

Tuberculosis-HIV epidemic situation and emerging challenges in North India

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Tuberculosis (TB) is major public health problem globally and ranks along with Human Immunodeficiency Virus (HIV) as a leading cause of death worldwide. In the year 2014, 9.6 million people were estimated to develop TB world wide, of which 1.2 million (12%) were HIV positive: 1.5 million deaths were estimated due to TB, of which 0.4 million deaths were among HIV positive¹. HIV has worsened the tuberculosis epidemic globally and especially in Africa—in some sub-Saharan African countries, up to 70% of people with tuberculosis are also HIV positive . Multidrug- resistant(MDR) and Extensively drug-resistant tuberculosis(XDR-TB)have exacerbated the problem of TB and HIV .Globally, the proportion of TB patients who died during treatment remained more than three times higher among HIV-positive TB patients (11% versus 3.5%). Overall, the treatment success rate in 2013 was low for HIV positive TB patients (73%) compared with HIV-negative TB patients (88%).In India ,the treatment success in 2013 cohort for all HIV infected New TB cases was 79% with 13% death rate as compared to 88% success rate and 2% death rate in HIV negative TB cases²

Globally in 2014, 1,23,000 patients with Multi drug-resistant or rifampicin resistant tuberculosis (RR-TB) were notified, of whom about 75% were from the European Region, India, South Africa, China. MDR -TB and XDR TB poses a major threat to TB control in India and this may adversely affect the outcomes among PLHIV with Drug resistant TB(DRTB).

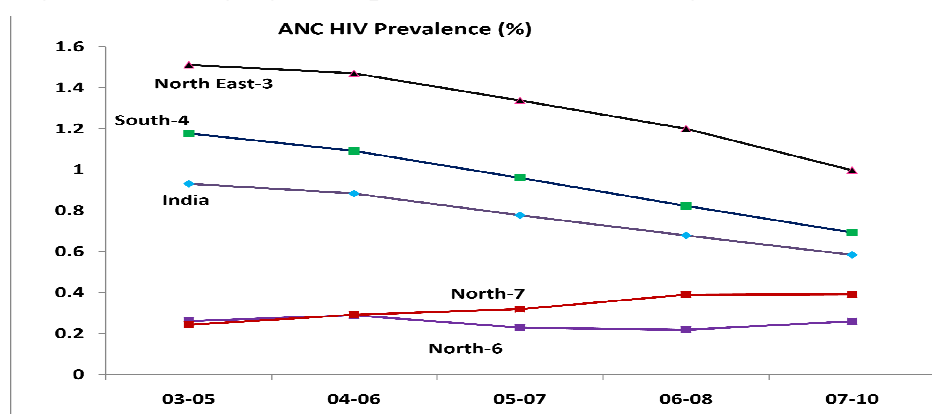
India is high Tuberculosis (TB) burden country in the world with an estimated 2.2 million new TB cases occurring annually. While the progress on TB control in India has been remarkable in recent years, several challenges are emerging.

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India also has the third highest number of estimated people living with HIV in the world. The HIV epidemic in India is concentrated among High Risk Groups (HRGs) and is heterogeneous in its distribution. India has demonstrated an overall reduction of 32% in the annual new HIV infections among adult population from 1.284 lakh in 2007 to 86 thousand in 2015, reflecting the successful implementation of strategies and interventions under National AIDS Control Programme (NACP).

