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Weathering Infectious Diseases: A Reflection on Global Health Promotion Action

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ABSTRACT

In the world of global public health, infectious diseases have been identified as one of the major areas requiring proactive measures in order to manage the situations when they arise. This proactive measure has been identified as health promotion (a process of empowering people to have total control of their health decisions and improvement measures (WHO, 2018 and Webber, 2009).Yearly, cases of disease outbreaks are recorded in various parts of the world, some are contained while some degenerate to epidemic and pandemic as the case with 2014 Ebola west African epidemic and the most recent 2019 Covid-19 pandemic. "An infectious disease is an illness that is transmitted from a person, animal or inmate source to another person either directly, with the assistance of a vector or by other means" thus the methods of disease transmission determine the method of its control (Webber, 2009). Being that these diseases are dependent on the person being susceptible to the infection and can thrive particularly in crowded places or poor hygienic areas, it could be well managed if enough resources are allocated to their management. As rightly said by Yach, (2016), this is the time to prioritize health prevention and promotion in the same manner that health care and treatments are planned for.

Keywords: *Infectious diseases, global health, health promotion*

INTRODUCTION

Infectious disease is a major contributor to death globally after noncommunicable diseases, especially in the developing and underdeveloped regions where health care management are deficient (Webber, 2009). Thus, it is seen as one of the threats to humanity (Sands *et al*., 2016). It is worth noting that during the last decades, about 20 well-known diseases have reemerged and globally spread, often in more resistant aggressive forms and at least 30 unknown disease emerged including Ebola, HIV, hepatitis C, SARS and others for which adequate treatment is lacking (Castillo-Salgado, 2010). Hence, this is an important focus for health promotion in other to reduce human vulnerability and avert conditions conducive to the occurrence of many infectious diseases (Mcmicheal and Butler, 2007).

Furthermore, globalization brought with it the mobilization of people and goods across countries and continents hence making it possible to transport many infectious diseases across the globe unnoticed within the incubation period. Not only that, it brought circulation of both healthy and unhealthy communities' and individual's behaviors and lifestyles (Castillo-Salgado, 2010). In addition, the emergence and reemergence of infectious diseases could be associated to the continuous social and environmental evolvement. Factors such as mass population movement, rural to urban migration, accelerated urbanization, rapid transport, global trade, new lifestyles and new food technologies have the potential risk of human exposure to zoonotic or vector borne diseases.

Indeed, the continuous emergence of new infectious diseases and even the re-emergence of diseases that were previously contained and controlled via vaccination and treatment should put back infectious diseases as a striking public health challenge.

More recognition are channeling into global health surveillance as an important tool to tackle them, as they are potential threat of bioterrorism (Castillo-Salgado, 2010). Thus, the adoption of global surveillance system that can aid early

recognition and control of unusual outbreaks (Morse *et al.*, 1996). The likeness of the sudden outbreak of acute Respiratory Syndrome (SARS), multi-drug resistant tuberculosis, Ebola Virus, West Nile viral encephalitis, international anthrax, H-5N1 viral infections (Hitchcock et al 2007), and the most recent global health pandemic of Covid-19, infections in humans have put global health and global economic stability on the limelight for global health promotion intervention.

Common Health Promotions Interventions for Infectious Diseases

Health promotion span from ages past and its formulation is based on the notion that personal behavior and lifestyle towards health care is germane to reducing risks and upgrading one's health status (Lee, 1985). Common health promotion programs against infectious diseases boarders around immunization, child health, sanitation, hygiene, nutrition and sexual health as shown in Table 1.

