

Title-Effect of directly observed therapy (DOT) on Mass Drug Administration (MDA) coverage and status of Mass Drug Administration programme in Bankura district of West Bengal, India

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Abstract: Background: Government of India adopted mass-drug-administration (MDA) since 2004 for elimination of LF by 2015 AD. MDA implementation in WB has been criticised for low coverage. **Objective:** to assess the effect of DOT on coverage of MDA along with its correlates and status of MDA programme. **Materials and Methods:** Cross-sectional survey was conducted in three subcenters of three community development blocks and three wards of Bankura municipality of Bankura district of West Bengal selected by multistage random sampling. Information was collected via interviewing the inhabitants of clusters selected by systematic random sampling; concerned drug administrators and ANMs and BPHN/PHN of selected blocks along with scrutinizing records and verifying logistics for MDA at subcenter level and checking of left over medicines/strips at household level. **Results:** Around 45% respondents knew LF out of which 81.34% considered swelling of limbs and 31.34% reported fever as symptom and 48% knew about transmission of LF. Overall, 45% heard MDA and one third knew purpose of MDA. Overall, appropriate distribution and consumption of both medicines were 65.51% and 50.0%. Consumption was higher among rural Hindu scheduled caste poor labourer. One fourth of appropriate consumption of both medicines was supervised. IEC and monitoring from any level whatsoever was found disappointing. Strength and opportunity of programme seemed to be suboptimally utilized. **Conclusion:** Purpose of DOT was defeated compared to the increasing trend observed in previous round. However, DOT via repeat house visit with intense social mobilization is the need of the hour for coming out of problem of disallow coverage.

Keywords: lymphatic filariasis; elimination; mass-drug-administration; directly observed therapy

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I. Introduction

It has been estimated that 1254 million people in 83 endemic countries of the world is at risk of Lymphatic filariasis (LF), 64% of which is contributed by Southeast Asia region alone. [1] In India, it is 554.2 million in 243 districts. [2] India launched its National Filariasis Control Program (NFCP) in 1955 and in 1998, the world health organization (WHO) had targeted the elimination of this disease and formulated a Global Program on Elimination of LF (GPELF). India's National Health Policy (2002) goal is to eliminate LF by the year 2015. [3] The basic features of GPELF are mass-drug-administration (MDA) with appropriate antifilarial drugs and morbidity management. [4, 5] Under this program, a National Filaria Day (NFD) is being observed once a year, usually in the month of November for MDA. On that day a single dose of antifilarial drug diethylcarbamazine (DEC) along with albendazole (400 mg) is distributed to inhabitants of all age and sex in filariasis endemic areas excluding children below 2 years of age, pregnant women and severely ill-patients. [6] The recommended DEC single dose (at the rate of 6 mg/kg of body weight) is one tablet (100 mg) to children of age 2-5 years, two tablets for 6-14 years age group, and three tablets for those ≥ 15 years of age along with fixed

single dose albendazole 1 tablets of 400 mg. [7] It aims at cessation of transmission of filariasis by curbing the microfilaria (Mf) load in the community to less than 1%. To increase the participation in MDA the existing chronic cases are line listed during the MDA implementation and referred for management. MDA in combination with other techniques has already eliminated filariasis from Japan, South Korea and 16 other countries as well as markedly reduced the transmission in China. [8] MDA has been implemented since 2004 in India and all its LF endemic states including West Bengal (WB). In previous rounds directly observed therapy (DOT) i.e. swallowing of antifilarial medicines under supervision has not been emphasized. Different post-MDA coverage evaluation surveys (CESSs) highlighted low coverage as well as unsupervised consumption of antifilarial medicines. Moreover, independent appraisal carried out by vector control research center (VCRC), Pondicherry in the district of Birbhum and Bankura of WB in July, 2014 revealed Mf rate well over 1% (contrary to the target of <1%) in most of the sites of Night Blood Survey. Being stricken by abysmally high Mf rate and the deadline of LF elimination by 2015, the vector borne disease control division of department of health and family welfare, Government of WB adopted directly observed therapy (DOT) and repeat house-to-house (H-T-H) visit for MDA since last two rounds of 2015. The present study was conducted to evaluate the MDA program performance in Bankura district of West Bengal, India after the last round of MDA activity conducted in the district.

