On the move to improve TB treatment

This year's theme for World TB Day was On the move against tuberculosis: innovate to accelerate action. The campaign focused on individuals who have introduced innovations and inspired others. This story focuses on Lovett Lawson of Nigeria's Stop TB partnership, who also is a valued collaborator in trials conducted by the WHO Special Programme for Research and Training in Tropical Diseases (TDR) and chief medical director of Zankli Medical Centre in Abuja.

Lovett Lawson describes his research laboratory as a "passion" that complements his principal assignment of running a 40-bed medical centre. He established the laboratory in 2003, aiming to produce world-class research.

He has proved his point. The laboratory is now key to a number of tuberculosis (TB) studies conducted by TDR, the Centers for Disease Control and Prevention of the United States of America (CDC) and others.

"Our laboratory is now recognized," Lawson said recently. "We have requests from researchers to partner with us. I believe very much in accountability, as this evokes trust in the funding partners."

TDR is using the Zankli Research Laboratory for mycobacterial culture and drug sensitivity testing for its ongoing trial aimed at generating evidence on safety and efficacy of a four-drug fixed-dose combination therapy (4FDC) compared with the loose or single-dosed anti-TB pill. The DOTS strategy (the acronym comes from "directly observed treatment, short-course") uses 4FDC therapy, which involves one combination pill a day compared to the four pills often required in loose-dose regimes. This ensures that all four recommended TB drugs are indeed used.

Treatment with all four drugs in combination also is presumed to reduce the risk of bacterial resistance to any particular drug in patient populations. By simplifying treatment, fixed-dose combination therapies also should improve overall compliance with TB treatment, which can take six to eight months to complete. Yet there has been virtually no systematic study of these assumptions, especially in TB and HIV high-burden settings. The TDR study attempts to create an evidence base about these benefits, as well as any possible drawbacks, of 4FDC therapies.

The Zankli research laboratory also played a key role in TDR trials into low-cost light-emitting diode (LED) adaptors for microscopes to make smear diagnosis easier, and into "front-loaded" microscopy to speed diagnosis. Front-loading means that two sputum smears are collected and analysed on the same day, as opposed to the current norm of patients having to return to clinics over a two- or three-day period for successive smears. Largely as a result of the TDR trials, WHO is expected to endorse the use of LED fluorescence miscroscopy and front-loaded sputum specimen collection in the near future.

Lawson hopes the outcome will have a tangible and practical benefit for TB patients, who are often poor and live far from health centres and so are unable to make multiple visits for diagnosis.

"It will make a big difference," Lawson predicted. "From practical experience we know that the number of patients who drop out is very high. Anything that will allow for diagnosis to be made and treatment commenced within a day will be helpful."

Andy Ramsay, a TDR scientist involved in the trials, says that the high standards of good laboratory practice and Lawson's hands-on approach as principal investigator were key to the trials’ success. "We couldn’t have done it without him," Ramsay said.

Although the medical centre is private, the research laboratory is non-profit. It collects sputum samples on a daily basis and provides free microscopy and culture services to government hospitals that lack such facilities. Lawson helped set up the DOTS programme in Abuja in 2003, and has since maintained a close relationship with the National TB and Leprosy Control Programme through the private-public mix DOTS programme.

Because the laboratory is privately run, Lawson said it is more difficult to attract funding as most donors prefer to work with government partners: “That has been a major problem; Zankli Medical Centre has been responsible for equipping and furnishing the laboratory, and this has been demanding financially.”

The laboratory was involved in a large TB-micronutrient clinical trial that screened over 1300 suspected TB patients within a year. It has collaborated with Nigeria's National

Institute for Pharmaceutical Research Development and Institute of Human Virology, and continues to collaborate closely with the Liverpool School of Tropical Medicine and Michigan State University.

The laboratory is one of three sites involved in a CDC-sponsored national survey into multidrug-resistant tuberculosis (MDR-TB) in Nigeria, which has little reliable information on the extent of the problem. As much work remains to be done on MDR-TB diagnosis and treatment, Lawson termed the country's attempts to obtain approved second-line drugs for its treatment "a welcomed development."

Lawson is passionate about improving training standards to better equip Nigeria to cope with serious diseases. To this end, he set up the Succour Foundation in 2008 to aid patients suffering from TB, HIV and malaria. Lawson additionally serves as a part-time senior lecturer in the College of Basic Sciences community health department at the University of Abuja, and as a visiting associate professor at the new Bingham University near Abuja.

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