



Nurses Contributions to the Health Dimensions of the United Nation's Sustainable Development Goals

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Abstract

This paper aims to describe nurses' worldwide contributions to the health dimensions of the United Nation's Sustainable Development Goals. Valuable lesson learned from the Ebola Virus Disease (EVD) outbreak in Liberia are detailed to enhance the current COVID-19 mitigation strategy. An overview of EVD and the economic and political environment in Liberia are derived, followed by illustration of the eventually effective approach to EVD mitigation. Specifically, community-based contact tracing, social mobilization, refining EVD information, and rapid sample collection, testing, and reporting were tailored by the Ministry of Health in collaboration with nongovernmental organizations to involve nurses at every level. Nurse-led actions included health facilities settings as well as individuals, families, and community. This public health response model was antecedent to World Health Organization's declaring Liberia free from EVD and is thus offered for consideration by other organizations or nations who wish to more effectively mobilize nurses. Readiness for the demands of infectious disease mitigation and establishment of the global nursing workforce resilience is essential and requires sound preparation of nurses in the public health tenets of infectious disease. This knowledge must be matched with systemic capacity for mobilization, when necessary. To support a global response to disease outbreak, the model was developed to aid the process of responding to disease outbreak, emphasizing the need for strengthening the interconnections of health systems and the dissemination of clear and factual information to prevent and control diseases in relationship to the United Nation's Sustainability Goals are described.

Keywords

Health system interfacing, Health dimensions, Global nursing workforce, Self-quarantine, Self-isolation

Introduction

The Covid-19 pandemic has brought to light both the interconnections among the world's health care systems as well as the fragility. The oft-cited sentiment that the virus does not recognize political boundaries is clearly illustrated, as the limitation of any nation's health care system is now clearly recognized everyone's limitation. Moreover, unlike other recent novel viruses such as Middle East respiratory syndrome coronavirus (MERS-CoV) and Ebola Viral Disease (EVD), wealthy Western nations, for example, the U.S. and Great Britain, have not been spared widespread infection. Thus, perhaps this time, lessons learned in public health emergencies can finally be fully embedded in the very platform of world change. To that end, Liberia's struggle with the Ebola virus is detailed, as well as consequences and next steps. The aim is to foster nurses' worldwide contributions to the health dimensions of the United Nation's Sustainable Development Goals.

Liberia's Health and Health Care - A Brief Overview

Liberia is located on the west coast of Africa and has fifteen administrative counties, subdivided into 136 districts

covering 111,369 square kilometers (Liberia Institute of Statistics & Geo-Information Services, 2017) [1]. The current population of Liberia is 5,059,005, based on projections of the latest United Nations 2019 data. The UN estimates the July 1, 2020 population at 5,057,681.

The world population review ranks Liberia as the poorest country in the world with \$710 Gross National Income per capita (Harrington, 2020) [2]. The poverty of Liberians continues to slow down the improvement of access to health and basic social services. More than 83 percent of Liberia's population lives below the poverty line (\$1.25 per day) and 94 percent of workers are poor (living on less than \$2 per day) and the economy was projected to contract by 1.4% in 2019,

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following the modest growth of 1.2% in 2018 and inflation reached 31.3% by August 2019, up from 26.1% the previous year (World Bank Group, 2018) [3]. Covid-19 brings even more economic displacement.

The national budget for fiscal year 2019/2020 submitted by the Ministry of Finance and Development Planning totals L\$110,460,000,000 or US\$526,000,000, provides for the expenditure or operational cost of the Government of Liberia. The National Budget accounts for three separate revenue envelopes, including Tax Revenue at US\$378,000,000, Non-tax Revenue at US\$87,200,000 as well as External Resources at US\$60,800,000. Liberia revenue shortfalls have resulted to the recasting of the 2019/2020 national budget. The recast budget reduced allotment for spending entities across the health sector, except for the Ministry of Health itself whose budget was augmented as a result of the United States Agency for International.

Development (USAID) support of US\$6.2 million and the Liberia Pharmacy Board with a budget increase of US\$1,600. Spending entities affected by budget cut, include, but not limited to the John F. Kennedy Medical Center, Jackson Fiah Doe Memorial Hospital, Phebe Hospital, National Public Health Institute, Liberia Medical and Dental Council, Liberia Board of Nursing and Midwifery, National AIDS Commission, among others. There is a decline in Liberia's scores on key dimensions including, property rights, government integrity, fiscal health, and business freedom (Economic Freedom, 2020) [4]. Moreover, Liberia falls in the repressive zoon of the World's Economic Freedom ratings with a score of 49 and a rank of 165. Acceptable scores range from 80 - 100.

