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Contribution of Community Informants to Sensitivity of Acute Flaccid Paralysis Surveillance in Nigeria (2011-2017)

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ABSTRACT

Background:

Nigeria, a country of about 200 million people is one of the three remaining polio-endemic countries in the world. The last case of Wild Poliovirus (WPV) had onset of paralysis on 21st August 2016. Surveillance for cases of Acute Flaccid Paralysis (AFP) is one of the four strategies designed to eradicate polio. Polio is only one out of the many causes of AFP. AFP is thus a complex clinical syndrome with a broad array of potential etiologies. AFP surveillance in Nigeria is sensitive and an average of 12,000 AFP cases have been reported annually in the last five years.

The Nigeria disease surveillance system is both health facility and community based. Information from community informants is combined with facility-based disease surveillance and response mechanisms to strengthen and expand the coverage of the national system. Community informants are people that own or manage places in the non-formal health sector where parents with AFP cases may most likely seek assistance or consult. Examples of these are Patent Medicine Vendors (PMVs), traditional healers, spiritual healers, bone setters etc. This system of AFP reporting by informants is complementary to health facility –based surveillance system and has been shown to have more potential for improving surveillance quality in terms of timeliness, simplicity and representativeness. In addition, community involvement in disease surveillance is justified especially in developing and other resource poor settings where access to orthodox health centres is poor and self-medication and patronage of non-orthodox practitioners is rife. Systematic inclusion of more informants into AFP surveillance network is advocated and is crucial towards improving AFP case detection.

Objectives:

The objective of this paper is to highlight the contribution of community informants to the sensitivity of AFP surveillance in Nigeria during the period between 2011 to 2017.

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Methods:

We conducted a retrospective review of enlisted community informants and reported AFP cases in Nigeria between 2011 to 2017 from the AFP database at the World Health Organization Country Office. We segregated the reported AFP cases by source of reporting including those reported by informants. The proportion of AFP cases reported by informants during the reporting period was calculated.

Results:

The number of AFP cases reported in the country increased from 6108 in 2011 to 16261 in 2017. The number of community informants increased from 22252 in 2011 to 53514 in 2017.The number of community informants in the northern and southern zones was 32690(61%) and 20824(39%) respectively. The proportion of AFP cases reported by community informants increased from 7% in 2011 to 18% in 2017.The number of AFP cases reported by informants from the northern and southern zones in 2017 was 1613(10%) and 1323(8%) respectively.

Conclusion:

There was significant increase in reporting of AFP cases by community informants from 2011 to 2017 in Nigeria. Considering the size of the country, the number of informants was generally inadequate. There is variation in the number and performance of informants in the different geopolitical zones of the country with more informants located in the northern zones of the country and relatively more AFP cases reported by informants from the southern zones.

Systematic inclusion of more informants into AFP surveillance network is advocated and is crucial towards improving AFP case detection.

Keywords: Community informants, Acute Flaccid Paralysis, Access, Disability, Rehabilitation

Introduction

More than 10 million people are walking today who otherwise would have been paralyzed if not for GPEI efforts[2]. In May 2012, the WHA declared ending polio a "programmatic emergency for global public health" and this declaration was last reiterated in August 2017[3]. The Polio Eradication and Endgame Strategic Plan 2013-2018 was developed not only to end all polio (Wild and circulating Vaccine Derived Poliovirus, cVDPV) disease, but also to use polio structures to deliver other health services in a more sustainable way[4].

Nigeria is a country of about 200 million people and the last case of WPV and cVDPV2 had onset of paralysis on 21st August 2016 and 28th October 2016 respectively[5]. Surveillance for cases of Acute Flaccid Paralysis (AFP) is one of the four strategies designed to eradicate polio[6]. The hallmark of polio disease is the causation of irreversible paralysis leading to life-long disability, handicap and therefore lends itself to detection for as long as the victim is alive[7].

