Awareness, Perception and Preferences of Resident Doctors toward Disease Surveillance and Notification in a Tertiary Health Facility in Edo State, Nigeria

Awunor Nyemike Simeon
Department of Community Medicine, Habib Medical School, Islamic University in Uganda, Kampala
nyemikeawunor@gmail.com

Abstract

Health workers are in the frontline of disease surveillance and notification activity. Doctors serve as gatekeepers in diagnosis and treatment of cases in the population, they also serve to promptly inform the relevant health authority on notifiable diseases using the Integrated Disease Surveillance and Response Strategy (IDSR) strategy. This study sought to determine the perception and preferences of resident doctors towards disease surveillance and notification (DSN). A cross sectional descriptive study was conducted among 224 resident doctors. Data was collected through the use of a structured, self-administered questionnaire and analyses were done by SPSS version 16. The mean (SD) age of respondents was 31.1 (4.6) years. Majority of respondents (88.4%) were aware of DSN. Majority of respondents (93.8%) considered notification of diseaseas an important public health even though a minority of respondents (18.8%) had ever notified relevant authority. Majority of respondents (90.6%) agreed that a training in epidemic preparedness, disease surveillance and notification (IDSR) was necessary to them as doctors with the internet being the preferred channel of feedback on DSN information (28.6%). While the majority of respondents were aware and had a positive perception of disease surveillance and notification, just a few respondents had ever notified relevant authority on a notifiable disease, training was expressed as a need among respondents and the internet was the preferred channel for feedback on DSN information. This provides an opportunity for effective disease surveillance and notification activity in the presence of adequate logistic and system support. Continued training of doctors on the IDSR strategy is therefore strongly recommended for improved health system performance.

Keywords: Disease surveillance; notification; resident doctors; Edo State.

Introduction

A nation's public health effort is often as good as the surveillance and notification system put in place. Nigeria has collected information on epidemic-prone and other diseases of public health importance through the Integrated Disease Surveillance and Response system (IDSR) since 2001 (Lafond et al., 2014). Currently 40 diseases are listed in the IDSR under three categories of epidemic prone diseases, diseases targeted for elimination and eradication; and diseases of public health importance (Federal Ministry of Health, 2009). Health workers are supposed to be in the frontline of disease surveillance and notification (DSN) activities under the National Health Management Information System. Doctors thus serve as gatekeepers in early diagnosis and prompt treatment of cases of disease in the population. They also serve to quickly inform the relevant health authority on notifiable diseases using the IDSR strategy for active surveillance and case finding. (Federal Ministry of Health, 2005, 2009; Isere, Fatiregun, & Ajayi, 2015; Nnebue, Onwasigwe, Adogu, & Onyeonoro, 2012; Nnebue, Onwasigwe, Ibeh, & Adogu, 2013).

Some studies have reported on the awareness, knowledge and attitude of health workers especially at the primary health care level in the LGA towards the DSN in general and IDSR strategy in particular. Though a referral centre, teaching hospitals as training institutions for quality health manpower usually run primary care and emergency services where the sick individual might first seek care from the health system (Adefuye, Dairo, & Adedokun, 2009; Ameme et al., 2016; Dairo, Bamidele, & Adebimpe, 2010).

The objective of this study was to determine the perception and preferences of resident doctors towards the disease surveillance and notification in the University of Benin Teaching Hospital, Benin City, Edo State.

Materials and Methods

This study wascarried out in the University of Benin Teaching Hospital (UBTH), Edo State, South South geo – political zone of Nigeria. It was a cross-sectional descriptive study. The study populationcomprisedall doctors below the rank of consultant (resident doctors, medical officers and house officers) employed by UBTH.The calculated minimum sample size was 161 using the Cochran formula (Cochran, 1963) with the proportion with good knowledge as 11.9% from an earlier study (Ofili, Ugwu, Ziregbe, Richards, & Salami, 2003). Two hundred and twenty-four doctors participated in the study. Data was collected usinga self-administered structured questionnaire which was was pre-tested among resident doctors in Irrua Specialist Teaching Hospital Irrua, Edo State. Awareness of the concept of Disease Surveillance and Notification (DSN) and an awareness of the Integrated Disease Surveillance and Response (IDSR) strategy was sought from respondents. Attitude towards DSN was determined using seven (7) Likert scale type statements stratified into 5 categories ranging from "strongly agree" through "undecided" to "strongly disagree".

Data was analysed using theStatistical Package for Scientific Solutions (SPSS) version 16.0 software. Individual informed consent was obtained from participants, permission was obtained from the UBTH management for the study to be carried out, ethical clearance was obtained from the ethics and research committee, University of Benin Teaching Hospital.

