International Journal of Medical and Surgical Sciences

UNIVERSIDAD AUTONOMA DE CHILE

ARTICLE

Information transmission process for disease notification and feedback in the community-based disease surveillance system in Anambra State, Nigeria.

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Receipt: 11/24/2019
Revised: 12/17/2019
Acceptance: 12/17/2019
Online: 12/31/2019

Conflict of interests: None.

Ethics approval: Ethical approval for this study was obtained from the Nnamdi Azikiwe University Teaching Hospital Ethics Committee. Permission to conduct the study was obtained from the State Ministry of Health and the selected Local Government PHC Departments. In addition, verbal and written informed consents were obtained freely and without coercion from all the respondents.

Funding: None.

Authors' contributions: This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Acknowledgements: None.

doi: 10.32457/ijmss.2019.035.

ABSTRACT

Disease surveillance and notification (DSN) system has been shown to be weak in Nigeria and still needs to be built up for effective detection and response to some communities. The aim of this paper is to assess the reporting and feedback mechanisms in the Community-based surveillance System (CBSS) in Anambra State, Nigeria. This was a cross-sectional descriptive study of 360 community-based focal points in Anambra State selected by multistage sampling technique. Data collection was by interview using a pre-tested, semi-structured questionnaire. Data were analysed using SPSS version 20, associations between variables were tested using Chi square, Fisher's exact and t tests as appropriate ($p<0.05$). Forty-one (13.1%) focal points sent in reports for at least four times, (72.2%) received feedback within the last one year and (44.6%) was via the phone. However, 229 (63.6%) of the respondents gave the feedback to the community mainly via the village health committees (44.1%). Respondents' occupation, ever detected notifiable disease; source of information; person the detected disease was reported to; records of notified disease kept by focal points; number of times reports were sent in the last one year, received feedback given to community members, availability of supervisors for focal points and volunteer benefit from being focal points were found to have associations with receipt of feedback on disease case notification ($p<0.05$). This study found poor reporting but good feedback mechanisms. However, there is need to reform the State CBSS in line with the above findings in order to make it more functional.

Keywords: *Community-based surveillance, reporting, feedback, disease notification, focal points, Anambra, Nigeria.*

INTRODUCTION

Community-based surveillance *(CBS)* is an active process of community participation in detecting, reporting, responding to and monitoring health events where people work and live *(WHO, 2014)*. This practice relies on a network of lay people, referred to as community focal points *(community informants) (WHO, 2014*), to provide regular reports about the prevailing situation in the community in order to provide early warning or alerts of disease outbreaks in the community during the pre-epidemic periods; to actively detect and respond to cases and deaths during epidemics; and to monitor progress with disease control activities during the post-epidemic periods *(WHO, 2014; Hyman, 2014)*.

Feedback consists of communicating with individuals from other levels about the data, results of the analysis of these data and measures that were taken to respond to the potential public health event reported *(WHO & CDC, 2010)*. Providing regular and effective feedback in the CBS system *(CBSS)* is key, as it shows the value of data by providing communities with summarized information about the investigation and confirmation of these events, raises awareness on CBSS and draws them more into

the CBSS *(Howard-Grabman, 2000; Pascoe et al., 2012)*.

In the CBSS, information obtained on the targeted diseases flow from the community through the health facilities to the Local Government Areas *(LGA)*, to the State, to the Federal level. Feedback on these information is also provided within and across all these levels in the CBSS either verbally through telephone calls or during periodic meetings; or written such as in routine surveillance reports *(WHO & CDC, 2010; Isere et al., 2015; Federal Ministry of Health Abuja, Nigeria, 2005)*. The CBS focal points receive training on using feedback from the CBS coordinators to take action, including health education and coordination of community participation, verifying if public health interventions took place as planned with the involvement of the community, as well as providing a forum for feedback to the community on outbreak/event assessment *(WHO, 2014)*.

