

Original Article

Improved Coverage of and Compliance to Anti-filarial Drugs in the Ninth Round of MDA Campaign at Raichur District

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Abstract

Background: Sustained implementation of mass drug administration (MDA) of antifilarial drugs in a campaign mode for five years could lead to lymphatic filariasis elimination. Evaluation of each campaign in relation to MDA coverage, drug compliance, communication, management and community participation gives inputs to the iterative programme planning. **Aim:** To find the coverage rates, drug compliance and planning and implementation of MDA campaign. **Material and methods:** A multi-stage cross-sectional survey of villages and urban wards of Raichur district in Karnataka was conducted in March 2013. A structured interview was conducted on a sample of 250 eligible beneficiaries in each cluster including from two to sixty years of age and excluding pregnant women and severely ill. The coverage and compliance rates are expressed with 95% confidence interval. The difference of these rates among the urban and rural clusters is analyzed by chi-square test and p value of <0.05 is considered statistically significant. **Results:** Drug distribution rate of 95.7% and compliance rate of 93.4% in rural Raichur is significantly better than the corresponding rates of 83% and 83.7% respectively in urban areas. MDA campaign was not scheduled as per plan due to delay in supply of drugs from central and state level to district level and an unscheduled protest by doctors. **Conclusion:** A significant improvement in performance of MDA campaign at Raichur could be attributed to committed frontline health workers and strategic coverage implementation in spite of managerial deficiencies at higher levels.

Keywords: Raichur, MDA campaign, Lymphatic Filariasis, Evaluation, Compliance, Drug distribution.

Introduction

Lymphatic filariasis (LF) is a disfiguring chronic disease and a major cause of disability in the developing world.^[1] Around 1.34 billion people in 83 endemic countries and territories are at risk of LF infection.^[2] Global programme for elimination of lymphatic filariasis (GPELF) is an effort to combat LF through mass drug administration (MDA) in endemic countries with the support of UN agencies, governments, major pharmaceutical companies and founda-

tions.^[3] India is currently implementing the annual MDA campaign in all the 250 endemic districts. The microfilarial rate has declined significantly to 0.29% in 2013 from 1.24% in 2004 and is attributed to an impressive coverage of antifilarial drugs distributed during MDA campaign to nearly 83% of the eligible population.^[4] Over 85% coverage of the population with antifilarial drugs through MDA campaign for at least five years could effectively interrupt transmission of LF.^[5] This is dependent on a series of interrelated factors of political commitment, sustained support from external donors, adequate MDA coverage, health education, community participation, compliance to drug, environment sanitation and sustainability.^[6] The ninth round of MDA campaign was carried out in the first week of March 2013 in the eight endemic districts of

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Karnataka state. This paper presents the report of independent evaluation of MDA against LF in Raichur district conducted with the objective of finding the MDA coverage among the beneficiaries, compliance to antifilarial drug intake, adverse events and planning and implementation of the programme.

Materials and Methods

Of the 2,000,702 estimated population in Raichur district around 1,840,691 were eligible for MDA. From the five taluks in the district three were randomly selected for the survey namely Lingasugur, Manvi and Sindhanur. One primary health centre (PHC) was selected randomly from each of these talukas. Then one subcentre was selected from each PHC area and then one village was selected from it randomly. In Raichur urban area, one health centre area was identified under a randomly selected municipality ward. For the survey in the selected village and the urban area a centre point was identified and then a random direction of travel was determined. The number of households from the start point and between the limit of the selected cluster was counted and then the starting house selected randomly. After collecting the required data related to MDA delivery and its utilization from the eligible individuals the next nearest household was then selected. For young children, the parents or caregivers answered the questionnaire.

A structured close-ended and pretested questionnaire was administered to assess whether the beneficiary received the drugs, the day and time of receiving the drugs, the distributing person and the reasons for not receiving it. Information on the consumption of drugs, the actual number of tablets consumed, whether consumed it in front of the drug distributor, reasons for not consuming the drug, who received the drugs if the beneficiary was not there in the house at the time of their visit and the adverse events following consumption of the drugs was also obtained. This coverage survey was undertaken in second week of March 2013 and on a sample of 250 individuals from each selected cluster. The drug coverage was assessed as the percentage of eligible people receiving Diethyl Carbamezine (DEC) and al-

bendazole under MDA campaign through the drug distributors. The measure of compliance was assessed based on percentage of eligible people actually consuming the drug distributed in MDA campaign. Drug consumption rate was calculated separately for DEC, albendazole and DEC plus albendazole. The actual consumption rate assessed in this survey means the proportion of eligible people who has consumed all the distributed drugs.

