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Information Management During Disaster Response in Visayas Region of the Philippines:
Typhoon Haiyan Experience

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ABSTRACT

Accurate information during disaster response to meet the needs of the affected population is paramount. The Philippines is prone to natural disasters, but the Visayas region of the country continues to suffer the most. Lesson learned described solutions for the future, a better response to disaster events.

The aftermath experience from Typhoon Haiyan landfall in November 2013 revealed some gaps in health information management. Lack of standards and real-time data led to the inequitable distribution of resources. Co-location of World Health Organization (WHO) personnel operating within the sub-national government offices remains essential.This approach fosters a synergistic relationship and eases knowledge and information sharing.

KEYWORDS: Disaster, Health, Information management, Typhoon

INTRODUCTION

The Visayas region of the Philippines remains the most vulnerable to natural disasters, causing disease outbreak leading to hundreds of deaths annually, as stated in the Department of Health (DOH) information management manual for coordinating health emergencies (DOH, 2007). The most devastating disaster event, Super Typhoon Haiyan (locally named Yolanda) occurred in November 2013. According to the annual report of the United Nations International Strategy for Disaster Reduction (2015), over 4.1 million people were displaced. Fifty percent of existing health infrastructures in the Visayas were destroyed, affecting densely populated provinces like Eastern -Samar, Cebu, Iloilo, and Boracay in Aklan province (United Nations International Strategy for Disaster Reduction, 2015).

Figure 1: Map showing typhoon path and health hub established for response coordination
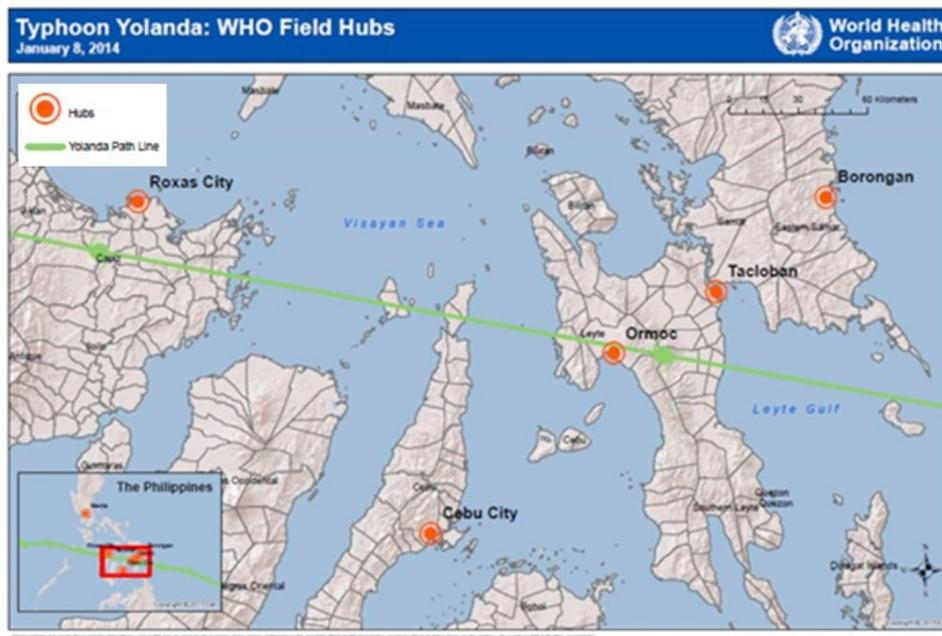

Figure 1 above showed the typhoon path, affected area and location of established health hubs during response coordination post-Typhoon Haiyan(Yolanda) impact. With over 10 million people affected and 4.1 million people displaced (OCHA, 2014). The assessment recorded damaged health infrastructures to the provinces of Eastern-Samar, south of Tacloban City, Leyte province, Daanbantayan and Bantayan Island, Cebu province, and Conception, Iloilo province, Roxas in Capiz province and Boracay in Aklan province (WHO, 2013).

LITERATURE REVIEW

Since the Philippines is susceptible to natural disaster, the government had developed the National Disaster Risk Reduction and Management Framework, meant to give a detailed strategy and information sharing on every hazard, using multi-sectoral, inter-agency and community-based approach (NDRRMC, 2013). Preparedness monitoring plan for this region uncovered gaps in health information management system before and during Typhoon Haiyan landfall. Lack of complete standard operating procedures (SOP) and coordination of information sharing between the sub-national Department of Health and WHO.