Polio is only one out of the many causes of AFP. AFP is thus a complex clinical syndrome with a broad array of potential etiologies. AFP surveillance in Nigeria is sensitive and an average of 12,000 AFP cases have been reported annually in the last five years[10].

Community involvement in disease surveillance is justified especially in developing and other resource poor settings where access to orthodox health centres is poor and self-medication and

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patronage of non-orthodox practitioners is rife. In addition, the community is empowered to monitor their own health risks, conduct local analysis and intervene timely. Such involvement should not only be in the area of case reporting, but also in unusual health event reporting, outbreak investigation and response[11].In addition, security challenges may bring about uncertainty in the quality of health care performance indicators including surveillance. This situation further buttresses the need to mobilize communities and integrate community-based and facility surveillance strategies to bridge possible gaps; and especially those at sub national levels[12].

Methods

Study area and population

Nigeria is located in West Africa. The country has a total population of close to 200 million and is sub-divided into 36 states and the Federal Capital Territory (FCT), where the capital, Abuja is located. It is bordered by Republic of Benin to the west, Chad and Cameroon to the east and Niger Republic to the north. Its coast in the south lies on the Gulf of Guinea in the Atlantic Ocean.

Brief description of engagement of community informants in surveillance in Nigeria

The Nigeria disease surveillance system is both health facility and community based. Information from community informants is combined with facility-based disease surveillance and response mechanisms to strengthen and expand the coverage of the national system. Community case definitions are used by informants to recognize, detect and report cases or events of interest to the nearest health facility reporting site.

Informants are people who own or manage places in the non-formal health sector where parents with AFP may most likely seek assistance or consult[13]. Examples are patent medicine vendors, traditional and spiritual healers, traditional bonesetters, traditional birth attendants and mobile nomadic populations[14].The process of engaging community informants entails advocacy by state teams to Local Government Areas (LGAs) to highlight the need and importance of informants in the surveillance network. The LGA teams identify and list key officials of potential informant groups for sensitization during which list of other members of informant groups and their contacts/locations are obtained. Plans are developed for all states to engage and sensitize community informants on surveillance at least yearly in addition to the on the job training during supervision. Informant sensitization emphasizes the AFP case definition and the roles informants could play in AFP case identification and reporting. In addition, informants are also sensitized on other epidemic prone diseases such as measles, cerebrospinal meningitis, yellow fever and cholera. At the end of sensitization, picture posters and case definitions of priority diseases are distributed to all informants.

Informants are also linked to nearest health facilities, usually reporting sites where they refer detected cases. Informants are visited at least on a monthly basis by the LGA Disease Surveillance and Notification Officers (DSNOs) or their assistants (ADSNO), WHO Field Volunteers, LGA Facilitators and Cluster Coordinators. A checklist is applied during the supervisory visit and on the job training conducted. The performance of informants is monitored

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through the number of cases of AFP and other priority diseases reported, number of training sessions attended and whether relevant posters are retained in their premises. Contact is made with informants through telephone whenever physical supervision is not possible.

Data collection and analysis

We conducted a retrospective review of enlisted community informants and reported AFP cases in Nigeria between 2011 to 2017 from the AFP database at the World Health Organization Country Office. We segregated the reported AFP cases by source of reporting including those reported by informants. The proportion of AFP cases reported by informants during the reporting period was calculated.
We also reviewed the number of AFP cases reported from 2011 to 2017 and the distribution of informants and their performance in terms of AFP reporting by zone and at the national level.

Results

The number of AFP cases reported in the country increased from 6108 in 2011 to 16261 in 2017. The number of community informants increased from 22252 in 2011 to 53514 in 2017. The number of community informants in the northern and southern zones was 10736(66%) and 5525(34%) respectively. The proportion of AFP cases reported by community informants increased from 7% in 2011 to 18% in 2017. The number of AFP cases reported by informants from the northern and southern zones in 2017 was 1612(10%) and 1324(8%) respectively.