Research question: What is the effect of DOT on the antifilarial drug administration in the district of Bankura district, WB, India?

Aims-

Assessment of MDA coverage and its correlates in the last round along with the status of MDA programme

II. Objective

- To assess the effect of DOT via repeat house visits on anti-filarial medicines consumption in last round of MDA
- To find out correlates of non-compliance, if any.
- To describe the strength, weakness, threats and opportunity (SWOT) of MDA programme

III. Materials And Methods

A descriptive evaluation study in the form of community based cross sectional survey carried out for a period of 1 week 5 weeks after implementation of last round of MDA in the district of Bankura from 09.8.16 to 17.8.16 [house to house visit for drug administration via DOT on the initial 06 days by Drug Administrator (DA) and check survey by supervisors on last two days]. For this purpose multistage random sampling method was adopted. First, the district **Bankura** of WB, India was chosen purposively. Baseline details such as number of community development block (CDB), block primary health centers (BPHCs) and subcenters (SC) under their jurisdiction, municipalities and wards, total eligible population, reported MDA coverage rates of BPHC/municipalities and the district in last round etc. were collected from the office of Deputy Chief Medical Officer of Health-II, Bankura. Out of 22 blocks and 3 municipalities of the district 6, 12, and 4 blocks were in the arbitrary categories of low, medium and high performing with <80%, 80–90% and >90% MDA coverage rate in last round. Bankura municipalities had coverage rate of 98.98% and other two municipalities had reported coverage rates between 70-80%. One CDB/BPHC from each of low, medium, and high category and one municipality of any coverage were selected by simple random sampling (SRS) for post-MDA coverage evaluation survey (CES). Thus, the CDB Chhatna (low coverage i.e. 75.70%), Jaypur (medium coverage i.e. 87.33%), and Anchuri (High coverage i.e. 94.27%) along with the Bankura municipality (with high reported coverage of 98.98%) were selected for the purpose of CES. In the next stage, one subcenter was selected by simple random sampling (SRS) out of all the subcenters of Chhatna, Jaypur and Anchuri blocks. In this way the subcenter Arrah, Shyamnagar and Radhakantapur were selected, respectively. Then from each selected subcenter, three villages (for three surveyors) were chosen by SRS. Likewise, two wards (11, 16) of Bankura municipality were also selected in similar fashion.

A household (HH) list of the selected villages/wards was prepared. Subsequently HHs were included following a systematic random sampling technique in such a manner that the criteria of both 30 HHs and 150 individuals from each village/ward were fulfilled. Thus, altogether 127 H-Hs were selected, and from the selected houses, a total of 654 individuals were surveyed.

Inclusion criteria: All the people of ≥ 2 years of age.

Exclusion criteria: Pregnant women, lactating mothers, seriously ill individuals.

Information pertaining to age, gender, religion, caste, type of family, education, occupation, per capita monthly income, category of DA and their pre-MDA campaign at HH level, house visit made by any other

person/team (supervisor/block or central team), information education and communication (IEC) for this round of MDA, receipt of DEC and albendazole tablets as well as status of consumption (non-consumption or supervised/unsupervised consumption), reasons for non-consumption, adverse events (AEs) with time of occurrence in relation to consumption and seeking care after AEs, awareness about LF and MDA, etc., were collected interviewing the responsible member(s) of the HHs using predesigned structured questionnaire after obtaining informed consent. Scrutiny of relevant records/left out medicines, if any was also done. Interviewees were shown flash card and enquired about the presence L F case(s) in their villages/hamlets, whether the flash card was shown by DAs. Other relevant information was collected by verifying the documents and logistics used in MDA at subcenters, and interviewing the DAs & ANMs of rural clusters as well as the PHN/BPHN of the concerned blocks called at selected SCs and supervisor (deployed for MDA) of urban clusters at urban health training center (UHTC) at Bankura town run by the department of Community Medicine (CM), Bankura Sammilani Medical College. Socioeconomic status (SES) of respondents was determined by modified B. G. Prasad's scale updated by 2014.

