

# Epidemic Disaster: Public Health Surveillance and Its Influence on the Control and Prevention of Communicable Diseases in Ondo State, Nigeria

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## Abstract

Public health surveillance is considered to be an essential tool in the prevention of outbreak of epidemics. The purpose of this study is to examine the influence of public health surveillance the control and prevention of communicable diseases in Ondo state. The study adopted the descriptive research method. 150 respondents were selected from public and private health facilities in Ondo state using convenient sampling technique. Public Health Surveillance's Influence on Communicable Disease Questionnaire (PHSICDQ) was used to elicit information from the respondents. The coefficient of 0.94 was obtained through the use of Cronbach's Alpha to test the reliability of the instrument. The collected data were collated, screened and analysed using frequency counts and percentages for the demographic variable while the stated hypotheses were tested using chi-square at 0.05 alpha level. The findings of the study revealed that early detection and reporting, health data, health care delivery, media and public awareness will have significant influence in the control and prevention of communicable diseases. The study therefore recommended that government and other health stakeholders should ensure effective and efficient public health surveillance in order to avert epidemic disaster.

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**Keywords:** epidemic, disaster, public health surveillance, communicable diseases, prevention and control

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## INTRODUCTION

It is a fact of life that at one time or another a community or nation will be faced with an adversity, a calamity, a catastrophe, a disaster or emergency. This disaster can be natural or man made. Nigeria like any other country is exposed to a wide range of disaster in which the lives of the citizens as well as infrastructures may be endangered or adversely affected. Onyebuchi (2013) reported that the most common disaster in Nigerian society ranges from flooding, drought, catastrophic gully and coastal erosion, civil strife, building collapse, road accidents, destructive storms, land slide and disease epidemic. He further stated that most times, these disasters can be prevented.

World Health Organisation (WHO, 2012) defined communicable diseases as infectious diseases that are caused by pathogenic micro-organisms, such as bacteria, viruses, parasites or fungi; the diseases can be spread directly or indirectly from one person to another. It further stated that although disease pattern change constantly, communicable diseases remain the leading cause of mortality and morbidity in the least and less

developed countries. According to WHO, communicable diseases can be categorized in different ways which include diseases with a large-scale impact on mortality, morbidity and disability such as human immunodeficiency syndrome (AIDS), tuberculosis (TB) and malaria; diseases that can potentially cause epidemics such as influenza and cholera; and diseases that can be effectively controlled with available cost-effective interventions and surveillance such as diarrhea/disease, Ebola.

Disease Control Priorities Project (2008) defined public health surveillance as the ongoing systematic collection, analysis, interpretation and dissemination of health data fro the planning, implementation and evaluation of public health action. They further stated that public health surveillance involves adequate and trained health personnel, health facilities and enlightenment for it to be effective in the control of infectious diseases and impending disasters. The term "surveillance" derived from the French roots, Sur (Over) and Veiller (to watch) (Brachman, 2009) which is defined by Merriam-

Webster dictionary as the “close and continuous observation of one or more persons for the purpose of direction, supervision or control. Public health surveillance is considered to be an essential tool in the prevention of outbreak of epidemics (Hilton, 2008). A public health system is said to have five essential functions: population health assessment, health surveillance, health promotion, disease and injury prevention, and health protection (Canadian Institute of Health Research, 2003)

Ondo state is a state in Nigeria with majority of the south surrounded by water, while the central is a rain forest region and the northern part of the state surrounded with hills and rocks (CLEEN Foundation, 2012). Recently the state suffered an outbreak of a strange ailment which claimed more than twenty five lives in Ode Irele in Irele Local Government Area of the state in which the cause were rumored to be associated with the “gods been angry”, Ebola virus diseases (EVD), and natural cause (Sahara Reporters, 2015). The cause of the outbreak was later confirmed after clinical analysis and public health surveillance to be a methanol Poisoning. (Adeyanju, 2015).

Garcia-Albreu, Halperin and Daniel (2002) reported that World Bank described six categories through which public health surveillance can be of importance in the area of controlling communicable diseases as follows:

1. Recognize cases or clusters of cases to trigger intervention to prevent transmission or reduce morbidity and mortality.
2. Assess the public health impact of health events or determine and measure trends
3. Demonstrate the need for public health intervention programmes and resources, and allocate resource during public health planning.
4. Monitor effectiveness of prevention groups and control measures and intervention strategies.
5. Identify high-risk population groups or geographic areas to target interventions and guide analytic studies.

6. Develop hypotheses that lead to analytic studies about risk factors for disease causation, propagation, or progression.