De Ville de Goyet (2006) in his book described one of the short-term health burdens posed by the disaster as a "Disruption in the delivery of health care, both curative and preventive" (p. 2). Also, Brolin et al (2013) pointed out that "Super Typhoon when they occur, causes disruption on the functionality of health services of every community affected, involving widespread human, material, economic, environmental losses and impacts, exceeding the ability of the affected community to cope using its own resources" (p.1). WHO (2013) situational assessment report identified lack of data entry into the Philippines Health Information Exchange (PHIE) database as expected, even though the daily bulletin from National Disaster Risk Reduction Management Council (NDRRMC) of the Philippines provides useful data on number of deaths, injured, missing, and needs regularly. These problems led to a rapid increase in reported cases of waterborne diseases (typhoid fever and diarrhea) and vector-borne diseases (dengue fever, yellow fever, and others) during the emergency response phase.

METHOD

Since the typhoon already caused a serious disruption on the functionality of health services of every community affected, involving widespread human, material, economic, environmental losses and impacts, exceeding the ability of the affected community to cope using its own resources (Brolin et al., 2015). Part of the design used was to carry out the rapid assessment, taking a cue from the documentation standard on eHealth governance framework, including National Health Facility Registry (NHFR) and the Philippine Health Information Exchange (DOH, 2015). Weekly health cluster coordination meetings was established to harmonized needs and response effort, sharing data on who needs what, where, why and when (OCHA, 2014a).

The integration of data collection platform into disaster management decisions for planning, service delivery and resource allocation, which is a vital step in every response situation, especially for the Central Visayas health unit (DOH, 2015). Identify resource needs and deploy both local and Foreign Medical Team (FMT) to fill medical personnel gaps throughout the entire response and recovery phase. FMT are groups of health professionals and supporting staff outside their country of origin, aiming to provide health care specifically to disaster-affected populations (PAHO, 2013). Furthermore, the inclusion of geospatial information in a disaster situation, like crowdsource mapping, aerial photograph, ESRI DEM map layers in ArcGIS software (ESRI, 2011) and health department guideline on Geographic Information System (GIS) protocol provided better pictorial and precise location knowledge (DOH, 2014). GIS mapping tools guided the reconstruction of infrastructure and provision of resources to avoid setback in the effectiveness of essential health services (OCHA, 2014a). The Operations Center (Open) of the health emergency management unit served as the data bank for all incoming and outgoing data from both functional and non-functional health Centre. *Functional*: is a site that is not or partially affected by the typhoon, but health workers can still carry out services, while

Non-functional: is a health center that is no longer carrying out services due to the level of damage.

RESULTS

Typhoon Haiyan information need was inevitable for every cluster including health during the response phase between November 2013 to February 2014. With the technical support provided by the health cluster, the first step produced the extracted data from the existing routine data collection system within the health department, which served as a converging and coordination point, ensuring uniformity by all humanitarian actors and strengthened the response, finally relying on the activated Surveillance Post Extreme Emergencies and Disasters (SPEED) software, a mobile and internet-based disease surveillance system for disasters used by health emergency management staff to track key diseases that occurred after any major disaster. Health workers in evacuation and health centers send diseases reports using the SPEED activated data flow channel from the lowest community health unit called Barangay health station, in a pre-coded text messages, sent to the Rural health units or City health offices which was then transmitted to the provincial level for collation and action daily.
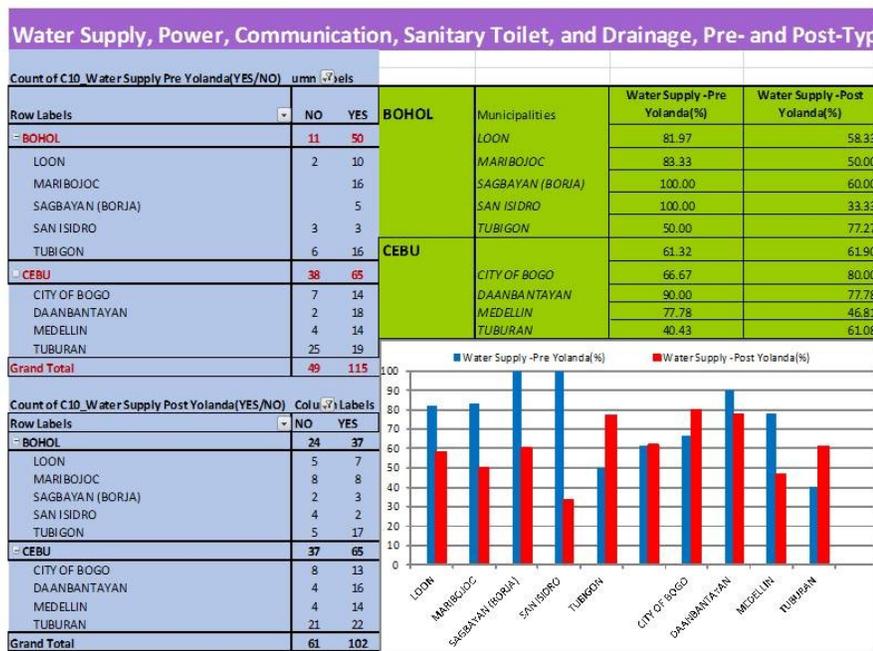
 At the Community level, efforts were made to quickly identify health risk and response gap, coordination of response team between government and partners with some level of information sharing to minimize duplication and facilitate health services linkages. A centralized database of contact details of active partners was also created. Few months after Typhoon Haiyan, Health Resources Availability Mapping Survey (HERAMS) was also conducted to know the extent of reconstruction done, human resources for health services needed, and functional status of the health centers damaged (WHO, 2009). The purpose of HERAMS is to strike a balance, by focusing only on the information that will be crucial for coordination and decision-making during the recovery and rehabilitation (WHO, 2009).