Several studies have reported that even though surveillance data were reliably reported to the next level as required, receipt of feedback on the reported data had been poor, in a case, ranging from 3.6% to 13.0% *(Nsubuga, 2014; Kyei-Faried et al., 2006; Abubakar et al., 2013)*. This scenario could lead to de-motivation of staff involved in reporting and, consequently, poor performance of the system in the future. An assessment of the role of CBS in health outcomes in Ghana and elsewhere showed that community participation generated a lot of outcome measures in the community records, which were not verified due to poor records. This lack of feedback led to a failure of the surveillance system to obtain a comprehensive outcome measure that could be used for health planning in the community *(Kyei-Faried et al., 2006; Adokiya et al., 2015; Cox et al., 2014)*.

Poor feedback has continued to add to the major challenges to the proper functioning of the surveillance system, including problems with validity and quality of data *(Adokiya et al., 2015)*. However, there is a dearth of data on CBSS to substantiate this claim in Nigeria and elsewhere. Even where studies had been done on disease surveillance and notification *(DSN)*, these were on health facility-based disease surveillance and notification in general without much emphasis on the community-based aspect *(Isere et al., 2015; Abubakar et al., 2013; Nnebue et al., 2012; Lafond et al., 2014)*. The findings from this study are expected to contribute to bridging this knowledge gap.

The aim of this paper is to assess the reporting and feedback mechanisms in the CBSS in Anambra State, Nigeria.

MATERIALS AND METHODS

Study design

This was a cross-sectional descriptive study of the information transmission process for disease notification and feedback in the CBSS in Anambra State, Nigeria.

Study setting

This study was conducted from June to November, 2016 in Anambra State, South-Eastern Nigeria. According to the 2006 census, the State has a total population of 4,177,828 persons, comprising 2,117,984 males and 2,059,844 females, with a population density of approximately 867.5 persons per km^2 *(Nigeria Data Portal, 2006)*. With an annual population growth rate of 2.21 percent, its current projected population is 5,527,809 persons *(National Bureau of Statistics, 2016)*. The indigenes are mainly Ibos and the major language spoken is Igbo.

The State hosts two tertiary health-care institutions, the Nnamdi Azikiwe University Teaching Hospital, Nnewi, and the Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka. There are about 33 secondary health facilities, 382 primary health centers *(PHCs)*, 14 mission hospitals, 600 private hospitals, 186 maternity homes, 126 registered pharmaceutical premises, 9 health training institutions, and 1500 licensed chemist shops in the state *(Anambra State Ministry of Health, 2010)*. Anambra State has a functional monitoring and evaluation *(M&E)* office with a trained M&E officer. All the information on surveillance of notifiable diseases in the State are collected by the Disease Surveillance and Notification Officers *(DSNOs)* at the LGAs through a network of health facility focal persons who collect and report information to them on all the targeted diseases using surveillance case definitions and designated reporting forms. The process is coordinated by the State Epidemiologist. The information, after analysis at the State level, is then sent to the Federal Ministry of Health and the WHO country office every month *(IFRC, 2017)*. The WHO supports the surveillance structure in the state by conducting active surveillance and verifying reported cases as part of the monitoring obligations of WHO member states vis-à-vis the 2015 International Health Regulations requirements *(WHO, 2016)*. Three urban LGAs *(Onitsha South, Awka South and Nnewi North)* and six rural LGAs *(Oyi, Anambra East, Anaocha, Njikoka, Orumba North and Orumba South)* were selected for this study, while pre-testing of the study instruments was carried out in Aguata LGA.

Data were collected using a 46-item questionnaire, adopted and adapted from the WHO's protocol for the assessment of national communicable disease surveillance and response systems *(WHO/CDS/CSR/ISR, 2001)*, and available literature *(Aniwada & Obionu, 2016)*.

Study participants

The study population comprised the community-based focal points in the CBSS in Anambra State. The inclusion criterion was: Community-based focal points who have participated in community-based disease surveillance and notification in the state for at least a year were included in the study. This

is because they would have functioned long enough to have an opinion and contribute meaningfully to the study. The exclusion criterion was: Community-based focal points who were too sick to participate in the study were excluded from the study. For the purpose of this study, severity of ill health was graded on a scale of 1 to 5, with 1 being the lowest severity and 5 being the highest severity. Individuals who reported feeling unwell were asked to grade their ill health on a scale of 1 to 5. Those who reported 4 or 5 were deemed as being too sick to participate and were excluded from the study.

