mean $PM_{2.5}$ emissions from households was 68 ± 36 g/hour, most of which was from space heating devices. In the time series model, an emission of ~1 g/hour $PM_{2.5}$ from household was associated with an 0.034 ± 0.025 μg/m^3 increase in hourly ambient $PM_{2.5}$ concentrations, adjusted for autocorrelation and other covariates. The predicted ambient $PM_{2.5}$ level from household $PM_{2.5}$ emissions was significantly associated with the DustTrak-monitored level, with a coefficient of 0.3 ($p < 0.001$) and explains 23% of the total variance in a simple box model.

Interpretation: Household space heating using biomass and coal emits a large amount of $PM_{2.5}$. This implies a significant contribution to AAP and health burden associated with AAP and HAP in China and many other developing countries using solid fuel for household space heating.

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The role of enteropathy and mycotoxins in child stunting in low- and middle-income settings

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Background: The World Health Organization (WHO) estimated the prevalence of pediatric stunting at 171 million children, with 97.6% of the burden in developing countries [1]. Stunting is a form of chronic malnutrition leading to negative lifelong consequences such as cognitive impairment, poor educational performance and economic loss. Newly emerging research has shown links between stunting and environmental enteric dysfunction (EED) and mycotoxins [3]. EED is an autoimmune response malforming small intestinal villi and reducing absorption of nutrients. This condition is linked to environmental conditions with poor sanitation. Mycotoxins are chemicals released by fungal species that contaminate food sources [4]. While mycotoxins are known carcinogens, their gastrointestinal impact is being studied.

Methods: A systematic review was conducted to investigate primary research on EED and mycotoxins on stunting. A search strategy in PubMed and WHO Library databases resulted in 163 records narrowed down to 16 eligible articles. The inclusion criteria included: primary resarch, stunting topics, ability to translate to humans and topics related to EED and mycotoxins. Studies that were secondary research, solely laboratory studies or outside EED and mycotoxins were excluded. Among the final articles included, study designs varied from cross-sectional, genetic, cohort and randomized control trials.

Findings: In the selected primary research studies investigating environmental enteropathy (n = 6), study populations included childen in Bangladesh, Malawi, Kenya, and Tanzania. No significant findings were made with treatment interventions in micronutrients, fish oil and albendazole. Mesalazine, an immunosupressant used in other inflammatory bowel disases demonstrated safety and has potential for efficacy studies.

In the studies concentrating on mycotoxin roles in stunting (n=10), findings were also varied with populations in Benin, Cameroon, Gambia, Tanzania and Togo. Investigations confirmed an association between stunting and mycotoxin levels in the blood. One study trialed an oral medication used to reduce aflatoxin levels and found safe uptake.

Interpretation: As evidence strongly links EED and mycotoxins as contributors to stunting, efforts to understand pathways and treatment is needed. To combat the negative lifelong consequences of stunting among children in LMICs, efforts on improving environmental sanitation conditions and treatment of EED and mycotoxins also needs to be prioritized.

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Treatment outcome among newly diagnosed tuberculosis patients in Kenya

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Background: Globally Tuberculosis (TB) affects one third of the world's population (2 billion people) and 9 million people developed TB in 2013 up from 8.6million in 2012. Kenya is ranked number 15 out of the 22 high burden countries that contribute 80% of the global TB burden. The objective of this study was to establish the uptake of TB treatment among newly diagnosed TB patients.

Methods: A cohort study design was used where 70 patients were enrolled in the study from selected sites. The clients were recruited and followed up for a period of one year from the selected health facilities.

Findings: The findings indicated that majority (51.4%) of the respondents had a favourable treatment outcome smear positive cure rate and (38.6%) treatment completion among smear negative patients. The treatment outcome was associated with patient's economic activity, substance use, severe TB symptoms, self-efficacy