

# Knowledge, Attitudes and Implementation of Integrated Disease Surveillance and Response Programme by Health Workers: A Survey of Selected Health Facilities in Meru County of Kenya

Fridah Makena Francis<sup>1</sup>, Eric M. Muchiri<sup>2</sup>, Kenneth M. Kamari<sup>3</sup>

<sup>1</sup>Ministry of Health, Meru County Government of Kenya

<sup>2</sup>Department of Public Health, School of Health Sciences, Meru University of Science and Technology (MUST)

<sup>3</sup>School Business and Economics, Kenya Methodist University

**Abstract:** ***Introduction:** Currently, diseases such as polio, measles, neonatal tetanus and malaria are a major threat in Sub-Saharan Africa (SSA) and present an enormous challenge to the public health in Kenya and the world. The Integrated Disease Surveillance and Response (IDSR) strategy was adopted by WHO in 1998 to enable collection, analysis and interpretation of health data for a number of disease under surveillance by WHO Member States in Africa. The strategy was adopted in Kenya in 2006 and rolled out in selected Districts including Meru district. **Aim:** This study was to assess the knowledge and attitudes and the level of implementation of integrated diseases surveillance and response in Meru County. **Methods:** A descriptive, cross-sectional survey was used among 368 health workers comprising of physicians, nurses, clinicians, laboratory staff and other related paramedical to elucidate surveillance information from 7 health facilities. Three hundred and sixty eight Knowledge, Attitude and Practices (KAP) questionnaires were administered. The data was organized and analyzed using SPSS version 23 from which frequencies statistics, tables, figures, pie charts and bar charts were derived. **Results:** A total of 368 health workers including health administrators were interviewed. Average knowledge was demonstrated on IDSR; however 92.9% of the respondents were not aware of priority diseases indicating low knowledge to enhance reporting. Involved in implementation were the nurses 254(69%), followed by RCO 54(14.7%) and then doctors 30(4.5%). Further, the study revealed an attitude gap to a level of 70.7%. **Conclusion:** The study found average knowledge, mild attitude and a number of challenges that prevent IDSR strategy implementation. County governments of Kenya as well as public private partnerships (PPP's) have a great role to play in enabling success of IDSR implementation. The study recommends (PPP,s), adequate supply of Standard case definitions and reminders in the facility while ensuring regular on job trainings.*

**Keywords:** Intergrated disease surveillance response, Knowledge, Attitude. Implementation

## 1. Introduction

Surveillance is an important component of disease prevention and control programs especially in early detection of unusual health events for effective and timely action (Doyle, 2002; Weiss, Strassburg, & Fannin, 2002).

In 1998, the World Health Organization Africa regional office, (WHO-AFRO) developed an Integrated Disease Surveillance and Response (IDSR) strategic plan to collect health data in regional body member's states. The strategy was to improve data collection infrastructure and emphasized on analysis and use of that data to improve planning response and control of diseases (Lukwago et al., 2013; Tesoriero et al., 2008).

However, the effects of IDSR programme in Sub-Saharan Africa have remained inadequate. This is partly due to inefficiency by the health workers charged with responsibility to collect data and use such information to respond to emergencies and outbreaks of largely preventable diseases (Lafond et al., 2014).

Additionally, communicable diseases such as cholera, malaria, and tuberculosis remain the leading causes of morbidity, mortality and disability in Kenya (Rubio-Cirilo

et.al, 2013). Therefore, poor health outcomes is a public health problems affecting the Economic growth of a country (Bloom & Canning, 2008). Although availability of basic surveillance structures at national, provincial and district levels is reported, affective implementation at county levels remains poor WHO, (2009) and as reported by Ministry of Health, 2013. In 2017 disease reporting rate stood at 60%, leaving a very large gap of 40% unreported by the nine sub counties in Meru County of Kenya (Meru, 2017). "Unpublished".

This study sought to assess knowledge and attitudes of health workers on integrated disease surveillance and response programme in selected health facilities in Meru County with view to strengthen, generate and utilize surveillance data for improved health care services in regional and sub-regional health facilities.

