

## Brief for GSDR 2015

# TOWARDS SUSTAINABLE TACKLING OF EMERGING AND RE-EMERGING INFECTIOUS DISEASES

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### Introduction

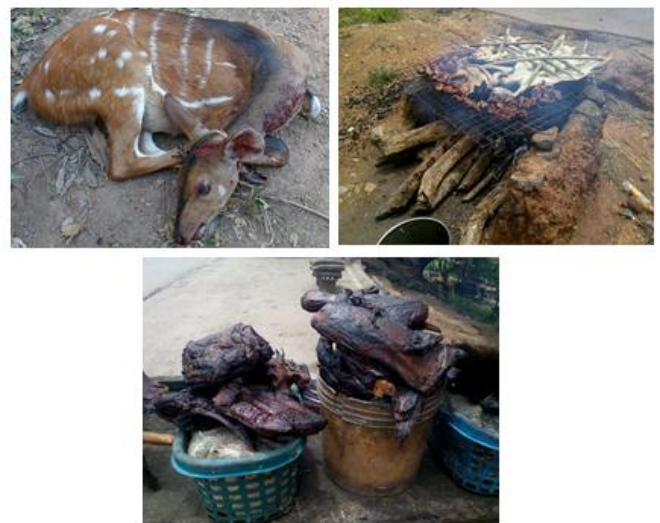
The recent rate, spate and global dimension of emerging infectious diseases (EIDs) is quite alarming and presents the human race with abundant challenges, including the need to propose proportionate research, responses, strategies and policies. An understanding of the multifaceted social and ecological settings in which infectious diseases occur is also desirable. Over the years, the human race has been confronted with EIDs including Nipah virus, West Nile virus, acquired immune deficiency syndrome, severe acute respiratory syndrome, and dengue hemorrhagic fever (Weiss, 2008). In July 2003, the World Health Organization declared that the global outbreak of severe acute respiratory syndrome (SARS) had been contained; less than six months later, in December of 2003, an even greater threat—the avian influenza H5N1 virus—emerged (WHO, 2005). Recently came Middle Eastern respiratory syndrome (MERS), which has spread quite rapidly from the Middle East (Saudi Arabia, United Arab Emirates, Oman, Lebanon, Qatar, Jordan, Yemen, Kuwait and Iran) to North Africa (Egypt, Tunisia, and Algeria), Asia (Malaysia, Philippines), and Europe (United Kingdom, France, Netherlands, Greece, and Italy). The first case was diagnosed in the United States on May 2<sup>nd</sup> 2014 (Adeyemo, O.K. 2014). The ongoing Ebola virus disease which was first detected in March in West Africa is the latest in the epidemic of emerging and re-emerging infectious diseases

### Emergence of infectious diseases

Most of the emerging diseases in humans are traceable to wildlife, especially, non-human

<sup>1</sup> Human handling and consumption of bushmeat, defined as “the use of wild animals for food, ranging from cane rats to gorillas,” has been cited as a source for several zoonotic diseases in Africa (Weiss, 2008). <sup>2</sup> An article published in *Emerging Infectious Diseases* estimates that 1-3.4 million tons of bushmeat is consumed in Central Africa and 67-164 million kilograms of bushmeat is consumed in South America annually (Chomel *et al*, 2007).

primates.<sup>1</sup> Locatelli and Peeters, (2012) opined that emergence of infectious diseases has been linked to *bushmeat* marketing and consumption<sup>2</sup> (Figure 1) primarily because of the broad range of fluids and tissue types hunters and butchers come in contact with.



**Figure 1: Bushmeat still on sale in Nigeria (Adeyemo, 2014)**

However, urbanization, population, environmental, and societal modifications that increase human-wildlife interactions usually heightens the possibility of emergence of new pathogens and re-emergence of previously controlled ones (Karesh, 2009). It is important to note that human-wildlife interactions not associated with developing countries and limited to bushmeat consumption are also important. These comes about through increasingly intrusive ecotourism, changing patterns of human–animal contact including transport of animals across borders and

continents, human encroachment on wildlife habitats, wildlife translocation, deforestation and ownership of exotic pets<sup>3</sup>, many of which are non-human primates (Figure 2).



