

DELIVERING EFFECTIVE HEALTHCARE: EMERGING EVIDENCE AND EXPERIENCES FROM THE FIELD

ZAMBART RESEARCH BRIEFING



Zambart Project

CONTRIBUTING TO EVOLVING TB CONTROL STRATEGIES: RESEARCH TO INFLUENCE POLICY AND PRACTICE



Since 1990 global TB incidence has been on the rise and progress towards TB-related goals, including the Millennium Development target “halted... and begun to reverse the incidence of TB”, has proved slowⁱ. The global expansion of the international TB control strategy DOTS has demonstrated that successful treatments exist for TB, yet these initiatives have failed to have a significant impact on TB transmission and incidenceⁱⁱ. In Southern Africa, failure of existing initiatives is largely the result of the converging TB/HIV epidemic, with HIV infection increasing the cases of TB, and TB acting as a leading cause of mortality amongst people living with HIV. This convergence is not only limiting the impact of TB and HIV control efforts, it is also placing an increased burden on already overstretched health systems, further limiting their ability to deliver effective services for these and other diseases.

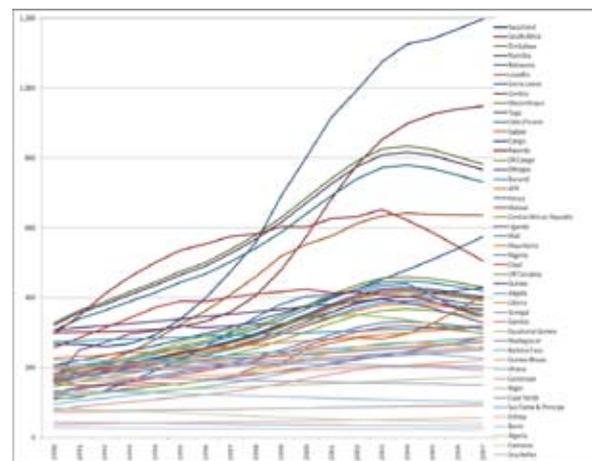
Helping to bring TB control into the 21st century

In Zambia, where HIV prevalence amongst adults is 17%, TB notification rates have increased markedly in the last 20 years, largely the result of HIVⁱⁱⁱ. Zambia has the seventh highest TB/HIV co-infection prevalence rate in the world: of newly diagnosed TB cases, 70% are co-infected with HIV. Zambia is therefore experiencing a growing co-infection epidemic that is hampering existing TB control efforts. To control TB and HIV in the era of converging epidemics, TB control strategies and HIV care and treatment strategies are being revised and updated. Amongst these are the WHO Stop TB Strategy and the WHO Interim Policy on collaborative TB/HIV activities and the WHO 3i's policy for the delivery of TB and HIV care and treatment.

The Zambia AIDS related tuberculosis (ZAMBART) project, an internationally recognised Zambian TB/HIV research NGO, has been actively involved in the research and consultations that supported the adaptation of these TB control policies. Although policies are influenced by a wide sphere of stakeholders, ZAMBART has a strong track record for influencing national and international policy and is confident that previous and ongoing research has helped shape some of the TB and HIV-related recommendations currently being advocated. The research featured in this

briefing illustrates some of the ways in which ZAMBART's work is contributing to the evolution of TB control strategies and adapting to changes in public health needs.

The burden of TB in Africa, 1990 - 2007



Bridging the gap between policy and practice

Liquid Culture for TB Diagnosis in Resource-Poor Settings

Resource-poor settings rely heavily on sputum microscopy for TB diagnosis. This technique is known to perform poorly as it has low sensitivity, particularly in high HIV prevalence settings, however more sensitive alternatives are not readily available^{iv}. The growing burden of undiagnosed TB has led to the need for prompt diagnosis and effective treatment. Consequently, the WHO Stop TB department has endorsed the recommendation that resource-poor settings opt for liquid culture system alternatives, including the Mycobacteria Growth Indicator Tube (MGIT). MGIT is a more sensitive and quicker culture method, albeit more expensive, hence its use is limited to resource-rich countries^v. With a severe lack of literature on the use of this system in resource-limited settings, ZAMBART has provided the majority of data in this setting. Through demonstration projects in the Zambian National Reference Laboratory, research in a resource-poor setting highlighted the superiority and cost-efficacy of the MGIT culture system^{iv,v}

The success of these demonstrations led the WHO Strategic and Technical Advisory Group to endorse the use of liquid culture for TB diagnosis within similar settings.



