IFMSA
International Federation of Medical Students' Associations

IFMSA Policy Proposal
[Control of Emerging Infectious Diseases]

Proposed by the Team of Officials

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Policy Statement

Introduction

Emerging Infectious Diseases (EIDs) are infections whose incidence or geographic range is rapidly increasing or threatens to increase in the near future. In the past years, new EIDs have emerged at an unprecedented rate. These incidents have in many cases highlighted the inadequacies of existing organizational structures and international frameworks to provide an effective response.

IFMSA position

The International Federation of Medical Students' Associations (IFMSA) recognizes the need to strengthen preparedness for control of Emerging Infectious Diseases and response to public health disasters as a means to reducing the occurrence of disease outbreaks and further catastrophe in case of an outbreak. EIDs have long-term negative economic and social impacts on the societies affected and these damages can be avoided by increased preparedness.
IFMSA also recognizes that Universal Health Coverage and wider health system strengthening is more cost effective, and widely beneficial, than spending to control outbreaks.

Call to Action

Therefore, IFMSA calls on:

IFMSA National Member Organizations (NMOs) and medical students to

1. Promote education and advocacy efforts to increase knowledge of infection prevention and control amongst both medical students, healthcare students and the general public.
2. Work with all relevant stakeholders to develop effective global mechanisms to combat emerging diseases, especially in their own country.
3. Promote the One Health approach, and thereby the collaboration between veterinary public health and public health stakeholders to allow for thorough understanding of zoonotic diseases (diseases transmissible between humans and animals) and successful control of emerging zoonotic diseases.

WHO Member States to:

1. Strengthen commitment to, and implementation of, the International Health Regulations.

2. Recognise that Universal Health Coverage is essential to global health security, and investment in UHC is much cheaper, and beneficial, than fighting large outbreaks that weren't prevented due to lack of primary care and public health capacity; including including investment in primary care, public health agencies and their laboratories.
3. Ensure investment in cost effective research for emerging infectious disease treatment and control and manufacture cost-effective, accessible and affordable treatments and vaccines
4. Educate communities to raise awareness on disease prevention and infection control practices needed to stop the spread of current and future EIDs, having in mind the cultural and religious circumstances of the population.
5. Respond in a more transparent way to EIDs, ensuring the necessary information is provided for populations and visitors.
6. Provide adequate financing for WHO Contingency Fund for Emergencies.
7. Fully fund the World Bank Pandemic Emergency Financing Facility.
8. Provide timely, non-earmarked funds to WHO appeals during major outbreaks
9. Promptly and openly share data about outbreaks with aid agencies and non-state actors, avoiding secrecy and accountability evasion.

The World Health Organization to:

1. Continue to lead coordination of the the WHO Health Emergencies Programme for future outbreaks whilst including all relevant international, governmental, non-governmental and local stakeholders.
2. Continue to empower and engage with WHO-World Bank Global Preparedness Monitoring Board
3. Encourage the international community to continue assisting the countries affected by infectious diseases; this will include, but not be exclusive to, donating protective gear used in treating patients, handling medicines and contributing to research and development of vaccines.
4. Work closely with all nations and especially low-income countries to strengthen health systems, in order to be better prepared for public health threats such as Ebola, in the future.
5. Improve collaborations with relevant stakeholders (notably UN Food and Agricultural Organization (FAO) and World Organisation for Animal Health (OIE)) in the control of emerging zoonotic diseases.

Healthcare providers to:

1. Continue to improve infection control practices to prevent spread of EIDS.
2. Recognise the vulnerability of healthcare workers and train their medical personnel accordingly in emergency treatment, prevention and infection control strategies.
3. Commit to provide culturally sensitive and ethically sound care as well as maintain clinical competency in the context of emergency situations.
4. Comply with the national mechanisms to comply with the International Health regulations.

Position Paper

Background

Emerging infectious diseases (EIDs) are broadly defined as infections that have newly appeared in a population or have existed but are rapidly increasing in incidence or geographical range.(1) EIDs encompass: recognised infections spreading to new areas and populations; discovery that a known disease is caused by infection; previously unrecognised infection appearing in areas where habitat is changing; a new infection resulting from changes in microorganisms; and an old infection re-emerging because it has become resistant to treatment, or due to a breakdown in public health systems.(2) A comprehensive literature review identified over 1400 species of infectious organisms known to be pathogenic to humans. Out of these, 175 pathogenic species are associated with diseases considered to be 'emerging'. (3). These incidents have in many cases proved the inadequacies of existing organizational structures and international frameworks to provide an effective response.

