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Impact of awareness drives and community-based active tuberculosis case finding in Odisha, India

D. Parija[*], **T. K. Patra**[†], **A. M. V. Kumar**[‡], **B. K. Swain**[†], **S. Satyanarayana**[‡], **A. Sreenivas**[*], **V. K. Chadha**[§], **P. K. Moonan**[¶], and **J. E. Oeltmann**[¶]

[*]World Health Organization Country Office for India, New Delhi

[†]Department of Health, Government of Odisha, Bhubaneswar

[‡]International Union Against Tuberculosis and Lung Disease, South-East Asia Regional Office, New Delhi

[§]National Tuberculosis Institute, Bangalore, India

[¶]Division of Tuberculosis Elimination, US Centers for Disease Control and Prevention, Atlanta, Georgia, USA

SUMMARY

India's Revised National Tuberculosis Control programme employs passive case detection. The new sputum smear-positive case detection rate is less than 70% in Odisha State. During April–June 2012, active case finding (ACF) was conducted through awareness drives and field-based tuberculosis (TB) screening in select communities with the lowest case detection rates. During the campaign, 240 sputum smear-positive TB cases were detected. The number of smear-positive cases detected increased by 11% relative to April–June 2011 in intervention communities compared to an 0.8% increase in non-intervention communities. ACF brought TB services closer to the community and increased TB case detection.

Keywords

active case finding; outreach; surveillance; awareness drives; Revised National Tuberculosis Control Programme

IN INDIA, the Revised National Tuberculosis Control Programme (RNTCP) has the objective of achieving and maintaining a new smear-positive tuberculosis (TB) case detection rate (NSP-CDR) of at least 70%, consistent with global targets.[1,2] Under the RNTCP, TB case finding is primarily a passive strategy whereby individuals with symptoms suggestive of TB self-report to public health care centres and undergo appropriate testing to diagnose or rule out TB.[1,2] During 2009–2012, the NSP-CDR in the state of Odisha was consistently below 70%, and the eight lowest performing districts in Odisha averaged a

Correspondance to: Debadutta Parija, State TB Cell, Directorate of Health Services, Heads of Departments Building, Bhubaneswar, India. Tel: (+91) 93382 55985. parijad@gmail.com, jeo3@cdc.gov.

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NSP-CDR of only 45%.[1,2] However, treatment success rates among registered cases in Odisha have consistently been above 85%.[1,2]

In Odisha, each district is divided into 12–85 health sectors for health care delivery. Each sector has approximately 30 000 residents. The headquarters of a health sector is known an Additional Primary Health Centre (APHC), which is managed by one medical officer, a pharmacist and two health workers. Most APHCs do not have sputum microscopy facilities. Every village has an Accredited Social Health Activist (ASHA) who acts as a link between the community and the health system and is trained to provide community-based directly observed therapy (DOT) for anti-tuberculosis treatment.

To improve TB case detection, the Ministry of Health, Government of Odisha (Bhubaneshwar, India) conducted community-based active case finding (ACF) in the eight districts with the lowest case detection rates. These eight districts include 405 sectors; a convenience sample of 203 sectors (intervention sectors) received the ACF activities from April–June 2012, while the remaining 202 sectors (usual practice sectors) did not. Using routinely reported surveillance data, we compared the change in 1) the number of persons screened, and 2) the number of sputum smear-positive TB cases diagnosed in the intervention and usual practice sectors before and after ACF activities.

ASPECT OF INTEREST

In each of the intervention sectors, the Ministry of Health, Government of Odisha, conducted a 1-day training course for ASHA workers on the signs and symptoms of TB. Training emphasised screening for cough of ≥72 weeks and listed the locations of facilities available for free TB diagnosis and treatment in each of the intervention sectors. After the training courses, the Government of Odisha performed a series of intensive 2-day TB awareness drives in each intervention sector, using loud speakers mounted on top of vans passing through the communities for 1 day, with community announcements about TB symptoms and health care services. This was followed by 1-day community-based health camps that included TB symptom screening and sputum collection for acid-fast bacilli (AFB) smear. On the day of the public service announcements, each ASHA worker was contacted and given sputum containers. Any person with symptoms suggestive of pulmonary TB who voluntarily reported to the worker was given a sputum container and instructions to provide an early morning sputum sample. The following day, workers accompanied each person with symptoms of TB to the screening camp for the collection of a second spot sputum sample at the camp. Sputum smears were prepared from both samples by a laboratory technician at the camp and transported to designated microscopy centres for Ziehl-Neelsen staining and microscopy.