Documenting and processing samples in the lab



ZAMBART is building laboratory capacity in Zambia

In response to the dual epidemic, which is of major public health concern, the WHO Stop TB and HIV/AIDS departments have developed twelve TB/HIV collaborative activities. Included in these activities are the Three I's: Intensified case-finding (ICF); Isoniazid preventive therapy (IPT) and TB Infection control. These three strategies aim to reduce the burden of TB in people living with HIV. Lessons learned from DFID-funded projects conducted by ZAMBART researchers are recognised as having a pivotal role in shaping the WHO interim policy on TB-HIV collaborative activities.

ZAMBART research impact on policies for the control of TB-HIV

- Early trials funded by DFID and the WHO demonstrated the effectiveness of IPT for TB in people living with HIV in Zambia^{vi}
- ProTEST: the promotion of voluntary testing as an entry point for access to the core interventions of ICF and IPT. Under this initiative, HIV voluntary counselling and testing services provided ICF for TB and IPT for people without active TB. The initiative aimed to facilitate referral and provided an opportunity to improve the quality of services^{vii}
- The absence of clear guidance on how to screen people living with HIV to rule out active TB has created a major barrier in the provision of IPT by implementers. To inform the best screening algorithm for TB, ZAMBART contributed individual data for over 8,000 people to a primary meta-analysis. This has recently been adopted in the new WHO "Intensive case finding and isoniazid preventive therapy for TB for people living with HIV in resource constrained settings"

Enhanced Case Finding: assessing the prevalence of TB

The true burden of prevalent TB remains undefined in many poor countries as cases of TB remain undiagnosed, spreading infection in their communities. The Stop TB Partnership's original strategy consisted of one element: DOTS, which integrates government commitment, microscopy for diagnosis, uninterrupted drug supply, and standardised and supervised treatment^{viii}. The revised strategy acknowledges the importance of DOTS, however it also recognises that its impact on TB has been limited, and therefore incorporates five additional key elements. The fifth element of the strategy highlights the role of community engagement in interrupting TB transmission: "Engage people with TB and affected communities to demand, and contribute to, effective care". ZAMBART research has not only helped define the true burden of TB within communities in its operational sites, it has also illustrated the benefits of enhanced TB case finding over passive case finding:

- The ZAMSTAR study team conducted a large population-based study in South Africa and Zambia, which highlighted the levels of undiagnosed infectious TB in communities in Zambia^x and a high number of TB suspects in South Africa and Zambia with a chronic cough failing to seek care at their local health facility, with those who did access their local facility receiving inadequate investigation
- Evaluation of ECF interventions, designed to remove barriers to TB services, in ZAMBART's operational sites has indicated the relevance of this strategy in early detection of undiagnosed TB in HIV settings, with findings illustrating a high proportion of TB cases found as a result of ECF
- Included in the ZAMBART ECF intervention is a strong focus on community engagement and mobilisation to generate awareness, knowledge and encourage demand for effective TB diagnostic and treatment services from local health facilities



Record keeping in Kabwe



PDA's being used during ZAMSTAR prevalence surveys



ECF in Ndola

i <http://www.un.org/millenniumgoals/aids.shtml>

ii The Global Plan to Stop TB. 2006 – 2015: Actions for life towards a world free of tuberculosis. WHO Stop TB Strategy.