EIDs may cause localised epidemics, or become pandemics if given the correct environmental factors, causing significant suffering and deaths worldwide. Historically significant examples of EIDs include the H1N1 influenza in 1918, which is estimated to have a mortality of around 50 million (4), and HIV/AIDS, with over 1 million deaths in 2016 alone (5). Outbreaks in recent years which had previously remained localised have since become major public health concerns, notably the West African Ebola epidemic, which has caused over 28,000 confirmed cases and over 11,000 deaths(6). Middle East Respiratory syndrome coronavirus (MERS-CoV) has seen an increase in incidence since 2012. 27 countries worldwide have reported cases of MERS-CoV with the Republic of Korea investigating the largest known outbreak outside the Arabian Peninsula, including 182 confirmed cases and 33 deaths (7). The economic losses from six major outbreaks of highly fatal EIDs between 1997 and 2009 amounted to at least US$80 billion. For instance, the potential losses resulting from a severe influenza pandemic that leads to 71 million human fatalities would amount 3 trillion USD or 4,8% of the global GDP (8)

Discussion

Factors driving disease emergence

Disease emergence or re-emergence is often the result of a network of multifactorial causes. Over the past three and half decades at least 30 new infectious agents affecting humans have emerged, most of which are zoonotic and their origins have been shown to correlate significantly with socioeconomic, environmental, and ecological factors. (9) These factors continue to increase, putting people in increased contact with the disease causing pathogens, there is concern that infectious diseases may continue to present a formidable challenge.

A study found that 75% of emerging diseases are zoonotic, and overall, zoonotic pathogens are twice as likely to be associated with emerging diseases than non-zoonotic pathogens (10). Although many zoonotic diseases are difficult to track, those that are vector borne are directly affected by environmental factors (11). Climate change is predicted to have a profound influence on emergence of infectious diseases with zoonotic vectors in the coming decades, altering disease incidence and placing millions more at risk (12). Economic development can increase disease emergence (eg. as dam construction provides new habitats for disease vectors and improved transport infrastructure accelerates human-to-human transmission across international borders. Weak health systems and a lack of skilled healthcare personnel can leave communities vulnerable to changing

patterns of disease virulence or geographic spread. Infection prevention and control measures are insufficient in many poorly resourced countries, with key infrastructure such as isolation rooms not in place. Inadequate support for public health provision, surveillance and disease monitoring is a key influence on the emergence of infectious disease in new locations and can have a devastating impact on local healthcare systems. War and conflict can also drive infectious disease emergence, by damaging health and civic infrastructure as well as displacing people and accelerating migration, especially water borne diseases, or diseases that are transmitted by insect vectors that breed in stale/standing water (13). Inappropriate use of antibiotics has also caused an emergence of various strains of drug resistant bacteria like MRSA as well as MDR-TB and XDR-TB which have become a public health concern. (14)

Global nature of disease emergence

EIDs are affecting nations across the world and overload existing healthcare systems in diverse circumstances. These emerging and reemerging pathogens have demonstrated their ability to overwhelm public health systems, causing widespread fear and mistrust of health facilities, even in highly resourced healthcare institutions. Changing patterns of human migration, increasing levels of international air travel and novel processes in the agricultural industry present new risks and challenges as newer pathogens emerge.

The spectre of pandemic influenza is an ever-present threat to global health and in 2015, the WHO declared that the world must be on “high alert” for the spread of new strains of influenza (15). These EIDs have devastating effects on the economies of the countries affected. In the example of Ebola in West Africa in 2014, at least 40 countries issues travel restrictions to Guinea, Sierra Leone and Liberia, resulting in a further detrimental impact on trade (16). Societal cohesion was also disrupted during instances of violence against healthcare workers and security forces. The delayed and ineffective rapid response mechanisms, and subsequent scale of the epidemic, left governments unable to cope with the emergency, clearly demonstrating the need for efforts to strengthen health systems around the world (17).