Table 1. Demographic profile of the eligible people sampled for assessment of MDA campaign at Raichur district

Demographic characteristics	No. (%) (n=1088)
Place	
Urban	260(23.8)
Rural	828(76.2)
Sex	
Male	574(52.7)
Female	514(47.3)
Age (in years)	
2-14	211(19.3)
14+	877(80.7)

Statistical analysis

The coded data was entered into Microsoft excel 2010 spread sheet. Summary statistics are described as frequencies and proportions. Confidence interval (CI) at 95% is used to present the coverage rate and compliance rate of antifilarial drugs. Estimation of differences in drug distribution and its actual consumption according to age groups, sex and urban-rural residence is determined using chi-square test. A difference in the proportion was considered to be statistically significant if p value < 0.05 .

Results

The demographic profile of 1088 eligible people selected for assessment of MDA campaign at Raichur district is presented in table1. Analysis of the drug distribution and consumption rates among the studied eligible population in MDA campaign shows a coverage rate of 92.7% and compliance of 91.3% (table

Table 2. Analysis of the drug distribution and consumption rates among the studied eligible people in MDA campaign at Raichur district

Characteristic	Drug Coverage		Drug Compliance	
	No.(%)	95% CI	No.(%)	95% CI
Place				
Urban	216(83)	78.5-87.6*	181(83.7)	78.9-88.1*
Rural	793(95.7)	94.4-97.1	741(93.4)	91.7-95.1
Age				
2-14	197(93.3)	90.0-96.7	185(93.9)	89.8-96.8
14+	812(87.5)	90.8-94.3	737(90.7)	88.8-92.8
Sex				
Male	559(97.3)	96.1-98.7*	516(92.3)	90.0-94.6
Female	450(87.5)	84.7-90.4	406(90.2)	87.4-92.9

*p value <0.05

2). The coverage rate of 95.7% and compliance of 93.4% in rural areas was better than 83% coverage rate and 83.7% compliance found in urban area.

The coverage of females is found to be significantly lower (87.5%) than men (97.3%) whereas there is no much difference in compliance to these drugs among them (90.2% vs 92.3% for women and men). Not being at home when the drug distributor visited, forgetting to take the drug and a feeling of not necessary to consume were important reasons for non-compliance to antifilarial drugs (table 3).

Discussion

The coverage rate of and compliance rate to MDA campaign at Raichur district was 92.7% and 91.3% respectively. The coverage rate reported by the MDA programme personnel of Raichur was 95% which is slightly higher than the actual coverage rate of 92.7%. Only 13.4% of the beneficiaries had consumed the distributed antifilarial tablets in the presence of the drug distributors. Adverse events were reported by 0.9% of the individuals.

Table 3. Distribution of drug consumption and adverse events in MDA campaign at Raichur.

Characteristic	No.(%)
Consumption of antifilarial drugs	
Actual consumption	922 (91.3)
Partial consumption	
DEC only	19 (1.8)
Albendazole only	10 (0.9)
No consumption	58 (5.7)
Reason for non-compliance	
Not at home when the drug distributor visited	19 (32)
Fear of adverse events	07 (12)
Feels not necessary	12 (20.7)
Forgot to consume	16 (27.6)
Others	04 (6.9)
Adverse events reported	
Itching	3 (37.5)
Gastrointestinal symptoms	4 (50)
Others	1 (12.5)

The coverage rate of MDA in the sampled Raichur urban ward was 83% compared to 95% in the villages, the difference being highly statistically significant ($p < 0.000$). Many MDA evaluation surveys in the urban wards have reported poor coverage of antifilarial drugs.^[7-10] This may be attributed to poorly organized community based urban health care delivery system.^[11] It is found in this study that volunteer college students were relied on for drug distribution and their performance is found to be poor as they had not ensured the consumption of antifilarial drugs in their presence. Also, fewer health care personnel covered larger densely distributed population in urban areas compared to the rural areas. The drug distributors for the MDA campaign identified at rural Raichur were ASHA, anganwadi workers, auxiliary nurse midwives, male health workers and volunteer students from nursing colleges.