Table 1:   Summary of Health centers status before and after the Typhoon in four Central Visayas municipalities

Municipality	Pre	Post	Percent (%) Functionality
City of Bogo	59	40	67.80
Daanbantayan	20	16	80.00
Medelin	18	17	94.44
Tuburan	18	15	83.33

The disaster data gathered when fed into the PHIE database will be useful to guide the deployment of foreign and local medical teams, estimate the number of medical supplies, equipment, and provide an optimal logistic distribution plan. The PHIE database was not used as expected, leading to inefficiency, despite the emergency medical team roster activation.The PHIE is a major data source that the DOH uses to match needs of the affected population with medical personnel available for deployment. During the response phase, a temporary data standard guideline was developed, which facilitated a more organized system of collecting information, developing knowledge products, and ensuring medical supply distribution. Shown in Figure 2 is an automated reporting dashboard linked to the health resourced mapping database in Central Visayas.

Figure 2: Summary of data reporting dashboard linked to the health resourced mapping database in Central Visayas

The improved data standards used, also facilitated a more organized system of collecting information, identifying its objectives and ensuring good utilization of information. Information knowledge products on Who is doing What, Where, Why and When (OCHA, 2014b). Work plan, survey results and technical guidance, all these were shared with health cluster partners regularly. Data and information management capacity learnt by local government unit staff has prepared them for any future emergency response, a good example shown in Figure 3 below, is the utilization of Philhealth insurance fund by some municipalities (like Santa-Fe, Madridejos and Bantayan), about 15% of the affected healthcentre engaged more health workers after the typhoon impact.

Figure 3:   Map of municipalities that used the advantage of Philippines health insurance to deploy resources

DISCUSSION AND CONCLUSIONS

At the national level, WHO and DOH operated from the same office space, making coordination very easy, this best practice should be replicated by WHO and other non-governmental organizations operating at the sub-national and district levels. This collaboration approach fosters relationship, improves coordination, and enhances knowledge and information sharing. Joint baseline assessment, standard data formats, and common software application platform are other recipes for interoperability and improved data sharing. Regular training of sub-national staff will enhance data capturing into the PHIE database. The use of standard guidelines is also crucial. Regular update of emergency personnel roster is a proactive measure to make known the number of active personnel that can be engaged in the event of any disaster.
The utilization of Philhealth insurance fund by some municipalities is a good lesson learned that other municipalities can also utilize in the future to reduce the burden on existing health workers.

Timely data entry into the integrated and centralized PHIE database with guaranteed user access for both sub-national and district health officers will eliminate inefficiency in medical personnel distribution, providing effective matching of specific health needs with available human and material resources. Finally, the use of baseline demographic data towards mitigation is a key solution, as this will help in the estimation of the number of vulnerable people in need of an evacuation plan to a safe place.

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