Results

Two hundred and twenty-four respondents with a mean (SD) age of 31.1 (4.6) years participated in this study (Table 1). Majority of the respondents 163 (72.8%) were males. One hundred and sixteen (51.7%) of the respondents were single, 47.8% of respondents were married.The highest proportion of respondents 57 (25.1%) were from the Department of Surgery and House officers comprised the largest cadre of respondents 95 (42.4%) in the survey followed by the registrars (27.7%).Most of the respondents (55.4) were four years or less in practice.

While a majority of respondents (88.4%) were aware of DSN. A little over half of the respondents (54.9%) were aware of IDSR. Majority of respondents (80.8%) were aware of the DSN unit in the hospital. The Internet was the preferred channel of feedback by the highest proportion of respondents (28.6%), this was followed by non-electronic reports (26.3%) on DSN information. Table 2

Majority of respondents (93.8%) considered notification of disease as an important public health duty. Majority of respondents (88.4%) believed that notification usually led to preventive action. Less than a tenth of respondents (08.1%) felt reluctant to notify some diseases because it damages doctor-patient relationship. Close to half of respondents (46.0%) felt reluctant to notify on diseases if such cases were unconfirmed from the laboratory. About a tenth of respondents (11.1%) felt reluctant to notify on diseases because there were no financial or other incentives attached to notification. Majority of respondents (90.6%) agreed that a training in epidemic preparedness, disease surveillance and notification (IDSR) was necessary to them as doctors. Majority of respondents (95.6%) also considered feedback an important aspect in disease and notification activities. Table 3

A Minority of respondents (18.8%) had ever notified. Of the 42 respondents that had ever notified the highest proportion (42.9%) of respondents reported by filling a form. A third of respondents (33.9%) had ever seen a DSN form, while just 10.7% of respondents had ever filled a DSN form. Thirty-nine respondents (17.4%) had ever had a training in DSN. Table 4

Discussion

This study showed a high level of awareness of the concept of disease surveillance and notification among doctors, however about half were aware of the IDSR strategy and this was similar to the findings in Anambra State and a general survey of public sector physicians in Nigeria (Lafond et al., 2014; Nnebue et al., 2012; Turnberg, Daniell, & Duchin, 2009). The IDSR strategy provides a standard of practice with regards to disease surveillance and notification activity in a country or region (Federal Ministry of Health, 2005). It was borne out of a collaborative effort of National Governments and the World Health Organisation (Federal Ministry of Health, 2009). It spells out responsibilities at the various levels of health care and tiers of Government, clear reporting lines and indices of performance for effective monitoring and evaluation (Adongo *et al.*, 2017).

Monitoring and evaluation is a strong component in the nation's health system and thus provides a scorecard on the level of disease prevention and control and the responsiveness to epidemics. It was noteworthy that majority of respondents considered notification of disease as an important public health duty which was similar to earlier studies where respondents reiterated the importance of reporting notifiable diseases despite resource and logistic limitation (Adefuye et al., 2009; Bawa, Olumide, & Umar, 2003).

Majority of respondents believed that disease notification usually led to preventive action, bringing to the fore the notion that it could adequately direct public health interventions. A further education on bioethics will be needed towards that minority of doctors who still felt reluctant to notify some diseases based on the notion that it damages doctor-patient relationship. This is because the benefit of notification towards the public good far outweighs the risk to the individual (Ameme *et al.*, 2016; Benedetti *et al.*, 2016; Toda *et al.*, 2018). There is a specific need for information to respondents on the rights and duties of physicians with regards to reporting notifiable diseases (Krause, Roper, & Stark, 2005).

Close to half of the respondents felt reluctant to notify on diseases if such cases were unconfirmed from the laboratory. Health education to doctors on the proper use of case definitions in the IDSR, explaining the difference between a suspected case and confirmed case; and the issue of timeliness in reporting would clarify on any such misconception (Abdool Karim & Dolraj, 1996).

It was interesting to note that financial incentive, or its absence, was not a driver of willingness to notify when compared with the belief among respondents that notification was a public health duty. Health workers simply need to be provided with the required information and necessary resources to effectively carry out notification duties. Thus, the place of training and retraining of health workers on the IDSR strategy cannot be overemphasized since a majority of respondents agreed that a training in epidemic preparedness, disease surveillance and notification (IDSR) was necessary to them as doctors. Less than a fifth of the respondents reported receiving a training in DSN (Bawa et al., 2003; Lafond *et al.*, 2014).

A majority of respondents considered feedback an important aspect in disease surveillance and notification activities with the Internet as the preferred channel of feedback by the highest proportion of respondents followed by non-electronic reports on DSN information. The study among public sector physicians in Nigeria on notifiable disease reporting showed that nearly all had internet enabled phones and majority of physicians used the internet at least weekly (Lafond *et al.*, 2014).

