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A study on coverage, compliance and awareness about mass drug administration for elimination of lymphatic filariasis in a district of West Bengal, India

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Lymphatic Filariasis (LF) is one of the oldest and most debilitating neglected tropical diseases (NTDs). An estimated 120 million people in 81 countries are infected currently, and an estimated 1.34 billion live in areas where filariasis is endemic and are at risk of infection. Approximately 40 million people suffer from the stigmatizing and disabling clinical manifestations of the disease, including 15 million who have lymphoedema (elephantiasis) and 25 million men who have urogenital swelling, principally scrotal hydrocele[1]. It is one of the major public health problems in south-east Asia. Nine of the 11 countries in the region are known to be endemic for filariasis. More than 60% of the global population and half of the infected cases are from this region[2].

International Task Force for Disease Eradication has identified LF as one of the seven diseases that can be eradicated[3]. India is committed to eliminate LF by 2015[4]. To achieve this goal annual mass drug administration (MDA) of antifilarial drug was launched in 2004 by the Government of India[5]. According to the guidelines, DEC should be administered under supervision to all the people excluding children <2 yr, pregnant women and severely ill persons (non-eligible)[6]. In order to achieve the elimination of LF by 2015 under the National Health Policy, National Filarial Day (NFD) was proposed to be observed every year starting from 2004 in the endemic districts[4]. A high coverage (>85%) in endemic areas, which is sustained for 5 years, is required to achieve for the interruption of transmission and elimination of disease in India[6]. Though reported coverage by health department is high but different studies have shown that effective coverage is not that high[7]. To achieve and sustain high coverage of drug consumption health education activity is very important[8]. With this background, the present study was conducted with the objective of finding out the coverage and compliance of MDA in North 24 Parganas district of West Bengal and community awareness about LF and filariasis elimination programme.

According to the standard methodology three blocks and one municipality ward were selected. One block was selected with >80% coverage, one block with 50–80% coverage and one block with <50% coverage. In North 24 Parganas district, no block had reported coverage <50%. Only one block (Bangoan) had reported <80% coverage. So, that block was selected. All other blocks had reported >80% coverage. From the list of these blocks, Amdanga and Haroa blocks were selected. From the selected block one PHC was randomly selected. From each selected PHC one subcentre and from each selected subcentre one village was selected randomly. From the list of municipalities Khardah Municipality was randomly selected. From the list of wards of that municipality ward 14 was selected. From each cluster (3 villages and 1 municipal ward) at least 30 families or 150 persons were surveyed as per Govt. of India protocol. Mass drug administration was conducted in May 2010 in North 24 Parganas district. The survey was conducted immediately after the mass drug administration. The head of the family or other responsible member present at the time of survey was interviewed with the help of pre-designed, pre-tested questionnaire. All the data were compiled and analysed applying appropriate statistical method.

A total of 166 (one from each household) respondents were interviewed in the district. Majority were females (72.29%) and mostly (66.87%) in the age group of 18–45 years. In the 166 families out of 807 persons, 778 (96.41%) were eligible for anti-filarial drugs. Children under two years, pregnant women and severely ill persons were excluded. Out of 166 families, 109 families received drugs, and drug distributor did not visit the other families. In these 109 families, 46 persons did not receive drugs for various reasons. Drugs were received by 435 (55.91%) persons in those 109 families (total eligible 481). Drug distributor gave inappropriate doses to 7.9% persons due

to fear of side effects or misclassification. In these families also, 9.56% persons refused the drug or drug distributor did not give the drug as they were suffering from various diseases (Table 1a & b).

In North 24 Parganas, the coverage was found to be 55.91% and compliance was found to be 69.43%. So, effective coverage (coverage × compliance) was 38.81%. In rural area, coverage, compliance and effective coverage were 72.87, 70.47 and 51.35% respectively. But, in urban areas, the corresponding figures were 14.22, 56.25 and 8% respectively. The difference between the effective coverage between rural and urban areas were highly significant ($z = 15.5$, $p < 0.01$). Compliance was almost equal in males and females, 68.72 and 70.19% and difference was not statistically significant ($z = 0.27$, $p > 0.05$). In age wise distribution, compliance was almost similar- and it was 76.92, 69.70 and 68.81% for 2–5 yr, 6–14 yr and ≥15 yr age groups respectively.

In most of the families (67.88%), ICDS workers were the drug distributors. Health workers and community volunteers were also involved in drug distribution. In no family drug consumption was supervised. Drug was distributed with the advice to take it in the night after dinner. Drug was well-tolerated with report of side effect from only one woman in Piplipara village (Bangoan block). The woman experienced vomiting within one hour of consumption of drug. She did not consult anybody and it subsided spontaneously.