iii USAID. Infectious Disease: Tuberculosis. Country Profile: Zambia. http://www.usaid.gov/our_work/global_health/id/tuberculosis/countries/africa/zambia_profile.html

iv Muyoyeta M, Schaao A, De Haas P, et al. Comparison of four culture systems for mycobacterium tuberculosis in the Zambian National Reference Laboratory. *International Journal of Tuberculosis and Lung Disease*. 2009; 13(4): 460-465

v Mueller DH, Mwenge L, Muyoyeta M et al. Costs and cost-effectiveness of tuberculosis cultures using solid and liquid media in a developing country. *Int J Tuberc Lung Dis*. 2008;12:1196-202

vi Quigley MA, Mwinga A, Hosp M, et al. Long-term effect of preventive therapy for tuberculosis in a cohort of HIV-infected Zambian adults. *AIDS*. 2001;15:215-22

vii Godfrey-Fausset P, Maher D, Mukadi Y et al. How human immunodeficiency virus voluntary testing can contribute to tuberculosis control. *Bull of the World Health Organization*. 2002; 80: 939-945

viii Ravigione M, Uplekar M. WHO's new Stop TB Strategy. *The Lancet*, 2006; 367: 9514, 952-955

ix Ayles H, Schaap A, Nota A et al Prevalence of tuberculosis, HIV and respiratory symptoms in two Zambian communities: implications for tuberculosis control in the era of HIV. *PLoS One*. 2009. 4 (5): e5602

IMPLICATIONS FOR POLICY AND PRACTICE

Despite the contribution of the DOTS strategy in the control of TB, progress towards achieving the TB-related Millennium Development Goals and the Stop TB partnership targets has been slow, leading to a growing consensus that DOTS alone will not suffice, particularly in high HIV prevalence settings. TB control strategies are thus being revised and updated to incorporate the DOTS strategy but also to build upon it. ZAMBART has consistently provided high quality evidence-based research that addresses relevant, priority questions in the field of TB and HIV. ZAMBART is actively involved in regional and international research consortia and collaborates closely with government, non-governmental and academic institutions within Zambia, Africa and internationally. In addition, ZAMBART representatives sit on WHO TB/HIV working groups and have assisted in the writing of WHO technical guidelines and policy documents. In consistently delivering research of the highest international quality in the field of TB and HIV, ZAMBART is confident that it has helped shape current TB/HIV control strategies.

ZAMBART's work extends from households to policy meetings



About ZAMBART and TARGETS

The Zambia AIDS Related Tuberculosis (ZAMBART) Project is a Zambian NGO. ZAMBART was formed in 2004 through a collaboration between the University of Zambia's School of Medicine and the London School of Hygiene and Tropical Medicine (LSHTM), which spans more than 20 years. From the initial studies of the impact of HIV on the clinical presentation and outcome of tuberculosis, the scope of the research and the partnerships involved have expanded widely. Based in Lusaka, ZAMBART now collaborates closely with government, non-governmental and academic institutions within Zambia, Africa and the rest of the world. ZAMBART staff form an interdisciplinary team with a range of expertise including epidemiology, clinical science, social science, laboratory, operations research, health systems and services research, health policy analysis, health economics, development communication and counselling.

ZAMBART focuses on the overlap between HIV and TB in order to improve the quality of life of people affected by the dual epidemic. Conducting research within a limited resource setting, ZAMBART is committed to:

- Bridging research and action through operational research and through forging effective collaboration with local stakeholders;
- Providing evidence-based and high quality research;
- Addressing relevant and priority questions;
- Capacity building for Zambian research - scientific and managerial

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ZAMBART is a core member of The Team for Applied Research Generating Effective Tools and Strategies for Communicable Disease Control (TARGETS) led by LSHTM. TARGETS is a Research Programme Consortium funded by the UK Department for International Development (DFID). The Consortium brings together partners in Sub-Saharan Africa, India and Europe working towards better health for the poor and vulnerable through more effective communicable disease control.

www.target consortium.org



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DFID Department for International Development