# The Trend and Predictors for Tuberculosis Treatment Success Among Children in Malaysia Using MyTB Version 2.1 Database Over Five Years

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## Introduction

- Tuberculosis (TB) among children (0-14 years) is a public health problem
  - 11% out of the global TB cases [1]
  - Vulnerable group, diagnosis challenges and high mortality if left untreated [2]
  - Ongoing TB transmission in a community
- National TB control programme provides MyTB database version 2.1 and indicators to be monitored (treatment success rate of more than 90%)[1]
- Factor associated with TB treatment success :

  Older aged children, absence of HIV co-infection sputum -ve PTB versus sputum +ve PTB/EPTB, female gender, urban residences [3,4,5]

- **Aims**: To determine the trend and predictors for TB treatment success among children in Malaysia

## Materials and methods

- Cross-sectional study design of a secondary data for children with TB disease in Malaysia
- Registered TB cases in MyTB version 2.1, 2013-2017
- Sample size (optimum: 2911 cases)
- Universal sampling method
- All cases were included except cases with missing data and changed final diagnosis
- Outcome parameter: treatment outcomes according to the WHO guidelines[6] (success versus unsuccessful)
- Predictor parameters: socio-demography, healthcare utilisation, TB disease profiles
- R software version 3.6.2 was used. Descriptive, bivariate, simple and multivariable logistic regression was conducted. This presentation highlighted the treatment success trends and the final model for treatment success predictors.
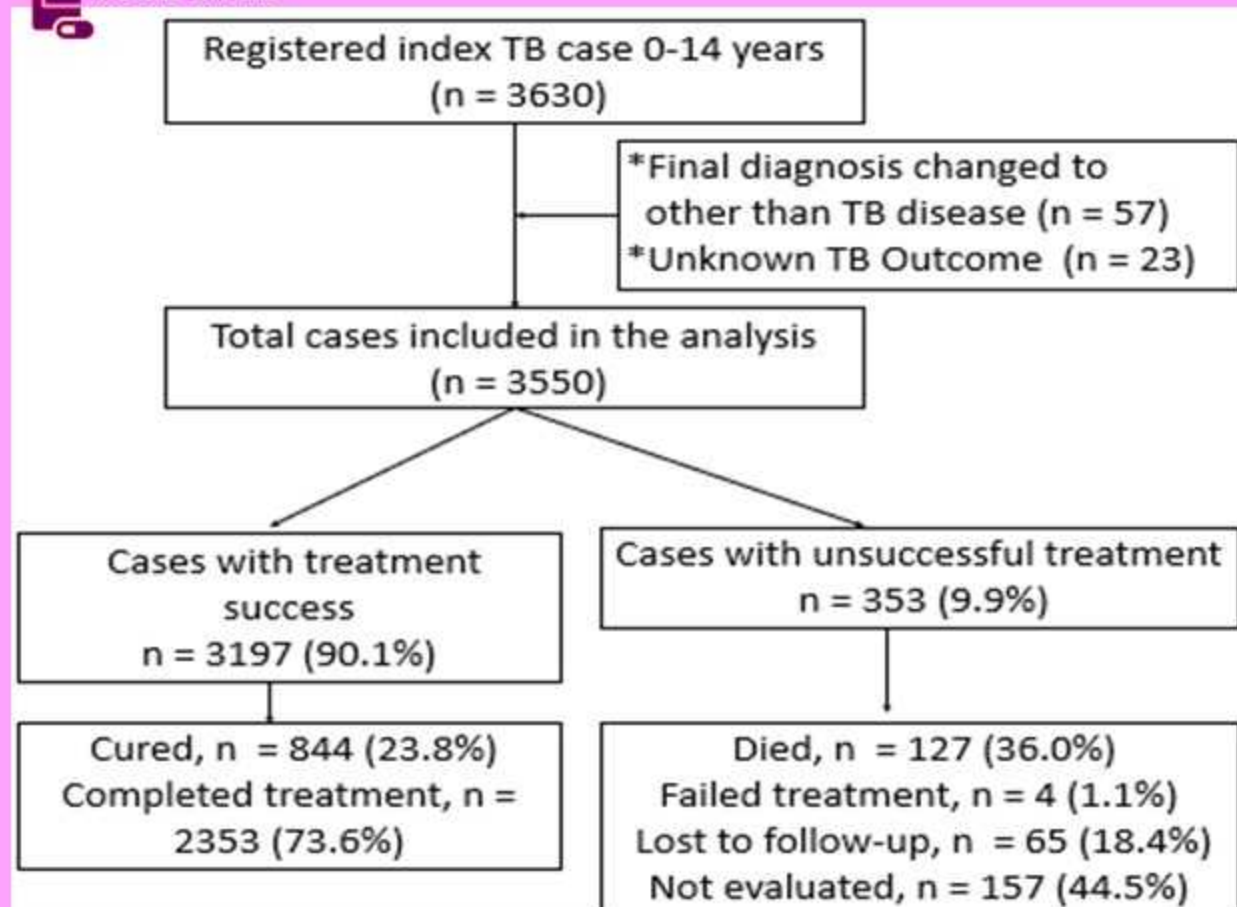
## Results



