GAPS IN THE UNDERSTANDING OFDISEASE EARLY WARNING SYSTEM BY HEALTH CARE WORKERS IN DISTRICT SWAT, KHYBER PAKHTUNKHWA, PAKISTAN

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ABSTRACT

Objective: To identify deficiencies in the Knowledge and practices of Health Care Workers working at First Level health Care Facilities.

Methods: It was a cross-sectional study conducted on sixty nine Health Care Workers trained on Disease Early Warning System, from twenty nine randomly selected Basic Health Units and Civil Dispensaries in District Swat in the Khyber Pakhtunkhwa province, Pakistan. A structured interviewer administered questionnaire was used. Data analysis was done through SPSS version 16. Frequencies and Percentages were obtained for categorical variables and 95% Confidence Intervals were calculated.

Results: 95.7 % of the respondents (95% CI: 91-100) could correctly identify diseases under Disease Early Warning System's surveillance. Only a 47.8% of respondents (95% CI: 36-60) could correctly identify single case alert diseases in non endemic areas.89.9% (95% CI: 83-97) observed immediate alert reporting. Only 20.3% (95% CI: 11-30) observed recording DEWS data simultaneously at the time of consultation. Training was the source of information on DEWS for 94.2% of respondents (95% CI: 87-100). Only 15.9% (95% CI: 7-25) had attended refresher trainings.13.1% (95% CI: 5-21) had communication problems while reporting data to DEWS cell.

Conclusion: Lack of refresher trainings, lack of interest in literature on Diseases Early Warning System, inability to identify single-case alert diseases and inability to plot a graph on weekly watch chart were some of the notable gaps in the understanding of DEWS by Health Care Workers. Determination, co-ordination, supportive supervision, frequent refreshers and on job trainings could further strengthen the system at District level.

Keywords: WHO, Surveillance, Infectious Diseases, Disaster, Epidemic

INTRODUCTION

Any occurrence that causes damage, ecological disruption, loss of human life or deterioration of health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community or area is called a disaster¹. Outbreaks of infectious diseases like measles, cholera, acute jaundice syndrome and increase in indigenous diseases like malaria, dog bite and snake bite are the impacts of a disaster. It is the domain of World Health Organization (WHO) to ease the impact of natural and manmade disasters on the health of people. To meet this end, the department of Emergency preparedness and Humanitarian Action (EHA) is established within WHO. It addresses core issues like assessment of health risks, health co-ordination with governmental

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Department of Community Medicine Jinnah Medical College Peshawar Email:abrardr@yahoo.com Cell # :0321-9103569 and non-governmental organization, epidemic and nutritional surveillance, control and prevention of communicable diseases, management of health risks in the environment during emergencies and preparedness to reduce health impacts of future crises. For epidemic surveillance, EHA has established Disease Early Warning System (DEWS) which is the ongoing systematic collection, analysis and interpretation of data on diseases for planning, implementing, and evaluating public health interventions2. Core activities of DEWS are detection, registration, reporting, confirmation, response and analysis of infectious diseases in emergencies. These core activities are performed either through active or passive surveillance depending upon the gravity of situation3. Communication, training, supervision and resource provision are the support activities of DEWS. The prime focus of all these activities is the reduction of morbidity and mortality due to infectious diseases. Almost every country of the world has a functioning disease surveillance system, either supported by the government or United Nations' agencies. Unfortunately, global surveillance resources and capacity is uneven and focuses more on developed countries in Europe and North America than in the public health resource-poor systems of the Southeast Asia, Africa and China where potential pandemic viruses are endemic4.

Infectious diseases on which DEWS data is col-

lected daily or weekly are ones having short incubation periods and ability to cause epidemics.