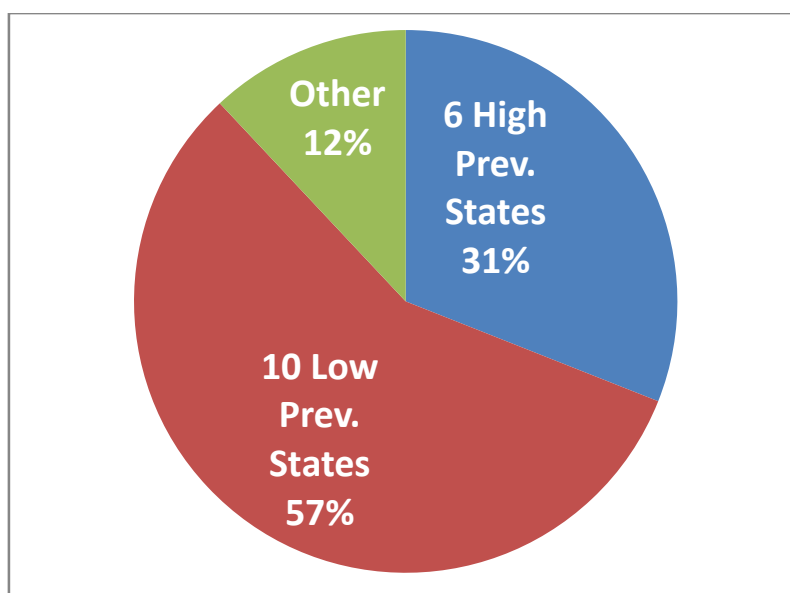
National AIDS Control organisation (NACO) has been monitoring levels and trends of HIV among different population groups in India through the HIV Sentinel Surveillance System since 1998. According to HSS 2012-2013, an overall decline in HIV prevalence among Anti Natal Care (ANC) attendees (considered proxy for prevalence among General Population) was noted at national level as well as in the erstwhile high prevalence States (Andhra Pradesh, Karnataka, Maharashtra, Manipur, Nagaland and Tamil Nadu). All States have shown an average of less than 1% HIV prevalence among ANC attendees. However, sitewise analysis reveals that some moderate/low prevalence States like Arunachal Pradesh, Bihar, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Meghalaya, Odisha, Rajasthan, Uttar Pradesh, Uttarakhand and West Bengal, have ANC sentinel sites with more than 1% HIV prevalence [FIG 1]. In addition, it is noteworthy that rising trends in HIV prevalence among ANC attendees have been observed in many moderate and low prevalence States [FIG 2]. These findings warrant a need for better understanding of the drivers of the HIV epidemic in States showing rising trends³.

Figure 1: Changing HIV epidemic trends and regional variations in India



Source: NACO HIV Sentinel Surveillance 2010-11 & HIV Estimations 2012

**Figure 2: Regional Distribution of estimated
New HIV Infections (2011) in India**



Source: NACO HIV Sentinel Surveillance 2010-11 & HIV Estimations 2012

According to the HIV Estimations 2015, the estimated number of people living with HIV/AIDS in India was 21.17 lakh, with an estimated adult (15-49 age group) HIV prevalence of 0.26% in 2015⁴.

Although overall trends of HIV depict a declining epidemic at national level, regional variations are existing with some new emerging pockets. The vulnerabilities that drive the epidemic are different in different parts of the country.

In some of the North Western States, Injecting Drug Use (IDU) has been identified to be the major vulnerability fuelling the epidemic. Stable trends have been recorded among Injecting Drug Users at national level (7.23% in 2007 to 7.14% in 2011). Besides North Eastern States where declines have been achieved, newer pockets of high HIV prevalence among IDU have emerged over the past few years in the States of Punjab, Chandigarh, Delhi, Mumbai, Kerala, Odisha, Madhya Pradesh, Uttar Pradesh, and Bihar. Rising trends in some low prevalence States points towards the possible role of out-migration from these

States to high prevalence destinations. Low levels of HIV among high risk groups in these out-migrant districts, large volume of out-migration from rural areas to high prevalence urban areas, higher HIV prevalence among ANC attendees in rural than urban population and higher prevalence among pregnant women with migrant spouses noted in these States . In addition, high vulnerability is also seen in long distance truckers.

These changing epidemiological scenario and drivers of HIV epidemic warrant attention for TB-HIV situation in India. India has second highest burden of TB-HIV coinfection in world after South Africa. High mortality among co-infected patients, emergence of MDR-TB and XDR-TB are major challenges for TB-HIV response in India.