Table 1a. Person wise distribution of drug (n=481)

Age group (yr)	Sex	Received dose	Nil	Total
2–5	M	12 (2.50)	4 (0.83)	16 (3.33)
	F	14 (2.91)	2 (0.42)	16 (3.33)
6–14	M	30 (6.24)	1 (0.21)	31 (6.45)
	F	36 (7.48)	2 (0.42)	38 (7.90)
≥15	M	185 (38.46)	17 (3.53)	202 (41.99)
	F	158 (32.85)	20 (4.15)	178 (37)
Total		435 (90.44)	46 (9.56)	481 (100)

Figures in parentheses indicate percentages.

Table 1b. Person wise consumption of drug (n=435)

Age group (yr)	Sex	Consumed dose	Nil	Total
2–5	M	10 (2.30)	2 (0.46)	12 (2.76)
	F	10 (2.30)	4 (0.92)	14 (3.22)
6–14	M	20 (4.60)	10 (2.30)	30 (6.90)
	F	26 (5.98)	10 (2.30)	36 (8.28)
≥15	M	126 (28.97)	59 (13.56)	185 (42.53)
	F	110 (25.29)	48 (11.03)	158 (36.32)
Total		302 (69.43)	133 (30.57)	435 (100)

Figures in parentheses indicate percentages.

Reasons for non-compliance

Even after getting the drug 133 persons (30.57%) did not consume. The most frequent cause was fear of side effect (36.84%) followed by inadequate counseling about the use of the drug for who do not have any clinical manifestation of filariasis (27.82%). Other causes of non consumption were no faith on the drug (12.03%), not present at home (5.26%), etc.

Awareness of the community

Only 55.42% interviewed persons have heard about LF. Awareness is better in urban ward (88.89%) compared to villages (42.98%). Those who heard about the name of LF few knew the presenting symptoms. Only 17.36% in rural area and 42.22% in urban area knew at least one correct presenting symptom of LF. Majority cited swelling of limb as the presenting symptom. According to them other presentations were fever, cough, pain, swelling of whole body and itching. Only 13.86% knew the mode of transmission of filariasis correctly; few had incorrect knowledge that direct contact, water, and air are modes of transmission. Only 20% in urban area and 4.13% respondents in rural area had correct knowledge of mode of prevention of LF. Very few were aware about treatment of Filariasis and the filaria elimination programme. Only 8.47% knew about availability of treatment of filariasis and 21.08% were aware about filaria elimination programme. Only 38.04% respondents knew that drug administration was being done on every house, but they did not know that it was for elimination of LF. Important sources of information were Anganwadi worker, Auxiliary Nurse Midwife (ANM) and community volunteer. No IEC activity was reported by any respondent in the fortnight previous to the drug administration. IEC activity was conducted only at the time of drug distribution (Table 2).

DEC and Albendazole require to be administered to >85% of the eligible population in the endemic districts to achieve the National Health Policy (2002) goal of LF elimination in India by 2015[4,6]. But in North 24 Parganas district, drugs were distributed to 55.91% of the eligible population. Only 69.43% of them actually consumed the drug, making the effective coverage to be 38.81%. In a study from Andhra Pradesh, compliance was reported to be as low as 41.96% in Krishna district and highest (76.06%) in East Gadavari district[9]. In another study from rural Puducherry the coverage, compliance and effective coverage rates were 76.2, 88.7 and 67.6% respectively[8]. In

Table 2. Knowledge of people about lymphatic filariasis and its elimination programme

Different aspects of knowledge	Rural (n=121)	Urban (n= 45)	Total (n=166)
Heard about lymphatic filariasis	52 (42.98)	40 (88.89)	92 (55.42)
Know at least one symptom of lymphatic filariasis	21 (17.36)	19 (42.22)	40 (24.09)
Know mode of transmission of lymphatic filariasis	10 (8.26)	13 (28.88)	23 (13.86)
Know about mode of prevention of lymphatic filariasis	5 (4.13)	9 (20)	14 (8.43)
Know about availability of treatment of lymphatic filariasis	9 (7.44)	9 (20)	18 (10.84)
Aware about filariasis elimination programme	27 (22.31)	8 (17.78)	35 (21.08)

Figures in parentheses indicate percentages.

2006, coverage, compliance and effective coverage in Gujarat were reported to be 85.2, 89 and 75.8% respectively[7]. A study in Kerala had reported coverage of 77% and compliance of 39.6% only[10]. Lahariya and Mishra had reported coverage ranging from 28.8 to 67.9% in different districts and compliance of 61.3 to 77.4% in Madhya Pradesh in MDA in 2007[11]. Babu *et al*[12] also reported low coverage (67.1%) in Orissa. In all these studies there was wide gap between coverage and compliance. During MDA round drugs were supposed to be administered under the supervision of the health worker. In the present study, drug consumption was not supervised. This created a room for non-compliance. In the present study, important causes for non-compliance were fear of side effects and inadequate counselling. In supervised drug administration, these non-compliant persons could have been identified and adequate counselling could have been done. In Puducherry study also, in 96.57% persons drug consumption was not supervised[8]. Supervised drug consumption create an opportunity to increase their awareness about LF and the elimination programme. Drug distributors did not give the drugs to persons suffering from various mild diseases. This highlighted the need for proper training of the drug distributors. Drugs were well-tolerated and side effect was negligible. This low level of side effect might be due to low prevalence of the disease in the population.