Discussion

Acute Flaccid Paralysis (AFP) is defined as a sudden onset of hypotonic/flaccid paralysis in a child that is less than 15 years of age or any person of any age with paralytic illness if polio is suspected by a clinician[15].Effective AFP surveillance is needed to know areas of poliovirus transmission and also to know when polio has been finally eradicated. For polio, surveillance is particularly difficult as Symptoms only show in about one in 200-1000 infected people and AFP has other causes than polio. Evidence of polio circulation cannot be proved in the field; it must be confirmed in a WHO accredited laboratory[16].
The high number of AFP cases detected annually in Nigeria is mainly due to increasing number of reporting network of reporting health facilities and community informants, training/sensitization of surveillance personnel, clinicians and informants and several other innovative strategies. Community participation and ownership has been recognized by the Nigerian government as necessary to achieving sustainability in health programmes. This is more so in polio eradication where community involvement is required not only to ensure early reporting of AFP cases but also in order to get every eligible child vaccinated[17].This realization has informed the expansion of reporting network of community informants over the years, which in turn resulted in the increased detection and reporting of AFP cases generally and by community informants more specifically. On the average the number of AFP cases detected annually in the country in the last five years is in excess of 12000 and the non-polio AFP rate during these periods also exceeded 10/100,000 of under 15 years.

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There is variation in the number of informants and their performance in terms of AFP detection among the different zones of the country. The northern zones have the highest number 32690(61%) of informants, but reported 1613 (10%) of AFP cases reported in 2017. On the other hand, the southern zones have 20824(39%) of informants, but reported 1323(8%) of AFP cases.
The proportion of AFP cases reported by informants in 2017 was highest in south-south, southeast and northcentral zones at 34%, 22% and 20% respectively. These variations can be explained to a large extent by differences in population, supervision, quality of sensitization, motivation and on the job training among others.
Community-based surveillance system is a surveillance system which detects and report diseases from within the community by community informants. This system has been shown to complement health facility –based surveillance system and has more potential for improving surveillance quality in terms of timeliness, simplicity and representativeness[18].
Community involvement in disease surveillance is justified especially in developing and other resource poor settings like Nigeria where access to orthodox health centres is poor and self-medication and patronage of non-orthodox practitioners is rife. Of recent, clear evidence of undetected poliovirus circulation for several years in the northeast zone of the country, indicating serious surveillance gaps, justifies the need to expand the reporting network of especially the community informants in the country as community-based surveillance contributes significantly to AFP surveillance. In Ethiopia for instance, 30% to 59% of AFP cases reported annually between 2008 and 2014 were attributed to Community Based Surveillance (CBS). In South Sudan too, the percentage of AFP cases reported by CBS ranged from 31% to 44% between 2012 and 2014[19]. In addition, the community is through its involvement empowered to monitor its own health risks, conduct local analysis and intervene timely. Such involvement should however not only be in the area of case reporting, but also in unusual health event reporting, outbreak investigation and response. Experience from the outbreaks ofcholera, meningococcal meningitis, typhoid and influenza among other diseases in the last decade, and lately the Ebola virus disease; has shown that countries without community based surveillance system had delayed detection and response to these public health threats or events with resultant morbidity, complications and huge losses of lives[20].Indeed, the ability of community based surveillance system to detect, notify and report cases or outbreaks has been shown to be superior to the routine facility based surveillance. The community informants, especially those in remote settings have been aptly described as the ‘eyes’ and ‘ears’ of the community[21].
In Nigeria, the contribution of community informants in timely reporting and investigation of AFP cases especially those in security compromised states is further enhanced through the use of mobile phones through which they contact the LGA DSNO, ADSNO and WHO surveillance officers. Use of mobile based reporting makes it possible to have real-time communication with key surveillance players. Challenges however exist in this regard as not all informants are literate to use mobile phones and not all areas have telecommunication network coverage and other areas may have erratic network[22].Thisa mobile phone-based surveillance system has been shown to fill a critical gap left by the routine surveillance system especially during conflict or humanitarian situation as seen in Borno due to Boko Haram; and has been shown to be cost effective in other countries such as the DRC[23].

