# PRACTICE OF DISEASE NOTIFICATION BY PRIMARY HEALTH CARE WORKERS IN JOS NORTH LOCAL GOVERNMENT AREA OF PLATEAU STATE

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***ABSTRACT***

***BACKGROUND***

*The surveillance process involves systematic collection, analysis and interpretation of health data essential to planning, implementation and evaluation of public health activities. The World Health Organization Regional Office in Africa during its regional committee meeting in Harare, approved the Integrated Disease Surveillance and Response (IDSR) strategy for strengthening infectious disease monitoring and response capacity to strengthen surveillance system at all levels of the health care system for effective prevention and care and in long term planning of health services. The objective of the study is to determine the knowledge and practice of disease notification among primary health care workers in Jos north local government area of Plateau State.*

***METHODS***

*This was a descriptive cross sectional study conducted among primary health care workers involved in patient management. One hundred and fifty of them were selected through a multistage sampling technique from 7 PHC centres. Data was analyzed using Epi Info statistical software version 3.2.1.*

***RESULTS***

*Majority of the respondents 96 (62.2%) were between 31-40 years of age with a mean age of 36±8.4 years. They were mainly females (154; 69.4%), had practiced for = 5 years (100; 45.0%) and are public health nurses/ midwives (28; 12.6%). Forty six (20.7%) had good knowledge of disease notification, 202 (91.0%) had been involved in disease notification and 155 (76.70%) identified correctly the processes involved.*

***CONCLUSION***

*The knowledge of disease notification among primary health care workers in this study is low, although most are able to correctly describe the notification process. It is necessary to train health workers regularly and to put adequate logistics on the ground for effective disease surveillance and notification.*

***Key words:*** *Disease, Practice, Notification and Surveillance*

**BACKGROUND**

A notifiable disease is a disease noteworthy of reporting to the appropriate health authorities when diagnosed [1]. A preceding surveillance followed by notification and reporting involves continuous scrutiny for the occurrence of disease and health related events to enable intervention for the control of such disease [2]. The surveillance process involves systematic collection, analysis and interpretation of health data essential to planning, implementation and evaluation of public health activities. It is an essential function of a public health system [3].

Infectious diseases continue to be a major challenge in the West African sub-region. Diseases previously thought to be controlled have re-emerged in recent years and new disease threats continue to be identified [4]. The increased mobility of human population brought about by lowered Trans border travel restrictions and improved transportation networks facilitate the spread of infectious diseases from one country to another [1]. In addition, the sub-region is experiencing a growing epidemic of non- communicable diseases brought about by evolving dietary pattern, less active lifestyles and changing environmental exposure. On this ground, countries in the West African sub region have at different times instituted surveillance system for specific named diseases. For instance, a disease monitoring system was introduced in Nigeria in 1988 following a major outbreak of yellow fever in 1986-87, which affected 10 of the then 19 states [4].

There are three major classes of notifiable diseases, international, national and occupationally notifiable

diseases. In Nigeria, notifiable diseases are further subdivided into immediate (emergency) and routine notifiable diseases [1]. After the yellow fever outbreak of the 1980s, 40 diseases of public health importance in the country were identified and designated for routine monthly notification out of which 10 epidemic prone diseases were selected for immediate reporting. This disease surveillance and notification system (DSN) was approved for adoption by the Nigerian National Council of Health in 1989 [4]. In 1998, the World Health Organization Regional Office in Africa (WHO AFRO), during its regional committee meeting in Harare, approved the Integrated Disease Surveillance and Response (IDSR) strategy for strengthening infectious disease monitoring and response capacity.

This was in response to growing challenges faced by member states in the control of infectious diseases [4]. The aim of the strategy is to strengthen surveillance system at all levels of the health care system. It emphasis the need for the surveillance system to be simple, flexible, action oriented and focused on ensuring rational use of resources, by having a single integrated system that provides surveillance system for a range of diseases of public health importance. This strategy has become a reference point of the surveillance activities in the WHO African region [4].