Locatelli, S., Peeters, M. (2012)



Rosenfields(2009)



Associated press (2012)

***Figure 2: Ownership of non-human primates thrives both in developing and developed countries***

A census conducted for the Great Ape Project, puts the number of privately owned apes in the United States at about 225, however, it has been reported that there are thousands of pet primates (Rosenfield and Walder, 2009). It is also shocking that many countries lack and/or do not enforce restrictions for wild and exotic animals kept by private individuals. Infectious diseases are not evolving mysteriously; the events, attitudes and behaviours responsible for emerging infectious diseases are well known (Morse, 1993). The ecological, environmental, and/or behavioural factors placing people in contact with previously unfamiliar pathogens are increasing in prevalence; coupled with the evolution of pathogenic variants suggests continuous emergence and re-emergence of infectious diseases if the current global inaction and/or disjointed efforts towards preventing and curtailing them is not addressed.

The Ebola virus disease has underscored the fact that no country, whether developing or

developed is immune from EIDs and the public health threat they constitute. Ebola disease was introduced to Nigeria (alerted 20th of July 2014) and the United states (alerted September 30th 2014) through individual travellers.

### **Preventing and controlling EIDs: the global status**

According to WHO (2005), most countries and in some cases, regions have strategies and protocols in place, which are directed at strengthening core capacities required for effective infectious disease preparedness planning, its prevention, diagnosis, classification, containment and control of emerging infectious diseases which threatens national health security. These activities are generally limited in scope and depth with each country or in some cases regions carrying out unique preventive and control activities based on infectious diseases perceived to be of immediate threat or concern to national security. However, current population movement dynamics rapidly and effectively link regions of marked health disparity, which can be associated with risk for importation of infectious diseases as was confirmed with the Ebola cases in Nigeria and the USA which were both started from travel incidences. Additionally, the Ebola virus disease outbreaks revealed weaknesses in the public health infrastructure, strategy and policy of many countries, developed countries inclusive.

With the world facing increasing threats from emerging infectious diseases, it is dangerous to wait on countries or regions to address pertinent risk factors associated with emergence and re-emergence of infectious diseases. Although, most of the risk factors predisposing to emergence of infectious diseases are relevant to every region of the world, some are more germane in some cultural context. It is therefore imperative that there is a globally unified focus on tackling emerging and re-emerging infectious diseases by addressing the gaps and deficiencies in the global

strategies and policies armed with the political will necessary to make the changes required happen. Cross cutting issues like putting in place legal frameworks which supports inclusive accessibility to newly discovered drugs without the attendant bottlenecks, bureaucratic and legal processes also requires global attention.

### **Recommendations for globally cohesive strategy and policy**

The evidence of the rate at which EIDs travel across geographic boundaries has shown that no country is invincible, irrespective of the source of an outbreak. The potential global health, social, economic, political, and security impact is enormous. Although developing countries remain the more vulnerable regions, it is especially ill-advised for developed countries to think Ebola or any other EID is something that only affects distant lands or less developed countries and a misconception to assume that EIDs can only emanate from developing countries.

Factors predisposing to their emergence including change in land use, human-wildlife interactions, consumption of “bushmeat”, especially primates, urban density, environmental fluctuations, altered sexual predispositions, intensified food production, increased mobility, trade, and human-animal interactions are not geographically limiting. Moreover, despite several regional agreements, country-level protocols and interagency policies for outbreak detection and rapid response; coordination and collaboration, the ongoing Ebola outbreak has spread in an unprecedented way. A cohesive globally implemented approach to the prevention and management of EIDs is recommended based on the global public health risk associated with their occurrence. This will require globally fixed and enforced legal framework, incentives and sanctions to ensure compliance. Other recommended policy-related measures include

- Prohibition of behavioural activities and other human/wildlife interactions encouraging the emergence of these diseases Including invasive ecotourism, consumption of bushmeat and ownership of exotic pets.
- Development of an effective global surveillance and response system, including improved coordination and collaboration to monitor human movement across borders during outbreaks; however unnecessary and/or panic motivated stigmatization of countries or regions should be discouraged by setting strict guidelines for imposing movement restrictions should it become necessary.
- Establishing policy framework bypassing usual legal and institutional bureaucracy to make treatments available to all affected by EID outbreaks would go a long way in containing EIDs.
- Global public health education is necessary to ensure awareness of the risks and also to prevent unnecessary panic and stigmatization, to ensure that decisions are made based on facts and not fear.
- Enhanced trans-boundary and multidisciplinary research into epidemiology of emerging and re-emerging Infectious diseases

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