

ONE HEALTH: ISSUES

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The map that links between the human, animal and environment is one health. Environment is the common habitat for all living things. Human are superior among all the living things. As the human population is increasing, the interaction between human and animal and environment are increasing for food, shelter etc. This interaction has introduced the risk of exposure of human to new virus, bacteria and other disease causing agents. According to CDC (Center of disease control and prevention) USA more than 6 out of every 10 known infectious disease and 3 out of every 4 new or emerging infectious diseases in people are spread from animals. Furthermore, people impact on environment has caused effects on food safety, climate (climate change), environmental pollution, disasters, liquid waste disposal etc. which can put human health at risk. Hence to secure human health, animal health and environment should also be considered. This can be achieved by collaborative effort from various disciplines like human, animal, sociology, environment, economy, climate, nutrition etc. are required. This relation is studied under One Health. The relation between human, animal and environment was studied from the age of Hippocrates (460BC-370BC), later on Rudolf Virchow termed the word “Zoonosis” and studied the relationship. Similarly Robert Koch, Louis Pasteur and William Oster has also contributed in exploring One Health.

Zoonosis is the major issue in which the One Health is advocating. The zoonotic disease reemerged and new disease are also introduced in the last three decades as the consequence of increasing interdependence of human on animals and animal product for food, companion, entertainment etc. Zoonotic disease actually developed when the domestication of the animal occurred. The diseases transmits from animal to human through contact by saliva, blood, urine, nasal secretions, faeces or bite and scratches by pets, contact with areas where animal live, through vectors (being bitten by mosquitoes, ticks, fleas etc.) and food borne. In the last decade three zoonotic disease get concern i.e. bovine spongiform encephalopathy, severe acute respiratory syndrome(SARS) and highly pathogenic Avian Influenza (HPAI H5N1 According to the FAO report of 2005 totaled economic losses in south east Asia was around US\$10 billion.).

The immediate threat of human pandemic caused by has now being receded. The example above focuses on the zoonosis originated from domestic animals that are used as food but wildlife and small animals also transmits disease to the human. Global control of rabies is the example of one health in action. Rabies is fatal disease. Once its symptoms are seen no one can survive from rabies. Rabies attacks the nervous system and causes muscle paralysis. Every year 100 people dies because of rabies and this virus is transmitted to human through the saliva of dogs, cats, bats, monkey ,jackal, wolf and other wild animal of canine and feline family. As discussed earlier bats are reservoir of rabies virus but in addition also transmits Ebola virus, Lyssa virus, nipah virus etc. Increasing encroachment of people and livestock into wildlife is the major cause transmission of such wild zoonotic diseases. In addition wildlife are also reservoir for most of the parasitic zoonotic diseases like trypanosomiasis, Leishmaniasis, giardiasis and many more.

In addition to human and animal health, one health is related to environmental health as well. All the physical, chemical and biological factors external to a person that can potentially affect health is studied under environmental health. So, it is targeted towards preventing disease and creating health supportive environment. Under environmental health food safety, climate change, air quality, disaster preparedness, housing land use pattern, liquid waste disposal, medical waste, noise pollution etc. are discussed. The problem of food safety are complex and do not have simple solution and so are called wicked problems. Disease caused by food-borne pathogens have threatened the world and dragged the attention towards public health concerns. Listeriosis, salmonellosis, diarrhea etc. are some of the common food borne diseases. Animal-agriculture has now became major part of food system to human being. As the food-animal and ecosystem continues to change to produce more and more food products, microbes gets opportunity to multiply and intensify. And through the contamination of food microbes can traverse the globe faster. Plant derived foods such as the leafy greens, tomatoes, and sprouts have been implicated in more and more food borne outbreak e.g. Peanuts, butter, pizza, ice-cream etc. And for some of the disease animal acts as the origin of disease, of which the animal manure is major source of contamination. To produce better animal products the antibiotics are given to animal at regular basis and this can have chance for cross-species lines and becomes resistant to antimicrobial agents. The microbes learn to adapt change and find new place to live in resulting in emergence and re-emergence of diseases. This speed on the other hand is accelerated by changing ecosystem, risky human behavior, travel, trade, globalization, population growth etc. Climate change is assisting in adaptation of parasites and microbes, emergence of disease, decrease in animal and plant production and ultimately creating difficulty for survival of human and animal in the environment. Thus environmental health aspect is equally important to secure human health.

Either it be the human or animal, microbes do not distinguishes among the species but only seeks for the opportunity to survive and multiply. So, it is necessary to cease our artificial separation between the human and animal and public health. But instead work together to secure world health, one health. This conversation of one health should live long as the other issues like climate change, terrorism is ongoing. And to keep this alive coordination from various disciplines is much necessary. Ebola that recently created chaos is minimized. Ebola breakout in 2013 and is now under control and declining since January, 2015(WHO). This was achieved only through the coordination of many disciplines. Though the developed countries has addressed much of the areas related to one health, but developing countries are still lacking behind. The

concept of one health can only be achieved any when developing countries to participate in this areas effectively.

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