Therefore, the purpose of this study is to examine public health surveillance and its influence in the prevention of disasters in the area of epidemics in Ondo state, Nigeria.

**Statement of the Problem**

Infectious diseases are major public health burden causing millions of deaths every year. Government authorities need to be able to monitor disease incidence and evaluate their interventions for disease control. Monitoring the status of communicable diseases is one of the most challenging problems facing the public health sect or, and epidemiological surveillance system for infectious diseases, particularly notifiable diseases are essential.

Despite initiative to encourage reporting of infectious diseases, under-reporting because of stigmatization and discrimination, poor health facilities, under trained or shortage of health personnel, poor health care delivery is till a ravaging problem in the developing countries. Most of the causes of mortality and morbidity are mostly preventable of the necessary health intervention is duly provided, monitored and efficient.

**Theoretical Framework**

The theoretical framework adopted for this study is the Precaution Adoption Process Model (PAPM) by Weinstein, Sandman, and Blalock in 2008. The PAPM attempts to explain how a person comes to decisions to take action and how he or she translates that decision into action. Adoption of a new precaution or cessation of a risky behaviour requires deliberate steps unlikely to occur outside of conscious awareness. Public Health Surveillance helps to create public enlightenment and awareness on the causative factors, risks, mode of transmission and prevention techniques to be adopted by the public which can also serve as precautionary guide to the general populace.

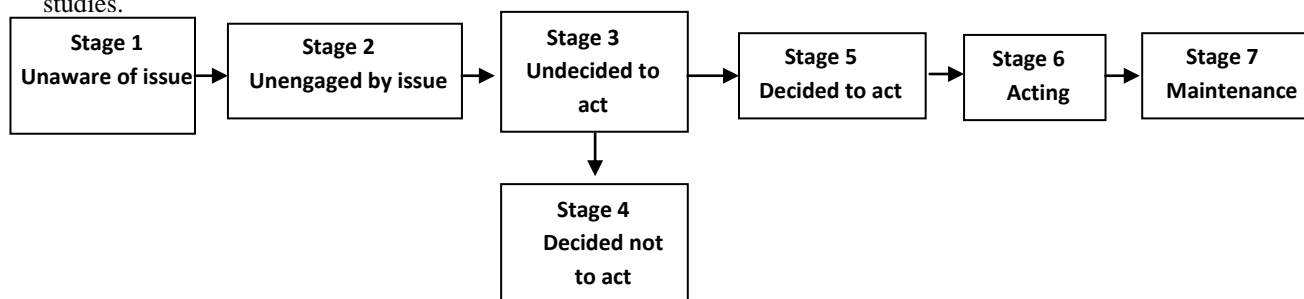


Figure1: The Precaution Adoption Process Model

Source: Weinstein, Sandman, and Blalock (2008). The Precaution Adoption Process Model

### RESEARCH QUESTIONS

- (1) Will early detection and reporting of diseases have any influence on the control and prevention of communicable diseases in Ondo state?
- (2) Will health data generated from health facilities have any influence on the control and prevention of communicable diseases in Ondo state?
- (3) Will health care delivery have any influence on the control and prevention of communicable diseases in Ondo state?
- (4) Will media and public awareness have any influence on the control and prevention of communicable diseases in Ondo state?

### RESEARCH HYPOTHESES

- (1) Early detection and reporting of diseases will not have significant influence on the control and prevention of communicable diseases in Ondo state.
- (2) Health data generated from health facilities will not have significant influence on the control and prevention of communicable diseases in Ondo state.
- (3) Health care delivery will not have significant influence on the control and prevention of communicable diseases in Ondo state.
- (4) Media and public awareness will not have significant influence on the control and prevention of communicable diseases in Ondo state.

### MATERIALS AND METHODS

The research adopted the use of descriptive research methods. The population of the study comprised all health care providers in Ondo state. One hundred and fifty respondents were selected using convenient sampling technique method. The respondents were drawn from the public health officers, physicians, nurses, pharmacist, laboratory scientists, health

educators' environmental health officers and media officers. A self structured questionnaire titled Public Health Surveillance's influence on Communicable Diseases Questionnaire (PHSICDQ) based on related literature was constructed and used to collect data for the study. The validity of the questionnaire was ascertained by experts who have worked extensively on public health surveillance. The coefficient of 0.94 was obtained through the use of Cronbach's Alpha in determining the reliability of the questionnaire. 150 copies of the questionnaire were administered to the respondents with the help of 2 research assistants after obtaining verbal consent. The data collected were collated and analysed using frequency counts and percentages for the demographic variables while inferential statistics of chi-square ( $X^2$ ) was used to test the stated hypotheses at 0.05 alpha level.

