MDA coverage survey in the Northern division analysis

Background

MDA coverage survey allows MDA implementing team to assess the accuracy of reported coverage or coverage estimated from the MDA registers. It is also useful in estimating coverage of implementation unit (in case of PacELF countries, a country is the implementation unit) before the coverage based on the MDA registers can be obtained.

In 2006, Fiji conducted its fifth MDA. A recent analysis has shown that during the last four rounds of MDA Fiji never achieved the national coverage of above 65%. 80% coverage is considered as effective and sustaining the effective coverage during consecutive rounds is essential in achieving elimination of lymphatic filariasis by MDA.

In the past no post MDA survey was conducted in Fiji, making it difficult for the national filariasis unit to review the performance of MDA and obtain feedback from the nurses, who actually distribute tablets to the public. Thus by conducting a coverage survey, the national filariasis unit hoped to obtain not only the coverage estimate but also feedback from the field. The survey also included a simple questionnaire to assess public awareness and knowledge on lymphatic filariasis and MDA program.

Method

The Northern division consists of four subdivisions (Macuata, Cakaudrove, Bua, and Taveuni), which are further divided into 19 medical areas. A medical area usually consists of a few or more nursing zones and areas covered by nursing stations. A health center is the primary medical facility within a medical area and a nursing station is established when a medical area includes remote areas, where the health center is not easily accessible.

A survey methodology was adapted from a protocol recommended by PacELF that uses lot quality assurance sampling method (30 lots, 13 samples per lot for each sex). The sample size was determined assuming the minimum coverage of 65% for both men and women separately with 5% level of accuracy with 95% confidence interval.

Each medical area was considered as a lot; except for the three medical areas with population greater than 8000, namely Labasa and Wainikoro medical areas in Macuata, Savusavu medical area in Cakaudrove, and Waiyevo medical area in Taveuni. For those, each nursing zone was considered as a lot. Total 38 lots were established and among those 27 lots were selected by population proportionate sampling (**Figure 1**). In order to randomly select 13 households from each lot, a list of all known villages and settlements and their population was prepared for each lot. Then by population proportionate sampling, villages and settlements to be sampled and the number of sample at each site were determined (**Figure 1**). The total number of sample size was expected to be 780 (13*30 lots*2, male and female). However the total sample collected during the survey exceeded far beyond the expected sample size.

The questionnaire to assess public awareness and knowledge was adapted from Monitoring and epidemiological assessment of the programme to eliminate lymphatic filriasis at implementation unit level. Terms relating to the disease were translated into Fijian (**Annex?**).

Lot name	Lot population (MOH 2005)	Expected lot sample size per sex	Expected total sample size	Actual sample size			
				Female	Male	Unknown	Total
Coqeloa	3360	13	26	45	44	0	89
Dreketi	5163	13	26	28	36	0	64
Korotasere	3357	13	26	28	26	0	54
Labasa 1	6131	13	26	31	35	0	66
Labasa 2	3712	13	26	64	44	0	108
Labasa 3	3474	13	26	32	36	0	68
Labasa 4	5329	13	26	33	29	0	62
Labasa 5	3931	13	26	23	25	0	48
Labasa 6	3994	13	26	57	62	0	119
Labasa 7	6257	13	26	29	30	0	59
Labasa 8	3657	13	26	49	55	0	104
Labasa 9	4718	13	26	44	37	0	81
Lekutu	3999	13	26	37	49	0	86
Nabouwalu	7255	26	52	59	61	0	120
Naduri	4861	13	26	24	30	0	54
Nakorovatu	6515	26	52	56	65	0	121
Naweni	1409	13	26	34	32	0	66
Rabi	2708	13	26	29	37	1	67
Savusavu 1	3557	13	26	44	47	0	91
Savusavu2 and 3	5231	13	26	32	32	0	64
Seaqaqa	6183	26	52	57	69	0	126
Tukavesi	6171	13	26	34	35	0	69
Vuna	3940	13	26	34	45	0	79
Wainikoro 1	1439	13	26	28	30	0	58
Wainikoro 2	3603	13	26	32	23	0	55
Waiyevo 1	3200	13	26	34	47	0	81
Waiyevo 2	3100	13	26	45	58	0	103
TOTAL	**116254**	**390**	**780**	**1042**	**1119**	**1**	**2162**

Figure 1 Expected and actual sample size

Results

A coverage survey of the Northern division took place between January 20th and 30th (for the detail schedule see **Annex??**) The fifth round of MDA was officially commenced in September 1st and concluded in early December 2006 in this area; however during the survey it became clear that the tablets were distributed late December and even in January 2007.

