INTRODUCTION
- Tuberculosis (TB) is a global burden with developing countries with the most burden. ¹
- Recent original and review studies have linked to TB to indoor air pollution (IAP) exposure. ²,³
- These studies had assessed exposure to IAP using proxy measures such as reported cooking fuel use.

OBJECTIVE
To characterise and model concentrations of three indoor pollutants (PM₁₀, NO₂ and SO₂) in the homes of children participating in the childhood TB study.

METHODS
This was a case control study with children having active PTB classified as cases and controls being children without PTB living in Durban, South Africa.

Home walkthrough
- 242 homes were investigated using a validated walkthrough checklist.

Indoor air sampling and analysis
- PM₁₀ Sampled for 24hrs & gravimetric analysis of mass concentration done.
- Two weeks of NO₂ and SO₂ passive sampling using radiello and samples analysed with ICP-MS.

Data Analysis
- Descriptive & bivariate analysis of data collected using walkthrough and measured pollutant concentrations.
- Stepwise linear regression model used to develop predictive models for PM₁₀ and NO₂.
- Because of low SO₂ concentrations no predictive model was developed.
- Validation of predictive models done using leave out one cross validation (LOOCV).

RESULTS
Data was collected from 242 homes
- All 242 homes had walkthrough investigation conducted,
- 105 homes had valid PM₁₀ sampled and analysed, &
- 82 homes were sampled for NO₂ and SO₂.

models developed for indoor PM₁₀ and NO₂ concentrations:
\[\text{lnPM}_{10} = 0.447 \times \text{housing type} + 0.445 \times \text{primary fuel type} - 0.174 \times \text{total number of rooms} + 0.267 \times \text{season} + 3.620\]
\[\text{lnNO}_2 = 0.182 \times \text{housing type} + 0.347 \times \text{primary fuel type} - 0.234 \times \text{burning of incense} + 0.301 \times \text{secondary fuel type} - 0.311 \times \text{distance from major roadway} + 2.79\]

CONCLUSION
Low concentrations of indoor air pollutants can be modeled successfully therefore eliminating direct measurement.

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