



# Assessing the Impact of a Clean Cooking Fuel Voucher Programme on Paediatric Acute Respiratory Infection Incidence in São Toméan Slum Households

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## Abstract

Acute respiratory infections (ARIs) are a leading cause of paediatric morbidity and mortality in low-income settings. In São Tomé and Príncipe, reliance on polluting solid fuels for cooking in densely populated urban slums is a significant risk factor for childhood ARI. This study assessed the impact of a government-subsidised clean cooking fuel (liquefied petroleum gas) voucher programme on the incidence of paediatric ARIs in slum households of São Tomé, the capital city. A quasi-experimental, longitudinal cohort study was conducted. Households with children under five were recruited from intervention areas (receiving vouchers) and comparable control areas. Caregiver-reported ARI symptoms were collected fortnightly for six months. Incidence rates were calculated and compared using negative binomial regression, adjusting for confounding variables. The incidence of paediatric ARI was 32% lower in the intervention group compared to the control group (incidence rate ratio 0.68, 95% confidence interval 0.52 to 0.89). Adherence to clean fuel use, verified by spot checks, was strongly correlated with greater reductions in ARI incidence. Subsidised clean cooking fuel vouchers were associated with a statistically significant reduction in the incidence of acute respiratory infections among young children in an urban slum setting. Scale-up of the voucher programme, coupled with community education on the health benefits of sustained clean fuel use, is recommended. Further research should investigate long-term health outcomes and programme cost-effectiveness. paediatric health, acute respiratory infection, household air pollution, clean cooking, liquefied petroleum gas, subsidy, urban slums, São Tomé and Príncipe This study provides novel evidence from a small island developing state on the potential health benefits of a clean cooking fuel subsidy programme for vulnerable urban populations.

**Keywords:** *paediatric acute respiratory infections, household air pollution, clean cooking intervention, sub-Saharan Africa, randomised controlled trial, slum health, fuel vouchers*

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