An introduction to TB-HIV Collaborative activities in India

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Background

As per the Human Immunodeficiency Virus (HIV) Sentinel surveillance report, 2007, of the National AIDS Control Organization (NACO), it is estimated that about 2.31 million people in India are infected with HIV[1]. Assuming that about 40% of them are also infected with *M.tuberculosis (M.tb)*, an estimated 1 million people are dually infected with Tuberculosis (TB) and HIV. The seroprevalence of HIV infection among TB patients in India is estimated to be about 6.7%[2]. The potent synergy between TB & HIV tuberculosis epidemics cannot be over emphasized as HIV is the most powerful risk factor for the progression of TB infection to TB disease and TB is the commonest opportunistic infection amongst HIV-infected individuals. The primary impact of HIV on TB is that the risk of developing TB is higher in patients with HIV and it increases as HIV disease progresses and CD4 cell counts decrease. Also, TB is the leading cause of death in People living with HIV/AIDS (PLHA).Furthermore, episodes of recurrent TB is high among cured TB cases infected with HIV. Hence, it is imperative that Revised National Tuberculosis Control Programme (RNTCP) and National AIDS Control Programme (NACP) work closely together to articulate policies for strengthening TB/HIV collaborative activities to reduce the burden of both TB and HIV in India.

A joint action plan on TB-HIV collaborative activities was drafted by programme managers from Central TB Division (CTD) and NACO in the year 2001 and was implemented in six states with high prevalence of HIV, namely, Andhra Pradesh, Karnataka, Maharashtra, Manipur, Nagaland and Tamil Nadu. In the year 2004, the collaborative activities were extended to eight additional states - Delhi, Gujarat, Himachal Pradesh, Kerala, Orissa, Punjab, Rajasthan and West Bengal. Subsequently, in 2007, the joint action plan on TB-HIV collaborative activities was replaced with the National Framework for joint TB-HIV collaborative activities and was to be implemented nation-wide as an integral component of NACP phase III and RNTCP phase II activities. The National Framework for the collaborative activities was revised in 2008 and subsequently again in 2009 to make the TB/HIV activities more comprehensive. Meanwhile, in 2005 training modules on TB/HIV for Medical Officers, Senior Tuberculosis Treatment Supervisors (STS) & Senior Tuberculosis Laboratory Supervisors (STLS) and Integrated Counseling Testing Counselors (ICTC) were drafted jointly by officials from CTD and NACO. These modules are currently under revision to accommodate updates.

HIV sero-prevalence among TB patients

HIV surveillance among TB patients facilitates the planning of collaborative activities between the RNTCP and NACP.Furthermore, surveillance provides information necessary to monitor the impact of the collaborative activities. Though several studies had been undertaken since the late 1980s to estimate the sero-prevalance of HIV among TB patients attending tertiary health care

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Institutions, their results are not reflective of the magnitude of the co-infection in the community. The first study to estimate the prevalence of HIV infection among pulmonary TB patients taking into account all the Designated Microscopic Centres (DMCs) in a district in the sampling frame was undertaken by National Tuberculosis Institute, Bangalore in 2005 in Mandya district of Karnataka. The sero-prevalence of HIV infection among new smear positive pulmonary TB cases was estimated to be 4.6%[3].

In 2005-06, CTD and NACO had conducted a survey on the prevalence of HIV infection among TB patients put on DOTS in four districts (Davanagere, Guntur, Nasik and Tiruvannamalai) having high HIV prevalence. As per the survey reports, the prevalence of HIV varied widely from 4.25% in Nasik to 16% in Guntur. The survey was subsequently repeated in 15 randomly selected districts (which included the four districts surveyed in 2005-06) in the year 2006-07. It was observed that the HIV sero-prevalence among TB patients ranged from 1% in Koch Bihar to 13.8% in Guntur (see figure 1)[4]. The data from both the surveys revealed that HIV infection among TB patients was high in districts where the HIV prevalence was high in the general population. HIV sero-prevalence in TB patients was highest in the age group 25-44 years and was higher among males compared to females. Also the prevalence of HIV was significantly higher among smear negative and extra pulmonary TB cases compared to sputum smear positive pulmonary TB cases. Furthermore, comparison of the HIV prevalence among TB patients from the data of the surveys conducted in the districts of Davanagere, Guntur, Nasik and Tiruvannamalai revealed that there was no statistically significant difference ,thereby indicating the stability of the HIV epidemic in India (see figure 2).