Variables and data collection

These comprise: a) Sociodemographic variables such as respondents' age, gender, b) reporting and receipt of feedback c) socio-demographic variables associated with reporting and receipt of feedback and d) some selected factors associated with reporting and receipt of feedback.

Frequencies of the variables were assessed using univariate analysis, while bivariate analysis was employed in testing associations between several variables.

The instruments of data collection for this study were pretested in Aguata LGA of the state. This LGA was chosen because despite being classified as a rural LGA in the state, it has features of both an urban and a rural LGA. Pre-testing of the data collection instruments was carried out on thirty community informants to determine the reactions of the respondents to the research questions. It was also done to check for the comprehensibility and appropriateness of the format and wording of the questionnaire, the time needed to fill them as well as the ability of the trained research assistants to administer the questionnaires appropriately. The findings of the pretesting were used to fine tune the research instruments.

Bias

Reporting bias could result from the sensitive nature of the questions. This we overcame using anonymous questionnaires and ensuring the respondents that their answers would be strictly confidential and specifically for research purposes.

Study size

The sample size for this study was determined using the formula for studying proportions with population greater than 10,000 *(Araoye, 2008)*. The minimum final sample size estimate was thus 242. An adjustment of the estimated minimum final sample size to cover for non-response was made, the adjusted sample size was 269 respondents. The minimum sample size was increased to 360 in order to increase the precision of the study.

Sampling Technique

Multi-stage sampling technique was used to enrol respondents into this study. Anambra State is made up of three senatorial zones *(Anambra North, Anambra Central and Anambra South)*, 21 LGAs *(7 urban and 14 rural)* and 330 wards *(ranging from 10 – 20 wards per LGA)*. Each of these wards has 4 community-based surveillance focal points. *Stage 1 - Selection of local government areas:* The 21 LGAs in the state were stratified into the 7 urban and 14 rural LGAs, giving a ratio of 1: 2. Using proportionate allocation, three LGAs were selected from the urban stratum while six LGAs were selected from the rural stratum through simple random sampling technique by balloting procedure. Thus, Onitsha South, Awka South, and Nnewi North LGAs were selected from the urban stratum while Oyi, Anambra East, Njikoka, Anaocha, Orumba North and Orumba South LGAs were selected from the rural stratum. *Stage 2 - Selection of Wards:* There are 20 wards in Awka South LGA, 17 wards in Onitsha South LGA, 10 wards in Nnewi North LGA, 15 wards in Oyi LGA, 15 wards in Anambra East LGA, 18 wards in Njikoka LGA, 19 wards in Anaocha LGA, 18 wards in Orumba North LGA and 18 wards in Orumba South LGA. Proportionate numbers of wards were selected from each of these selected LGAs using Bowler's proportional allocation formula *(Pandey & Verma, 2008) Stage 3 - Selection of community focal points:* From each of these selected wards, all the 4 community focal points met the eligibility criteria and were thus recruited into the study. Therefore, in Awka South LGA for example, 48 respondents *(12 wards x 4 community focal points)* were studied.

Statistical analysis

The main outcome/dependent variable for this study was functionality of reporting and feedback mechanisms of the CBSS while the independent variables were the factors associated with the functionality of reporting and feedback mechanisms of the CBSS. The collected data was inspected for any data collection or coding errors. It was then entered into the International Business Machines-Statistical Package for Social Sciences *(IBM-SPSS)* version 20 *(IBM, 2011)*.

Continuous variables were displayed as means ± standard deviation *(SD)*. Frequency distribution of all relevant variables was developed and the differences in their means and proportions were calculated while associations between variables were considered using Chi-Square, Fisher's exact and t tests as appropriate *($p<0.05$)*.