## 2. Methods

This study was conducted in Meru County in the month of June and August 2018. The study is a descriptive survey using cross-sectional method (Levin, 2006, p. 24; Omair, 2015, p. 125).

Volume 8 Issue 11, November 2019

[www.ijsr.net](http://www.ijsr.net)

Licensed Under Creative Commons Attribution CC BY

### A. Study population

A population of 368 health workers comprising of physicians, clinicians, nurses and paramedical personnel including laboratory staff from the selected health facilities were sampled using two stage sampling of health facilities and staff to form the study population.

The inclusion criteria was that the health worker must be qualified as approved by different medical regulations boards and worked during time of the study. Enrolled subjects had to consent and be willing to participate in the study.

### B. Sampling

A stratified sampling method was used taking into account proportionate distribution to identify health facilities and health workers for the study (Turner, 2003, p. 17). Because there was need to have all cadre of health workers and health facilities sample. 30% sample proportionate was used between the strata. This was followed by simple random sampling to maintain balance in each strata. The number of elements from each stratum in relation to its proportion was employed to attain population. The fishbowl draw with replacement was used to ensure each health worker had equal chances of being selected.

### C. Data collection and analysis

Ethical clearance was issued by MUST Institutional Research Ethics Review Committee (MIRERC). The questionnaire was pre-tested in different health facilities in Tharaka Nithi County, which neighbours Meru County and assessment of the tool on its effectiveness. 368 questionnaires were administered to the healthcare workers by 4 trained research assistants.

The data was entered and analyzed using SPSS software version. 23. All statistics were analyzed at 95% CI (Israel, 1992, p. 1). The results were presented in form of descriptive statistics such as frequencies and percentages, tables, figures, pie charts and bar charts.

## 3. Results

### a) Respondent characteristics

All the 368 respondents were interviewed. Majority of the respondents 183(49.7%) were aged between 41- 50 years. Most respondents; 195(29.1%) had attained a diploma, 130(19.4%) had a degree while others had masters or certificate level of education. Regarding the job cadre, majority of the respondents were nurses 254(69%) followed by 54(14.7%) registered clinical officers (RCO) and 30(4.5%) Medical doctors.

### b) The level of IDSR implementation

In respect to the level of IDSR strategy implementation at different health facilities; majority of the respondents 166(45%) indicated great extent 40-60% which is unsatisfactory level. In regard to whether health workers faced challenges in implementation of IDSR most of them 260(70.65%) stated that they faced challenges. Lack of "airtime" (Phone call fees) in phones designated at health centers was highly reported 200(43%), as the main challenge leading to non-reporting. In respect to measures to improve IDSR implementation effectiveness; on job training was largely mentioned 175(29.6%) followed by incorporation of IDSR strategy in KMTC training and universities 167 (28.2%) Table 1. Below

**Table 1: IDSR Implementation**

IDSR Implementation	Responses	Frequency	Percent
Level of IDSR implementation	Very high extent > 70%	6	2
	Higher extent 60-70%	30	8
	Great extent 40 to 60%	166	45
	Small extent 30-40%	110	30
	no extent <30%	56	15
Whether challenges are faced in implementation	Yes	260	70.65
	No	108	29.34
Challenges faced	Lack of tools	85	18.319
	Lack of Air Time/Bundles	200	43.1035
	Poor Network	83	17.8879
	Inadequate training on IDSR	78	16.8103
	Inadequate Staff	10	2.15517
	Lack of Feedback	8	1.72414
Measures to improve effectiveness of IDSR	On Job Training	175	29.5608
	Adequate Reporting Tools	152	25.6757
	Incorporate IDSR in Health Workers Training (KMTC & Universities)	167	28.2095
	Financial Support	67	11.3176

### c) Healthworkers Knowledge level on IDSR strategy

Regarding knowledge of IDSR strategy, 120(27%) respondents understood what it entails. However, Majority

of respondents 342(92.9%) were not aware of how many priority diseases are on surveillance in Kenya. Concerning the diseases notifiable in Kenya, most health workers

reported measles 160(26.7%). Majority of the respondents 97(26.4%) were not aware of about Standard case definitions (SCD's). However, the study found that most of the respondents were aware of tools used in reporting.