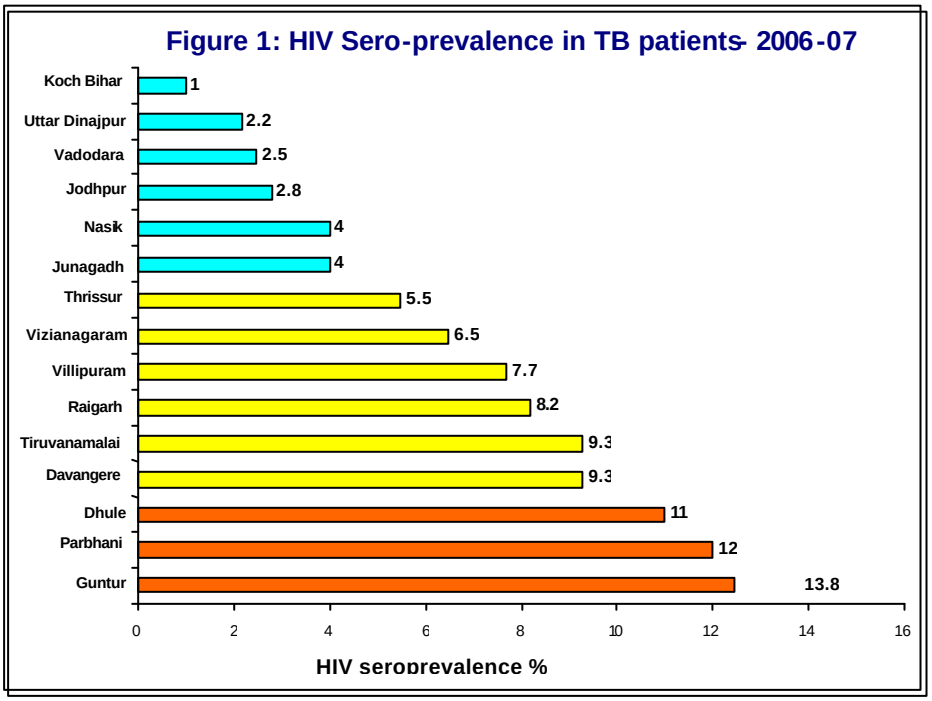
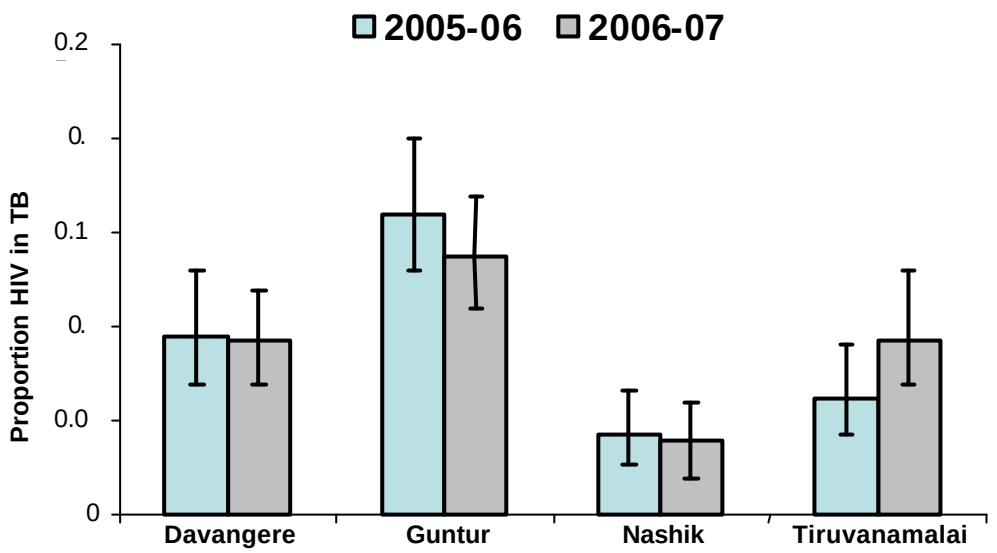


Figure 2: Comparison of HIV sero-prevalence in TB patients in 4 districts



Policy on referral of TB patients for HIV testing

It is to be emphasized that HIV testing is a voluntary procedure and not a mandatory one. Patients not willing for HIV testing or sharing their HIV test result should not be forced to take the test or disclose information pertaining to their HIV status. It is important that patients with tuberculosis be provided the opportunity to know their HIV status as it would facilitate appropriate HIV care interventions such as Co-trimoxazole Prophylactic Treatment (CPT) and Anti-retroviral Therapy (ART) which would reduce suffering and death.