RESULTS

Table 1 summarizes the socio-demographic characteristics of the respondents. Table 2 summarizes the reporting and feedback mechanisms in the CBSS in Anambra State, Nigeria.

Table 3 summarizes the association between socio-demographic characteristics and receipt of feedback in the CBSS among the respondents. Of the socio-demographic variables tested, only occupation, was found to have statistically significant association with receipt of feedback on disease case notification *(p=0.015)*. Table 4 summarizes the association between some selected factors and receipt of feedback in the CBSS among the respondents. Of the selected variables, ever detected any notifiable disease; source of information on detected disease; person the detected disease was reported to; records of notified disease kept by focal points; number of times reports were sent in the last one year, received feedback given to community members, availability of supervisors for community focal points and volunteer benefit from being an focal points were found to have statistically significant association with receipt of feedback on disease case notification *(p<0.05)*.

Table 1: Socio-demographic characteristics of the respondents.

Variable	n (%) N = 360 (%)
Age (years)	
20 – 29	76 (21.1)
30 – 39	124 (34.4)
40 – 49	114 (31.7)
≥ 50	46 (2.8)
Gender	
Male	105 (29.2)
Female	255 (70.8)
Highest educational status	
No formal education	11 (3.2)
Primary	22 (6.1)
Secondary	193 (53.6)
Tertiary	134 (37.2)
Occupation	
Civil service	115 (31.9)
Trading	123 (34.2)
Farming	37 (10.3)
*[1]Others	44 (12.2)
Unemployed	41 (11.4)
Religion	
Christianity	353 (98.1)
Traditional religion	7 (1.9)
Ethnic group	
Ibo	358 (99.4)
Yoruba	2 (0.6)
Length of service as a volunteer (years)	
1 - 3	252 (70.0)
4 - 6	76 (21.1)
7 - 9	12 (3.3)
≥ 10	20 (5.6)

**1Others – Nursing, patent medicine vendor, traditional birth attendant, artisan*

Table 2: Reporting and feedback mechanisms in the CBSS in Anambra State.

Variable	n (%) N = 360 (%)
Number of times reports were sent in the last one year	
Never	62 (15.6)
Once	128 (35.6)
Twice	102 (28.3)
Three times	27 (7.5)
Four times	29 (8.1)
More than four times	12 (5.0)
Number of feedbacks received by focal points in the last one year	
None	100 (27.8)
Once	117 (32.5)
Twice	86 (23.9)
Three times	7 (1.9)
Four times	37 (10.3)
More than four times	13 (3.7)
Mode through which feedback was given to focal points (N = 260)	
Orally through telephone calls	116 (44.6)
Orally during periodic meetings	61 (23.5)
Orally during supervisory visits	83 (32.0)
Feedback received focal points given to community	
Yes	229 (63.6)
No	131 (36.4)
Mode through which feedback was given to community (N = 229)	
Through village meetings	100 (43.7)
Through village health committee	101 (44.1)
Through the traditional ruler	6 (2.6)
Through home visits	22 (9.6)
Reason for not giving feedback to community(N = 131)	
Never received feedback	100 (76.3)
Lack of time	6 (4.6)
Lack of opportunity	3 (2.3)
Did not think it was important	22 (16.8)

Table 3: Association between socio-demographic characteristics and receipt of feedback among the respondents in the CBSS.