The Federal Ministry of Health reporting procedure for disease surveillance and notification is by using forms IDSR 001, IDSR 002 and IDSR 003 respectively (Federal Ministry of Health, 2009). Even though the majority of respondents held a positive attitude towards DSN, just a minority of respondents had ever notified. Of the few that had ever notified, less than half reported by filling a form. A reason for this could be that in the teaching hospital a number of specialties are in the "back end" of referrals so doctors in such specialties are not the first port of call for the sick patient. It could also be that the proportionally

few that notify are the same doctors practicing in the outpatient clinics or the accident and emergency department (Gauci, Gilles, O'Brien, Mamo, & Calleja, 2007; Krause et al., 2005). Another reason could simply be put to a lack of IDSR Strategy training among doctors on the diseases to notify on, who to report to and the relevant forms to be filled (Ameme *et al.*, 2016; Wurapa *et al.*, 2011).

In conclusion, majority of respondents were aware of DSN, they had a positive perception of disease surveillance and notification however just a few respondents had ever notified relevant authority on a notifiable disease. Training in DSN was expressed as a need among respondents and the internet was the preferred channel for feedback on DSN information. Opportunities for continued training of doctors on the IDSR strategy is therefore recommended.

Acknowledgments

The author acknowledges the guidance of Professor V.O. Omuemu and Dr V.Y. Adam in carrying out this survey. He also acknowledges the cooperation of the resident doctors and the management of the UBTH for granting consent and permission respectively to undertake this survey.

References

Abdool Karim, S., & Dolraj, A. (1996). Reasons for under-reporting of notifiable conditions. *Afr Med J.*, *86*(7), 834 –6.

Adefuye, B., Dairo, M., & Adedokun. (2009). Knowledge, attitude and practice of infectious disease surveillance/ notification among doctors in tertiary institution in Sagamu, Nigeria. *Am J Respir Crit Care Med*, 179. A5197.

Adongo, P., Tabong, P., Asampong, E., Ansong, J., Robalo, M., & Adanu, R. (2017). Health workers perceptions and attitude about Ghana's preparedness towards preventing, containing, and managing Ebola Virus Disease. *BMC Health Serv Res.*, *17*(1), 266.

Ameme, D., Nyarko, K., Afari, E., Antara, S., Sackey, S., & Wurapa, F. (2016). Training Ghanaian frontline healthcare workers in public health surveillance and disease outbreak investigation and response. *Pan Afr Med J.*, *25*(1), 2.

Awunor, N., Omuemu, V., & Adam, V. (2014). Knowledge and practice of disease surveillance and notification among resident doctors in a tertiary health institution in Benin City: Implications for health systems strengthening. *Journal of Community Medicine & Primary Health Care*, *26*(2), 107–115.

Bawa, S., Olumide, E., & Umar, U. (2003). The knowledge, attitude and practices of the reporting of notifiable diseases among health workers in Yobe State, Nigeria. *Afr J Med Med Sci.*, *32*(1), 49–53.

Benedetti, G., Mossoko, M., Nyakio Kakusu, J., Nyembo, J., Mangion, J., Van Laeken, D., … Kitenge, E. (2016). Sparks creating light? Strengthening peripheral disease surveillance in the Democratic Republic of Congo. *Public Health Action*, *6*(2), 54–59.

Cochran, G. (1963). *Sampling Techniques, 2nd ed. New York: John Wiley and Sons, Inc.*

Dairo, M. D., Bamidele, J. O., & Adebimpe, W. O. (2010). Disease surveillance and reporting in two Southwestern states in Nigeria: logistic challenges and prospects. *Journal of Public Health and Epidemiology*, *2*(6), 125–129.

Federal Ministry of Health. (2005). *National policy on integrated disease surveillance and response (IDSR)*.

Federal Ministry of Health. (2009). *National Technical guidelines for integrated disease surveillance and response. Epidemiology division*,.

Gauci, C., Gilles, H., O'Brien, S., Mamo, J., & Calleja, N. (2007). General Practitioners role in the notification of communicable diseases study in Malta. *Eurosurveillance*, *12*, 11.

Isere, E., Fatiregun, A., & Ajayi, I. (2015). An overview of disease surveillance and notification system in Nigeria and the roles of clinicians in disease outbreak prevention and control. *Niger Med J*, *56*(3), 161–168.

Krause, G., Roper, G., & Stark, K. (2005). Notifiable disease surveillance and the practicing physicians. *Emerg Infect Dis*.

Lafond, K. E., Dalhatu, I., Shinde, V., Ekanem, E. E., Ahmed, S., Peebles, P., … Gross, D. (2014). 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 Services Research.*, *14*, 568.

Nnebue, C., Onwasigwe, C., Adogu, P., & Onyeonoro, U. (2012). Awareness and knowledge of disease surveillance and notification by health-care workers and availability of facility records in Anambra state, Nigeria. *Nigerian Med Journal*, *53*(4), 220–225.