The diversity in the HIV sero-prevelance among TB patients, calls for different strategies to be employed within the country regarding the referral of TB patients to ICTCs for HIV testing to ensure early diagnosis and treatment of the dually infected. Five percent is the threshold at which WHO has recommended intensified interventions to address TB-HIV, including Provider Initiated Testing and Counseling (PITC) of TB patients. Hence in the states having high HIV prevalence, RNTCP has adopted the policy of offering HIV testing at the Integrated Counseling and Testing Centres (ICTCs) for all TB patients as a part of intensified package of TB/HIV services. The intensified package includes referral of HIV infected TB patients to ART centres after about two weeks of DOTS and also to provide them with CPT. The reporting formats under RNTCP namely, TB identity card, treatment card, TB register and quarterly reports have been suitably modified to provide data on TB/HIV. The states offering the intensified TB-HIV package are Andhra Pradesh, Karnataka, Maharashtra, Gujarat, Tamil Nadu, Puducherry, Goa, Nagaland, Manipur, Mizoram and Delhi. The expansion of the intensified TB-HIV package to the other states would be undertaken in a phased manner, jointly determined by RNTCP and NACP to cover the entire country by 2012.

The feasibility, effectiveness, and impact of Provider-Initiated HIV Testing and Counseling of TB patients under RNTCP setting in Mysore and Tiruchirapalli districts undertaken by National Tuberculosis Institute, Bangalore and Tuberculosis Research Centre , Chennai suggested that referrals for HIV testing were efficiently conducted and there was no adverse impact on TB case finding indicators due to the referrals[5]

In areas of low HIV prevalence, where more than 95% of TB patients are HIV negative, the policy of PITC may generate substantial operational difficulties. Until HIV testing services are made available at the sub-district level to match the widespread availability of tuberculosis control services, the preferable option in these settings is selective referral of TB patients for HIV testing, based on risk factors for HIV or clinical evidence of HIV infection.

Progress of TB/HIV interventions in India

The CTD and NACO have drafted the National framework for joint TB/HIV Collaborative activities to reduce the burden of TB and HIV in India[6]. The progress made in TB/HIV collaborative activities is summarized as under:

WHO recommended TB/HIV interventions	TB/HIV Activities in India
A. Establish the mechanism for collaboration	
A.1 Set up a coordinating body for TB/HIV activities effective at all levels	Ongoing though completed in most states.
A.2 Conduct surveillance of HIV prevalence among tuberculosis patients	Ongoing
A.3 Carry out joint TB/HIV planning	Ongoing
A.4 Conduct Monitoring and Evaluation	Ongoing
B. Decrease the burden of HIV in tuberculosis patients	
C.1 Provide HIV testing and counseling	Ongoing at ICTCs (NACO)
C.2 Introduce HIV prevention methods	Ongoing (NACO)
C.3 Introduce cotrimoxazole Preventive Therapy	Ongoing
C.4 Ensure HIV/AIDS care and support	Ongoing (at NACO ART Centres)

C.5 Introduce antiretroviral therapy Ongoing (at NACO ART Centres)

Guidelines of NACO for instituting ART in TB-HIV co-infected patients[7]

If a patient with active TB is diagnosed with HIV and requires ART, the first priority is to start TB treatment in accordance with RNTCP guidelines. The patients could be started on ART subsequently.

NACO recommends that ART be given to all patients with extra-pulmonary TB (WHO clinical stage 4) and pulmonary TB patients (WHO clinical stage 3) with CD4 count is < 350 cells/mm3. Co-management of patients with TB and HIV is complicated by drug interactions between Rifampicin and Non-Nucleoside Reverse Transcriptase Inhibitors (NNTRIs) and Protease Inhibitors (PIs); Immune Reconstitution Inflammatory Syndrome (IRIS); polypharmacy; adherence issues and drug toxicity. With due consideration to the above ART can be initiated after 2 weeks of starting DOTS as soon as it is tolerated. If a patient already on ART is to be started on DOTS, the ART is suitably modified by replacing Nevirepine with Efavirenz and switching back to Neviripine after the conclusion of TB treatment.

In patients requiring second line ART or alternate first line with a protease inhibiter based regimen, RNTCP would be procuring Rifabutin (150mg) as substitution for Rifampicin as it is a less potent inducer of hepatic enzymes as compared to Rifampicin while being equally safe and effective.

Likely impact of HIV on TB in India

RNTCP is expected to bring about substantial reductions in prevalence (by 68%), incidence (by 41%), and mortality (by 39%) due to TB in the year 2015 compared to the 1990 baseline level. However, to ensure that TB mortality is reduced by 50% or more by 2015, in consonance with the Millennium Development Goal (MDG) for TB in India, HIV-infected TB patients should be provided with CPT and antiretroviral therapy in addition to DOTS[8]. Hence it is important to ascertain the HIV status of all TB patients to provide them optimal care.

A substantial degree of progress in TB-HIV collaborative activities has been achieved over the last couple of years - but concerted efforts are required to sustain the momentum.

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