Preparedness for disease outbreak control

Despite the many challenges present in the control of zoonotic diseases, success in this prevention would be both cost-effective and directly beneficial to the burden on the human population. However, certain strategies such as culling are disproportionately dependent on farmers who receive inadequate compensation, as demonstrated in the outbreak of H5N1 avian influenza in 2006(18). The ‘One Health’ approach is the key to defeating emerging and reemerging zoonoses at the interface between the health of humans, animals and the ecosystem. It supports and legitimizes improved cooperation between animal, public and environmental health. It also gives rise to a new call for the strengthening of animal and human health systems, without which diseases cannot be controlled or defeated (19). Education and advocacy are also imperative, as mechanisms must be in place to disseminate information to the public in order to ensure that health messages are coherent and quickly transmissible through the media. The absence of such processes can lead to long-term socio-economic damage, such as the reaction to bovine spongiform encephalopathy (BSE) in England in the 1990s causing large economic losses that extended well beyond the timeframe of the outbreak(20).

Surveillance and response, the key elements in controlling EIDs depend on rapid clinical diagnosis and detection followed by containment in populations and in the environment. Recent practical experience with BSE and SARS demonstrates that rapid detection and identification leading to the rapid introduction of preventive measures can prove highly effective in combating outbreaks of novel diseases (21). This surveillance needs to be global, especially considering the unprecedented rates of international travel and trade that can allow new infectious diseases to spread around the world over time scales of days or weeks. A wealth of new technologies are becoming increasingly available for the rapid molecular identification of pathogens but also for the more accurate monitoring of infectious disease activity. Web-based surveillance tools and epidemic intelligence methods, used by all major public health institutions, are intended to facilitate risk assessment and timely outbreak detection.

Preparing for emerging disease threats involves not only complying to international regulations, but also strengthening laboratory capacity and communicating appropriately with the public. In some recent cases, these preparatory tasks have been inadequately undertaken due to chronic underinvestment in health care systems. The international legal framework for disease outbreak control - the International Health Regulations (IHR) - require that countries declare Public Health Emergencies of International Concern (PHEIC) promptly, and mandate a response from World Health Organization (WHO). They also require that countries strengthen surveillance capacity to monitor epidemics, and that countries make every effort not to introduce travel restrictions which would further damage international trade (22). However, in the context of fragile socio-political situations such as those in West Africa during the 2014 Ebola outbreak, a PHEIC was not reported promptly (at a local, national or international level), which lead to the call for a semi-autonomous international body as heard at the World Health Assembly 2015. Failure of the global community to respond rapidly and effectively to the Ebola outbreak demonstrates that there remain major implementation challenges, even beyond funding and political will. It is time to consider whether or not aspects of the foundation for global health security embodied in the IHR (2005) are too vague, missing, or need to be strengthened in order for IHR to stay relevant and useful (23).

The WHO Health Emergencies Programme was created in 2016, aimed to fill the gaps identified in the 2015 Ebola response. The programmes responds to health emergencies caused by infectious diseases, war and conflict, natural disasters and other incidents. In many recents incidents, the new programme has proven to be effective, delivering fast responses to recent outbreaks. Despite these positive signs, the fact remains that the programme is struggling to fundraise money needed for its core functions. During the 2018 World Health Assembly, the WHO and World Bank launched their joint Global Preparedness Monitoring Board (GPMB) (co-chaired by Elhadj As Sy, Secretary General of the IFRC (24), and Gro Harlem Brundtland, former WHO Director-General). The Board will “monitor preparedness activities on a global scale” holding all actors (from both private and public sectors) accountable for building essential public health capacities, generating sustainable financing and ensuring that necessary research and development is conducted" (25). The stark inability to raise money for the early stages of the outbreak were also highlighted and subsequently the World Bank formed the Pandemic Emergency Financing Facility, an innovative form of bond that would allow for the rapid mobilisation of funds to tackle disease outbreaks with the potential to become pandemic, if the Bank deems it necessary. It is hoped that this world first strategy will prevent the stagnation of fundraising and prevent another outbreak of that size, especially when used in conjunction with the aforementioned GPMB (26).

Conclusions

Infectious diseases will continue to emerge and re-emerge, leading to unpredictable epidemics and difficult challenges to public health as well as to microbiology and allied sciences. EIDs are a complex problem, right from the patterns of their emergence to the public health challenges they create. There are no overnight solutions that can be chanced upon. However, acknowledgment of problems and using all the resources available to reduce the associated risks is the best way to move forward.

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