Table1. *Common health promotion programs against infectious diseases*

Programme Category	Examples	Brief
Immunization/ Child health	The Global Vaccine Action Plan-2011-2020	A programme for the enhancement of health by ensuring that vaccine-preventable diseases are eradicated (WHO, 2019)
Sanitation/ Hygiene	WASH (Water, Sanitation and Hygiene) Strategy 2018-2025	A programme designed for the purpose of promoting sustainable health by ensuring the availability of safe drinking water, good sanitary system and good hygiene practices such as hand washing with soap (WHO, 2018)
Nutrition	• Breast-feeding campaigns (like the WHO exclusive breast feeding and Baby Friendly Hospital Initiative) • Nutrition education (like the United Nations Decade of Action on Nutrition 2016-2025	• A programme designed for the promotion of breast-feeding (WHO, 2020). • A commission for tackling all types of malnutrition (WHO, 2020).
Sexual Health	• Sex education(like the UNESCO global campaign on 'comprehensive sexuality education: A foundation for life and love' • Various condom use campaigns (like 'wise up, use a condom'	• A programme leveraging on the power of knowledge to provide young people on the understanding of their sexual and reproductive health to enable them to make healthier life decisions (UNESCO, 2018). • A UNFPA wise up campaign in Calabar, Cross River State in Nigeria for the purpose of informing the young people about sexual and reproductive health and the dangers and prevention of sexually transmitted infections as well as unwanted pregnancies. (UNFPA, 2016)

An example of a current health promotion programme for the prevention of infectious diseases could be seen with the UNICEF WASH (Water, Sanitation and Hygiene) Programme, targeted at infection prevention and control, and is coordinated by the WHO and MoH, which was adopted in the management of Covid-19(UNICEF, 2020 and WHO, 2020). The programme is based on the reality that good and sufficient water, enhanced sanitation and good hygiene practice provide the necessary condition for the protection of human health during infectious disease outbreaks as was the case with the Ebola, Covid-19 and many other infectious diseases that have ever existed.

Current Policy Response to Infectious Disease Outbreaks

The global response to these concerns has been seen in the establishment and revision of the international Health Regulations of May 2005 (IHR 2005) empowering all countries legally with corresponding requirements to be able to detect and contain infectious diseases outbreaks (Hitchcock *et al*, 2007) while ensuring public health response to the international spread of diseases to avoid unnecessary interface with international trade and traffic (Morse, 2007). It is required of every country according to the IHR 2005 to develop and maintain surveillance, report, verify and establish response mechanism

at local, intermediate, and national levels of disease outbreaks as well as to report within 24hours to WHO on any disease outbreak of international concern (Hitchcock *et al*, 2007), and each nation is to fund the program from its own resources but many may require financial help and incentives (Morse, 2007). The management of recent disease outbreaks have not proved this policy review enough for global combating of infectious diseases outbreaks. This is because time is of great importance in disease outbreak containment considering that the interval could affect the extent of the outbreak and consequently, the amount of the response required to contain it (Hitchcock *et al*, 2007). That is to say that disease outbreak surveillance system is the center of public health improvement against infectious diseases (Sahal *et al*, 2009).

Surveillance was defined by the IHR-2005 as the "systematic ongoing collection, collation and analysis of data for public health purposes and the timely dissemination of public health information for assessment and public health response". While put in the framework of global health, "surveillance refers to the systematic and ongoing collection, analysis, dissemination and sharing of relevant information related to public health events of international importance to assist in deploying specific public health and security response" (Castillo-Salgado, 2010). Hence, surveillance and response involve the combination of surveillance, reporting (giving a first account of a disease outbreak which carries some evidence of potential public health importance), verification (inquiry and investigation to ascertain the disease outbreak) and response (intervention and containment of the disease) (Hitchcock *et al.*, 2007). Global health surveillance is important in the burden distribution estimate and trends of public health risks and problems over a period of time, and the part that global health surveillance is deployed in global health security against bioterrorism buttresses the need for a relentless effort and more predictive approach to infectious disease outbreak rapid detection, response and containment (Castillo-Salgado, 2010).

It is understood that surveillance of infectious disease varies from disease to disease and or the monitoring systems. It could be unusual clinical cases or monitored laboratory test results or data from routine computer-based searches of patient and media reports.