IDSR adoption and implementation started in Nigeria in 2000 with 21 diseases but later expanded to 22 priority diseases which include Epidemic Prone Diseases like cholera and yellow fever, diseases targeted for elimination and eradication like Neonatal Tetanus and Leprosy and Diseases of Public Health Importance which includes diarrhea, HIV/ AIDS, etc. the list is reviewed periodically and a disease may be added as a new pathogen emerges or deleted as the incidence declines.

The data sources for surveillance and notification include outpatient registers, individual case notes and available records in use at health facilities and research laboratories. National surveillance system depends on a district level of surveillance department for the collection of data [3]. Flow of information is arranged into tiers. The first tier is the health facilities that include all government, private and mission hospitals (including Primary Health Care centres). Workers at this level complete data on standard IDSR forms for onward submission to the second tier at the local government health office manned by the Disease Surveillance and Notification Officer (DSNO). Here, forms received are forwarded to the State Ministry of Health (Epidemiological unit) manned by the state epidemiologist who collects data and forwards to the Federal Ministry of Health (Epidemiological division), which is the third tier where analysis and feedback to the second tier and public is done [2].

Disease detection requires that health workers maintain a high index of suspicion for diseases that are prevalent in their area. They are required to routinely fill forms that give information about notifiable diseased. If properly done, it could serve as a source of health information on the prevalence and incidence of diseases in the locality, a guide to rapid identification and response to outbreaks, for effective prevention and care and in long term planning of health services, for assessment and monitoring of control programmes and in modification of the working environment in the case of occupational diseases.

The objective of the study is to determine the knowledge and practice of disease notification among primary health care workers in Jos north local government area of Plateau State.

## METHODS

This was a descriptive cross sectional study conducted in June 2012 among primary health care workers in Jos Plateau State. They include community health officers, public health nurses and midwives, junior/senior community health extension workers, laboratory/pharmacy technicians and environmental health officers. Health workers not involved in patient management were excluded from the study.

Using the formula for calculation of sample size for population greater than 10,000,[5] a minimum sample of 150 was obtained using the Leslie Fischer's formula with the expression $n= Z^2 pq/d^2$,[6] where z is the standard normal deviate, p is prevalence or probability, q is complementary probability and d is the degree of precision. Confidence interval was set at 95%, normal deviation Z= 1.96 and d= 0.05 was used.

A multistage sampling technique was employed in the sample selection. In the first stage, three of the five PHC zones in the local government area were selected for study using simple random sampling techniques by balloting. In the second stage, from the average of 10 PHCs per zone, three were randomly selected per zone for study. These included PHC Tudun Wada, Apata, Township, Lamingo, Utan, Dogon Dutse, Yelwan Zangam, Jos Jarawa and Naraguta.

Health workers were then proportionately selected from each facility until the minimum sample size was obtained. The proportion of PHC workers in each facility was obtained by dividing the number of eligible health workers in each PHC by the total number of all eligible health workers in the 9 PHCs and multiplying this by the minimum sample size required.

Research instrument was a structured self administered questionnaire divided into five sections which was pre tested among PHC workers in Barakin Ladi LGA of Plateau State. The study variables included socio- demographic data, knowledge, attitude, practice and factors affecting disease notification. There were seven questions that assessed the knowledge of respondents on disease notification. They included definition of a notifiable disease, whose responsibility it's to notify a disease, total number of notifiable diseases, identifying correctly the notifiable diseases and differentiating the immediate from routine notifiable diseases. A score of 1 was assigned to correct response and nil to wrong or no response, thus giving a maximum attainable score of 21. Knowledge was graded as good when respondents get a score of = 13, as fair with scores of 8- 12 and poor knowledge when they score < 8. Three trained research assistants were employed in data collection.

