

### 3 TB AND HIV

#### a Microbiologically Confirmed Pulmonary Tuberculosis Incidence Trends in South Africa: 2004-2012

South Africa has one of the highest estimated annual incidences of pulmonary tuberculosis (TB) with an estimated 500 000 new cases a year. HIV infection has contributed to this burden – as many as 70% of TB cases are co-infected with HIV. Despite the scale of this public health problem, there has been no published data on national or sub-national trends of microbiologically-confirmed pulmonary tuberculosis (mPTB).

In a recent paper published in *The Lancet Infectious Diseases* Journal, the Centre for Tuberculosis in collaboration with NHLS Corporate Data Warehouse, reviewed and analysed all mPTB cases of TB diagnosed between 2004 and 2012. The analysis assessed the incidence of TB at the national and provincial level using available population data and specific definitions of 'an episode of TB'. Trends were analysed and compared with TB testing rates, HIV prevalence, ART scale-up and cases notified through the electronic TB databases (ETD) over the study period.

During the 9-year period, 3,523,371 cases of microbiologically-confirmed pulmonary tuberculosis were recorded nationally. Annual incidence (per 100,000 population) increased from 650 (95% CI 648–652) in 2004 to 848 (845–850) in 2008, declining to 774 (771–776) by 2012. There was a 9% decline between the peak and 2012. The highest incidence recorded was in males between the age of 25 and 44 years of age with an incidence 1,517/100,000 people in 2008 which has declined to 1,256/100,000 in 2012. This age group also has the highest prevalence of HIV.

Sub-national data reveal that these trends persist in different parts of the country with the TB epidemic peaking earlier in some provinces and later in others, depending on the rate of expansion of ART coverage (Figure 7). In KwaZulu-Natal Province, declines started only in 2011 compared to Western Cape Province which showed the earliest declines in 2006. The largest declines occurred approximately four years after the largest rates of increases in ART coverage. Although the declines are positive evidence of a turn-around, the overall incidence rates are still exceedingly high.

