3. Abstract

3.1 Background

The WHO estimated that TB incidence rate in the Philippines was 554 per 100,000 in 2016, and it was the 3rd highest in the world. However, Filipino National TB Programme (NTP) detected only 60% of the estimated TB incident cases in 2016. Considering the heavy burden of TB, NTP implemented a web-based recording and reporting (R&R) system to manage and monitor the status of TB incidence and prevalence in the Philippines. The data has not been utilized to analyse Missing TB cases. This analysis provides a geographical distribution of missing TB cases in the Philippines in 2016 at subnational levels and the factors associated with high number and rate of missing TB cases.

3.2 Method

A descriptive cross-sectional analysis was carried out to estimate the number and rate of missing TB cases in the Philippines. A case-based operational TB database which was routinely collected in 2016 by NTP in the Philippines was used together with national prevalence survey data in 2016, population census in 2015 and GIS data. Pearson's correlation coefficient was used to assess correlations between case notification rate (CNR) and rate of missing TB cases, number of notified TB cases and missing TB cases, and population screening rate by smear microscopy and GeneXpert Mycobacterium tuberculosis/Rifampicin assay (Xpert MTB/RIF) and rate of missing TB cases.

3.3 Results

The estimated total number of missing TB cases was 335,014 and the rate of missing TB cases was 332.2 per 100,000. Results of mapping showed a

considerable difference of number and rate of missing TB cases at the subnational level. Rate of missing TB cases ranged from 212.3 in Cotabato City in Region XII to 499.2 in Benguet in CAR per 100,000. number of missing TB cases ranged from 76.4 in Batanes to 15,564 in Cebu in Region VII. The analysis found a negative correlation between CNR and the rate of Missing TB cases at province level (Pearson's correlation coefficient (Pearson's r.) -0.457, P<0.001) and positive correlations between numbers of TB case notification and missing TB cases (Pearson's r. 0.848, P<0.001) and between population size and number of missing TB cases (Pearson's r. 0.033, P<0.001). Population screening rate (defined as the number of individuals examined by bacteriological test for TB divided by population size) by smear microscopy and Xpert MTB/RIF was negatively correlated with the rate of missing TB cases: smear microscopy (Pearson's r. -7,115.6, P=0.003) and Xpert MTB/RIF (Pearson's r. -15,364.4, P=0.005)

3.4 Conclusion

This analysis is the first to estimate the number and rate of missing TB cases in the Philippines and its geographical distribution at the subnational level. The result suggests that areas with high CNR tended to have lower rate of missing TB, and areas with higher population screening rate by either smear microscopy or Xpert MTB/RIF are likely to have lower rates of missing TB cases. Hence, improving CNR with the utilization of smear microscopy and Xpert MTB/RIF might be a strategy to reduce the rate of missing TB cases. The result also suggests that a large number of missing TB cases was concentrated in the area with a large population size. Therefore, targeting vulnerable populations in

urban areas might lead to the reduction of the number of Missing TB cases with cost effectiveness. Further work is required to define prioritizations for resource allocations and programme implementations.