Socio-demographic characteristics	Feedback received (Number, %)		n (%) N = 360	p =value
	Yes	No		
Age at last birthday				0.165
≤ 30 years	56 (21.5)	20 (20.0)	76 (21.1)	
31 – 40 years	94 (36.2)	30 (30.0)	124 (34.4)	
41 – 50 years	83 (31.9)	31 (31.0)	114 (31.7)	
≥ 51 years	27 (10.4)	19 (19.0)	46 (12.8)	
Total	260 (100.0)	100 (100.0)	360 (100.0)	
Gender				0.321
Male	72 (27.7)	33 (33.0)	105 (29.2)	
Female	188 (72.3)	67 (67.0)	255 (70.8)	
Total	260 (100.0)	100 (100.0)	360 (100.0)	
Highest educational level				0.061
No formal education	9 (3.5)	2 (2.0)	11 (3.1)	
Primary	15 (5.8)	7 (7.0)	22 (6.1)	
Secondary	129 (49.6)	64 (64.0)	193 (53.6)	
Tertiary	107 (41.2)	27 (27.0)	134 (37.2)	
Total	260 (100.0)	100 (100.0)	360 (100.0)	
Length of service in community-based surveillance system				0.077
1 – 3 years	174 (66.9)	78 (78.0)	252 (70.0)	
4 – 6 years	63(24.2)	13 (13.0)	76 (21.1)	
7 – 9 years	10 (3.8)	2 (2.0)	12 (3.3)	
10 years or more	13 (5.0)	7 (7.0)	20 (5.6)	
Total	260 (100.0)	100 (100.0)	360 (100.0)	
Occupation				0.015*
Civil servant	92 (35.4)	23 (23.0)	115 (31.9)	
Trader	87 (33.5)	36 (36.0)	123 (34.2)	
Farmer	23 (8.8)	14 (14.0)	37 (10.3)	
Artisan	17 (6.5)	3 (3.0)	20 (5.6)	
Others	12 (4.6)	12 (12)	24 (6.6)	
Unemployed	29 (11.2)	12 (12.0)	41 (11.4)	
Total	260 (100.0)	100 (100.0)	360 (100.0)	

Table 4a: Association between some selected factors and receipt of feedback among the respondents in the CBSS.

Variable	Feedback received (Number, %)		n (%) N = 360	p =value
	Yes	No		
Total knowledge score on CBS				0.500
Poor knowledge	5 (1.9)	1 (1.0)	6 (1.7)	
Fair knowledge	63 (24.2)	19 (19.4)	82 (22.9)	
Good knowledge	192 (73.8)	78 (79.6)	270 (75.4)	
Total	260 (100.0)	100 (100.0)	360 (100.0)	
Ever detected any notifiable disease				0.000*
Yes	257 (98.8)	47 (47.0)	304 (84.4)	
No	3 (1.2)	53 (53.0)	56 (15.6)	
Total	260 (100.0)	100 (100.0)	360 (100.0)	
Source of information on detected disease (n = 304)				0.030*
Routine visit to the villagers	72 (28.0)	14 (29.8)	86 (28.3)	
Family of sick person	127 (49.4)	25 (53.2)	152 (50.0)	
Health committee	53 (20.0)	4 (8.5)	57 (18.8)	
Traditional healer	1 (0.3)	0 (0.0)	1 (0.3)	
TBA	4 (8.5)	4 (1.6)	8 (2.6)	
Total	257 (100.0)	47 (100.0)	304 (100.0)	
Person detected disease was reported to (n = 304)				0.040*
Community leader	5 (1.9)	0 (0.0)	5 (1.6)	
Health facility staff	100 (38.9)	25 (53.2)	125 (41.1)	
The DSNO	150 (58.4)	21 (44.7)	171 (56.3)	
The LGA chairman	2 (0.8)	0 (0.0)	2 (0.7)	
Nobody	0 (0.0)	1 (2.1)	1 (0.3)	
Total	257 (100.0)	47 (100.0)	304 (100)	

Table 4b: Association between some selected factors and receipt of feedback among the respondents in the CBSS.