They were trained and the instrument standardized for ease and uniformity of data generation. Ethical clearance was obtained from Jos University Teaching Hospital (JUTH) ethical review committee while permission was sought from the PHC department of Jos North LGA. Written informed consent was obtained from individual participants with assurance of confidentiality. Data was analyzed using Epi Info statistical software version 3.2.1. Data obtained was validated by double entry and random checks. Frequency tables were generated and relevant summary statistics were computed. Chi square test was used to check association for categorical variables at a level of significance of $p<0.05$.

## RESULTS

A total of 250 questionnaires were distributed, 222 that were properly filled and returned were analyzed giving a response rate of 88.0%. Table 1 shows the socio-demographic characteristics of respondents. Majority of the respondents 96 (62.2) were between 31-40 years of age with a mean age of 36±8.4 years. They were mainly females (154; 69.4%), had practiced for = 5 years (100; 45.0%) and are public health nurses/ midwifes (28; 12.6%).

Table 2 shows that 46 (20.7%) had good knowledge of disease notification and there is no statistically significant relationship between years of practice and knowledge of disease notification, P=0.4494.

Table 3 shows the practice of respondents on disease notification. 202 (91.0%) had been involved in disease notification and 155 (76.7%) identified correctly the processes involved in disease notification. Only 58 (26.2%) correctly said the person who makes a diagnosis is the person to notify a disease against 76 (34.2%) who feel it is the community health extension workers that are saddled with the responsibility.

Table 4 shows the factors affecting disease notification among respondents. Majority of the respondents, 138 (62.2%) had recently attended workshop or training on disease notification, 45 (20.3%) feel the whole process is too cumbersome, 22 (10.6%) said it's not their responsibility while 110 (52.9%) said there is usually limited or unavailable resources. Of those that said limited/ unavailable resources is responsible, 88 (81.3%) identified the resources unavailable as laboratory reagents and 104 ( 94.5%) as lack of reporting forms in the consulting rooms.

## DISCUSSION

The knowledge of disease notification among PHC workers in the surveyed population is poor as only 46 (20.7%) correctly define and identify the processes involved in disease notification. This finding is similar to results obtained in studies done in Wales among medical doctors [7], in Northern Ireland among medical workers in the accident and emergency unit [8], also in South Africa among doctors [9] and in Benin city, Nigeria among doctors [1] which all demonstrated poor knowledge of disease notification among the respondents. However, it differs from findings in a study done in Sri Lanka that revealed good knowledge of disease notification among majority of medical officers of health. This could be as a result of extensive training received by doctors which is well above that for the lower cadre health workers in the study. Also, doctors area homogenous group as opposed to PHC workers in the study of different cadre mostly with = 5 years of work experience. Years of practice and knowledge of disease notification has no statistically significant relationship, in agreement with the studies done in Benin City, Nigeria [1].

Despite the poor knowledge, 202 (91.0%) respondents reported to have notified a disease in the past. 155 (76.7%)

correctly identified the pathway of disease notification from the health facility to the DNSO officer in the local government. This is in keeping with studies in South Western Nigeria in which up to 97.6% of respondents knew the correct pathway for an effective surveillance. A high percentage of respondents who had attended recent trainings/workshop on disease notification and surveillance could be attributable to this finding.

In this study most of the respondents reported that disease notification is practiced in their health facility and considered it a statutory duty, however only a few correctly identified the person who made the diagnosis as the right man to report. This is similar to report of studies done in Simon Voss in Wales among general practitioners and junior doctors that showed that majority of the doctors considered reporting a statutory duty, but few said that the medical personnel making the diagnosis should report [7] and the studies in Northern Ireland [8] and South Africa [9] among medical doctors. It is however not in agreement with the study done in Sri Lanka where medical officers of health considered reporting a statutory duty and were prompt in the discharge of their duties [10].