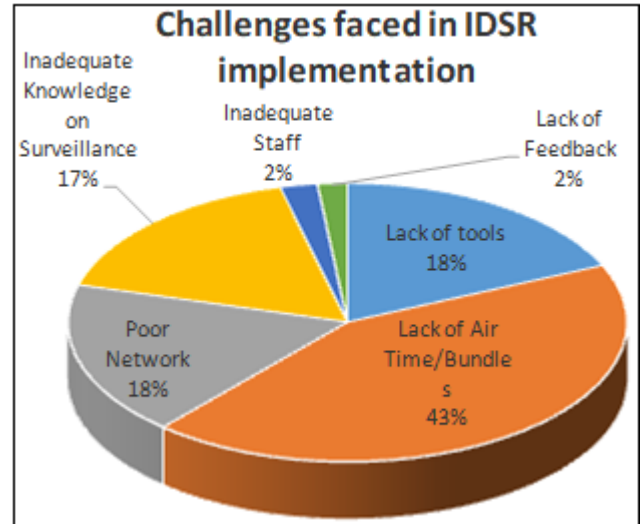


Figure 1: Challenges faced in implementation

Table 2: Health Worker Knowledge on IDSR

Knowledge on IDSR	Responses	Frequency	Valid Percent
What is IDSR?	A Strategy for Controlling Diseases	120	27.027
	Control of Outbreaks	133	29.955
	Investigation of Outbreaks	135	30.4054
	Resource Mobilization	25	5.63063
	Collection of Disease Data	10	2.25225
	Reporting of Diseases	21	4.72973
How many priority diseases are on Surveillance in Kenya?	20	71	19.2935
	25	169	45.9239
	30	102	27.7174
	35+	26	7.06522
Which diseases are notifiable?	HIV	66	11
	Cancer	46	7.66667
	Measles	160	26.6667
	Tuberculosis	97	16.1667
	Amoebiasis	8	1.33333
	Polio	113	18.8333
	Cholera	110	18.3333
Which priority diseases are under IDSR?	Measles	129	26.9875
	Polio	171	35.7741
	Cholera	110	23.0126
	Plaque	13	2.71967
	AEFI	11	2.30126
	Malaria	23	4.81172
	Neonatal Tetanus	10	2.09205

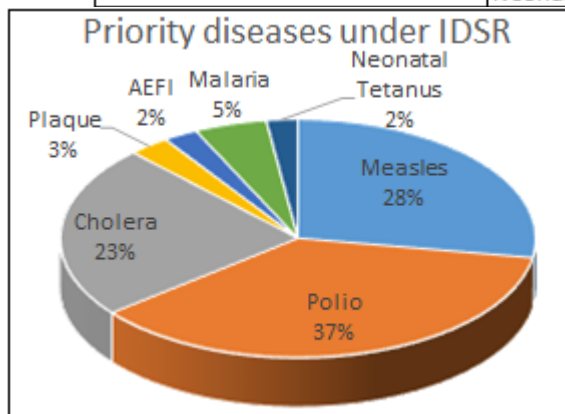


Figure 2: Responses on Priority diseases under IDSR

d) Attitude on integrated disease surveillance and response

Regarding easiness of IDSR implementation, majority of the respondents 248(67.4%) concurred with the statement that IDSR is a complicated process. On the other hand, majority of the health workers 260(70.6%) agreed that, monitoring disease was not an essential part of their work. In regard to whether monitoring surveillance and response is important for actions to strengthen the system; a total of 300(81%) respondents agreed. Among the respondents 324(88%) agreed with the statement. This indicates the need for change of attitude and inclusive training of the healthcare providers on reporting of the diseases.

#### 4. Discussion

Prevention is better than cure. Integrated disease surveillance and response has been characterized by poor reporting and has not been maximally utilized. This is due to gaps in implementing the guidelines for instance in some cases monthly reporting forms are not consistently used; outbreak logs unavailability, and poor supervision WHO (2009). In this study, the healthcare providers are on average aware and willing to implement IDSR system but they seem incapacitated by a number of factors. Lack of consistent internal communications is among them. The data on education level shows that most respondents are able to learn the subject of concern. It also indicates that the respondent understands the importance of reporting and its consequences despite the low reporting outcomes. This study finding is consistent with that of (Birkhead et al., 2015; Juru et al., 2015 & Lafond et al., 2014) who emphasized on knowledge creation to for effective and sustained surveillance reporting.