Figure 1: Data Extraction Chart for Secondary Data Analysis, 2013-2017 (MyTB v2.1)



| | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| N (%) | 737 (3.1) | 700 (2.8) | 745 (3.1) | 710 (2.8) | 738 (2.8) |

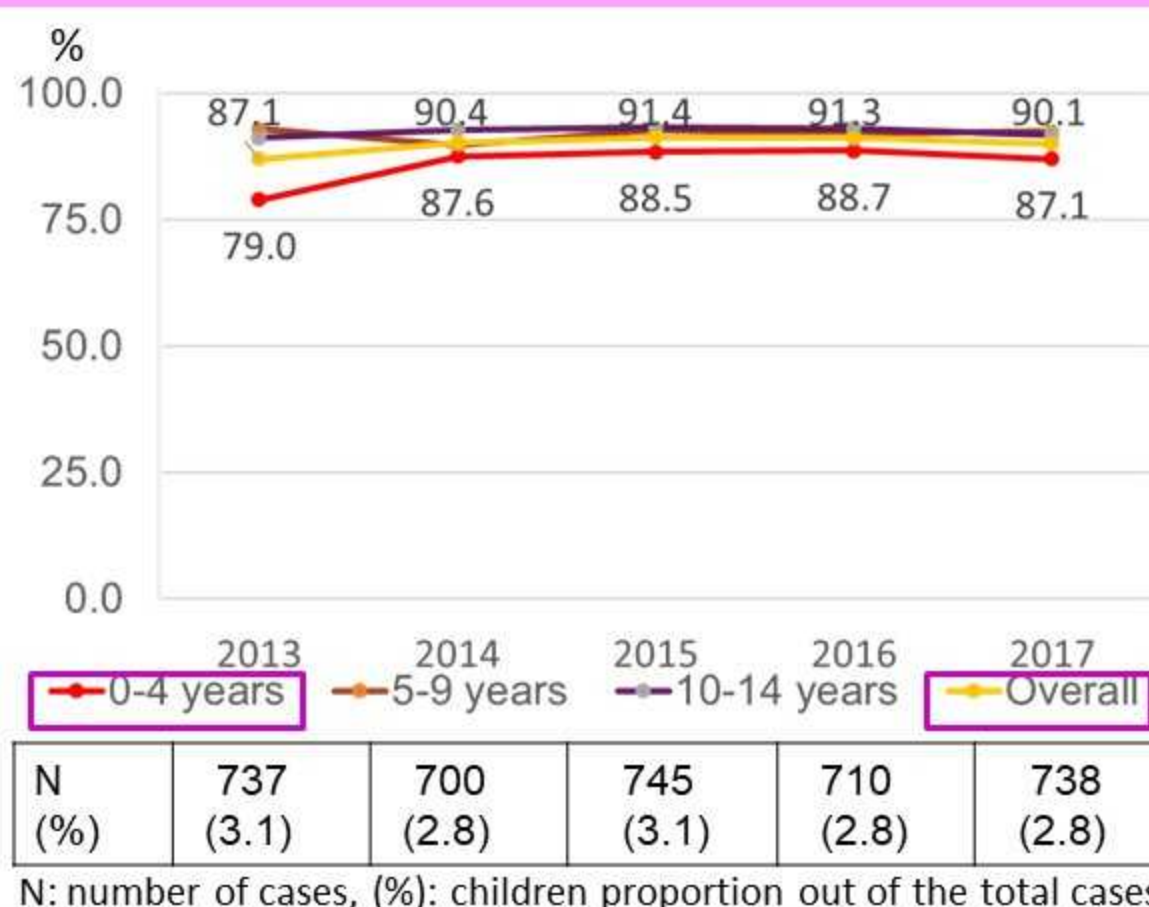N: number of cases, (%): children proportion out of the total cases