The data were described by mean, standard deviation (SD), proportion, median and using statistical methods like tables and diagrams for display. The statistical tests like χ^2 test, odds ratio (OR) with 95% confidence interval (CI) were used for drawing statistical inferences. Microsoft Excel and IBM SPSS statistics 22 version were utilized for analysis.

Limitation of the study: There was little scope for verification of information regarding tablet distribution/consumption as the survey was carried out after 5 weeks since MDA implementation and people failed to show empty strips of MDA medicines which were disposed by that time. Moreover, all beneficiaries in sampled HHs couldn't be interviewed and the respondents might commit failure of recall about the exact number of tablets given for and consumed by all the members of family. The crux of the problem is to explore information from people resistant to MDA who receive drugs but didn't consume and try to give socially favourable response to the surveyor (intentional information bias).

IV. Results

The population involved in survey was 161(24.62%), 164(25.08%), 171(26.15%) and 158(24.16%) and population eligible was 159 (24.54%), 161(24.85%), 171(26.39%) and 157 (24.23%) from 30 (23.62%), 32 (25.19%), 34(26.77%) and 31(24.41%) HHs of villages from the subcenters Arrah, Radhakantapur, Shyamnagar and ward 11 & 16 of Bankura Municipality, respectively. Out of the total 654 population surveyed, 648 (99.08%) were found eligible for MDA.

Socio-demographics of study subjects

As a whole 7% (47) and 4% (23) of the study subjects were Christian and Muslim and rest was Hindu predominantly belonged to joint family (67.13%), backward class (65.0%), adult (78.0%) with slight male dominance (50.62%); 7.0%, 15.0% and 78.0% of the study subjects were in the age group of 2-5 yrs, 6-14 yrs and 15 yrs and above, respectively. [Fig.1.]

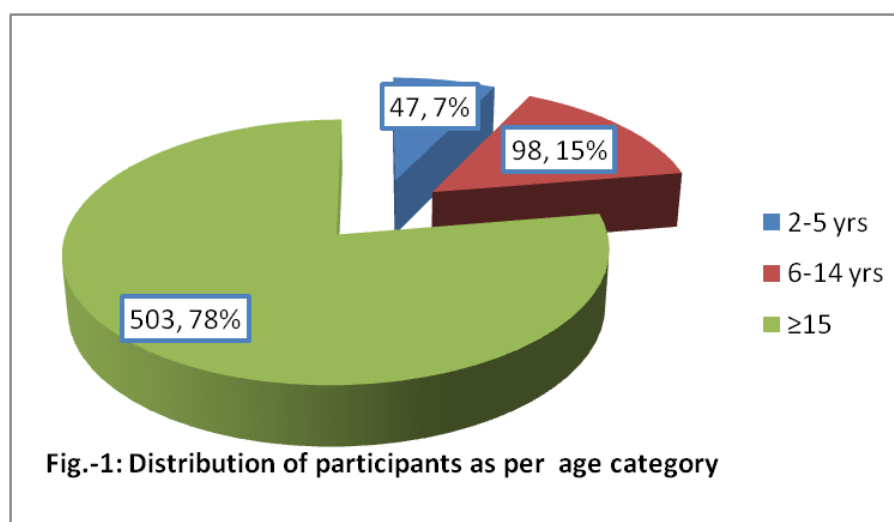


Fig.-1: Distribution of participants as per age category

The average age of the participants was 31.53±19.47 (mean±sd) with a median of 30 and a range of 83 years. Slightly higher than one third of the study subjects were illiterate or yet to go to school and it was found to

be true at cluster level also except the municipality where the figure was low, around one seventh. Overall, proportion of people having education up to Madhyamik Pariksha (MP) and above was about 18.5% and in municipality it was higher, almost one third.

