

Australian Respiratory Council Research Support Grants 2023/2024 Funding

Project Title: Evaluation of detect-treat-prevent for MDR/RR-TB in Indonesian children.

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The epidemiology of multidrug-resistant/rifampicin-resistant tuberculosis (MDR/RR-TB) in children directly reflects that occurring in adults. However, global and national data are very limited. Only around 10% of the estimated >30,000 multidrug-resistant/rifampicin-resistant tuberculosis (MDR/RR-TB) caseload that occurs in children (80%) of those cases. (WHO Global TB Report 2022) Further, most notifications in children are in the 5-14 year age group with very few in young children (<5 years). This is likely due to challenges for bacteriological confirmation despite young children being a high-risk vulnerable group, and that contact investigation in households of MDR/RR-TB cases is not being implemented in low-resource settings.



Indonesia is a WHO-listed high burden country for TB and MDR/RR TB with estimated 28,000 MDR/RR-TB cases in 2021; 2.2% of new cases. (WHO Global TB Report 2022) There are major TB detection and prevention gaps in Indonesia, especially wide for MDR/RR-TB and identified as a research priority. (Lestari T et al. PLoS ONE 2022) Data on MDR/RR-TB case notifications or outcomes in children are extremely limited. The implementation and roll-out of GeneXpert technology has the potential to increase detection on MDR/RR-TB. A recent health systems strengthening project in Mimika District of Papua province reported that 102 (6.4%) of 1587 Xpert MTB positive cases detected from 2018-2021 were MDR/RR. (Lestari T et al. PLoS Glo Pub Health 2022) Children often require a clinical diagnosis, relying on a contact history. New all-oral shorter treatment regimens (not requiring injectables) and TB preventive treatment is now recommended (with new evidence emerging in 2023) in Indonesia for contacts of MDR/RR-TB but this is not being implemented.



The project aims to evaluate the detection, treatment and prevention approaches to MDR/RR-TB in Indonesian children in three settings to describe the current knowledge gaps in burden and implementation and to identify steps to close knowledge and policy-practice gaps. The project will collaborate with TB services and child health services in three contrasting districts of Indonesia that are known to have a high incidence of TB: rural Mimika District of Papua; urban Padang in Sumatera; and urban and rural Yogyakarta district in Java. These sites are chosen because there are ongoing activities to detect TB in the community or primary care level with molecular diagnostics (Xpert Ultra) in place to detect rifampicin resistance.

The specific objectives will be to: 1) undertake an audit of all child TB notifications in 2022-23 including of MDR/RR TB to determine caseload and current treatment regimens; and 2) introduce and evaluate in households of index cases with MDR/RR-TB, the cascades of care for case detection (and treatment) of active TB in contacts of all ages and of TPT for eligible child and adolescent contacts.

The results of Professor Graham's and Dr Triasih's research project will be published in ARC's 2024 annual report.