Demographic characteristic of samples

Information on whether or not a person participated in 2006 MDA of 2162 persons was collected and 578 persons were further asked to answer the optional questions. The 2162 persons include 1042 female (48.2%) and 1119 (51.8%) male samples, and 1 unknown sample. According to the population estimate of Fiji by SPC, women in the 30-39 year old age group were slightly overrepresented while children of 9 year old and below in both sexes were underrepresented in the survey (**Figure 2**).

Age Group	Female		Male	
	Survey (%)	2006 SPC estimate	Survey (%)	2006 SPC estimate
<=9	6.20 (134)	10.76	7.59 (164)	11.44
10-19	10.27 (222)	10.04	11.10 (240)	10.72
20-29	7.96 (172)	8.68	9.34 (202)	9.29
30-39	7.91 (171)	5.75	6.71 (145)	6.08
40-49	7.26 (157)	5.86	7.45 (161)	5.97
50-59	4.58 (99)	4.21	5.55 (120)	4.08
60 and over	4.02 (87)	3.90	4.02 (87)	3.23
TOTAL	48.20 (1042)	49.20	51.76 (1119)	50.80

Figure 2 Demographic characteristic by age and sex

In all medical areas where the survey was conducted, Fijians were overrepresented while two other ethnic groups were underrepresented (**Figure 3**). Possible factors causing this bias are 1. The lists of villages and settlements provided by local health authorities were partial and did not include all Indian settlements 2. Since Indo-Fijian population in the Northern division is scatted in a large area and thus each settlement is small, many Indian settlements were not “selected” by population proportionate sampling.

Medical area	% Fijian in survey (number of records)	% Fijian MOH 2005	% Indian in survey (number of records)	% Indian MOH 2005	% Others in survey (number of records)	% Others MOH 2005
Labasa	34.97 (250)	23.10	64.06 (458)	74.91	0.98 (7)	1.99
Wainikoro	51.49 (104)	12.38	48.51 (98)	87.60	0 (0)	0.02
Dreketi	100 (64)	60.33	0 (0)	37.83	0 (0)	1.84
Seaqaqa	100 (126)	45.58	0 (0)	53.68	0 (0)	0.74
Naduri	100 (54)	61.39	0 (0)	37.24	0 (0)	1.38
Savusavu	85.07 (188)	57.75	9.50 (21)	29.45	5.43 (12)	12.80
Tukavesi	100 (69)	81.82	0 (0)	1.78	0 (0)	16.40
Korotasere	100 (54)	95.26	0 (0)	3.81	0 (0)	0.92
Nakorovatu	100 (121)	80.43	0 (0)	5.02	0 (0)	14.55
Rabi	0 (0)	5.87	0 (0)	0.63	100 (67)	93.50
Nabouwalu	100 (120)	81.72	0 (0)	17.33	0 (0)	0.95
Lekutu	94.19 (81)	50.99	5.81 (5)	48.06	0 (0)	0.95
Waiyevo	94.02 (173)	78.16	5.98 (11)	15.34	0 (0)	6.50
Vuna	100 (79)	71.27	0 (0)	27.28	0 (0)	1.45
TOTAL	68.59 (1483)	51.39	27.43 (593)	42.49	3.98 (86)	6.11

Figure 3-1 Demographic characteristic by ethnicity and medical area

Ethnicity	Female (%)	Male (%)	Unknown (%)	TOTAL
Fijian	706 (47.61)	777 (52.39)	0 (0)	1483
Indian	298 (50.25)	295 (49.75)	0 (0)	593
Others	38(44.19)	47 (54.65)	1 (1.16)	86
TOTAL	1042 (48.20)	1119 (51.76)	1 (0.05)	2162

Figure 3-2 Demographic characteristic by ethnicity and sex

Children under two years of age, women who are pregnant, and those who are sick, are considered ineligible. It was found that nurses occasionally consider a person to be ineligible because of old age; however the definition of "old age" seemed arbitrary.

Overall coverage

An estimate of coverage for the entire surveyed area obtained by aggregating data from each lot was 94.5%. The proposed protocol suggests that the coverage of male and female be analyzed separately; however the information needed for the analysis was not available from the Northern division.

By medical area

In all medical area, more than 84% of those who were surveyed reported that they consumed tablets during 2006 MDA.