The study also showed that about a quarter of the respondents felt the reporting format is complex, in contrast with a study in Sri Lanka which showed no evidence of regular supervision yet medical officers of health were prompt in reporting notifiable disease, a likely pointer to good attitude [10]. It's however in agreement with studies in South Africa and Senviranteen respectively where health workers consider reporting as being complicated and useless and that it interferes with their clinical activity [11]. The study also showed that about half of the respondents limited or unavailability of resources affects their ability to diagnose or adequately report notifiable diseases and specifically identified lack of reagents in the laboratory and the unavailability of reporting forms in the consulting rooms as hindrances. This is in agreement with a study by Dairo, et al on logistic challenge and prospects in disease surveillance that poor logistic support for their routine activities.

**Table 1:** Socio- demographic variables of respondents (n= 222)

| Parameter | Frequency | Percentage |
|---|---|---|
| **Age** | | |
| 21-30 | 56 | 25.2 |
| 31-40 | 96 | 62.2 |
| 41-50 | 46 | 9.0 |
| >50 | 24 | 3.6 |
| **Sex** | | |
| Male | 68 | 30.6 |
| Female | 154 | 69.4 |
| **Duration of Practice (Years)** | | |
| ≤ 5 years | 100 | 45.0 |
| 6-10 years | 90 | 40.5 |
| 11-15 | 16 | 7.2 |
| 16-20 | 10 | 4.5 |
| >20 | 6 | 2.7 |
| **Cadre** | | |
| CHO | 28 | 12.6 |
| Nurse/ Midwives | 46 | 20.7 |
| CHEW (Senior) | 36 | 16.2 |
| CHEW(Junior) | 40 | 18.0 |
| Laboratory Technician | 18 | 8.1 |
| Pharmacy Technician | 14 | 6.3 |
| EHO | 40 | 18.0 |

**Table 2:** Relationship between duration of practice and disease notification (n=222)

| Duration of Practice | Good | Fair | Poor |
|---|---|---|---|
| ≤ 5 years | 20(43.5) | 36(42.9) | 44(47.8) |
| 5-10 years | 18(39.1) | 30(35.7) | 42(45.6) |
| 11-15 years | 2(4.4) | 10(11.9) | 4(4.4) |
| >15 years | 6(13.0) | 8(9.5) | 2(2.2) |
| Total | 46(100.0) | 84(100.0) | 92(100.0) |

X2= 5.77; df= 6; P = 0.4494

**Table 3:** Practice of disease notification (n= 222)

| Practice | Frequency | Percentage |
|---|---|---|
| Yes | 202 | 93 |
| No | 20 | 6 |
| **Process of disease notification** | | |
| Correct | 155 | 59 |
| Incorrect | 47 | 41 |
| **Who reports diseases** | | |
| HW who makes diagnosis | 58 | 29 |
| Laboratory technician | 22 | 11 |
| CHEW (Junior/ Senior) | 76 | 38 |
| Head of facility | 22 | 11 |
| Others | 44 | 11 |

**Table 4:** Factors that determine disease notification

| Parameter | Frequency | Percentage |
|---|---|---|
| **Had previous training** | | |
| Yes | 138 | 62.2 |
| No | 84 | 37.8 |
| **Reasons for not reporting** | | |
| Procedure cumbersome | 45 | 20.3 |
| Not my responsibility | 22 | 10.0 |
| Not sure of what to report | 26 | 11.7 |
| Unavailable/ limited resources | 110 | 49.5 |
| Others | 19 | 8.5 |
| **Resources** | | |
| Availability of reporting forms | | |
| Yes | 6 | 5.5 |
| No | 104 | 94.5 |
| Availability of laboratory reagents | | |
| Yes | 22 | 18.7 |
| No | 88 | 81.3 |

## CONCLUSION

The knowledge of disease notification among primary health care workers in this study is low, although most are able to correctly describe the notification process which they may have learnt as a routine on the job that explains the rather good practice. It was also found out that logistic support needed for disease surveillance and notification is lacking. Since the success of disease surveillance and notification depends on the input of health workers, it is necessary to train them regularly and to put adequate logistics on the ground for effective disease surveillance and notification.

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