

# A RAPID METHOD TO ASSESS THE COVERAGE OF THE MASS DRUG ADMINISTRATION OF DIETHYLCARBAMAZINE IN THE PROGRAM TO ELIMINATE LYMPHATIC FILARIASIS IN INDIA

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**Abstract.** A rapid method to assess the coverage of mass drug administration (MDA) in the program to eliminate lymphatic filariasis needs to be developed for monitoring and evaluation of the program. This study attempted to develop and test a method of rapid assessment of coverage by using the existing resources of the program. This is based on the data obtained from the randomly selected health workers and drug distributors involved in the drug distribution process and the data of a household coverage survey of the program. The MDA coverage rate obtained through the evaluation survey was highly correlated with the rates obtained from health workers and drug distributors as a rapid assessment. Thus, MDA coverages assessed through health workers and drug distributors can give a good coverage estimate. The involvement of the existing human resources of the program in this rapid method of assessing MDA coverage was cost-effective.

## INTRODUCTION

Lymphatic filariasis (LF) infects more than 120 million people worldwide and the problem continues to worsen. LF has been designated as an eradicable disease and the global program to eliminate lymphatic filariasis (PELF) relies on the twin pillars of disease transmission interruption and alleviation of disability and suffering (Seim *et al*, 1999). The most practical and feasible method of transmission interruption is rapid reduction of microfilarial load in the community by annual mass drug administration (MDA) of diethylcarbamazine (DEC), which has been initiated in India (Ramaiah *et al*, 2000). Recent research showed that annual MDA of DEC is an effective tool for the control of LF and 5-10 rounds of treatment with 75-80% coverage could possibly eradicate the disease by reducing transmission to very low levels (Ottesen *et al*, 1997). Results of evaluations of MDA in India have indicated low levels of coverage (Ramaiah *et al*, 2000; Babu and Satyanarayana, 2003). Coverage assessment is based on the number of left over tablets, as reported by the health workers of various health institutions. The program relies on these reported coverage rates, to assess imple-

mentation at larger units, such as health sub-centers and primary health centers. A rapid method to assess the coverage of MDA needs to be developed for monitoring and evaluating the MDA program. The assessment method should be useful in identifying communities within the implementation unit with low coverage so as to devise timely and community-specific adjustments to improve coverage. Our study tested a new method for rapidly assessing coverage rates, using the existing human resources of the program.

## METHODS

This study was conducted during a MDA program to eliminate LF in the East Godavari District of Andhra Pradesh, a southern state of India. A description of the study area, MDA of PELF, and details of evaluation surveys are available elsewhere (Babu and Satyanarayana, 2003). This newly developed method is based on a questionnaire administered to health workers and drug distributors. Four primary health centers in the district were used for this study. From each primary health center, ten health workers and ten drug distributors of different health sub-centers were selected randomly. These randomly selected forty health workers and forty drug distributors filled out the questionnaire after informed consent was obtained from each individual. The health workers and drug distributors had distributed the drug in villages and the health workers had monitored the process at the

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village level. The drug distributors were mostly volunteers with minimum training recruited from the community to distribute the drugs. Each health worker/drug distributor distributed DEC tablets to a cluster of 50 households. The information collected in the questionnaire included the number of people to be covered and the number of people who received tablets (coverage). Information regarding compliance was not collected because supervision of ingestion was not performed. A household coverage survey had been performed by researchers in a large number of villages as part of the evaluation of the program (Babu and Satyanarayana, 2003). These data were compared with the data obtained from the sampled health workers and drug distributors and used for analysis. The coverage rates obtained from the questionnaire were compared with the corresponding rates obtained from the household coverage survey. In our study, the coverage rate was the percentage of individuals who received DEC tablets out of the total eligible individuals. Data analysis was done using SPSS for Windows, Version 8.0.

## RESULTS

The mean coverage rates for the forty clusters, as determined by the questionnaire, from the health workers and drug distributors were  $79.86 \pm 15.54$  (SD) and  $80.60 \pm 16.62$  (SD), respectively. The corresponding estimate for these clusters obtained from the household coverage survey was  $77.33 \pm 16.73$  (SD). The coverage rates obtained through the questionnaire correlated highly with actual coverage rates (health workers:  $r=0.950$ ,  $p<0.01$ ; drug distributors:  $r=0.978$ ,  $p<0.01$ ). The mean differences (after ignoring the sign of difference) between the rates of actual coverage and the questionnaire method were relatively low (4.45 for health workers, 3.82 for drug distributors). The high correlation may be due to the fact that both health workers and drug distributors visited each household to which drugs were delivered. The coverage estimates based on the questionnaire are assumed to be accurate.

## DISCUSSION

In order to achieve the target of the elimination of LF, the MDA program has to be sustained over many years. It is necessary to achieve higher rates of coverage and compliance. Simulation models predict that lower compliance levels (65-

75%), low level transmission and new infections will continue (Plaisier *et al*, 1995). It is essential to evaluate, monitor, and strengthen the program to achieve higher coverage rates and compliance (Molyneux and Zagaria, 2002). For this purpose, the program should have a mechanism to assess coverage and compliance rapidly; identifying communities with low coverage. Presently, no system of assessing coverage and compliance exists in India. Our study shows that this method may be useful in evaluating MDA coverage. The involvement of health workers and community level health workers for this purpose is cost-effective, since it takes advantage of the existing human resources of the program. However, comprehensive studies that take into consideration time, cost-effectiveness, and accuracy of this method to assess the coverage of the MDA program to eliminate LF are recommended.

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