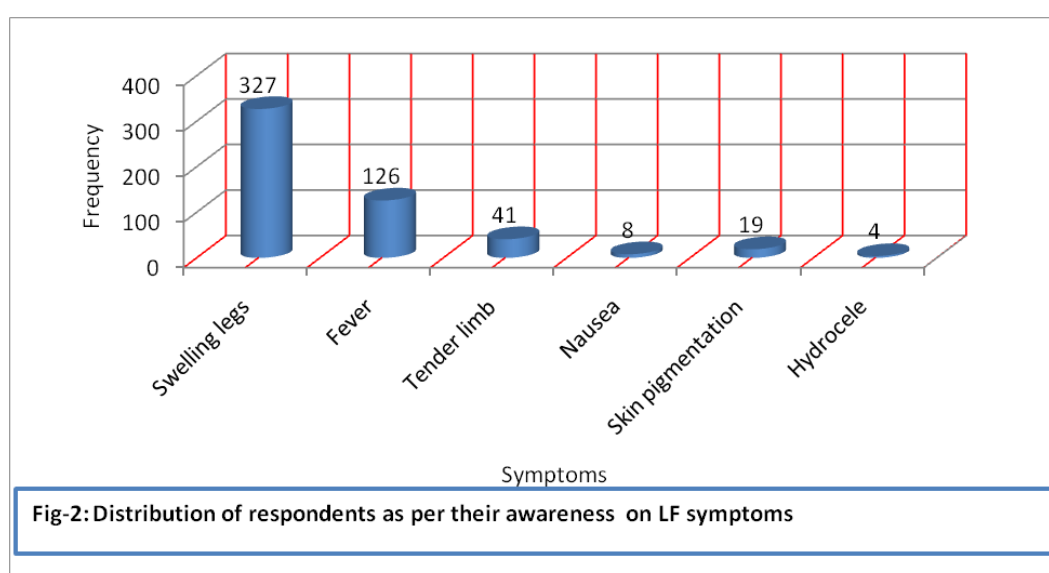
On the whole, about one fifth of the study subject was found to be student and around one fourth was home maker and labourers each. As expected, higher proportion of service holder/business man was found in municipality and Anchuri i.e. Bankura-I block which is very close to the Bankura town.

Analysis revealed that more than three fourth (85%) of the study subjects belonged to lower SES (class IV & V) and it was highest in Radhakantapur closely followed by Arrah cluster.

Analysis of data reflected that a substantial portion (36.73%) of the subjects was distributed medicines by the community volunteer (mentioned as 'other') who weren't the regular/routine grass root level workers and thereby many of whom weren't known to the beneficiaries, specially in the municipal areas.

Awareness on LF.

Analysis revealed that less than half (45.37%) of the respondents reported to have awareness about LF and out of which 81.34% reported swelling of limbs and , 31.34% fever as important symptoms.[Fig.2]



After being shown flash card 19% participants reported presence of LF case in their community. Out of those having awareness about LF, 48% and one third knew mode of transmission and prevention of LF, respectively.

IEC done in the last round of MDA:

Overall,44.75% reportedly heard about MDA (medicine administration at HH level) and health workers (HWs) were found to be most important source as reported by 58.28% of those who heard.However,other mode of IEC like miking/TV/relatives was revealed to be source for41.72% (of those who heard)of the study subjects. One third (29.5%) of 132 respondents knew avoidance of LF as the purpose of MDA.Flash card was shown by DAs to 41.2% of the respondents.

In response to the surveyor's query or when s/he uttered the name of the DAs, 84.72% of the participants/HH respondents seemed to have familiarity with the DAs.

MDA coverage and its correlates.

As a whole, 65.51% of the beneficiary was supplied/distributed both the tablet DEC, Albendazole correctly. The respective figures were highest in Radhakantapur and Shyamnagar and lowest in municipality clusters. [Table-1]

Table-1: Distribution of study subjects as per MDA medicines distribution

Cluster	DEC distribution		Albendazole distribution		Appropriate distribution of both NO. (%)
	Total No. (%)*	Appropriate No. (%)	Total No. (%)	Appropriate No. (%)	
Arrah[n ₁ =159]	126 (79.25)	111 (69.81)	120 (75.47)	120 (77.47)	104 (65.41)
Radhakantapur[n ₂ =161]	149 (92.55)	135(83.85)	152(94.41)	152(94.41)	135 (83.85)
Shyamnagar[n ₃ =171]	149(87.13)	141(82.46)	150(87.72)	149(87.13)	141 (82.46)
Municipality[n ₄ =157]	118(75.16)	52(33.12)	118(75.16)	98(62.42)	51 (32.48)
Total[N=648]	542(83.64)	439(67.75)	540(83.33)	519(80.09)	431(65.51)