Hitchcock *et al*. (2007) in their study stipulated that the National Scheme of Global Surveillance Response information flow are dependent on the following possibilities;

a) The time it takes for an illness to manifest once infected may be fast or slow and self-recognition of illness depends on the rate of manifestation of the signs which might be slight, moderate, severe or unnoticeable

b) The decision to seek for health care once ill which depends on

- Accessibility of health care
- Affordability of healthcare
- Extent of illness
- Belief in the health care system
- How the disease is viewed
- Accuracy of health care diagnosis

Several other steps are involved from the point of diagnosis of an unusual case of disease or unusual cluster of disease cases (" an outbreak of common disease or syndrome that is unusual with respect to season, location, demographics or morbidity/mortality" Hitchcock et al, 2007), to laboratory tests (if available), before reporting to WHO, who follows through their own review to determine the following;

- Is the disease among the seven reportable? (small pox, plaque, yellow fever, cholera, polio, SARS or influenza caused by a new strain of human virus)
- Is it unknown disease?
- Is it likely to spread beyond national borders?
- Is there serious health impact?
- Could it interfere with international trade or travel?
- Does the country have the capacity to contain the outbreak?
- Is the outbreak suspected to be a deliberate act or laboratory accident? (Hitchcock *et al*, 2007).

Furthermore, disease outbreak may also be detected by other social elements like schools (monitored by increase in absenteeism), first responders (monitored by increase in emergency rescues), Pharmacies/traditional healers (measured by increase in medicine sales).

Have all these been factored into global health promotion intervention program for all countries? We will find out as we progress.

The state of disease surveillance and response varies across the world. In some places weak while in some other all most nonexistence. Given that disease outbreak can originate from anywhere, it may originate from places with weak and limited surveillance capacity hence impacting on the global disease surveillance capacity.

Hitchcock *et al*, (2007) gave a rundown of 15 international surveillance and response programs, covering the basic sections of surveillance and response, namely: surveillance, reporting, verification and response (Castillo-Salgado, 2010), as shown in Table 2.

Table2. *International Surveillance and Response Program and their Surveillance and Response Sections*

International Surveillance and Response Program	Sections of Surveillance and Response System
1. Global Polio Eradication Initiative 2. Regional Immunization Program of the Americas 3. Global Disease Detection (GDD) Program 4. Biological Threat Reduction Program 5. Epidemic and Pandemic Alert and Response 6. Global Emerging Infections Surveillance and Response System	All the 4 components
1. Global Public Health Intelligence Network 2. ProMED-mail 3. QFLU 4. European Influenza Surveillance Scheme 5. Global Influenza Surveillance Network	Surveillance and Reporting
1. Outbreak Alert and Verification System 2. Global Outbreak Alert and Response Network 3. Preparedness and Response Unit	Verification and Response

While commending the incredible achievements from the developed and designed disease outbreak surveillance programs with the likes of Global Public Health Intelligence Network coverage and pro-MED-Mail with an extensive global coverage, still an information gap could exist between disease surveillance and reporting. Taking a cue from the first SARS that occurred in November 2002 but were not identified and reported till February 2003 with 305 cases and 5 fatalities and eventually spread to another country before WHO assistance was requested resulting to $18 billion international trade and travel impact.

Barriers to Infectious Diseases Programs and Policy Success

It is the requirement of IHR 2005 that all countries shall take the responsibility of reporting disease outbreaks and the recent Corona virus pandemic have demonstrated the consequences of delayed global detection and response as was the cases of Ebola in Congo and Cholera in Latin America (Castillo-Salgado, 2010).Therefore, this study is in agreement the study of Castillo-Salgado that compliance to global regulations will be enhanced by the economic and technical collaboration with the poorer countries.

While the developed countries like US and the Europe have continued to leverage on adequate provision for their health sector in readiness for emergencies and biodefence preparedness, the low and middle income countries where emerging diseases often sprout have underfunded, understaffed and are still struggling to manage existing burden of diseases (Kruk, 2009). Issues such as lack of functional or poorly equipped laboratories constitute barriers to response during public health emergencies (Kruk, 2009 and May, *et al.*, 2009). This way, the aspect of disease surveillance that has to do with laboratory detection and confirmation is affected while disease burden data from laboratory confirmations are left out resulting to poor record of public health issues that is usually the case with the developing world.