Although the coordination activities by Revised National TB Control Program (RNTCP) and National AIDS Control Program (NACP) have demonstrated considerable success, intensified efforts are required in the changing epidemic scenario.

The HIV TB response has been stronger in the erstwhile six high burden states like Andhra Pradesh including Telangana, Maharashtra, Karnataka, Tamil Nadu, Manipur, and Nagaland, as the HIV-TB collaborative activities were initiated in these states in 2001 and subsequently scaled up in other parts of country⁵.

Considering the epidemic situation in these states, the NACP in its earlier phases (Phase I-III) had more testing facilities and care support and treatment centres in these states. There is wide infrastructure gap for District AIDS Control and prevention units (DAPCUs), HIV testing and treatment services in new emerging pockets in northern India as compared to the erstwhile high burden states.

Table 1: Facilities for TB and HIV in erstwhile Six high burden states and in emerging HIV rising incidence states of India

Facilities	Total number In India	No (%) in erstwhile six high HIV prevalence states (TamilNadu,Karnataka,Maharashtra,AndhraPradesh (InclTelangana),Manipur, Nagaland)	No (%) in states with rising trends in HIV prevalence(13) (Arunachal Pradesh, Bihar, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Meghalaya, Odisha, Rajasthan, Uttar Pradesh, Uttarakhand and West Bengal
Designated microscopy centres (DMC)	13583	4011 (30%)	7327 (54%)
Stand-alone ICTC	4508	2477 (55%)	2057 (45%)
F-ICTC(Facility Integrated ICTCs)	13621	8112(60%)	4448 (33%)
ART centres	516	137 (26%)	160 (31%)
DAPCUs	188	124(66%)	49(26%)

Comparatively the diagnostic and treatment facilities of RNTCP are decentralised; still the co-location of HIV testing and Microscopic centres for TB diagnosis in health facilities is less.

This reduces the opportunity for increasing the testing coverage in the northern India as compared to the southern states where the co-location of both these facilities is more than 90%.The coordination mechanisms at various levels ,training status ,supervision, monitoring mechanisms in the northern states needs more attention .

As TB epidemiological situation in northern states is different from other states and considering the drivers for HIV epidemic like migration, IDUs an in-depth epidemiological investigation regarding TB-HIV situation of emerging pockets will help the program to strengthen the TB-HIV response. Accelerating the scale-up of detection using newer rapid diagnostics like Cartridge Based Nucleic Acid Amplification Test (CBNAAT) and early linkage to anti TB, drug-resistant TB treatment, ART for people with HIV needs priority. Decentralised HIV testing services and TB /DRTB diagnosis will be key to early diagnosis and linkage for treatment.

In many states of Northern India, HIV testing rates among TB patients and Tuberculosis screening among people with HIV infection remains below national average. Several urgent actions are therefore needed to promote rapid scale-up of effective and integrated services for tuberculosis and HIV in north India and to tackle the factors that increase vulnerability and put people at risk of HIV-related tuberculosis.

India is moving forward to achieve the global targets as per the END TB Strategy, however- sustaining prevention focus and intensity in the areas where significant declines have been achieved, is highly critical to consolidate the gains while effectively addressing the emerging epidemics. Major challenge for the programme will be to address diagnostic gap, ensure early treatment initiation and addressing the needs of prevention. Government has taken cognisance of these emerging challenges and has focused on region specific strategies and evidence-based scale-up of prevention as well as treatment interventions.

Despite remarkable progress in the individual fields of tuberculosis and HIV programming, the emerging challenges in TB- HIV in northern India deserve further attention.

A comprehensive action plan for Northern India, ensuring optimum use of available resources and a timely and effective response to the rapidly evolving epidemics is essential. Moreover, health-system strengthening ,alternative HIV testing approaches to increase screening and treatment facilities with stronger integration of tuberculosis and HIV services in northern India .Sustained funding commitment and stronger private sector engagement is also necessary in responding to changing epidemiological scenario.

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