*To avoid frequent change of denominator, all percentages were calculated against the cluster total & grand total

It was revealed from the analysis that the appropriate distribution of both the medicines was found to vary significantly between the clusters and categories of DAs. Appropriate distribution of medicines was lowest in municipality cluster and the differences between the coverage of this cluster and that of others were statistically significant. The appropriate medicines distribution was significantly higher among the DAs who were routine HWs. [Table-2]

Table-2: Distribution study subjects as per few attributes & medicine distribution

Attributes		Distributed both medicines		Omnibus χ^2, df, p	χ^2, df, p	OR (95% CI)
		Correct No. (%)	Incorrect No. (%)			
Cluster	Arrah	104(24.13)	55(25.35)	122.95, 3, 0.0000	34.27,1,0.0000	0.25(0.15-0.42)
	Radhakantapur	135(31.32)	26(11.98)		86.38,1,0.00000	0.09(0.05-0.16)
	Shyamnagar	141(32.71)	30(13.82)		84.21,1,0.00000	0.10(0.06-0.18)
	Municipality	51(11.83)	106(48.85)		*	1.0
DA status	Routine HW	307(71.23)	92(42.39)	NA	50.71,1,0.00000	3.36(2.36-4.80)
	Others	124(28.75)	125(57.61)			
Age category	Lower (2-14yr)	89(20.65)	56(25.81)	NA	2.21,1,0.137	0.75(0.5-1.12)
	Higher(≥15yrs)	342(79.45)	161(74.19)			

Altogether 25 i.e. 7.72% individual reported adverse event (AEs) of some kind. Out of that 72.0%, 24.0%, and 8.0% complained of dizziness, drowsiness and vomiting, respectively (multiple responses). The median time of occurrence was estimated to be 25 minutes after consumption. However, only 12.0% sought consultation mainly from the concerned DAs.

Consumption and its correlates:

It was found that 50.00%, 66.82% and 50.00% of the surveyed people consumed DEC, Albendazole and both of them appropriately. **Compliance rate was 75.17%** [correct distribution /correct consumption of both medicines]×100=(431/324)×100] but the effective coverage rate was estimated to be 50.0%. [Table-3]

Table-3: Distribution of study subjects according to the right consumption of MDA medicines

Cluster	Appropriate DEC consumption No. (%)*	Appropriate Albendazole consumption No. (%)	Appropriate consumption both No. (%)
Arrah[n ₁ =159]	72(45.28)	100 (62.89)	71 (44.65)
Radhakantapur[n ₂ =161]	107 (66.46)	126 (78.26)	108 (67.08)
Shyamnagar[n ₃ =171]	119 (69.59)	134 (78.36)	120 (70.18)
Municipality[n ₄ =153]	26 (16.56)	73 (46.49)	25 (15.92)
Total[N=648]	324(50.00)	433(66.82)	324(50.00)

*To avoid frequent change of denominator all percentages were calculated against the cluster & grand total

Only one fourth of the correct consumption was supervised.

In-depth bivariate analysis of collected information revealed that the appropriate consumption of both the medicines was found to be higher among Hindu compared to Muslim, rural residents, Scheduled Caste compared to other backward class (OBC), Home Maker& labourers compared to service/business men and people of lower SES. [Table-4]

Table-4: Distribution study subjects as per few socio-demographic attributes and medicine consumption

