment outcomes, we visit a facility and draw up protocols on how to maximize treatment success with the local staff. Together we decide on standard operating procedures, for example for the use of GeneXpert. The next step then is to apply these procedures in day-to-day practice. These protocols better equip staff to find out if and why flaws in the workflow or service occur, and to find solutions.

Fighting drug-resistant TB

One of the most important challenges is the spread of multidrug-resistant TB (MDR-TB) and eXtensively Drug-Resistant TB (XDR-TB). The causes of this spread vary between countries and settings, from inadequate TB treatment regimens, poor