An evaluation of the coverage and compliance to antifilarial drugs in the earlier MDA campaign undertaken in the year 2009 by Sanjay TV and co-authors at Raichur were reported to be 45.1% and 73.9% respectively which is much lower than the 2013 MDA performance and was attributed to factors like inadequate training of drug distributors.^[12] The overall better performance of 2013 round of MDA in Raichur can be attributed to the drug distributors undergoing two rounds of training for administration of antifilarial drugs to the beneficiaries and the re-visits to the households for the next two days planned in the evenings instead of mornings. The programme recommends one training activity for the drug distributors and distributing the drugs in the mornings after food. The experiences in the previous MDA campaigns were of the beneficiaries not being available in the mornings at home. Hence for the 2013 campaign a strategic decision was taken by the programme managers to conduct house visits in the evenings for those beneficiaries who were not found on the day one of the campaign.^[13-16]

Compliance means the actual consumption of all the distributed drugs. Compliance was 91.3% and was found to be better among rural (93.4%) compared to the urban benefi-

ciaries (83%). It is observed in the MDA evaluation studies conducted earlier of compliance being poorer in urban population compared to rural population.^[17,18] As the adults in the urban area are generally away from home in the day time it is difficult to meet all the beneficiaries at a single point of time during the drug distributors visits. There may also be poor communication among the neighbours in the urban area about the drug distributor's visit. Information on drugs received by children on behalf of the adult beneficiaries might not be communicated properly.

The adverse events were recalled by 0.9% of the beneficiaries and were reported to be of mild in nature which included itching sensation, gastric irritation, vomiting, giddiness and body weakness. No deaths were reported. The main reasons attributed to by the beneficiaries for not consuming the drugs were: was not at home when the drug distributor came; it is not necessary to take the drugs and; fear of side effects of the drugs. Similar findings of adverse events and reasons for non-compliance are being reported in the MDA coverage surveys undertaken earlier.^[19-21] The scheduled dates of MDA campaign was postponed twice due to the delay in the supply of drugs from the central and state level program management to the district level.^[22] At the same time the Government doctors of the district who were in the implementation unit went on mass strike to protest to for some of their demands. Such managerial deficiencies and demanding attitude of the health care personnel during MDA program leading to its postponement has been reported as a regular phenomenon.^[14,23] In this MDA round different campaign dates were printed in the information, education and communication (IEC) materials like handbills, banners and posters. Such deficiencies in the implementation of mass campaigns may lead to confusion among the public and loss of confidence in the program which may further reflect as poor compliance.

Conclusion

The district administration and the programme managers at all levels involved in

MDA should now anticipate the public health force going on a strike during the campaign. Similarly managerial deficiencies in ensuring timely supply of antifilarial drugs to endemic districts are well recognised in the annual campaign and should be anticipated. In spite of these barriers the improved performance in coverage and compliance to antifilarial drugs at Raichur is evidence to the commitment of the frontline programme workers towards LF elimination.