Attributes		Consumed both medicines		Omnibus χ^2 , df, p	χ^2 , df, p	OR(95% CI)
		Correctly[n ₁ =324] No. (%)	Incorrectly[n ₂ =324] No. (%)			
Age category (yr)	2-5	21(44.68)	26(55.32)	1.14,2, 0.566	Na	NA
	6-14	46(46.94)	52(53.06)			
	≥15	257(51.09)	246(48.91)			
Religion	Hindu	302(52.25)	276(47.75)	12.11,2,0.002	8.24,1,0.0041	3.94(1.36-12.29)
	Christian	17 (36.17)	30(63.83)		1.49,1,0.221	2.04(0.57-7.65)
	Muslim	05 (21.74)	18(78.26)		*	
Caste	General	109(48.23)	117(51.77)	15.46,3, 0.001	1.71,1,0.191	0.73(0.45-1.20)
	OBC	43(40.57)	63(59.43)		*	1.00
	SC	136(59.65)	92(40.35)		10.59,1,0.001	0.46(0.28-0.76)
	ST	36(40.9)	52(59.1)		0.00,1,0.96	0.99(0.53-1.83)
Residence	Rural	299(60.89)	192(39.11)	NA	96.24,1,0.000	8.22(5.06-13.46)
	Urban	25(15.92)	132(84.08)			
Education	Nil/low	153(46.93)	173(53.07)	0.95,2, 0.621	NA	NA
	Middle	124(49.79)	125(50.21)			
	High	32(43.84)	41(56.16)			
Occupation	HM	80(52.98)	71(47.02)	18.37,4,0.001	6.24,1,0.012	0.46(0.24-0.89)
	Farmer/Labourer	103(60.95)	66(39.05)		13.18,1,0.000	0.34(0.18-0.64)
	Service/business	22(34.38)	42(65.62)		*	1.0
	At home/unemployed	54(41.86)	75(58.14)		1.00,1,0.316	0.73(0.73-1.42)
	Student	66(48.89)	69(51.11)		3.71,1,0.0542	0.55(0.28-1.06)
SES	Upper Class (I-III)	37(39.36)	57(60.64)	NA	4.98,1,0.025	0.60(0.38-0.96)
	Lower class (IV-V)	287 (51.81)	267(48.19)			

There were altogether 107 individuals who didn't consume medicine having been distributed both the medicines correctly. Majority (40.2%) of them stated 'fear of side effects' as the reason of their noncompliance. Other noteworthy causes were 'Forgotten' to consume (20.56%), 'not at home' during the MDA implementation (14.02%) and 'didn't have the disease' (10.28%). [Table-5]

Table-5: Distribution of study subjects according to the causes of non-consumption (n=107)

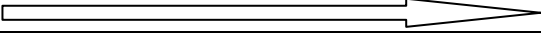
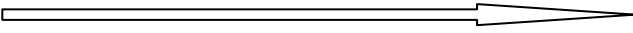
Cause of non-consumption	Number	Percentage
Fear of AEs	43	40.19
Forgotten	22	20.56
Not at home	15	14.02
Didn't have the disease	11	10.28
Didn't want to consume	06	5.61
Not aware	04	3.74
Other illness/ Taking Homeopathy medicines	02	1.87
No reason	02	1.87
Extremes of age	02	1.87

Other observations:

- IEC was very poor in quantity and quality i.e. only few leaflets, two or three posters and one day (one round) of miking as reported by the ANM₁ and few respondents.
- Out of 127 HHs only 6 i.e. 4.72% reported about the visit of any worker other than DA for cross-checking of medicine consumption. It indicates a dismally low level of monitoring and supervision by ANM/PHN/BPN/BMOH/District level officials/any other. This fact was also cross-checked by interviewing of the PHN/BPHN/Individuals worked as supervisor at municipality.
- In municipality the DAs were very reluctant to MDA. Most of them reportedly didn't inform people about the purpose of MDA during tablet distribution.

The MDA programme was assessed in respect of its different dimensions. The internal characteristics of the programme were categorised into strength and weakness. Similarly external attributes likely to influence the programme's performance, sustainability were classified as opportunity and threats. [Box-1.] The positive aspects (strength & opportunity) were seemed to be underutilized leaving the negative dimensions to be magnified.

