

## SUMMARY

### **Factors Influencing Tuberculosis Treatment Outcomes in HIV Positive and HIV Negative Patients in Surabaya, Indonesia**

Tuberculosis (TB) is still a global public health threat and it is one of the world's leading opportunistic disease and cause of death in patients with HIV infection. The risk of developing TB is between 20 and 37 times greater in people living with HIV (PLHIV) than among those who do not have HIV infection. Tuberculosis is responsible for more than a quarter of deaths in PLHIV. In 2017, approximately 300,000 people died from AIDS related Tuberculosis. The Asia-Pacific region which contributes more than a half of all Tuberculosis cases worldwide, traditionally reports low TB/HIV co-infection rates.

Surabaya city ranks with the highest and steadily increasing number of TB and HIV-TB patients amongst all the other cities/districts in East Java in 2017, 2018 and 2019. There has been a steadily increasing number of Tuberculosis patients in Surabaya from 2015 to 2019 though the case detection rate is still below the target.

One of the main TB program indicators is the TB treatment success rate. The END TB strategy targets to have a Tuberculosis treatment success rate of 85% in all countries and testing 100% of Tuberculosis patients of HIV while Indonesia set its national target is at 90% same as for the South East Asia region. TB treatment success rate among new smear-positive cases during 2008 was 88% for the Southern East Asia region. TB treatment success rate of smear TB patients plus new cases in East Java was 90% in 2017 and 2018.

The TB treatment success rate in Indonesia in 2015 was at 87.8% in Indonesia slightly better than the 2015 global TB treatment success rate of 83% and the 2015 global set target of 85%. TB treatment success rates in Indonesia among the new and relapse cases in 2017 was at 85%, among previously treated cases in 2017 was at 73%, among HIV-positive TB cases registered in 2017 was at 69% far below the target of 90%.

According to the Indonesia Ministry of Health, Age, level of education and other social factors are among the risk factors that influence the prevalence of Tuberculosis in Indonesia. With a timely diagnosis and treatment with first-line antibiotics for 6 months, most people who develop TB can be cured and onward transmission of infection curtailed. The TB cases occurring each year and the TB-related deaths can also be driven down by reducing the prevalence of health-related risk factors for TB (e.g. smoking, diabetes and HIV infection), providing preventive treatment to people with a latent TB infection, and taking multi sectoral action on broader determinants of TB infection and disease (e.g. poverty, housing quality and under nutrition). The aim of this study is to analyse the factors that influence Tuberculosis treatment outcomes among HIV positive and HIV negative patients in Surabaya, Indonesia.

A retrospective cohort study of TB patients aged 15 years and above that started and

completed Tuberculosis treatment in Surabaya in 2017 and 2018. A random sample of two study groups (HIV positive & HIV negative patients) of 79 TB patients in each group. The data was extracted from the SITT TB surveillance application as an Excel file and then exported to SPSS for analysis. A chi square from Mantel-Haenszel test were used to determine the relationship and associations between TB treatment outcomes and independent variables. Relative risk difference to determine the effect of cofounding and then a multivariate binary logistic regression. A statistical significance of 0.05 was considered.

The study findings were clearly evident from the prognostic factors that there is a more likelihood to have a treatment success in HIV-TB patients (88.6%) than in the TB (82.3%) patients. More patients had a treatment success from 6 months to 8 months; 57.0% in HIV negative patients and 55.7% in HIV positive patients. The exposure (HIV) does not significantly influence Tuberculosis treatment outcomes in both HIV-TB and non-HIV TB patients. There is no cofounding effect of the independent variables with the Exposure (HIV) and Tuberculosis treatment outcome. The findings also showed that age group, history of diabetes and patient category have a significant relationship to Tuberculosis treatment outcome in HIV positive and HIV negative patients.

The author recommends an effective clinical assessment of the treatment outcomes at the end of TB treatment, thorough assessment for other co-morbidities, a diverse recording and reporting system that enables targeted, individualized follow-up to identify patients who are failing therapy, effective infection control measures in clinical and community settings, secondary TB preventive treatment, provision of TPT among PLHIV who successfully completed TB treatment, free access to anti-TB drugs, diagnostic measures, including drug susceptibility testing to all TB patients.

**ABSTRACT****Factors Influencing Tuberculosis Treatment Outcomes in HIV Positive and HIV Negative Patients in Surabaya, Indonesia**

Tuberculosis (TB) is still a global public health threat and main causes of death in patients with HIV infection. The risk of developing TB is between 20 and 37 times greater in people living with HIV than among those without HIV. Surabaya city ranks with the highest number of TB and HIV-TB patients in East Java. TB treatment success rates in Indonesia among the new and relapse cases in 2017 was at 85%, among previously treated cases in 2017 was at 73%, among HIV-positive TB cases registered in 2017 was at 69% far below the target of 90%. The aim of this study is to analyze the factors that influence TB treatment outcomes among HIV positive and HIV negative patients in Surabaya, Indonesia.

A retrospective cohort study with HIV as the exposure of 158 TB patients aged 15 years and above that started and completed TB treatment in Surabaya in 2017 and 2018. Chi square and Mantel-Haenszel tests were used to determine the relationship and associations between TB treatment outcomes and independent variables. Relative risk difference to determine the effect of confounding and then a multivariate binary logistic regression.

Study findings showed there is a more likelihood to have a treatment success in HIV-TB patients (88.6%) than in the TB patients (82.3%). More patients had a treatment success from 6 months to 8 months than before 6 months and after 8 months. HIV does not significantly influence TB treatment outcomes in HIV-TB and non-HIV TB patients. There is no confounding effect of the independent variables with HIV and TB treatment outcome. Age group, history of diabetes and patient category have a significant relationship to TB treatment outcomes.

**Key words:** *Failure, HIV, Tuberculosis, Treatment outcome, Success.*