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Although community based surveillance can increase sensitivity and timeliness of the system, however many false alerts are also generated. This set back can be addressed through regular capacity building, supervision and further validation[24].The quality of surveillance in developing countries such as Nigeria can improve if a community-based approach is adopted. Such a system has been used successfully during smallpox-eradication and guinea worm-control campaign[25].Community support and trust have been identified as critical to sustainability of health programmes[26].

We conclude that there was significant increase in reporting of AFP cases by community informants in Nigeria over the years; and considering the size of the country, the number of informants was generally inadequate. We also noted variation in the number and performance of informants among the different geopolitical zones of the country. We recommend ssystematic inclusion of more informants into AFP surveillance network to further improve AFP case detection.

Contributions of the paper

- Magnitude of Acute Flaccid Paralysis in Nigeria brought to the limelight
- Contribution of community informants to AFP detection in Nigeria underscored
-Regional disparity in the distribution of community informants and their performance in Nigeria highlighted

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Figure1: Trend of reported AFP cases in Nigeria (2011-2017)

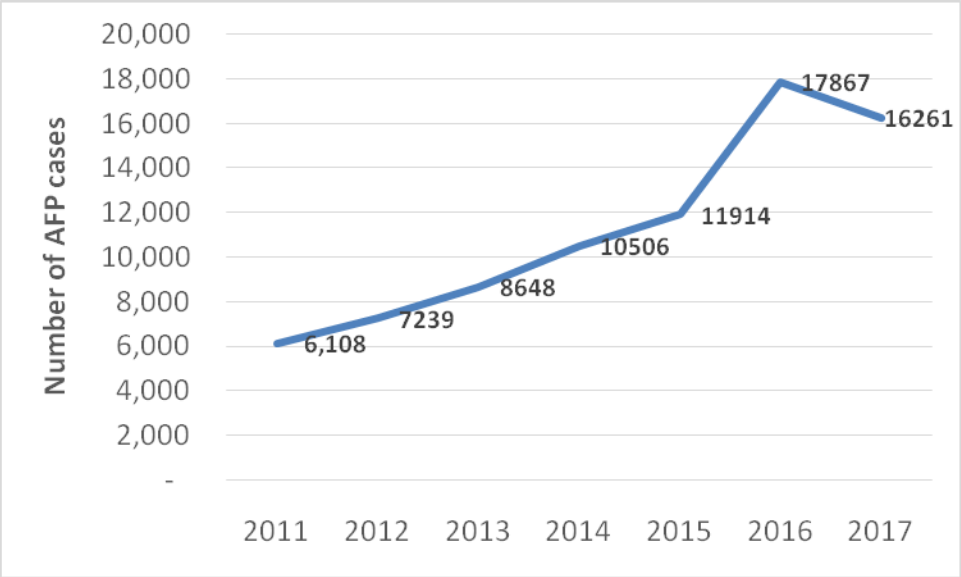

Figure 1, showing increasing trend of AFP reporting from 2011 to 2017 with a slight drop in 2017

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Table 1: Distribution of community informants by zones in Nigeria (2017)

S/N	Zone	Informants No(%)
1	Northcentral zone	9258(17)
2	Northeast zone	7638(14)
3	Northwest zone	15794(30)
4	Southeast zone	5428(10)
5	Southsouth zone	6994(13)
6	Southwest zone	8402(16)
	Total	**53514(100)**

Table 1 showing the distribution of community informants by zones with most informants coming from. the northern zones of the country

Table 2: Distribution of reported AFP cases by community informants by zones in Nigeria (2017)

S/N	Zone	AFP reported by informants No(%)	AFP reported by other sources No(%)	Total reported AFP cases No(%)
1	Northcentral zone	512(20)	2048(80)	2560(100)
2	Northeast zone	345(11)	2794(89)	3139(100)
3	Northwest zone	756(15)	4281(85)	5037(100)
4	Southeast zone	303(22)	1078(78)	1381(100)
5	Southsouth zone	675(34)	1311(66)	1986(100)
6	Southwest zone	345(16)	1831 (84)	2158(100)
	Total	**2936(18)**	**13325(82)**	**16261(100)**

Table 2, showing the distribution of reported AFP cases in the country by zones. Most AFP cases were reported from the northern zones. The proportion of AFP cases reported by informants was highest in the south-south (34%), southeast (22%) and northcentral zones (20%0 in that order.