Box-1. SWOT analysis of MDA programme

1			3
I N T E R N A L	<i>Strength</i>	<i>Opportunity</i>	E X T E R N A L
	<ul style="list-style-type: none"> • Experienced workers (DA),supervisors • Community participation in the form of voluntary workers' involvement in MDA • Supply of adequate, good quality medicines • 100% Central sponsored programme • Evidence based scientific strategy of MDA • Inspiring results achieved by other states of the country as well as other districts of our state 	<ul style="list-style-type: none"> • Good compliance among the vast people of rural, low SES and backward classes • Coupling of MDA programme with other programme (e.g. MDA done on 9/8/16 & Leprosy elimination campaign done 8/9/16) can be more rewarding • Panchayat personnel, NGOs, SHGs, MMs can be involved more intensely in the form of mass mobilization • One village level meeting in the preceding week of scheduled MDA date is to be done by the health workers [by ANM₁& ANM₂ in presence of health supervisor (male & female)] 	
L	<i>Weakness</i>	<i>Threat</i>	L
	<ul style="list-style-type: none"> • Providers' fatigue (Indifferent attitude) • Poor IEC (inadequate IEC material/ inefficient methods/ improper timing as well as IEC drive) & weakness in micro-planning • Poor monitoring from higher levels • Poor training with place to place variation • Tendency for medicine distribution dishonouring the strategy of supervised drug administration • Poor honourium for the grass-root level workers (DAs) • To perform on 50 HHs per worker per day (requiring almost 8.5 hours of activity assuming time per house @ 10 minutes) seems to be a tough task compared to the honourium paid 	<ul style="list-style-type: none"> • Low awareness and interest among the clients • Very low participation among the people from the higher SES • Due to persistent non-compliance (specially in urban area) drug resistance may develop • Sponsoring from GOI may be stopped as other states have achieved LF elimination in stipulated time i.e. by 2015. 	
3			4

V. Discussion

MDA implementation in West Bengal since 2004 has been criticised for its suboptimal coverage by mere distribution of anti-filarial medicines for unsupervised consumption. As per WHO DEC coverage in India was recorded as 54.5% during MDA program in 2006. [1] MDA CES conducted by Sinha N et al. observed that the coverage, compliance and effective coverage in Pashchim Medinipur district of WB were 84.1%,70.5% and 59.3% in the year 2009 with declining trend of 78.5%,66.9% and 52.52% in 2010. [9] Chattopadhyay D et al. in their MDA CES in 2010 in the district of Purba Medinipur, WB reported an effective coverage rate of 73.7%. [10] Raykarmakar P et al. showed coverage, compliance and effective compliance rate of 72.87%, 70.47% and 51.35%, respectively in the district of North 24 Parganas (NPG), WB in 2010. [11] Ray R N et al. documented an effective coverage of 41.18% in the district of Bardhaman, WB in 2010. [12] Ghosh S et al. estimated an effective coverage of 93.7% in the district of Bankura, WB in 2012. [13] Haldar D et al. revealed coverage, compliance and effective coverage rates of 83.4%, 61.28% and 48.01%, respectively in district NPG, WB In 2012. [14] As per the unpublished report of similar CES done in the district of Bankura in 2013 by Sarkar G N et al. [15]and Gupta A et al. reported coverage, compliance and effective coverage rates of 97%, 87.3% and 84.7% in 2013 and 97.23%, 78.55% and 76.55%, respectively for 2014. [16] Unpublished CES report for district of NPG, WB done in 2014 by Basu R et al. showed the estimated coverage to be 81.2%. [17] All these reports are government sponsored post-MDA CESs and most of them have been published. The difference in their results for evaluating same program conducted in same state of India following same standard methodological guidelines might be due partly to the variation in the efficiency of programme implementation in different districts, validity of collected information as well as perception and motivation of local people. It is noteworthy that most of the studies reported coverage rates of below the desired cut-off i.e. 85% or more. Similar trend was also noted in present study with an effective coverage rate of 50.0% even below the minimum of at least 65% for LF elimination. [18]

Universal unsupervised consumption in both 2009 and 2010 in the district of Purba Medinipur and in 2010 in NPG,WB reported by Sinha N et al. and Raykarmakar P et al. [9,11] Ghosh S et al. and Haldar D et al. also found that 66.9% and 97.52% unsupervised drug consumption in 2012 in NPG and Bankura district,WB. [13, 14] Sarkar G N et al. reported that only 22.8% of effective consumption was supervised. [15]Gupta A et al. stated that most of the consumption was unsupervised in Bankura district, WB in 2014. [16]

Mere distribution of anti-filarial medicines for unsupervised consumption was alleged for suboptimal and suspicious coverage in previous rounds and DOT was emphasized in last threerounds including this one.