The major sector of the country including education, security, agriculture, and food security and the health systems are also struggling with post-war recovery - a fourteen-year war, and the impact of the EVD epidemic of 2014 proved that the Liberia healthcare delivery system was still inadequate. Ebola Viral Disease cumulative confirmed, probable, and suspected EVD cases in Guinea, Liberia, and Sierra Leone claimed the lives of 11,301 of which Liberia was hardest hit with 4,806 deaths (World Health Organization, 2016) [5]. However, the EVD crisis led to a devastation of the already fragile healthcare system in Liberia and severely constrained the Government of Liberia progress to deliver key social services, including basic and secondary health services, thereby leading to the outbreak of many preventable deaths. For example, measles vaccination rates dropped from about 78% in January 2014 to 45% in January 2015. Similarly, health facility deliveries decreased from 65% to 28%, while deliveries attended by skilled providers dropped from 61% to 31%. Maternal mortality rates are 1072 per 100,000 live births and chronic malnutrition is at 32% among the highest in the world (Ministry of Health, 2015) [6].

Study showed improvements and challenges in key health indicators (LISGIS, MOH, LDHS & ICFI, 2020) [7]. The study uncovered the disparities between the urban and rural populations in terms of delivery of basic social services which contribute to the socioeconomic determinants of health. The supply of safe drinking water in the urban areas is 83%

compared to 63% in the rural areas. Sanitation provision is not impressive in urban areas 35% have basic sanitation service, as compared with 9% in the rural areas. Two in three children (66%) have their births registered with the civil authorities. Teenage pregnancy declined from 6.7% in 1986 to 4.2% in 2020. Under-5 years of age mortality also declined from 222 per 1000 live birth in 1986 to 63 in 2020. Overall, the percentage of facility deliveries is higher in urban areas than in rural areas (83% and 76%, respectively). Birth attended by a skilled provider is 84%; 80% of birth occurred in a health facility.

The Liberian health system financing is heavily dependent on Non-Governmental Organizations (NGOs), but the scaling down of donors' funds and limited financial support for the government priority areas is facilitating a slow recovery of the health system, especially during the COVID-19 pandemic. In the national budgets for the fiscal years 2017-18 and 2018-19, the government of Liberia appropriated 14% and 13%, respectively, to the health sector. The full impact of COVID-19 is unclear at this time but given that wealthy nations are experiences a decrease in vaccination rates (Bramer et al., 2020) [8], and it is likely that Liberia will also see that rate slip.

The health sector is also constraint with weak supply chain management, particularly in terms of distribution and storage of pharmaceuticals and other supplies, limited pharmacists, laboratory technicians, and limited human resources for health particularly nurses, midwives, doctors. There is also limited essential medical equipment and pharmaceutical products, and there are frequently reported stock outages, especially in rural regions of the country.

It may same that these health system changes are unique to Liberia, but with certainty every health system share some proportion of these challenges but at different magnitude. The magnitude of health system challenges is evident in disease outbreaks, especially, during epidemic or pandemic.

Sustainable Development Goals

In September 2015 world leaders developed the Sustainable Development Goals (SDGs) through the initiative of WHO to transform the world through measurable objectives with sustainability across the social, economic, and environmental dimensions to be achieved by 2030. The Declaration of the 17 SDGs, adopted by Member States of the UN General Assembly, articulated the world's "collective responsibility to uphold the principles of human dignity, equity at the global level" and to eradicate the world's most extreme and deplorable conditions, including poverty and destitution. The implementation of SDGs is based on the priority areas of each county and the strength of the health workforce, especially nurses.

Nurses play an enormous role in coordinating and delivering health care and they outnumber doctors by almost 3 to 1 (Myers, 2018) [9]. Nurses are constantly making enormous contributions to the coordinated approach to the attainment of SDGs. Globally, nurses continue to work within the public and private sectors providing health education that promotes behavior change to impact the health of the individual,

family, the community, and improving access to health and health care especially among vulnerable populations. At each level of care, nurses continue to utilize the nursing process in gathering data that can be useful in the decision-making process in measuring the impact of SDGs strategies and the progress in improving the social determinants of health. The nursing process provides guidance for nurses to approach the situation of the individual, family, and the community as a client to achieve their full potentials.

The call to global nursing varies each year as nurses celebrate International Nurses’ Day. This year, the International Nurses’ Day theme “Nursing the World to Health”, focuses on the true value of nurses to the people of the world (International Council of Nurses, 2020) [10]. With this theme, nurses redefined their roles at the frontlines of disease outbreaks, disabilities, and natural disasters with the aims of prevention and providing holistic care for the population in need.