References

- Farrar J, Hotez PJ, Junghans T, Kang G, Lallo D, White NJ. The Filariasis. In: Manson's Tropical diseases, 23rd ed. Elsevier Saunders Publications: 2014. p. 737-68.
- Progress report 2000–2009 and strategic plan 2010-2020 of the global progress to eliminate lymphatic filariasis: halfway towards eliminating lymphatic filariasis. Geneva: World Health Organization 2010; p.ix. Available at: <http://www.searo.who.int>
- The Global Programme to Eliminate Lymphatic Filariasis. Available from: http://www.who.int/lymphatic_filariasis
- Ministry of Health & Family Welfare, Govt. of India. <http://nvbdcp.gov.in/filariasis>.
- Elimination of lymphatic filariasis: Training manual on mass drug administration and morbidity management. Delhi: Directorate of National Vector Borne Disease Control Programme, Government of India 2009; p. 10–12.
- Boatin BA, Basanez MG, Prichard RK, Awadzi K, Barakat RM, Garcia HH et al. A Research Agenda for Helminth Diseases of Humans: Towards Control and Elimination. *PLoS Negl Trop Dis*. 2012;6(4):e1547. Available from: <http://journals.plos.org>
- Nandha B, Sadanandane C, Jambulingam P, Das PK. Delivery strategy of mass annual single dose DEC administration to eliminate lymphatic filariasis in the urban areas of Pondicherry, South India: 5 years of experience. *Filaria Journal*. 2007;6:7. Available from: <http://www.filariajournal.com>
- Weerasooriya MV, Yahathugoda CT, Wickramasinghe D, Gunawardena KN, Dharmadasa RA, Vidanapathirana KK et al. Social mobilisation, drug coverage and compliance and adverse reactions in a Mass Drug Administration (MDA) Programme for the Elimination of Lymphatic Filariasis in Sri Lanka. *Filaria Journal*. 2007;6:11. Available from: <http://www.filariajournal.com>
- Hussain MA, Sitha AK, Swain S, Kadam S, Pati S. Mass drug administration for lymphatic filariasis elimination in a coastal state of India: a study on barriers to coverage and compliance. *Infectious Diseases of Poverty*. 2014;3:31. Available from: <http://www.idpjournals.com>.
- Krentel A, Fischer PU, Weil GJ. A Review of Factors That Influence Individual Compliance with Mass Drug Administration for Elimination of Lymphatic Filariasis. *PLoS Neglected Tropical Diseases*. 2013;7(11):e2447. Available from: <http://www.ncbi.nlm.nih.gov>
- Progress report 2000–2009 and strategic plan 2010-2020 of the global progress to eliminate lymphatic filariasis: halfway towards eliminating lymphatic filariasis. Geneva: World Health Organization 2010; p.28. Available at: <http://www.searo.who.int>
- Sanjay TV, Kishore SG, Gowda G, Ravikumar K. An evaluation of mass drug administration (MDA) for the elimination of lymphatic filariasis in Raichur district, Karnataka. *Indian J of preventive and social medicine* 2012; 43(2):197-201.
- Ray K, Mitra K, Anirban C, Jana PK, Bhattacharya S, Lahiri SK. A study on coverage, compliance and awareness about Mass Drug Administration for elimination of lymphatic filariasis in a district of West Bengal, India. *J Vector Borne Dis* 2011;48:101-04.
- Ranganath BG. Coverage survey for assessing mass drug administration against lymphatic filariasis in Gulbarga district, Karnataka, India. *J Vector Borne Dis* 2010; 47: 61-64.
- Sharma A, Kasar PK. Coverage and Compliance of Mass Drug Administration for Elimination of Lymphatic Filariasis in Endemic Areas of Sagar and Damoh Districts, Madhya Pradesh. *Natl J Community Med* 2013; 4(4): 653-57.
- Kulkarni P, Kumar R, Rajegowda RM, Channabasappa HG, Ashok N C. MDA Program against lymphatic filariasis: Are we on the path to success? Experience from Uttara Kannada District, Karnataka. *Int J Med Public Health* 2014 ;4:243-6. Available from:
- Ghosh, Santanu, Amrita Samanta, SeshadriKole.

- Mass Drug Administration for Elimination of Lymphatic Filariasis: Recent Experiences from a District of West Bengal, India. *Tropical Parasitology* .2013;67-71. Available at: <http://www.ncbi.nlm.nih.gov>
18. Karmakar PR, Mitra K, Chatterjee A, Jana PK, Bhattacharya S, Lahiri SK. A study on coverage, compliance and awareness about mass drug administration for elimination of lymphatic filariasis in a district of West Bengal, India. *Journal of Vector Borne Diseases* 2011;48:101-04.
 19. McLaughlin SI, Radday J, Michel MC, Addiss DG, Beach MJ, Lammie PJ et al. Frequency, severity, and costs of adverse reactions following mass treatment for lymphatic filariasis using diethyl-carbamazine and albendazole in Leogane, Haiti, 2000. *Am J Trop Med Hyg* 2003;68:568-73
 20. Babu BV. A qualitative study on the adverse reactions of mass treatment for lymphatic filariasis in Orissa, India. *Asian Pacific J Trop Med*. 2010;3:55-58. Available from: <http://www.sciencedirect.com>.
 21. Roy RN, Sarkar AP, Misra R, Chakroborty A, Mondal TK, Bag K. Coverage and Awareness of and Compliance with Mass Drug Administration for Elimination of Lymphatic Filariasis in Burdwan District, West Bengal, India. *Journal of Health, Population, and Nutrition*;31(2):171-77. Available from: <http://www.ncbi.nlm.nih.gov>
 22. District vector borne disease control office, Statement showing the DEC and albendazole drugs received; Dated:27-02-2013.
 23. Ranganath BG. Lymphatic Filariasis Elimination: Operational Research – Need of the Hour. *J Clin Biomed Sci* 2014; 4(2):265-66.