

SHORT REPORT

**Estimation of disease burden due to tuberculosis (TB) in Insein Township, Yangon**

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Tuberculosis kills 5,000 people a day and between 2 and 3 million people each year, 98% of whom live in the developing world. This communicable disease continues to be a major public health problem in Myanmar because of its high morbidity and mortality. World Health Organization estimates that 80% of all TB cases are found in 22 countries and Myanmar, one of the high burden countries in South East Asia [1]. Global Burden of Disease study, conducted by the Harvard School of Public Health in collaboration with WHO and the World Bank, has introduced a new epidemiological metric - the disability adjusted life years (DALYs) – to quantify the burden of disease. The DALYs is a health gap measure that combines both time lost due to premature mortality and non-fatal health conditions. Information on disease burden of TB is necessary for program planners to effectively manage resources, and to measure the long-term impact of TB control activities [2, 3].

The general objective of the study was to quantify the burden of premature mortality and disability due to TB by age and sex. Data sources used for analysis were: case notification at the township level, data on prevalence of pulmonary TB from prevalence survey 2006 carried out by National TB Program and township vital registrations.

Insein Township was selected for estimation of TB disease burden since it was one of the townships with high case detection rate (87%) in 2006 [4]. It had a population of 236,062 (according to township records) with 1,255 total registered TB cases in 2006.

There were altogether 21 wards. Urban health facilities included 3 hospitals, township health centers, MCH center and private clinics. The study population consisted of TB patients of all ages and both sexes in Insein Township in 2006. Disability weights for TB used in this study were based on Global Burden of Disease 2000 study. Estimates of TB incidence were derived from the prevalence data of TB disease prevalence survey 2006. Active pulmonary TB cases were defined as sputum smear positive or culture positive or chest X-ray positive. The average case duration of one year for developing countries practicing DOTS strategy was applied, as defined in the Global TB Control 2007.

We used the global burden of disease study (GBD) calculation templates for estimations of years lived with disability (YLD), years of life lost due to TB (YLL) and DALYs [5]. The YLD was worked out by multiplying the number of incidence cases, disability weight and average duration of case (in years) until remission or death [6]. Incidence per 1000 population was 124 (male) and 77.5 (female) and disability weight was 0.27. Taking these measures into account, YLD per 1000 population turned out to be 35.2 in males and 20.4 in females. The YLL was calculated from life table analysis of 5 yrs age group directly from the mortality and population of the township. The formula is:

$$YLL = N \times L$$

(N= number of death, L= standard life expectancy at the age at which death occurs)

Table1. Estimation of DALYs by age and sex in Insein Township, 2006 (Total DALYs = YLL+YLD)

Age (Year)	Male			Female			Persons		
	Population	DALYs	DALYs per 1000	Population	DALYs	DALYs per 1000	Population	DALYs	DALYs per 1000
0-4	9811	-	-	10310	30	2.9	20121	30	1.5
5-14	21092	309	14.7	22352	258	11.5	43444	567	13.1
15-29	23759	1062	44.7	24956	1164	46.6	48715	2226	45.7
30-44	22765	2831	124.4	23662	1286	54.4	46427	4117	88.7
45-59	21850	1707	78.1	23132	1041	45.0	44982	2747	61.1
60-69	9290	829	89.2	9904	403	40.7	19194	1231	64.1
70-79	5100	485	95.1	5533	177	31.9	10633	662	62.2
80+	1189	86	72.4	1357	28	20.8	2546	114	44.9
Total	114856	7309	<b>63.6</b>	121206	4386	<b>36.2</b>	236062	11695	<b>49.5</b>

It was calculated that 28.4 years of life were lost per 1000 population due to premature mortality from TB in males and 15.8 years of life lost to the disease in females in 2006.

The disease burden in the form of DALYs shows the impact of the disease on the population. Fifty years of healthy life (DALYs) were lost per 1000 population due to premature deaths and illness from tuberculosis in Insein Township in 2006. DALYs per 1000 among males (63.6) was much higher than that among females (36.2), and it was highest among 30-44 years age group (Table 1).

We tried to test the established DALYs methodology if we can arrive at disease burden in the form of DALY using the available secondary data. The findings indicated that overall TB disease burden can be estimated as a single metric which capture both morbidity and mortality. This study highlighted the methodological

adjustments that should be considered in the estimation of burden of disease due to TB at national level.

## REFERENCES

1. Global TB Control 2007. World Health Organization 2007.
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3. National Burden of Disease Studies: A Practical Guide, 2<sup>nd</sup> edition. World Health Organization 2003.
4. Annual Report 2006. National Tuberculosis Programme, Myanmar, 2007.
5. GBD DALY template, available at [www.who.int/healthinfo/bodreferencedalycalculation-templat.xls](http://www.who.int/healthinfo/bodreferencedalycalculation-templat.xls)
6. Dye C, Scheele S, Dolin P, Pathaina V, Raviglione MC. Global burden of tuberculosis: estimated incidence, prevalence and mortality by country. *Journal of American Medical Association* 1999; 282: 677-686.