Although many countries have made significant progress towards the SDGs, the outbreak of the COVID-19 pandemic has revealed the unpreparedness and weakness in many countries health systems to mitigate the spread of COVID-19.

Comparing EVD Lessons for COVID-19

Although Liberia, Guinea, and Sierra Leone were hard hit during EVD outbreaks in 2014, the Democratic Republic of Congo is a country known for repeated EVD outbreaks. While many governments in Africa especially affected countries were still measuring the impact of EVD on the health systems, the outbreaks of COVID-19 revealed health system unpreparedness for disease prevention and control. Affected EVD countries are using EVD strategies to mitigate the spread of COVID-19. These EVD strategies include but are not limited to reorganizing disease mitigation from the level of the health facility to the individual, family and community, psychosocial support to affected individual and families, community-based contact tracing, and reporting strategies, information dissemination, cross countries networking, social mobilization, rapid sample collection and testing Table 1.

Adopted from WHO & CDC

It is valuable to compare EVD and COVID-19 to assess the level of response by governments and the population to global strategies and compliance to mitigating the spread of COVID-19, especially breaking the mode of transmission, the weakest link in the chain of infection. First, the transmission of EVD and COVID-19 are similar except that EVD is not transmitted through respiratory droplets and care of the dead and safe burial play an important part in EVD prevention and control. Clear dissemination of information on the mode of transmission is essential to mitigate the disease, and this is enabled by the knowledge, attitude, and practice of the population. Second, the signs and symptoms of EVD are similar to malaria, creating a false sense among many Liberians that they were dealing with a familiar foe, like malaria. Study found an estimated 228 malaria cases worldwide with 93% of malaria cases in African regions and 94% of malaria deaths (World malaria report, 2019) [11]. World Health Organization 2016, recognized the difficulty distinguishing EVD from other infectious diseases like malaria, typhoid fever and identified this as one of the major reasons EVD infected people in Africa were constantly in a state of denial, a circumstance troublingly reoccurring in some areas of the U.S (Srikanth, 2020) [12].

Declaration of Disease and Global Response

Globally, WHO in collaboration with affected countries may utilize two incubation periods of a disease to declare a country free from the disease. At the end of the two incubation periods, under effective surveillance and reporting strategies using the case definition of the disease with no suspected, probable, or confirmed cases, WHO declares a country free from the disease. In the case of EVD, 42 days defined this pronouncement while scientists are researching COVID-19 landmark.

On May 9, 2015, WHO declared Liberia free of EVD. Nearly two months later, Liberia confirmed 6 new cases. The resurgence of EVD is like the current COVID-19 pandemic because many countries are experiencing fluctuations in the incidence of the disease. With resilience in contact tracing,

Table 1: Disease trend and prevention.

Disease	Incubation	Signs/symptoms	Transmission	Prevention
EVD	Typically, 8-10 days after exposure range from 2-21 days	Fever, chills, anorexia, nausea, vomiting, abdominal and joints pains, Headache, conjunctivitis, rash, chest pain, shortness of breath, diarrhea (could be bloody) Hemorrhagic symptoms in 18% of cases	Contact (through broken skin or mucous membranes) with infected blood or body fluids, contaminated surfaces and infected bush-animals (monkeys and fruit bats).	Avoid affected area/people, travel restriction, Hand washing, PPE Maintaining social distance Safe disposal of the dead
COVID-19	May appear 2-14 days after exposure to the virus	Decrease appetite, nausea, vomiting, fever or chills Cough, shortness of breath or difficulty breathing Fatigue, muscle or body aches, headache New loss of taste or smell Sore throat, congestion or runny nose, diarrhea	Person-to-person contact within about 6 feet, respiratory droplets, touching contaminated surfaces or objects or spread by people who are not showing symptoms.	Maintain good social distancing Frequent hand washing Frequent disinfection of surfaces Cover mouth and nose with face covering

quarantine and isolation lead by nurses, Liberia was again declared EVD free on September 3, 2015.

Although disease response strategy many vary with the type of disease outbreak, it is important to accentuate that adequate and prompt infectious disease response strategies are essential to support governments, stakeholder’s preparedness, and initiatives in exploring measures in preventing and controlling disease outbreaks. The readiness to prevent or control infectious diseases can be viewed from multiple perspectives. However, the four pillars of disease response strategy: global health system interfacing, conceptualizing diseases outbreak response measures, improving health system equity, quality improvement, and assurance, can enhance global health initiatives to better understand health systems strategies in preventing and controlling the spread of epidemic or pandemic-prone diseases.