Some of these are bloody diarrhea, cholera, measles, meningitis, neonatal tetanus, hemorrhagic fever and polio myelitis. All diseases on DEWS list have case definitions classified as suspected, probable and confirmed⁵ and also specified threshold levels. When that specific level for a specific disease is reached then a wake-up alert is raised, which is responded immediately by DEWS personnel⁶. Situation of wars or social strife which affects large civilian population leading to shortage of food and population displacement resulting in excess mortality and morbidity is termed as complex emergency2. Pakistan is in a state of complex emergency since 2004, when large civilian populations were displaced as a result of post 9/11 war on terror. As a part of war on terror, a full pledge military operation was initiated in Malakand region of Khyber Pakhtunkhwa in early 2009. Swat was the worst affected District. Internally Displaced Persons (IDPs) from Swat were accommodated at Peshawar, Mardan, Charsadda, Nowshera, and Swabi. In the last week of July 2009, IDPs started moving back to Swat after getting security clearance from the government of Pakistan. In September 2009 DEWS was established there. A total of one hundred and twenty seven individuals including medical and paramedical staff from the heath facilities of Department of Health (DoH) and all the medical and paramedical staff of Non Governmental Organizations (NGOs) were trained. These trained personnel were responsible for detection, registration and reporting of epidemic prone diseases. This study is an attempt to determine what weaknesses and strengths do the trained Health Care Workers (HCWs) have regarding their understandings of the DEWS system and to provide an insight to the concerned higher authorities how to improve the knowledge and practice of Health Care Workers in order to strengthen DEWS system. Basic Health Units (BHUs) and Civil Dispensaries (CDs) are the primary sites of detection for infectious diseases. District Swat was a representative model of complex emergency and was appropriate place of study.

METHODS

This cross sectional study was conducted on the Health Care Workers (HCWs) of First Level Care Facilities (FLCFs) including Basic Health Units (BHUs) and Civil Dispensaries (CDs) in district Swat of Khyber Pakhtoonkhwa from October 2010 to January 2011. HCWs included Doctors, Medical Technicians (MTs), Dispensers and Lady Health Visitors (LHVs). In DoH those with two years diploma and six months certificate course are inducted as Medical MTs and Dispensers respectively. NGOs induct both of these as Dispensers. All NGOs employees were guided that their designation should be based on their qualification and not the title given by the NGO.

There are fifty eight FLCFs in Swat. According to WHO, at least 25-30 % of health facilities in the area should be studied for assessment7. Out of these fifty eight facilities, twenty nine (50%) were randomly selected. From each of those twenty nine FLCFs, all HCWs trained on DEWS were taken as respondents. Final sample size so obtained was sixty nine. Simple random sampling without replacement was used to select FLCFs. Then among those FLCFs, purposive sampling was done and all HCWs who were trained on DEWS were taken as respondents. HCWs trained on DEWS but who showed resentment at any stage and HCWs trained on DEWS, who worked in a facility that was not under DEWS reporting system, or was inaccessible in terms of security clearance, were excluded from study. A structured interviewer administered questionnaire containing pre coded close-ended and very few open ended questions was used as a data collection tool. Data was collected by four research associates not working in the health department of district Swat. Data entry and analysis was done using SPSS version 16. Descriptive statistics were computed for all variables, including frequencies and percentages for categorical variables and the 95% confidence intervals (CI).

RESULTS:

95.7 % of the respondents (95% CI: 91-100) could correctly identify diseases under DEWS system. 47.8% (95% CI: 36-60) respondents were able to identify single case alert diseases .

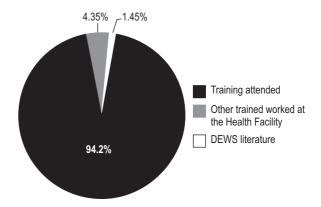


Fig. 1: Different sources of information for Health Care Workers on DEWS.

94% of HCWs (95% CI: 88-100) affirmed that DEWS staff always had an early response to their alerts. 98.5% (95% CI: 97-100) were of the opinion that DEWS is properly monitored by concerned staff. 13.1% (95% CI: 5-21) faced communication problems. 5.8% (95% CI: 0.3-11.3) had problems due to shortage of manpower:14.5% (95% CI: 6-23) suggested incentives for themselves while 7.2% (95% CI: 1-13) suggested performance based awards. 97.1% (95% CI: 93-100) were of the opinion that DEWS is an effective tool to protect local population from infections and outbreaks.