In the present study, awareness of the community about the disease and the programme was found to be very poor. Similar low awareness was reported by Eberhard *et al*[13] in an endemic area in Haiti. In a study from Indonesia[14], only 54% have heard the name of filariasis. Mukhopadhyay *et al*[9] reported that in Andhra Pradesh 65.06% knew the mode of transmission of LF and 72.93% were aware about the symptoms of LF. In the present study, very few (8.43%) were aware about preventive measures and 10.84% for treatment for LF. Though 38.04% respondents were aware about MDA, only 21.08% were aware about the purpose of it, i.e. filaria elimination programme. Babu *et al*[12] reported 96% awareness about LF elimination after the MDA round. Mukhopadhyay *et al*[9] reported 53.66% awareness about MDA in Andhra Pradesh.

To improve the situation there is a need for strengthening of awareness programme involving both government health workers and community volunteers. Awareness progmommes will make the community more receptive and that will make the elimination goal a reality.

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REFERENCES

1. Progress report 2000–2009 and strategic plan 2010-2020 of the global progress to eliminate lymphatic lilariasis: halfway towards eliminating lymphatic filariasis. Geneva: World Health Organization 2010; p. ix.
2. Regional Strategic Plan for elimination of lymphatic filariasis (2004–2007). New Delhi: World Health Organization, Regional Office for South-East Asia, August 2004; p. 1
3. International Task Force for Disease Eradication Available from: *http://www.cartercenter.org/health/itfde/index.html*. [accessed on September 25, 2010].
4. National Health Policy 2002. New Delhi: Department of Health, Ministry of Health and Family Welfare, Government of India. Available from : *http://fpload_b.nic.in/NRHM/documents/National_Health_Policy_2002.pdf* [accessed on 20 September 2010.
5. Elimination of lymphatic filariaisis: Training manual on mass drug administration and morbidity management. Delhi: Directorate of National Vector Borne Disease Control Programme, Government of India 2009; p. 10–2.
6. Operational guidelines on elimination of lymphatic filariasis. Delhi: Directorate of National Vector Borne Disease Control Programme, Government of India 2004; p. 3.
7. Kumar P, Prajapati PB, Saxena D, Kavishwar AB, Kurian G. An evaluation of coverage and compliance of mass drug administration 2006 for elimination of lymphatic filariasis in endemic areas of Gujarat. *Indian J Commun Med* 2008; *33:* 38–42.
8. Mahalakshmy T, Kalaiselvan G, Parmar J, Dongre A. Coverage and compliance to diethylcarbamazine in relation to Filaria Pre-

vention Assistants in rural Puducherry, India. *J Vector Borne Dis* 2010; *47:* 113–5.
9. Mukhopadhyay AK, Patnaik SK, Satya Babu P, Rao KNMB Knowledge on lymphatic filariasis and mass drug administration (MDA) programme in filaria endemic districts of Andhra Pradesh, India. *J Vector Borne Dis* 2008; *45:* 73–5.
10. Aswathy S, Beteena K, Leelamoni K. Mass drug administration against filariasis in India: perceptions and practices in a rural community in Kerala. *Ann Trop Med Parasitol* 2009: *103*(7): 617–24.
11. Lahariya C, Mishra A. Strengthening of mass drug administration implementation is required to eliminate lymphatic filariasis from India: an evaluation study. *J Vector Borne Dis* 2008; *45:* 313–20.
12. Babu BV, Rath K, Kerketta AS, Swain BK, Mishra S, Kar SK. Adverse reactions following mass drug administration during the programme to eliminate lymphatic filariasis in Orissa state, India. *Trans R Soc Trop Med Hyg* 2006; *100:* 464–9.
13. Eberhard ML, Walker EM, Addiss DG, Lammie PJ. A survey of knowledge, attitudes, and perceptions (KAPs) of lymphatic filariasis, elephantiasis, and hydrocele among residents in an endemic area in Haiti. *Am J Trop Med Hyg* 1996: *54*(3): 299–30.
14 Krentel A, Fischer P, Manoempil P, Supali T, Servais G, Ruckert P. Using knowledge, attitudes and practice (KAP) surveys on lymphatic filariasis to prepare a health promotion campaign for mass drug administration in Alor District, Indonesia. *Trop Med Int Health* 2006; *11*(11): 1731–40.

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