To determine the putative additional yield of these awareness drives, we calculated the difference in number of persons screened, diagnosed and reported during the ACF period compared to the same time period 1 year earlier for both intervention (n = 203) and usual practice (n = 202) sectors.

Ethics approval was approved by the Ethics Advisory Group of the International Union Against Tuberculosis and Lung Disease, Paris, France, and the National TB Institute, Bangalore, India. Participation of the US Centers for Disease Control and Prevention (CDC, Atlanta, GA, USA) in this project did not meet the definition of engagement in human subjects research, and separate institutional review board approval was not required.

Of 8582 persons with symptoms suggestive of TB screened at the health camps in intervention sectors, 8507 (99%) submitted two sputum samples and 240 (3%) were AFB-positive. Compared to the previous year, the number of individuals examined and with smear-positive results was respectively 87.8% and 10.8% higher in the intervention sector. In the non-intervention sectors, there was a 16.6% and 0.8% increase in the number of persons examined and in smear-positive patients, respectively (Table).

DISCUSSION

This innovative yet simple community-based ACF approach brought TB diagnostic and treatment services closer to the community in locations with low case detection rates, and helped increase the detection of sputum smear-positive TB cases by nearly 11% in intervention sectors as compared to almost no change (0.8%) in the sectors that continued their usual practice. While we cannot be certain that the ACF campaign is solely responsible for the observed increase in the intervention relative to the districts that maintained their usual practice, we are not aware of any other campaigns designed to increase TB case detection nor any changes in population size that might explain the increase during the study period. The increase in TB case detection is therefore probably due to the ACF intervention. This was further substantiated by the negligible change observed in the usual practice sectors during the same time period. Although the additional number of cases detected in the usual practice sectors was low (0.8%), there was a 16.6% increase in the number of presumptive TB patients screened. We cannot explain this increase.

This simple intervention can be easily replicated in other areas to enhance community awareness and increase TB case finding. A similar ACF activity conducted in Ethiopia showed an increase in the pulmonary TB case notification rate, from 64 to 127 per 100 000 population per year.[3] In a study conducted under the FIDELIS (Fund for Innovative DOTS Expansion through Initiatives to Stop TB) project involving elementary and secondary students in Anhui, China, case detection in targeted counties increased by a factor of 3.5 during the project period.[4] While our approach showed potential for improved case detection in the short term, we do not know if these gains will be sustained long term. Furthermore, we did not collect data to show if the approach led to earlier detection and thereby reduced transmission or improved treatment outcomes for patients, which are the ultimate goals of ACF. Maintaining the increased detection rates observed in this study would likely require routine awareness drives and increased access to microscopy centres. Alternatively, routine training for local TB controllers focusing on case detection may be more cost-effective than awareness drives.

Future studies should assess this and the cost-effectiveness of such interventions to determine the periodicity at which they should be conducted before making decisions about

scale-up. In conclusion, ACF using awareness drives and community-based TB screening led to increased numbers of smear-positive TB cases diagnosed in Odisha, India.

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The authors alone are responsible for the views expressed in this publication and they do not necessarily represent the decisions or policies of the WHO, The Union, CDC or the Central TB Division of the RNTCP India.

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Table

Number of persons with presumptive TB and smear-positive cases registered in intervention and usual practice sectors, Odisha, India, April–June 2011 and April–June 2012

	Intervention sectors			Usual practice sectors		
Indicators	**2011 Q2**	**2012 Q2**	**Difference *n* (%)**	**2011 Q2**	**2012 Q2**	**Difference *n* (%)**
Presumptive TB patients examined	7 868	14 776	6 908 (87.8)	2 709	3 160	451 (16.6)
Sputum smear-positive patients detected	967	1 071	104 (10.8)	364	367	3 (0.8)

TB = tuberculosis; Q = quarter.