Variable	Feedback received (Number, %)		n (%) N = 360	p =value
	Yes	No		
Means through which detected disease case was notified (n = 303)				0.060
Fax	10 (3.9)	0 (0.0)	10 (3.3)	
Phone call / SMS	221 (86.0)	40 (87.0)	261 (86.1)	
Transport by bus	26 (10.1)	5 (10.9)	31 (10.2)	
Letter writing	0 (0.0)	1 (2.2)	1 (0.3)	
Total	257 (100.0)	46 (100)	303 (100)	
Records of notified disease kept by focal points				0.000*
Yes	104 (40.0)	12 (12.0)	116 (32.2)	
No	156 (60.0)	88 (88.0)	244 (67.8)	
Total	260 (100.0)	100 (100.0)	360 (100.0)	
Number of times report sent in the last one year				0.000*
None	0 (0.0)	56 (56.0)	56 (15.6)	
Once	101 (38.8)	27 (27.0)	128 (35.6)	
Twice	95 (36.5)	7 (7.0)	102 (28.3)	
Thrice	22 (8.5)	5 (5.0)	27 (7.5)	
Four times	27 (10.4)	2 (2.0)	29 (8.1)	
Five times	6 (2.3)	0 (0.0)	6 (1.7)	
Six times	9 (3.5)	3 (3.0)	12 (3.3)	
Total	260 (100.0)	100 (100.0)	360 (100.0)	
Received feedback given to community members				0.000*
Yes	229 (88.1)	0 (0.0)	229 (63.6)	
No	31 (11.9)	100 (100.0)	131 (36.4)	
Total	260 (100.0)	100 (100.0)	360 (100.0)	
Focal points trained in CBSS				0.060*
Yes	256 (98.5)	95 (95.0)	351 (97.5)	
No	4 (1.5)	5 (5.0)	9 (2.5)	
Total	260 (100.0)	100 (100.0)	360 (100.0)	

Table 4c: Association between some selected factors and receipt of feedback mong the respondents in the CBSS.

Variable	Feedback received (Number, %)		n (%) N = 360	p =value
	Yes	No		
Availability of supervisors for community focal points				0.000
Yes	244 (93.8)	75 (75.0)	319 (88.6)	
No	16 (6.2)	25 (25.0)	41 (11.4)	
Total	260 (100.0)	100 (100.0)	360 (100.0)	
Volunteer benefit from being an focal points				0.003*
Yes	253 (97.3)	90 (90.0)	343 (95.3)	
No	7 (2.7)	10 (10.0)	17 (4.7)	
Total	260 (100.0)	100 (100.0)	360 (100.0)	
Volunteer has challenges with being an focal points				0.788*
Yes	202 (77.7)	79 (21.9)	281 (78.1)	
No	58 (22.3)	21 (21.0)	79 (21.9)	
Total	260 (100.0)	100 (100.0)	360 (100.0)	
Volunteer satisfied with being an focal points				0.056*
Yes	170 (65.4)	52 (52.0)	222 (61.7)	
No	90 (34.6)	48 (48.0)	138 (38.3)	
Total	260 (100.0)	100 (100.0)	360 (100.0)	

DISCUSSION

This cross sectional descriptive study determined the information transmission process for disease notification and feedback in the CBSS in Anambra State, Nigeria. This study shows that for every hundred respondents, about fifteen never made any reports, about thirteen sent in reports for at least four times, while about seventy received feedbacks on the information they sent to the other levels of the CBSS within the last one year and this was mostly *(44.6%)* orally through phone calls. About six in every ten respondents gave the feedback to the community mainly *(44.1%)* through the village health committees. This finding on the receipt of feedback in this study is comparable to those by *Oum and colleagues (2005*) and by *Chau (2007)* both in Cambodia, but differed from the findings in several other studies where the receipt of feedbacks by the community focal points had been poor, ranging from 3.6% to 13% *(Nsubuga, 2014; Kyei-Faried et al., 2006; Abubakar et al., 2013)*. These variations in findings may be linked to differences in study subjects as well as in methodologies.

From the findings of the current research, the commonest means through which feedback was received by focal points in this study was through phone calls. This runs contrary to the findings by *Oum and colleagues (2005)* and *Chau (2007)*, both in Cambodia, where the commonest means through which feedback was given to the village health volunteers was rather during monthly meetings. Providing feedbacks during monthly meetings enables information to be fed-back to all the participants in the system *(at least as much as do attend the meetings)* and decisions made to address identified issues the same day. This medium *(monthly meetings)* also provides an opportunity for continuing training of all the participants, thereby contributing to the improvement of the CBSS *(Oum et al., 2005)*. However, this was not the case in the present study and may be due to the irregularity in the pattern of interaction between the community focal points and their supervisors. Thus, the government needs to make provisions for the necessary logistics that will enable the participants in the CBSS to meet at regular intervals in order to improve the system.