The DOT was found to be improved in previous round (Dec,2015)with 65%of correct drug consumption was supervised in Bankura district. But in this round again the legacy of old habit of mere distribution of anti-filarial medicines for unsupervised consumption seemingly came back with resulting in only one fourthsupervisedappropriate consumption. Shifting priority on DOT which seemed successfulmaking dent in the problem area of MDA program lost its momentum.

Clients' attribute for noncompliance to appropriately distributed medicines was revealed to be unaltered in respect with previous rounds. As per current study "Fear of side effects" was the commonest (40.2%) cause of noncompliance followed by 'Forgotten' to consume (20.56%), 'Not at home' during the MDA implementation (14.02%) and 'Didn't have the disease' (10.28%) concurrent to Haldar D et al. who found "Fear of side effects" as the commonest (63.02%) cause of noncompliance in NPG in 2012. [14] Chattopadhyay D et al. also revealed "Fear of sideeffects" as the most common cause (41.5%) of noncompliance in Purba Medinipur district, WB in 2010. [10]

Ironically AEs were reported only by 7.72% and that too minor in nature developed within 24 hours and no care was sought by most of the victims as also observed by Haldar D et al. only in 5.08% clients in NPG. [14] Aswathy S et al. also reported that only 2.7% of interviewees who had ingested the distributed tablets reported AEs and these were mild (fever, drowsiness, swelling/edema and/or vomiting) and only occurred within 24 hours of tablet ingestion. [19] Chattopadhyay D et al. had found only 2.0% complaining of minor AEs. [10]

No doubt lack of awareness among beneficiaries regarding LF was one of the important reasonsfor their disinterest in consuming MDA drugs.

Current study revealed that only 45.37% of respondents were found to be aware about LF out of which about 81.34% had knew at least one symptoms (swelling of limbs), one third had correct knowledge about transmission of LF. Around 45% heard about MDA. Haldar D et al. observed that almost two-third respondents had awareness about LF of which about 47.0% had correct knowledge about transmission of LF, 60% heard about MDA predominantly (47.68%) from HWs.[14] Chattopadhyay D et al. explored that 85.1% respondents were aware of filariasis and 38% knew its mode of transmission.[10] Low awareness level also reported by Ghosh S et al. (about 60%), [13] Raykarmakar P et al. (55.42%), [11] Roy R N et al. (41.4%), [12] and Sinha N et al. (55.42%).[9] MDA is in vogue since 2004 and twelve rounds were implemented in WB. So, this dismally poor awareness among the beneficiary can only be outcome of sub-optimal IEC/ behaviour change communication (BCC).

Present study observed improper distribution/non-distribution of medicines and lack of compliance was more among the subjects who were distributed medicines by DAs other than routine HWs, and it was corroborated with the observation made by Haldar D et al. from NPG. [14]Mahalakshmy T et al. also reported lower compliance rate among subjects who were distributed medicines by volunteers. [20]

Careful selection, rigorous training/reorientation and strict supervision can't be overemphasized in case of deployment of DAs other than routine HWs as it was rightly suggested by investigators for the sake of better program performance.

With due apprehension about the consequence of dismal under coverage and noncompliance, Joseph et al. [21] concluded from their study in Samoa that persistent transmission in residual areas, despite many years of MDA might be in part due to *systematic noncompliance* of infected individuals who maintained the chain of transmission serving as reservoirs, thus impeding successful elimination of LF.

VI. Conclusion

Unsupervised reported short of target consumption is to be considered seriously. In previous round it was hopefully higher but in this round it was revealed once again disappointing. Supervised consumption (DOT) has no alternative and is to be continued for another few rounds. Participatory planning and implementation involving the community member can be thought of. Intensive social mobilization via powerful advocacy,**BCC** for motivating the systematically noncompliers for participating in MDA, effective micro-planning, supportive supervision of all levels of workers are highly required for the success.

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