The patients usually have the first contact with the nurses and RCO who are placed in all the health facilities in Meru County. These health professionals are expected to have the first data from patients regarding IDSR. It is therefore imperative that the healthcare providers be equipped not only skills but also mobile phones loaded with “airtime” to enable quick and consistent reporting. The findings of (Jinadu, Adebisi, Sekoni, & Bamgboye, 2018) that lack of enough staff, financial shortages, overworked staff and lack of communication are major barriers to effective IDSR implementation are related to this study. Healthcare providers recognizes the need for training since IDSR strategy is not known to many in Meru. Similarly, the study of (Iwu, Diwe, Duru, & Uwakwe, 2016) also found that health workers were confronted with many setbacks such as lack of training on reporting, forms, resources such as airtime and staff demotivation.

Further, full knowledge of Standard Case definition (SCD) is lacking among the Healthcare providers and the managers which may hinder consistency of surveillance reports derived from the hospitals. Majority of the Health workers had negative perception on the IDSR strategy and that

#### References

- [1] Doyle, T. J. (2002). Completeness of Notifiable Infectious Disease Reporting in the United States: An Analytical Literature Review. *American Journal of Epidemiology*, 155(9), 866–874. <https://doi.org/10.1093/aje/155.9.866>
- [2] Lukwago, L., Nanyunja, M., Ndayimirije, N., Wamala, J., Malimbo, M., Mbabazi, W., ... Talisuna, A. (2013). The implementation of Integrated Disease Surveillance and Response in Uganda: a review of progress and challenges between 2001 and 2007. *Health Policy and Planning*, 28(1), 30–40. <https://doi.org/10.1093/heapol/czs022>
- [3] Tesoriero, J. M., Battles, H. B., Heavner, K., Leung, S.-Y. J., Nemeth, C., Pulver, W., & Birkhead, G. S. (2008). The Effect of Name-Based Reporting and Partner Notification on HIV Testing in New York State. *American Journal of Public Health*, 98(4), 728–735. <https://doi.org/10.2105/AJPH.2007.092742>

attitude may hinder the effective utilization of IDSR system. The fact that healthcare providers plays a key role to implementation of IDSR strategy suggests the need for motivating the staff through creating an enabling environment to carry out their duties successfully. The awareness of IDSR strategy was noted however the use of IDSR forms was low perhaps because of the unavailability of IDSR reporting tools. Interventions directed towards addressing knowledge attitude and practical measures that motivate the HW's are encouraged.

#### 5. Conclusion

Measures directed to improving IDSR experienced many challenges such as lack of facilitation (lack of “airtime”, lack of adequate resources i.e. staff). The study concludes Knowledge gap among the healthcare providers, mild attitude and challenges as hindrances to IDSR strategy implementation in Meru. The study recommends Public private Partnerships, adequate supply of Standard Case definitions and reminders in the facility while ensuring regular on job trainings.

#### 6. Acknowledgment

We express sincere gratitude to Meru University of science and technology and all the health workers of Hospitals where data was collected for their great contribution towards this study. Special thanks Prof. Eric M. Muchiri and Prof. Gabriel G. Mbugua who provided mentorship and technical support towards the conceptualization of this study.

#### 7. Conflict of interest statement

None Declared

#### Authors Contribution

All the authors participated in all the phases of the study which include conception of the study, protocol development, data collection, analysis and manuscript preparation.