Of the socio-demographic variables tested in this study, only occupation was found to have statistically significant association with receipt of feedback on disease case notification Also from this study, ever detected any notifiable disease; source of information on detected disease; person the detected disease was reported to; records of notified disease kept by focal points; number of times reports were sent in the last one year, received feedback given to community members, availability of supervisors for community focal points and volunteer benefit from being focal points were also found to have statistically significant association with receipt of feedback on disease case notification. However, it seemed that no research works have considered delving into this aspect of our research. It is, thus, our take that further studies be conducted to determine these associations between these variables and receipt of feedback on disease case notification, as well as the extent to which these occur. This will add to the body of knowledge on information transmission process for disease notification and feedback and also help in improving the functional status in the CBSS State and elsewhere.

The strength of this study lies in the 100% response rate achieved as well as the fact that it assessed the disease notification and feedback mechanisms in the CBSS in Anambra State, Nigeria, across all the levels of the CBSS. However, the study did not assess the public health actions resulting from CBSS. More research, therefore, needs to be conducted in order to accommodate this and provide more evidence for policy making.

There is need to reform the CBSS in Anambra State in line with the above findings in order to make it more functional. We therefore recommend as follows: The logistics needed for adequate reporting by the community focal points should be fully provided by the organizers of the programme. This will motivate them to report properly all the notifiable diseases. Mandatory weekly reporting to nearby health facilities, including zero reporting, should also be demanded from the community focal points. This will make for adequate data reporting from the CBSS. The channels of reporting in the CBSS in the state, especially at the peripheral level, should be properly streamlined. Formal mechanisms should be developed by the government with accurate guidelines for frequency and components of feedback at all the levels of the CBSS.

CONCLUSION

This study has shown that reporting by focal points in the State was inadequate. The receipt of feedbacks by focal points was good and mostly orally through telephone calls, and feedback to the community were mainly via the village health committees. Occupation, ever detected any notifiable disease; source of information; channels and frequency of reporting, received feedback given to community members, availability of supervisors for focal points and volunteer benefit from being focal points were factors affecting receipt of feedback on disease case notification.

REFERENCES

Abubakar AA, Sambo MN, Idris SH, Sabitu K, Nguku P. Assessment of integrated disease surveillance and response strategy implementation in selected local government areas of Kaduna state. Ann Nigerian Med. 2013;7(1):14-19.

Adokiya MN, Awoonor-Williams JK, Barau IY, Beiersmann C, Mueller O. Evaluation of the integrated disease surveillance and response system for infectious diseases control in northern Ghana. BMC Public Health. 2015; 15:75.

Anambra State Ministry of Health. Anambra State government strategic health development plan (2010-2015). 2010. Available at: www.mamaye.org/sites/default/files/.../ANAMBRA%20SSHDP%2015012010.pdf.

Aniwada EC, Obionu CN. Disease surveillance and notification, knowledge and practice among private and public primary health care workers in Enugu State, Nigeria: A comparative study. Br J Med Med Res. 2016;13(3):1-10.

Araoye MO. Research methodology with statistics for health and social sciences. 2nd ed. Illorin: Nathadex Publications; 2008.

Chau PD. Evaluation of disease surveillance system to detect diseases in Cambodia. J Natl Inst Public Health 2007;56(4):412-413.

Cox J, Soley LD, Bunkea T. Evaluation of community-based systems for the surveillance of day three-positive Plasmodium falciparum cases in Western Cambodia. Malar J. 2014;13:282.

Federal Ministry of Health Abuja, Nigeria. National policy on integrated disease surveillance and response. Abuja, Nigeria. 2005. Available at: https://cheld.org/wp-content/uploads/2012/04/National-Policy-on-Integrated-Disease-Surveillance-and-Response.pdf.