In addition, a reliable and effective health information system will enhance timely and accurate communication of epidemiologic data from the lowest level of the health system to the central ministry of health through structured communication link capturing both the community clinics and private clinics to the health ministries. But countries lacking dedicated communication channels such as websites, as well as low quality and outdated information which are mostly the case with the developing countries, will lag in obtaining relevant health information (Kruk, 2009) and timeliness, which is a component of surveillance

quality cannot be achieved in countries that are yet to switch to electronic reporting system (Sahal *et al.*, 2009). Factors such as difficulties in the use of communication gadgets (payment for phone calls, taxes on calls, internet subscription fees), inefficient and insufficient use of computers and lack of motivated or trained personnel limits access to public health information (Wilkins *et al.*, 2008). And lack of disease transmission for any particular disease occurrence is likely to delay the willingness to seek medication (Kruk, 2009).

Furthermore, human resources shortage is one of the pressing problems in the health system of the developing world. Factors such as poor wages and poor working conditions have been attributed to low health worker motivation. The countries do not have resources to conduct higher level training on mathematical modeling of diseases, mortality and other needed technical expertise of public health worker in line with health emergency preparedness and response. Some health policy makers also lack training and awareness to support them on comprehensive human resource planning (Kruk, 2009).

Likewise, health's low priority on government agendas compared with other ministries is a concern in the fight against infectious disease. Also delayed reporting which according to Morse, (2007), could be attributed to government's fear of political embarrassment, economic or trade loss as seen with China on SARS reporting and H5N1 influenza reporting (which occurred in 2003 but was reported 2006).

Finally, provision for enforcement and global evaluation for the IHR 2005 guidelines have not been structured (May *et al*., 2009). However, syndromic surveillance systems exist in some developing countries. Though WHO does not approve it as a tool for global public health reporting due to its standardized limitations, it may be useful for early epidemic control of some vector borne diseases (like malaria). It has the potential usefulness on diseases with the likelihood of crossing international borders. Thus, surveillance for syndromes may contribute to compliance with the part of the IHR requirement on reporting of diseases of international importance (May *et al.*, 2009).

POTENTIAL INTERVENTION

Barely 5 years after the Ebola epidemic, guards are being dropped and learnt lessons with the adopted behavioral practices (like hand washing) are being relapsed and suddenly, Corona virus pandemic, another infectious disease outbreak ravaging lives. Just as Sands *et al.* (2016) rightly said, it has become evident that committing to Global health security is for the general public good. This could be achieved if the recommendations from the 2015 Global Health Risk framework commission are well implemented. The commission made 26 recommendations for the future, bordering on strengthening national public health capabilities and infrastructure (like disease surveillance systems and laboratory connections). Also the WHO on coordinating global response can be strengthened which covers the provision of funds and resources in response to pandemic. Finally, equipping the scientific team in training and research funding are essential.

The campaigns for sanitation, good nutrition and better hygiene as well as vaccination are the common upsurge in the prevention of infectious diseases. Still the continuous emerging and reemerging of infectious diseases have given us reason not to relent in the fight against infectious diseases. With each case of infectious disease emergence, the weakness in the systems' preparation is made evident as was with the case of Ebola and the ongoing Corona virus pandemic. Sands *et al.* (2016) recounted the weakness encountered with the Ebola outbreak as follows;

- Slow identification and alert system
- Local health systems could not measure up with the challenge
- International response was not timely
- Shortage of protective equipment
- No vaccine available.

Nevertheless, channeling as much energy into preventive and health promotion actions will go a long way in providing a sustainable and quality life for all. With this, what can be prevented could be defined and healthy choices can become the easy choices (Yach, 2016). It will require adequate funds and budget channeled into disease prevention and health promotion programs (Sands *et al*, 2016), hence, basic health challenges that fuel infectious diseases spread such as poor nutrition, poor health care facilities and others could be adequately addressed via global health promotion programs. Not only that, there is need to plan for sustaining health promotion actions

in the health care facilities, educational sectors, the community and organizational settings. This will enable us to obtain the full benefit of health promotion for the global health (DiClemente *et al.*, 2019). And health promotion activities involving the influential population of the world (politicians, artists, celebrities as a whole) has the potential of captivating and motivating people towards adopting a good health practice. An example is seen with the various media campaign on the use of modern contraceptives.

Actions such as community engagement and employing the development of vaccines could be a beforehand preventive approach to the fight against infectious diseases and will help in timely interception of a potential disaster that could lead to loss of lives and livelihoods during a disease outbreak.

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