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Figure2: Trend of community informants and proportion of AFP cases reported by community informants in Nigeria (2011-2017)

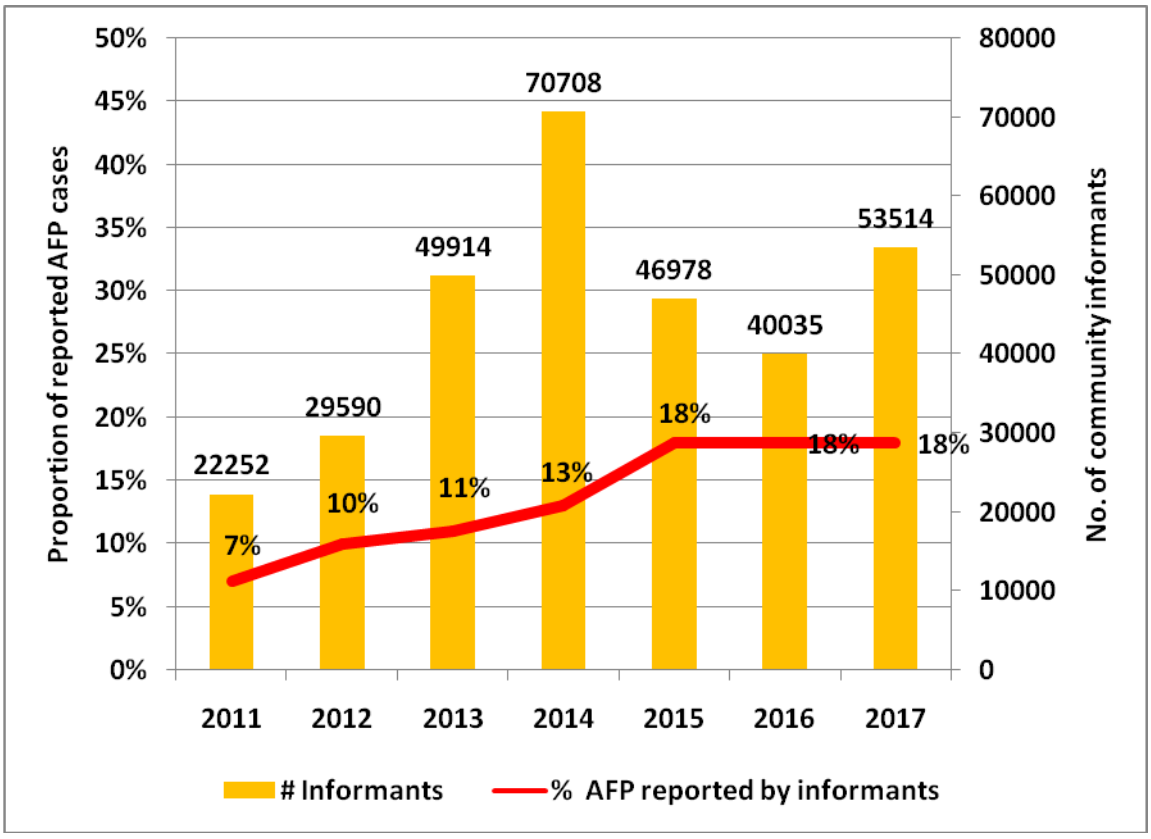

Figure 2, showing increasing trend of number of community informants and proportion of AFP cases reported by them. The decline in the number of informants from 2014 reflects the displacement of informants in the security challenged states of Adamawa, Borno and Yobe at the height of Boko Haram crisis.