There is an interplay of different COVID-19 strategies, especially in countries experiencing challenges in mitigating the spread of the disease. However, each COVID-19 strategy adopted, and implemented is based on the situational analysis of the country. The reality is that each strategy should be evaluated for quality improvement, and quality assurance, and reduction in COVID-19 morbidity and mortality Figure 1.

Diseases have no boundaries and as such health systems around the world need to redefine global strategies for surveillance and reporting public health events of international concerns. Epidemics or pandemics unites the health systems of the world, but sometimes the politics of infectious diseases underscore global response to diseases control and prevention. The political parameters of infectious diseases such are disease origin, global funding and approach, travel restrictions, approval of standardized treatment, development, and use of vaccines continue to slow down efforts in infectious disease control and prevention. Amidst these political scuffles on disease response and reporting, healthcare institutions are increasingly overwhelmed with cases, and yet again nurses, both current in practice and retired are called to action to improve the outcomes of patients’ situations. It is important to emphasize that global nursing is

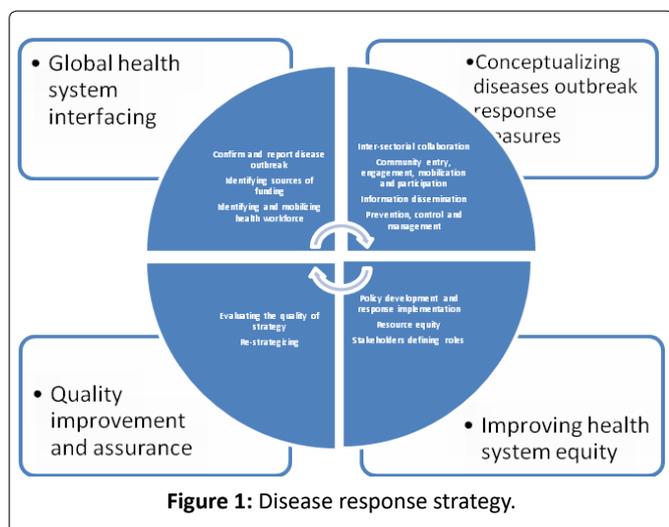
achievable when nurses adequately prepared through their education to respond to epidemic or pandemic: Taking the frontline from institution-based nursing to community-based nursing.

The concept of building a resilient global nursing workforce implies that nurses should be educated to transcend professionalism that makes nursing practice approachable regardless of the health system. Meaning that nurses who are trained in other regions should have a foundation in global nursing practice to fit into other health systems. For example, a nurse educated in the US should work effectively in Africa and vice-versa. On the other hand, unfamiliar diseases may overwhelm nurses and expose them to a high risk of acquiring communicable diseases during outbreaks. The Board of Nursing in many African countries including Liberia has epidemic and pandemic-prone infectious in the curricula. For example, the Board for Nursing and Midwifery prototype competency-based curriculum has a course title: Tropical and Communicable Diseases. This course is equally weighted to non-communicable diseases or disorders on the RN licensure examination.

Missed steps in information dissemination

Like the EVD, there are missed steps in the dissemination of information to prevent and control the spread of COVID-19. For example, during EVD outbreaks in west Africa, information dissemination on mitigating the spread of EVD resulted in the surged of EVD reproductive and mortality rates. During the earlier stage of EVD epidemic in 2014, the health system of Liberia, WHO in collaboration with other partners informed the world that EVD has no cure, and no standard treatment or vaccine to mitigate the spread of the disease, but the individual who was exposure or show signs and symptoms of the disease should seek healthcare. This message posed huge challenges to nurses serving as a bridge between individuals, families, communities, and the health system. Affected EVD individuals refused to seek health care because one of the reasons for seeking healthcare is to improve health outcomes, and if EVD has no cure, there was no reason for seeking healthcare at any level of care. At a glance of the missed steps in this message, nurses lead community-based outreach with a corrected version of the EVD message: although there is no standardized treatment or vaccine for EVD, early detection, and supportive management will increase the survivor rates. The modification of EVD message and the evidence of increase EVD patient’s recovery rates, facilitated the change of mindset and improved public health compliance to disease mitigation measures.