Female

Among 1042 persons, 1017 persons were eligible for taking the tablets. Of 1017, 33 persons (3.2% of 1017) did not consume tablets during 2006 MDA. Among the 33 persons, 25 did not even receive tablets (**Figure 4**).

Question	Answer	No of response	% (in total eligible population sampled)
Did you receive the filariasis tablets in 2006?	Yes	992	97.5
	No	25	2.5
Have you taken the tablets?	Yes	984	96.8
	No	33	3.2

Figure 4-1

For those who did not receive tablets, the most common reason was "no distribution in the area", which was not originally included in the answer options for this question (categorized as "other reasons") and became clear from interviewers' comment. In most cases, respondents knew of MDA and that the tablets were available at the nearest health center or nursing station. Two persons reported that they did not receive tablets as they were breastfeeding.

Reasons for not receiving tablets	No of response
Away from residence	6
Did not know about MDA	1
Forgot to take	1
Refused	13
Other reasons	4
Total	25

Figure 4-2 Reasons for not receiving tablets

Only 8 among 1017 eligible persons did not take the tablets despite having received the tablets during the MDA. Three refused to consume the tablets, while five reported that they forgot to take the tablets.

No significant difference was observed in MDA participation between the three ethnic groups (Fijian, Indo-Fijian, and Others) in the surveyed population (**Figure 5**).

Ethnicity	Total eligible	Taken tablets	
		Yes	No
Fijian female	688	667 (97%)	21 (3%)
Indo-Fijian female	291	280 (96%)	11 (4%)
Others	38	37 (97%)	1 (3%)

Figure 5 Ethnicity and MDA participation

Male

Among 1119 persons, 1097 persons were eligible for taking the tablets. Of 1097, 41 persons (3.7% of 1097) did not consume tablets during 2006 MDA. Among the 41 persons, 31 did not even receive tablets (**Figure 6**).

Question	Answer	No of response	% (in total eligible population sampled)
Did you receive the filariasis tablets in 2006?	Yes	1066	97.2
	No	31	2.8
Have you taken the tablets?	Yes	1056	96.3
	No	41	3.7

Figure 6-1

The most common reason for not receiving the tablets was “Away from residence”, showing that the person was not at home or in his village during house-to-house distribution or during nurses’ visit to the village during the distribution (usually once during MDA).

Reasons for not receiving tablets	No of response
Away from residence	16
Did not know about MDA	3
Refused	8
Other reasons	4
Total	31

Figure 6-2 Reasons for not receiving tablets

Only 10 out of 1097 eligible persons did not consume tablets despite given the tablets. Only four persons reported that they intentionally refused taking tablets, while another four said they have been forgetting to take the tablets.

No significant difference was observed between three ethnic groups in the surveyed population (**Figure 7**).

Ethnicity	Total eligible	Taken tablets	
		Yes	No
Fijian male	765	740 (97%)	25 (3%)
Indo-Fijian male	286	271 (95%)	15 (5%)
Others	46	45 (98%)	1 (2%)

Figure 7

Comment from my side

The estimate coverage in the survey area was higher than our original expectation based on the records from the previous round of MDA and the survey coverage in Central and Western. This high coverage can be interpreted in a few ways. First, the Northern division performed far better during 2006 MDA. The second, respondents answered "yes" while they actually have not taken or received the tablets. It is difficult to assess the proportion of false reporting among the survey respondents; however the survey was carried out approximately 6 weeks after the official closing date of 2006 MDA and it is possible that some respondents had difficulty in recalling when they took tablets, which could be during 2005 MDA.

Northern division promotes directly observed treatment during MDA. During 2005 MDA the division reported the highest proportion (60.8%) of people ingested the tablets in front of distributors (normally nurses). This may contribute to the high coverage as well.

The two most common reasons of not receiving and taking were "Away during the distribution" and "No distribution in the area" in the surveyed population. "Away during the distribution" can be prevented if nurses or village health workers leave the tablets for the person to take later (not observing the person taking tablets may be a concern but better than not giving the opportunity to take). Those who gave "no distribution in the area" as the reason for not receiving tablets seem to rely only on house-to-house distribution, even though they knew that tablets were available at the nearest health center. There seems to be a need of more effective advocacy campaign in order to ensure that people visit the nearest health center voluntarily to collect the tablets or a system change to make each *community* feel more responsible for ensuring its entire residents to be treated during MDA.