TECHNICAL HIGHLIGHT

Preventive Treatment Demonstration in Bangladesh

BACKGROUND

The primary mode for the spread of tuberculosis (TB) is person to person, and it is estimated that a person with TB can infect up to 15 individuals each year until that patient starts treatment and is rendered non-infectious. Studies have documented an infection rate of 30–50%[1] among household contacts of infected adults, and an infection rate in children under 5 as high as 72%.[2] Of those infected with TB, 10–20% develop the disease, and for those who are immune-compromised (with HIV), the risk is higher. The rate of development of disease in household contacts under 5 years of age has been reported to be 15% to 20%.[3]

Contact investigation and preventive treatment (PT) are critical for TB programs, which allow efficient and early identification of persons in a TB patient's home who are also sick with TB and require immediate treatment. In 2018, Bangladesh committed to enrolling 969,300 individuals on PT for TB by 2022. Although it is crucial to expand PT among all age groups at risk of developing TB, evidence on an effective programmatic approach in resource-constrained settings like Bangladesh is lacking.

IMPLEMENTATION

The USAID-funded Challenge TB (CTB) Project implemented a demonstration initiative that provided PT for household contacts of TB patients identified at selected TB treatment centers in Dhaka South City Corporation. The main objectives were to quantify the effect of contact investigation and assess the acceptability of treatment with a weekly isoniazid–rifapentine (3HP) regimen for 3 months (12 doses) among household contacts of index TB patients.

At selected TB treatment centers, field supervisors identified TB patients on treatment and collected their contact information. A health worker then interviewed the index patients to enumerate all household contacts and encouraged them to bring household members to the facility for evaluation. In addition, the treatment counselor of the project advised patients on TB disease transmission and the importance of contact evaluation. If the household

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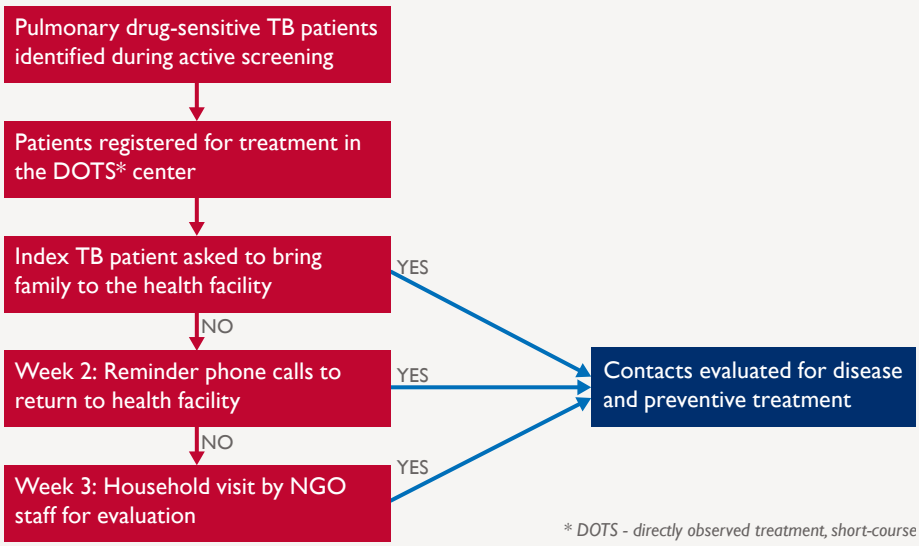
contacts did not come for evaluation within one week, the project counselors made reminder phone calls, followed by household visits from health workers from a local nongovernmental organization (NGO). Once the household contacts arrived at the facility, the project health workers screened each contact for TB symptoms (figure 1). The doctor then conducted a history and physical exam and advised chest X-ray and GeneXpert (if sputum was available) to rule out TB disease as per the National TB Program (NTP) protocol. If active TB disease was diagnosed, that person was initiated on TB treatment.

Free PT with 3HP was offered to contacts free of TB disease. Project staff initiated 3HP for household contacts after obtaining informed consent and counseling with regard to the benefits, potential side effects, and importance of completing the full course of treatment. The NGO health workers made weekly follow-up phone calls to monitor the treatment process. One follow-up call was made as a reminder to take the medications the day before the prescribed date and one call after the medication date. The health workers received a fixed monthly allowance from the project to cover phone airtime bills and transportation costs. The ethical approval for this study was obtained from the Bangladesh Medical Research Council.

Figure 1. Process of contact investigation and PT



RESULTS AND ACHIEVEMENTS

The health workers enumerated 3,193 household contacts of 883 index drug-susceptible TB patients. Of all enumerated, 2,149 (67%) visited the selected facilities and were verbally screened. The mean age of the verbally screened contacts was 21 years; 46% were male and 54% female. Of the verbally screened contacts, chest X-ray was performed on 1,804 (84%) to rule-out active TB; 131 (7%) individuals who were ineligible for PT with 3HP were identified. Among them, 39 (2%) contacts had active TB, and CTB facilitated enrollment of all of them for TB treatment from NTP-linked treatment facilities. Further, 92 (5%) children aged under 2 years were enrolled for routine isoniazid PT as per the national guideline.

The project identified 1,780 (98%) contacts eligible and approached all of them for PT using 3HP. Of them, 107 were at least 2 but less than 5 years old (≥2 age <5); 166 were at least 5 but less than 10 (≥5 age <10); 210 were at least 10 but less than 14(≥ 10 age <14); and 1,297 were at least 14. Of all those approached, CTB initiated PT for 1,216 (73%) contacts who agreed. The mean age of those who initiated PT was 27 years (39 contacts were at least 2 but less than 5 [≥2 age <5]; 128 were at least 5 but less than 10 [≥5 age <10]; 145 were at least 10 but less than 14 [≥10 age <14]; and 904 were at least 14); 44% of them were male and 56% female.

Of those on 3HP, 1,175 contacts (97%) completed a full course of PT. Of 41 (3%) contacts who did not complete PT, 32 (78%) refused after treatment initiation, 6 (15%) migrated to a different area where project intervention was not available, and

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the physician stopped 3HP treatment for 3 (7%) contacts. Among those enrolled for PT (n = 1,216), 5.3% developed minor adverse effects (AEs), such as general weakness, nausea, vomiting, drowsiness, itching, and headache. Most of the AEs were managed with basic symptomatic treatment at the community level. None required hospital care. The most commonly reported AE was general weakness.

WAY FORWARD

This project demonstrated that identification of potential household contacts for PT and high treatment completion could be achieved through a well-designed, community-based program involving appropriately trained health workers. The awareness creation, counselling efforts, rigorous follow-up and reminder phone calls, convenient weekly regimen, shorter treatment duration, and minimal side effects are crucially important to achieving higher PT adherence. The community-based approach of PT using 3HP seems feasible in the Bangladeshi context. The NTP could consider national-level scale-up of 3HP intervention modalities as demonstrated by CTB to reach the committed target for PT. However, the cost of rifapentine is a barrier for most NTPs in resource-constrained settings.

References

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