Figure 2: Trends of TB Cases and Treatment Success Among Children in Malaysia, 2013-2017
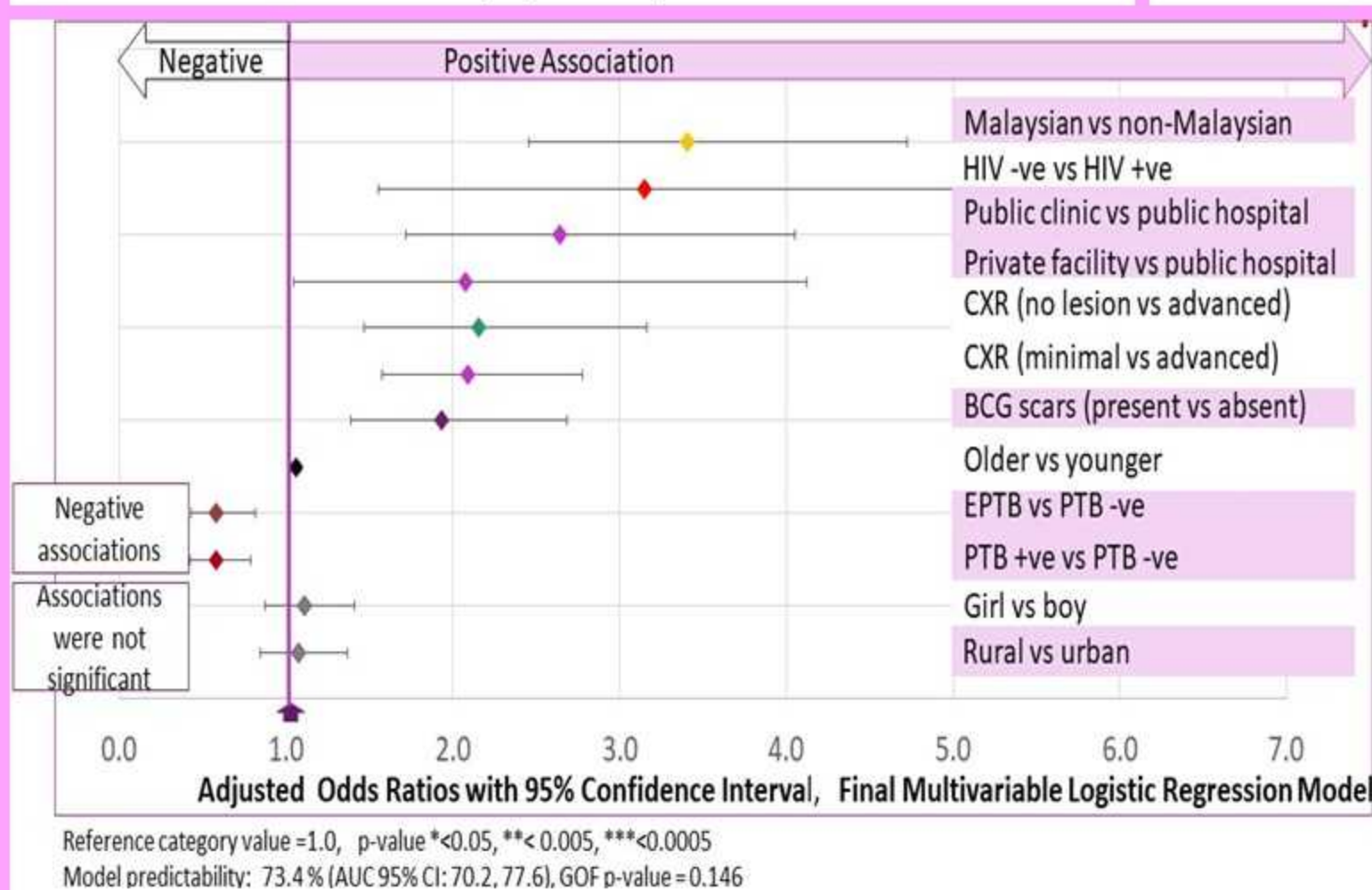


Figure 3: The predictors of TB Treatment Success Among Children With TB Disease in Malaysia, 2013-2017

Reference category value =1.0, p-value *<0.05, **< 0.005, ***<0.0005
Model predictability: 73.4 % (AUC 95% CI: 70.2, 77.6), GOF p-value = 0.146

## Discussion

- Treatment success trend for children aged 0-4 years is under the WHO target of 90%[1]
- Number of determinants included in previous studies varied from 3 to 7 parameters [3,7]
- The most frequently studied parameters:
  - Age in 2 groups (0-4, 5-14 years) or 3 groups (0-4, 5-9, 10-14 years) categories
  - Gender
  - Type of TB disease
  - HIV co-infection
- This model adds new parameters and has different ranked of predictors

## Conclusion

The trend of TB treatment success rate among children plateaued at 90%. This study concluded that treatment success was positively associated with children who were Malaysian citizens in the mild phase of TB disease

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