Editorial

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Climate Change and Infectious Diseases: Global & Bangladesh Perspective

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United Nations Climate Change Conference ended on December 18, 2009 in Copenhagen without any resolution for combat global climate change. Though this event went largely unnoticed by the U.S. health care community due to the debate of U.S. health care reform, Bangladesh Government has raised this issue with a louder way as because climate change will have enormous implications for human health, especially for the burden of vector borne and waterborne infectious diseases in the developing countries like Bangladesh. There is an imbalance between incoming and outgoing radiation in the atmosphere which leads to climate change[1]. Solar radiation enters the atmosphere and some of it is absorbed by the earth's surface which is reemitted as infrared radiation. Then this is absorbed by greenhouse gases primarily carbon dioxide, nitrous oxide and methane resulting from the combustion of fossil fuels which cannot be effectively removed from the atmosphere because of deforestation. This following process generates heat. By the end of this century the temperatures are expected to increase by another 1.8 to 5.8°C. Some geographic areas will have more rainfall, and some more drought and severe weather events including heat waves and storms are expected to become more common. Because of rising temperatures and changing rainfall patterns, climate change is expected to have a substantial effect on the burden of infectious diseases that are transmitted by insect vectors and through contaminated water. Insect vectors are likely to be more active at warmer temperatures. For instance, tropical mosquitoes such as anopheles species, which spread malaria, require temperatures above 16°C to complete their life cycles[2]. Some vector borne diseases such as malaria are also thought of as water-vectored diseases, since mosquitoes typically thrive in aquatic habitats, where they lay their eggs in water-filled containers. Thus, epidemics of malaria tend to occur during rainy seasons in the tropics. Similarly ades mosquitoes can bread in fresh rainy in water-filled containers and causes epidemedic outbreak in Bangladesh especially Dhaka. Waterborne infectious diseases are also strongly affected by climate changes like vector borne diseases. During drought, water scarcity results in poor sanitation leading to exposure of potentially contaminated water to the population. Again Kala-azar is a neglected tropical disease (NTD) which is endemic in this country. The habitat of vector sandfly is the hot and humid temperature. Thus Kala-azar patients are found in the different districts other than endemic zone. Alike drought, excess rainfall and flooding can also contribute to epidemics of waterborne infectious diseases due to poor sanitation resulting from runoff from overwhelmed sewage lines or the contamination of water by livestock[3].

The World Health Organization (WHO) has published a data showing the impact of climate change on human health[4]. This data shows that developing regions of the world like Bangladesh have been disproportionately affected by climate change relative to developed regions. The WHO report also includes estimates of the future global burden of disease that will result from climate change[4].

Although governments must take the lead in tackling climate change, it believes that it is also the responsibility as members of the health care community to do the own part. Therefore, it must also focus the efforts on mitigating the effects of climate change, including its potential impact on the global burden of infectious diseases. Additional research is needed on the ecology and epidemiology of infectious diseases that will probably be affected by climate change. The best means for accomplishing this aim would be to incorporate research on the effect of climate change into existing infrastructures, such as the malaria-eradication program launched by the Bill and Melinda Gates Foundation[5]. It is imperative that organizations like WHO continue their missions of treating and preventing otherwise neglected infectious diseases, as part of a multifaceted approach to improving global health.

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