Howard-Grabman L. Bridging the gap between communities and services providers: Developing accountability through community mobilisation approaches. IDS Bull. 2000;31:88–96.

Hyman P. 'Peace technologies' enable eyewitness reporting when disasters strike. Commun ACM. 2014;57(1):27-29.

International Business Machines Corporation. IBM-Statistical Package for the Social Sciences (SPSS) Statistics 20. Somers New York: IBM Corporation; 2011.

International Federation of Red Cross and Red Crescent Societies. Community-based surveillance - Guiding principles. 2017. Available at: https://media.ifrc.org/ifrc/wp-content/uploads/sites/5/2018/03/CommunityBasedSurveillance_Global-LR.pdf.

Isere EE, Fatiregun AA, Ajayi IO. An overview of disease surveillance and notification system in Nigeria and the roles of clinicians in disease outbreak prevention and control. Niger Med J. 2015;56(3):161-8.

Kyei-Faried S, Appiah-Denkyira E, Brenya D, Akuamoa-Boateng A, Visser L. The role of community-based surveillance in health outcomes measurement. Ghana Med J. 2006;40(1):26-30.

Lafond KE, Dalhatu I, Shinde V, Ekanem EE, Ahmed S, Peebles P, Kudumu M, Bynum M, Salami K, Okeibunor J, Schwingl P, Mounts A, Nasidi A, Gross D. Notifiable disease reporting among public sector physicians in Nigeria: A cross sectional survey to evaluate possible barriers and identify best sources of information. BMC Health Serv Res. 2014;14:568

National Bureau of Statistics. Nigeria's population now 193.3 million. 2016. Available at: https://www.nigerianstat.gov.ng/.

Nigeria Data Portal. Nigeria Population Census 2006. 2006. Available at: http://nigeria.opendataforafrica.org/xspplpb/nigeria-census.

Nnebue CC, Onwasigwe CN, Adogu POU, Onyeonoro UU. Awareness and knowledge of disease surveillance and notification by health-care workers and availability of facility records in Anambra state, Nigeria. Niger Med J. 2012;53(4):220-225.

Nsubuga P. The Ebola outbreak in West Africa: a story of related public health challenges and a pointer to solutions to mitigate the inevitable next outbreak. Pan Afr Med J. 2014;19:48.

Oum S, Chandramohan D, Cairncross S. Community-based surveillance: A pilot study from rural Cambodia. Trop Med Int Health 2005;10(7):689-697.

Pandey R, Verma MR. Samples allocation in different strata for impact evaluation of developmental programme. Rev Bras Biom São Paulo 2008;26(4):103-112.

Pascoe L, Lungo J, Kaasboll J, Koleleni I. Collecting integrated disease surveillance and response data through mobile phones. In: Proceedings of the IST-Africa 2012 conference proceedings. 2012. Presented at: IST-Africa 2012 conference and exhibitions; 2012; Dar es-Salaam, Tanzania. Available at: https://www.researchgate.net/publication/271516728_Collecting_Integrated_Disease_Surveillance_and_Response_Data_through_Mobile_Phones.

WHO, Centre for Disease Control and Prevention. Technical guidelines for integrated disease surveillance and response in the African region. 2nd edition. Brazzaville, Republic of Congo and Atlanta, USA. 2010:1–398. Available at: https://www.cdc.gov/globalhealth/healthprotection/idsr/pdf/technical-guidelines/idsr-technical-guidelines-2nd-edition_2010_english.pdf

WHO. Integrated Disease Surveillance and Response in the African Region: A guide for establishing community based surveillance. 2014. Available from: https://www.afro.who.int/index.php?option.

WHO. International Health Regulations (2005). 3rd ed. Geneva: The Organization; 2016. Available from: http://www.who.int/topics/international_health_regulations/en/.

WHO/CDS/CSR/ISR. Protocol for the Assessment of National Communicable Disease Surveillance and Response Systems. 2001. Available at: www.who.int/csr/resources/publications/surveillance/whocdscsrisr20012.pdf.