### LIMITATION OF THE STUDY

This study was conducted within health facilities in Ondo state. Due to the busy schedule of the health workers, the researchers faced the challenges of distributing the copies of the questionnaire to the respondents. But the time frame for the work was adjusted to meet up with the distribution and collection of the questionnaire.

### SIGNIFICANCE OF THE STUDY

The findings of this study will help to evaluate the effectiveness of public health surveillance on the prevention and control of communicable diseases. It will also help government and other stakeholders in health to design adequate health interventions to prevent and control ravaging communicable diseases.

### RESULTS

Table 1: Demographic presentation of the respondents

Gender	Frequency	Percentages (%)
Male	92	61.3
Female	58	38.7
Total	150	100
Age	Frequency	Percentages (%)
20-30	54	36.0
31-40	51	34.0
41-50	27	18.0
51 and above	18	12.0
Total	150	100
Occupation	Frequency	Percentages
Physician	17	11.3
Nurse	38	25.4
Lab. Scientist	15	10.0
Health educator	11	7.3
Public health officer	15	10.0
Media officer	10	6.7
Environmental health officer	23	15.3
Pharmacist	21	14.0
Total	150	100

Table 2: Chi-square presentation of the stated hypotheses

Variables	N	DF	L.S	Calc. value	Crit. Value	Remarks
Influence of early detection and reporting on communicable diseases	150	12	0.05	41.56	26.41	“S”
Health data on communicable diseases	15	12	0.05	33.06	26.41	“S”
Health care delivery in communicable diseases	150	12	0.05	38.17	26.41	“S”
Media and public awareness on communicable diseases	150	12	0.05	43.07	26.41	“S”

From the table 2 above, the calculated value of 41.56, 38.17 and 43.07 is greater than the critical value of 26.41, with degree of freedom 12 at 0.05 alpha level. The null hypotheses which stated that early detection and reporting of diseases, health data generated from health facilities, health care delivery, media and public awareness will not have significant influence in the control and prevention of communicable diseases in Ondo state are thereby rejected. Therefore, early detection and reporting of diseases, health data generated from health facilities, health care delivery, media and public awareness will all have significant influence on the control and prevention of communicable diseases in Ondo state, Nigeria.

### DISCUSSION OF FINDINGS

The revelation from this study which stated that early detection and reporting of diseases will have significant influence on the control and prevention of communicable diseases agrees with Dairo, Bamidele and Adebimpe (2010) who reported in his study that early detection and prompt reporting of diseases to health facilities helps in the control of infectious diseases. He further asserted that early detection will yield prompt diagnosis and provision of vaccines and therapies that will help to curtail the scourge. Olaoluwa and Adegboola (2013) also confirmed that early detection and reporting of Ebola helps to curtail the spread of it and they opined that early detection and prompt reporting is a great surveillance tool in eradicating communicable diseases.

The second findings that health data generated from health facilities will have significant influence on the control and prevention of communicable diseases also conform with Hilton (2008) who identified health data as important part of health surveillance as a measure of wide range of health indicators for a community. Health data provide comparisons for clinical studies; it can also be used to assess costs of health care and also the necessary health interventions to be adopted for specific groups.

The third finding that health care delivery will have significant influence on the control and prevention of communicable disease is in line with the study of

Areagbo (2014) which stated that effective health care delivery which include provision of trained health personnel, proper and adequate funding and health facilities and equipment helps in the control of infectious diseases. As an important element of national security, public health not only functions to provide adequate and timely medical care but also track, monitor and control disease outbreak.

The fourth finding that media and public awareness will have significant influence on the prevention and control of communicable diseases agreed with Zuhike and Engel (2013) who reported that improving community awareness and enlightenment goes a long way in preventing and controlling diseases. Health awareness and education helps to provide what need to be done in case of outbreaks and how to prevent its spread.

### CONCLUSION

The study concluded that early detection and reporting of diseases, health data generated from health facilities, effective health care delivery, media and public awareness will all have significant influence on the preventions and control of communicable diseases.

### RECOMMENDATIONS

Based on the findings, the following are thereby recommended:

Government through Federal Ministry of Health, Education and environment in collaboration with other stakeholders should ensure that effective public health surveillance should be put in place in order to avert disasters in the areas of diseases outbreaks.

Public awareness and enlightenment on diseases outbreak and effective strategies such as personal hygiene, hand washing, immunization should be advertised on the media.

Inferences from health data should be made and ways of monitoring and supervision of health care delivery should be made available for.

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