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Short Commentary

A Perspective on Global Health: A Commentary

Dainowski BH[1,2*], Duffy LK[1,2]

[1]Department of Chemistry and Biochemistry, University of Alaska, USA

[2]Institute of Arctic Biology, University of Alaska, USA

[*]**Corresponding author:** Bonita H Dainowski, Department of Chemistry and Biochemistry, University of Alaska Fairbanks, Fairbanks, AK 99775-6160, USA

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Abstract

The health effects caused by pollution released into the environment is a continual problem facing the survival of sensitive species on our planet. Even though legislation regulates energyindustries in many countries, the continual release of pollutants, such as heavy metal accumulation and persistent organic pollutants, are impacting climate change which will lead to social and cultural changes. These changes will continue to negatively impact both regionaland global environments. There is a need for a combination of a One Health ecosystem interdisciplinary approach with an Environmental Justice ethic in order to maintain our ecosystems and the communities which they support at optimal health levels globally.

Introduction

Ecosystems, river watersheds, the oceans, and the atmosphere need both monitoring and remediation as they are pathways for the increase of fluctuations in pollution, which impacts the health of human and many species populations on a global scale [1,2,6,7]. Understanding how fluctuations evolve both locally and globally requires the understanding of the close relationship rural people have with their land which is in contrast to larger urban populations. This understanding can be accomplished by both education and looking at how the marine and terrestrial ecosystems are transformed by pollutants, altering both local and global environments [5]. Starting with the smallest of organisms and working up the food chain by collecting and analyzing data in a One Health approach is essential for learning and understanding the stress on ecosystems and impact on the health of humans.

Both marine mammals, such as sea otters, and terrestrial mammal sentinel species have been widely used to determine environmental damage and its impact in studies of various pollutants [1-4]. Studying mammals in both a historical [8] and current context [2] allows scientists and researchers to examine and compare the fitness and health of ecosystems by producing a continuum that can indicate the future robustness of species on our planet. It has been noted numerous times in research articles that if the environment changes, mammals will forge for food at other trophic levels [2]. Therefore, this movement of mammals not only increases their food web length, but also increases their access to additional pollutants, altering both their health and the health of subsistence users [2,4].

Pollution and Climate Change

The atmosphere is one gateway for pollution and contaminants to be redistributed in any ecosystem. Air pollution can increase climate changes in a way that is negative to current species and continues to influence the physical landscape worldwide. Every ecosystem faces its own set of challenges in dealing with current ongoing changes. These challenges have physical and biological ramifications, such as population growth and resource development, which will have an affect on the way humans live in the future. One example is that of the Arctic region. Arctic ecosystems go through many fluctuations due to changing weather patterns caused by air pollution impurities with the increase in industrialization and mining [9]. Food webs in Polar regions are sensitive to these disturbances, which can be associated with the bioavailability of contaminants such as metals and organic compounds [1]. For example, river watershed estuaries play an intrinsic part to biogeochemical cycles of aquatic biota which provide benefits to human systems [1,6,7]; however, changes in pollutants have been found to be associated with increased precipitation at high latitudes causing seasonal flooding which alters food webs and can damage landscapes [1]. With current adulterations to the environment occurring and more predicted for the future, a study of the health of these ecosystems dictates an interdisciplinary One Health research approach [1].

The One Health Approach, a Planetary Perspective

The Earth is often used as a metaphor for a living organism that has growth, energy, and cyclic shifts in both atmospheric pressures and in its various environments [10]. One must acknowledge that in order to establish and maintain a healthy Earth, in which to survive, humans must make wise choices in how they manage and interact with the land. Currently we are entering a new phase, where humans can influence climate transformations. Now is a critical time when humans and animals alike are reliant on a healthy environment, usually defined as an ecosystem with clean water, robust land for food, and fresh clean air, which is not only critical to the well-being of every living organisms well-being, but also for the prevention of pandemic and other diseases. The mere fact of survival.

While changes to the environment are increasing, it is important to establish current baselines for pollutants in order to identify the future changes that may have a negative affect on both human and other populations. Understanding of these complex processes both locally and globally is critical to understanding the unity that humans have with their surrounding ecosystem. One such way is the One Health Research Paradigm. This approach invites scientists, medical professionals, farmers, local hunters and fishermen to unite with the common goal of healing environments with the aim of having a healthy planet that would benefit every human and organism on our earth.

Environmental Justice and the Precautionary Principle

An ecosystem can be considered somewhat unto itself and should be included with its organisms and treated with respect. For this reason, congruent with the One Health concept is that of Environmental Justice, a human concept. What is meant by Environmental Justice? All monitoring of contaminants in commercial food and wildlife should be for every human; not dependent on age, socio-economic, status, income, ethnicity, or age [10]. Every human has the right to a clean, healthy environment, void of environmental health hazards. There is also the Precautionary Principle. Precautionary Principle is in reference to environmental approach, and suggests being proactive, taking measures before pollution harm transpires [10]. However, this preventive principle may not be taken very seriously and therefore lacks in competition for funding [10]. The One Health approach with a Precautionary Principle needs to be met with Environmental Justice for the optimal living planetary survival.

Conclusion

Pollution, climate change and contaminants can abrade natural survival resources, depleting any community of their basic living needs, especially with a subsistence lifestyle in the Polar regions of the world. Using various sentinel species as models for new pandemics locally and globally is essential today in understanding our changing landscape. Since there are currently gaps in our knowledge, the One Health approach is of significant importance in identifying and establishing guidelines in order to minimize the consequences of various pollutants. This requires government agencies to work together with local communities to exchange knowledge and understand the pathways of contaminants. By understanding how climate shifts are created and its impact on the environment, and by working together, both agencies and communities will be able to respond to climate changes in a positive way. As a result, every community worldwide, regardless of income and ethnicity, can help to oversee and maintain their own ecosystems for ecological sustainability by having equal access to the decision making processes.

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