Nnebue, C., Onwasigwe, C., Ibeh, C., & Adogu, P. (2013). Effectiveness of data collection and information transmission process for disease notification in Anambra State, Nigeria. *Niger J Clin Pract.*, *16*(4), 483-9.

Ofili, A., Ugwu, E., Ziregbe, A., Richards, R., & Salami, S. (2003). Knowledge of disease notification among doctors in government hospitals in Benin City, Edo State. *Public Health*, *117*, 214–217.

Toda, M., Zurovac, D., Njeru, I., Kareko, D., Mwau, M., & Morita, K. (2018). Health worker knowledge of Integrated Disease Surveillance and Response standard case definitions: a cross-sectional survey at rural health facilities in Kenya. *BMC Public Health*, *18*(1), 146.

Turnberg, W., Daniell, W., & Duchin, J. (2009). Notifiable infectious disease reporting awareness among physicians and

registered nurses in primary care and emergency department settings. *Am J Infect Control.*, *38*(5), 410-2. https://doi.org/10.1016/j.ajic.2009.07.013.

Wurapa, F., Afari, E., Ohuabunwo, C., Sackey, S., Clerk, C., Kwadje, S., … Appiah-Denkyira, E. (2011). One Health concept for strengthening public health surveillance and response through Field Epidemiology and Laboratory Training in Ghana. *Pan Afr Med J.*, *10*(1), 6.

APPENDIX

Table 1: Socio-demographic characteristics of respondents (N=224)

Variable	Frequency	Percent
Age (Years)		
20-29	110	49.1
30-39	103	46.0
40-49	11	4.7
Sex		
Male	163	72.8
Female	61	27.2
Ethnic group		
Benin	60	26.8
Esan	48	21.4
Igbo	42	18.8
Yoruba	19	8.5
Urhobo	18	8.0
Others	34	15.1
Marital status		
Single	116	51.7
Married	107	47.8
Separated	1	0.4
Department		
Community Health	11	4.9
Dentistry	28	12.5
Family Medicine	14	6.2
Medicine	37	16.5
Obs. & Gynea.	33	14.7
Paediatrics	33	14.7
Pathology	8	2.6
Psychiatry	3	1.3
Surgery	57	25.1
Designation		
House officer	95	42.4
Medical officer	28	12.5
Registrar	62	27.7
Senior registrar	39	17.4
Years of practice		
0-4	124	55.4
5-9	77	34.4
10-14	16	7.1
15-19	7	3.1

(Awunor, Omuemu, & Adam, 2014)

Table 2: Awareness of DSN, IDSR and preferred feedback mechanism by respondent (n=224)

	Frequency	Percent
Awareness of DSN		
Yes	198	88.4
No	26	11.6
Awareness of IDSR^{+}		
Yes	123	54.9
No	101	45.1

Awareness of the DSN unit in the hospital		
Yes	181	80.8
No	43	19.2
Preferred channel of feedback to respondents on DSN information		
Internet		
Non electronic reports	64	28.6
SMS	59	26.3
Multiple channels	42	18.8
No need for feedback	42	18.8
	16	7.1

[+]**IDSR-** Integrated Disease Surveillance and Response Strategy

Table 3: Attitude towards disease surveillance and notification by respondents (n=224)

Statement	**Frequency (%)**		
	Agree	**Undecided**	**Disagree**
I consider notification of disease is an important public health duty	210 (93.8)	7 (03.1)	7 (03.1)
I believe that notification usually leads to preventive action	198 (88.4)	16 (07.1)	10 (04.4)
I feel reluctant to notify some diseases because it damages doctor-patient relationship	18 (08.1)	32 (14.3)	174 (77.6)
I feel reluctant to notify on diseases if such cases are unconfirmed from the laboratory	103 (46.0)	52 (23.2)	69 (30.8)
I feel reluctant to notify on diseases because there are no financial or other incentives attached to notification	25 (11.1)	25 (11.2)	174 (77.7)
A training in epidemic preparedness. Disease surveillance and notification (IDSR) is necessary to me as a doctor	203 (90.6)	16 (07.1)	5 (02.2)
I consider feedback an important aspect in disease and notification activities	214 (95.6)	6 (02.7)	3 (01.3)

Table 4: Disease notification reporting characteristics of respondents (n=224)

	Frequency	**Percent**
Ever notified		
Yes	42	18.8
No	182	81.2
Means of reporting (n=42)		
Verbal	10	23.8
Filling a form	18	42.9
Others	14	33.3
Ever seen a DSN form		
Yes	76	33.9
No	148	66.1
Ever filled a DSN form		
Yes	23	10.7
No	201	89.3
Ever had a training in DSN		
Yes	39	17.4
No	185	82.6