**TITLE:** Evaluating the effect of micronutrient supplementation on preventing tuberculosis disease among high-risk adult household contacts of infectious tuberculosis patients: a double-blind randomised controlled trial.

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**BACKGROUND.** Tuberculosis predominately affects undernourished people and is associated with low serum vitamin D, vitamin A and zinc concentrations. Clinical trials evaluating the effect of micronutrient supplementation on prevention of tuberculosis disease are lacking.

**METHODS.** We undertook a double-blind randomised controlled trial of micronutrient supplementation in the household contacts aged ≥15 years of newly diagnosed patients with smear-positive, pulmonary tuberculosis in Callao, Perú. The contacts in half of the households were randomised to receive combined vitamin A (5000 international units), vitamin D (400 international units) and zinc (25mg elemental zinc as zinc sulphate) once-daily for 6 months. The contacts in the other half of the households were randomised to placebo. We visited households every 2-4 weeks during supplementation and performed pill counts to measure adherence. Contacts were followed-up in collaboration with the national TB program for median 11 years, including prevalence surveys performed 3 and 6 years after recruitment. In intention-to-treat analysis, Cox-proportional hazards analysis was used to evaluate the effect of supplementation on the risk of tuberculosis disease.

**RESULTS.** 1,987 contacts of 708 index cases were included in the primary analysis. 8.1% (95%CI:6.9-9.4, n=161/1,987) of contacts developed tuberculosis and micronutrient supplementation did not affect this risk (HR=1.07, 95%CI:0.76-1.51, p=0.69). In sub-group analyses, supplementation did not significantly affect the risk of tuberculosis in the poorest (HR=1.4, 95%CI: 0.81-2.4), underweight (BMI<20 kg/m2) (HR=1.7, 95%CI: 0.83-3.3), TST positive (HR=1.1, 95%CI: 0.69-1.6) and adherent (HR=1.0, 95%CI: 0.69-1.5) contacts.

**CONCLUSION**.These micronutrient supplements are not recommended because they did not affect the risk of tuberculosis disease in patients’ household contacts.