

an estimated new case of 164/100,000 population. In Ethiopia, smear positive, smear negative and extra-pulmonary TB contributes equally one third of all TB cases. Bovine TB is endemic in Ethiopian cattle and it reaches an animal prevalence of 30% and a herd prevalence of over 50%, particularly in intensive dairy farms in Central Ethiopia.

Objective: In this study we aim to determine the prevalence of *M. bovis* infection in high risk groups, suspected with pulmonary and extra-pulmonary TB.

Methodology: We employed both active and passive case detection approaches to recruit study participants. In active case detection we screened all farm workers working in selected farms. Smear positive and smear negative pulmonary TB as well as extra-pulmonary TB patients visiting health facilities in and around Addis Ababa, Gondar, Hawassa and Mekelle were recruited through passive case detection. We collected and processed 1990 sputum and 510 Fine-Needle Aspirate (FNA) samples and cultured for mycobacteria; samples with acid-fast stained bacilli (AFB) were further characterized by molecular typing including deletion typing.

Result: In the active case detection approach we screened 360 farm workers from whom 44 showed TB symptom; however, all their samples were smear and culture negative. In the passive case detection, sputum and FNA culture positivity for mycobacteria was confirmed in 476 (23.9%) and 154(30.2%) study participants, respectively. The vast majority were identified by molecular typing as *M. tuberculosis*. Only 2 (0.3%) of the 630 isolates were characterized as *M. bovis*. The two patients with zoonotic infection had pulmonary and extra-pulmonary TB, respectively.

Conclusion: The frequency of *M. bovis* in both pulmonary and extra-pulmonary cases in culture positive samples were very low (0.3%) and its contribution in the overall TB epidemiology in Ethiopia is very minimal. However, the contribution of *M. bovis* infection in culture negative human cases remain unclear.

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MULTIRESISTANT E COLI AND SALMONELLA SPP IN POULTRY LITTER IN AN URBAN AREA SETTING IN CAMEROON

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Introduction: Poultry litter is an affordable organic fertilizer used as manure worldwide. It's also a potential source of environmental contamination and transmission by various pathogens including foodborne bacteria such as *E coli* and *Salmonella* spp. In Cameroon, poultry litter is the main fertilizer used but data are not available regarding the microbiological safety of litter.

Aim: To assess the extent of contamination of poultry litters with *E coli* and *Salmonella* species and evaluate the proportion of antimicrobial resistance in the isolated bacteria, focusing on farms in a Cameroon urban area setting.

Methods: Following authorization of competent authorities, 20 farms were randomly selected and a questionnaire was administered. Samples of poultry litter were aseptically collected and microbiological assays were performed. Results were compiled and analysed with R.

Results: 57 samples were collected; *E coli* and *Salmonella* spp were isolated in 66.6% and 12.3% of samples respectively. *E coli* spp showed high resistance to sulphonamides (96%), ampicillin (93%) and tetra-

cycline (89%). All *E coli* spp were multiresistant, 25% being resistant to seven out of the 11 antibiotics tested. *Salmonella* spp showed high resistance to tetracycline (71%), sulphonamides (57%), ciprofloxacin and chloramphenicol (43%). 86% of *Salmonella* spp were resistant to at least two antibiotics. High use of antibiotics and absence of treatment of poultry litter prior to use as manure was reported by the participating farmers.

Conclusion: The study observed a high use of antibiotics by farmers and high prevalence of multidrug resistant *E coli* and *Salmonella* spp in their poultry litter. This creates a significant risk of spread of multi drug resistant pathogens among poultry, humans and the environment, especially as no treatment is performed on litter prior disposal. Interventions are needed to limit antibiotic use in poultry farms and to encourage post-treatment of litter before use or prior disposal.

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A SYSTEMATIC REVIEW ON THE EXTENT AND DIFFERENT WAYS CLIMATE CHANGE ACTS AS A THREAT MULTIPLIER IN THE LAKE CHAD BASIN REGION

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Introduction: Escalating conflict in Lake Chad Basin Region (LCBR) has created a massive humanitarian crisis, with 2.5 million people displaced and 3.6 million at emergency levels of food insecurity. Climate change has been increasingly implicated as a threat multiplier (a factor exacerbating existing security risks and worsening fragile situations) in the LCBR by the UN Security Council, policymakers and local experts. However, there have been limited attempts to assess this evidence.

Aim: To critically assess the available scientific evidence addressing the overarching question: 'to what extent and in what different ways does climate change act as a threat multiplier in the LCBR?'

Methods: Our overarching question was addressed by conducting a systematic review to answer: (i) what factors mediate between climate change and conflict? (ii) how does climate change negatively impact health regionally (iii) what modes of mitigation are being suggested or tested, and how effective are they? A two-stage analysis was used with a quality assessment to evaluate the strength of the evidence.

Results: Climate change had a clear causal role in driving natural resource conflicts through resource scarcity, but a more complex role in the Boko Haram insurgency. Climate variability was proposed to increase vulnerability to recruitment and increasing fragility, permitting Boko Haram's regional spread. This conflict has had obvious implications for health including direct violent impacts, food shortages, near collapse of local health systems and massive refugee populations susceptible to disease outbreaks and ill-health. Simultaneously, the literature suggests climate variability directly impacts health through increased food insecurity, internal refugee flows and outbreaks of climate-sensitive diseases (e.g. cholera) among displaced populations. The main mitigation methods proposed were the Lake Chad Transaqua Rejuvenation Initiative and conflict-sensitised combined climate adaptation and humanitarian relief programmes.

Conclusion: Climate change acts as a threat multiplier in the ongoing LCBR humanitarian crisis. However, no studies consider climate change's role in the humanitarian crisis by linking its' separate impacts on conflict and health. Instead, these deeply interconnected areas remain siloed. There is critical need to research this nexus of climate change, conflict and health in order to effectively mitigate the LCBR humanitarian crisis.