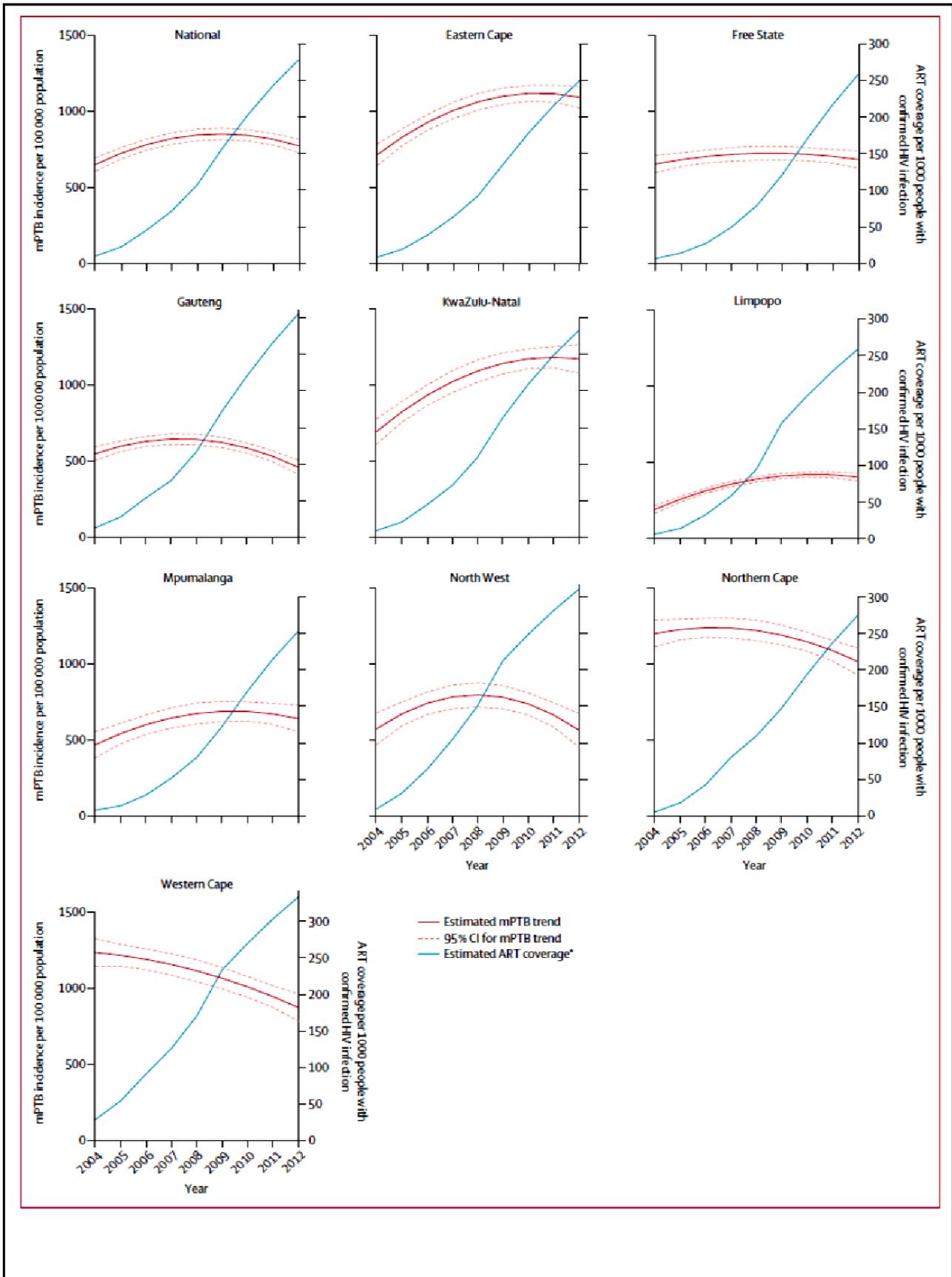
While the trends in cases registered for treatment recorded in the ETD mirrored the trends in mPTB incidence, a clear gap was observed between cases diagnosed and those recorded as being on treatment. As many as 33% of people diagnosed with TB in 2006 were not registered on treatment that year; although this decreased over time, the figure remains high, at 20% in 2012. Thus there is a lot more that needs to be done. Health systems strengthening and other interventions need to be targeted to close the gaps, but these interventions need to be informed by robust surveillance. The work presented represents a landmark as it signals the establishment of a national microbiologically-confirmed TB surveillance platform and the first time that such data have been published for South Africa.

The World Health Organization has set ambitious targets as part of the post-2015 End TB Strategy, requiring countries to reduce TB incidence rates dramatically. Our positive findings demonstrate the important spin-offs of HIV control on TB incidence. However this needs to be accelerated to reach a stage where the risk of TB amongst HIV-positive persons is controlled through global provision of anti-retroviral therapy. Secondly, the gap between diagnosis and treatment needs to be closed. Diagnosed but untreated TB is more common than appreciated and needs to be urgently addressed. Lastly, variation between and within provinces is wide, highlighting the need for targeted interventions to ensure resources are effectively utilized to End TB.

#### Reference

Nanoo A, Izu A, Ismail NA, Ihekweazu C, Abubakar I, Mamejia D and Madhi SA. Nationwide and regional incidence of microbiologically confirmed pulmonary tuberculosis in South Africa, 2004–12: a time series analysis. *Lancet Infect Dis* 2015; published online June 23. [http://dx.doi.org/10.1016/S1473-3099\(15\)00147-4](http://dx.doi.org/10.1016/S1473-3099(15)00147-4).

**Source:** Centre for TB, NICD-NHLS



**Figure 7. Incidence of microbiologically confirmed pulmonary tuberculosis (per 100,000 population) and anti-retroviral therapy coverage rates in people with HIV infection in South Africa, nationally and provincially from 2004-2012 (based on data from the Actuarial Society of South Africa 2008 model)**