- [4] 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(1), 568. <https://doi.org/10.1186/s12913-014-0568-3>
- [5] Rubio-Cirilo, L., Martín-Ríos, M. D., de Las Casas-Cámara, G., Andrés-Prado, M. J., & Rodríguez-Caravaca, G. (2013). [Notifiable infectious diseases: knowledge and notification among hospital physicians]. *Enfermedades Infecciosas Y Microbiología Clínica*, 31(10), 643–648. <https://doi.org/10.1016/j.eimc.2012.12.015>
- [6] Bloom, D. E., & Canning, D. (2008). *Population Health and Economic Growth*. Retrieved from [www.growthcommission.org](http://www.growthcommission.org)
- [7] Ministry of Health. (2013). *Division of Disease Surveillance and Response*. Retrieved from <https://www.measureevaluation.org/pima/baseline->

assessments/report-on-the-baseline-assessment-of-capacity-for-monitoring-and-evaluation/at\_download/file

- [8] Levin, K. A. (2006). Study design III: Cross-sectional studies. *Evidence-Based Dentistry*, 7(1), 24–25. <https://doi.org/10.1038/sj.ebd.6400375>
- [9] Omair, A. (2015). Selecting the appropriate study design for your research: Descriptive study designs. *Journal of Health Specialties*, 3(3), 153. <https://doi.org/10.4103/1658-600X.159892>
- [10] Turner, A. G. (2003, November 3). *Sampling Strategies-United Nations Secretariat ESA/STAT/AC.93/2 Statistics Division*. Retrieved from [https://unstats.un.org/unsd/demographic/meetings/egm/sampling\\_1203/docs/no\\_2.pdf](https://unstats.un.org/unsd/demographic/meetings/egm/sampling_1203/docs/no_2.pdf)
- [11] Israel, G. D. (1992, November). *Determining Sample Size*. Retrieved from [http://sociology.soc.uoc.gr/socmedia/papageo/metaptyxiakoi/sample\\_size/samplesize1.pdf](http://sociology.soc.uoc.gr/socmedia/papageo/metaptyxiakoi/sample_size/samplesize1.pdf)
- [12] Birkhead, G. S., Klompas, M., & Shah, N. R. (2015). Public Health Surveillance Using Electronic Health Records. <https://doi.org/10.13023/fphssr.0405.05>
- [13] Durrheim, D. N., & Thomas, J. (1994). General practice awareness of notifiable infectious diseases. *Public Health*, 108(4), 273–278. [https://doi.org/10.1016/S0033-3506\(94\)80006-5](https://doi.org/10.1016/S0033-3506(94)80006-5)
- [14] Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education* (8th ed). New York: McGraw-Hill Humanities/Social Sciences/Languages.
- [15] Iwu, A., Diwe, K., Duru, C., & Uwakwe, K. (2016). Assessment of disease reporting among health care workers in a South Eastern State, Nigeria. *International Journal of Community Medicine and Public Health*, 2766–2774. <https://doi.org/10.18203/2394-6040.ijcmph20163359>
- [16] Jinadu, K. A., Adebisi, A. O., Sekoni, O. O., & Bamgboye, E. A. (2018). Integrated disease surveillance and response strategy for epidemic prone diseases at the primary health care (PHC) level in Oyo State, Nigeria: what do health care workers know and feel? *Pan African Medical Journal*, 31. <https://doi.org/10.11604/pamj.2018.31.19.15828>
- [17] Juru, T., Nomagugu, N., Gombe, N., Tshimanga, M., Bangure, D., Mungati, M., & Rudo, C. (2015). Evaluation of the Notifiable Diseases Surveillance System in Beitbridge District, Zimbabwe 2015. *Open Journal of Epidemiology*, 5, 197–203. <https://doi.org/10.4236/ojepi.2015.53024>
- [18] Jinadu, K. A., Adebisi, A. O., Sekoni, O. O., & Bamgboye, E. A. (2018). Integrated disease surveillance and response strategy for epidemic prone diseases at the primary health care (PHC) level in Oyo State, Nigeria: what do health care workers know and feel? *Pan African Medical Journal*, 31. <https://doi.org/10.11604/pamj.2018.31.19.15828>
- [19] Iwu, A., Diwe, K., Duru, C., & Uwakwe, K. (2016). Assessment of disease reporting among health care workers in a South Eastern State, Nigeria. *International Journal of Community Medicine and Public Health*, 2766–2774. <https://doi.org/10.18203/2394-6040.ijcmph20163359>