On the other hand, the common global COVID-19 message calls on people who were exposed to a case or have a fever, cough other symptoms should self-isolate because most people with mild illness may self-recover at home. These messages also required individuals experiencing emergency warning sign (difficulty breathing), to get emergency medical care immediately. First, these messages is one of the factors leading to the increase in COVID-19 morbidity because if the individual who has pre-existing conditions will seek emergency medical care at the moderate or chronic state of the disease



rather than the acute stage, may lower the individual chances of recovery. Second, during the latent phase of the disease, standardized mitigation measures at home may be bridged and exposure to household will be eminent. Third, it is important to clarify the difference between self-isolation and self-quarantine. Arguably, the vertical use of self-isolation during exposure and disease state is unacceptable. In an event that the individual is exposed to a disease, but does not show signs and symptoms, self-quarantine is the preferred phrase. During quarantine, the individual movement is restricted and observed through the incubation period of the disease. An individual who shows signs and symptoms of the disease cannot self-quarantine, but rather self-isolate. Therefore, the phrase "self-isolate" does not balance the response to exposure and case.

Key messages and actions for COVID-19 prevention and control for schools to slow down or prevent the spread of COVID-19 include staying home when sick; covering mouth and nose with flexed elbow or tissue when coughing or sneezing; dispose of used tissue immediately; washing hands often with soap and water, and cleaning frequently tough surfaces and objects (UNICEF, WHO & CIFRC, 2020) [12]. To add to this message, staying home when sick and seeking immediate testing for COVID-19 especially when the individuals shows presumptive or probable signs of COVID-19. During EVD outbreaks, frequent hand washing and taking a bath upon returning from work, school, or other outings that involve interaction with people and disinfecting clothes were emphasized. These measures should also be considered for COVID-19 since the mode of transmission and length of time the virus stays on materials and other surfaces are still under study.

Lessons Moving Forward

Clearly, the role of accurate and effective transmission of factual information is essential to prevent the spread of infectious disease. Moreover, the nursing workforce in all nations should be systematically prepared in the public health tenets of infectious disease and be prepared to be mobilized when necessary. The advancement of systematic preparations of nurses and factual information dissemination during response to infectious disease outbreaks can be tailored through the interconnection among health systems of the world. The disease response model developed can aid in the coordination of global health response. The strategy to control the spread of infectious diseases like COVID-19 can be modified because of the variability of the disease. The modification of current infectious diseases response and reporting is based on the mode of transmission, political, social, and cultural barriers. However, the response to disease outbreak can yield a measurable impact based on global health system interfacing, conceptualizing response strategy, improving health systems equity, and quality improvement and assurance. These strategies show the interconnections of disease response measures for assessing, identifying the nature of the disease, planning, implementation, evaluation, and recognizing key stakeholders for the global health approach.

Given the substantial proportion of the overall health workforce represented by nurses, it is clear that resilience in global health coverage is attainable through interdisciplinary and inter-sectoral collaboration. The disease response team consists of a cohort of multidisciplinary professionals and government health systems in collaboration with major stakeholders in health and healthcare delivery. These stakeholders like NGOs are crucial for the argumentation of health system financing, especially in low-income countries. Stakeholders assist governments to implement health plans that are aimed at improving the social determinants of health and wellbeing of individuals, families, and communities.

An important point in initiating planning for global health response to disease outbreak is conceptualizing the strategy. During the process conceptualization, key stakeholders including nurses assume collaborative responsibility at every level to achieve a set goal of controlling outbreaks or the spread of diseases. Exclusion or scaling down the importance of any key stakeholder, especially nurses will pose huge challenges to the attainment of set goals. Conceptualizing disease response strategy is associated with resources and resources is associated with health attainment. However, it is also important to emphasize the active engagement and mobilization of the community for action. Each community response should be coordinated by health workers and influential members of the community to monitor community engagement and compliance to health promotion and disease prevention measures. Mitigating the spread of disease without or limited community involvement and key stakeholders like nurses will result to prolong occurrence or reoccurrence of the disease. The effectiveness of these measures can be determined through the application of reflective reasoning in evaluating and strategizing to measure the quality and sustainability of disease response. Quality assurance measures compliance against certain necessary standards typically focusing on the individual while quality improvement is a continuous improvement process focuses on processes, and systems (Health Resources and Service Administration, 2011) [14]. This description can be modified to include the family and community in disease response strategy for health system equity. Health system equity provides for the strengthening of the health system to meet the health needs of the population at all levels of care. Health system equity can be measured by evidence-informed, evidence-based strategies and health resources allocations. The development of policy at the national or global level can have a positive or negative impact on the level of care provided by nurses or other health cadres at the three levels of care: Individual, family, and community, especially when resources are not available or limited to meet the health needs of the population.

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