Table:1 Health Care Workers' deficiencies in understanding DEWS

Deficiency in understanding	%age (n=69)	95% C.I
Didn't study literature on DEWS	98.5	96-100
Didn't attend refreshers	84.1	75-93
Couldn't recognize single-case alert disease	52.2	40-64
Unable to plot graph on weekly watch chart	11.6	4-19
Didn't practice immediate alert reporting	10.1	3-17

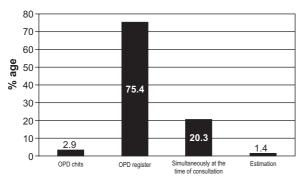


Fig. 2: Different sources used by Health Care Workers for getting DEWS data:

DISCUSSION:

A total of sixty nine Health Care Workers (HCWs) from twenty nine (29) health facilities were interviewed during the study. All HCWs who were trained and involved in DEWS data collection and reporting were included. Twenty nine First Level Care Facilities (FLCFs) including four Civil Dispensaries and twenty five Basic Health Units were visited during the study. Of the total respondents, 43 (62.3%) were from Department of Health (DoH) and 26(37.7%) were employed by Non Governmental Organizations (NGOs).

For certain diseases like acute watery diarrhea, measles, meningitis, leishmaniasis and polio, a single suspected case is an alert and a single confirmed case is an outbreak in a non-endemic area. More than three fourth of respondents could correctly identify diseases under DEWS but less than a half were able to identify single case alert diseases.58.8% of doctors, 50% of MTs, and 42.9% of Dispensers correctly identified single case alert diseases. None of the LHVs were able to identify these diseases.

Training had been a source of information on DEWS for majority of HCWs (Fig 1), while a very low percentage received information from DEWS literature.

Weekly watch charts displayed in all health facilities are to be updated weekly. From these one can monitor disease trends at a glance. Only a tenth (1/10) of respondents were not able to plot a graph on weekly watch charts.

Effectiveness of DEWS depends on timely reporting of an alert. Early detection and control of epidemics is possible if alert is reported immediately. A fraction of respondents were not practicing immediate alert reporting. 1.4% of those were employees of DoH and 8.7% of NGOs. 2.9% of NGOs staff practiced monthly reporting of an alert.

DEWS literature is not regularly consulted by HCWs. The only effective way for enhancing their knowledge is refresher trainings. Majority of the study participants had not attended any refresher training on DEWS. Those who had attended were either NGOs Staff or attended it unofficially. More than 90% were satisfied with the proper monitoring and early response from DEWS team. HCWs from far-flung health facilities had communication problems while reporting DEWs data. These problems included limited mobile network connectivity and non availability of means of transportation. Some HCWs were overburdened due to maintenance of drug records, consultation, and coordination with their parent department and even the non cooperative attitudes of colleagues in the same health facility. They demanded induction of staff in each health facility for the smooth running of the system. Provision of incentives is an old issue and is always brought under discussion. Some respondents of this study demanded incentives for ensuring effectiveness and efficiency. Authorities have rejected this demand as it adversely affects efficiency and devotion of the staff involved8. Some suggested that in place of incentives, performance based awards in the form of appreciation certificates should be given to HCWs.

Nearly one fourth (1/4) of HCWs recorded DEWS data simultaneously at the time of consultation. Majority of them collected it from Out Patient Department (OPD) register at the end of a week. OPD register was rarely maintained by the same person who did consultation. Most of the time it was maintained after OPD timings using OPD chits provided by hospital pharmacy. These chits were also used directly for reporting DEWS data. A limited number of respondents even estimated data for DEWS (Fig 2).

CONCLUSION:

Majority of the HCWs neither attended refresher training nor ever studied literature on DEWS. Some were unable to plot a graph on the weekly watch chart. Immediate alert reporting was not observed by a small proportion of HCWs. Most of the HCWs could not identify single-case alert diseases. Mobile phone networks connectivity and transport problems were contributory to some of the gaps.

DEWS is an effective tool for detection and control of epidemic prone infectious diseases. These diseases usually have short incubatory periods and can rapidly cause epidemics. Health Care Workers are the "Eyes & Ears" of this system. If "Eyes & Ears" are working properly, there is no reason that the body of DEWS will not work properly. Knowledge and practice of HCWs is the product of quality trainings, proper guidance, individuals, interest and qualification, induction of appropriate staff; both in First Level Care Facilities and EHA, and most importantly supportive supervision by the staff involved in DEWS. Some concepts like alert thresholds, suspected, probable and confirmed case definitions are volatile. Periodic on job trainings and officially conducted refresher trainings on DEWS can easily solve this problem.

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