

Public Health Dentist as an “Environmental Scientist”- An Unexplored Area

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Abstract:- Public health dentistry is the only specialization in dentistry which deals in detail about the influence of environment on health. The environment which surrounds us has a profound influence not only on the health of the individual but also on the community. Incidentally, environmental consciousness forms the crux of environmental scientist role, which makes it necessary for a public health dentist to get adequate training to perform green audit, energy audit and environmental audit. Thus, it can also be made a part of the public health dentistry curriculum. Newer prospects for emerging public health dentists to work as environmental scientists can be incorporated as these fields have gain expertise and momentum. Due to a public health dentists' knowledge of both the ideas relating to the environment and health as well as the dynamic interactions between these two elements, a public health dentist would be a good fit for the position of an environmental scientist.

Keywords:- Environmental Scientist; Public Health Dentist; Environment; Health.

I. INTRODUCTION

Environment can be defined as “all the physical, chemical and biological factors external to the human host, and these factors impact the health of an individual” [1]. The field of environmental science integrates physical, biological and information sciences and primarily involves in collection of data, identifying and assessment of potential threats. Additionally, it is also involved in up-stream activities like providing data to the government regarding their researches.

Environmental risk has been significantly found to impact human health, either by direct exposure of harmful

substances, or by indirect disturbance to the ecosystem. Although environmental factors cannot be precisely determined, World Health Organization estimates thirteen million deaths attributed to environmental causes each year [2]. Furthermore, there are global disease burden of 24% and premature mortality of 23% due to environmental factors, with developing countries having 15 times more disease burden when compared to countries that are developed [3].

Environmental health is threatened by the growing population along with industrialization. The major environmental hazards in developing countries include poverty and poor infrastructure that includes lack of drinking water, sanitation, health care, as well as pollution from industries [2]. The *Millennium Ecosystem* report, 2005 warns that the erosion of ecosystems could lead to an increase in diseases such as malaria and cholera that are already prevalent, along with rising risk of new diseases [4]. Using previous literatures on valuation studies, we explore how a public health dentist might be able to fulfil the role of an environmental scientist, because he not only understands concepts related to health and the environment, but also the dynamic interaction between the two entities and can significantly contribute to the achievement of the Millennium Development Goals of environmental sustainability, health, and development [5].

II. ENVIRONMENT AND HEALTH

According to the studies, the degradation of the environment, increases the imbalance between population and resources, increases the cost of development, and worsens poverty. Thus, poverty, population growth, and environmental degradation inhibits the sustainable economic development and worsens the population health as such. Secondly,

environmental change presents new challenges to traditional public health science [6]. The health effects of environmental change are often indirect and hard to assess, and the quality of evidence for health-related outcomes of environmental change varies widely. Health science to understand global environmental change is also increasing and requires long-term collaboration between meteorologists, chemists, biologists, agronomists and health scientists. Such research is difficult to organize and fund. The science of global change frequently relies on computer models to predict the direction of change [7]. To protect the health of the population, we must develop food, energy, and industrial production systems that can be sustained over generations. Furthermore, environmental protection and health promotion require stewardship, precaution, and prevention value systems. It will be the major health challenge of the next century to find solutions to the threats posed by environmental change.

III. ENVIRONMENTAL SCIENTIST

Many of the research that environmental scientists conduct are designed to ultimately have an impact on policy, and they play a significant part in society's responses to environmental concerns [8]. The four essential elements make up the new environmental decision-making framework include taking preventive actions in the face of uncertainties, shifting the burden of proof onto the proponents, exploring the alternative actions to the potentially harmful ones and involving public more directly in decision making.

A professional in environmental health is a practitioner who has the necessary academic education, training, and certification to,

- Assess, investigate, sample, and measure hazardous environmental agents in various environmental media and settings;
- Guidelines, policies, laws, and regulations are developed reinforced and promoted
- Environmental health units within organizations are managed and system analysis are performed
- Understanding the relationship between health and environment by interpreting research utilizing science and evidence
- Prepare technical summaries and reports by interpreting the data.

Discoveries and policy settings are interconnected in a complex way. Policies are often influenced by the studies conducted by environmental scientists and Precautionary principles are been proposed as a new guideline for environmental policy making.

IV. CHARACTERISTICS OF PUBLIC HEALTH DENTIST AS A PUBLIC HEALTH WORKER

A Public health dentists work to improve oral health outcomes at a population level by addressing oral health disparities, implementing preventive measures, promoting oral health education, monitors and evaluates the effectiveness of oral health programs and interventions. They assess the impact of their initiatives on the oral health outcomes of the

community, identify areas for improvement, and make data-driven decisions. Furthermore, they engage in research activities to expand knowledge in the field of oral health and contribute to evidence-based practices. They analyze oral health data, conduct epidemiological studies, and participate in research collaborations to identify trends, risk factors, and effective interventions and also collaborate with various stakeholders to create healthier communities.

The role of the public health dentist in India is constrained to case finding or aligned with teaching. As a result, public health dentists are largely limited to conducting health needs assessments and collecting data [9].

Environmental scientists, however, require advanced education and training in performing green audits, energy audits, and environmental audits that may be included as a part of the public health dentistry curriculum.

Green audit by definition is "Inspection of a company to assess its total environmental impact or that of a particular product or process" [10]. An environmental audit, also referred to as a "green audit," is an objective examination of a facility's operations and practice by a regulated organization that is systematic, documented, periodic, and connected to meeting environmental criteria. Green audit gives citizens the information they need to question companies which are destroying the environment we all depend upon. As well as being familiar with international treaties and conventions on environmental issues, the auditor must have a thorough understanding of national policies, strategies and programs for environmental protection and conservation. In any industrial plant or energy consuming facility, energy audits are a fundamental component of energy conservation programs and are analogous steps in a program in energy consuming facilities [11].

The suggested changes in the curriculum, will enable a public health dentist to be in capacity to effectively perform as an environmental scientist.

V. CONCLUSION

An extensive training qualifies a public health dentist to advance in the field of environmental science primarily because he is familiar with both the concepts of health and the environment as well as how these two things interact in real time. Thus, the concept of a public health dentist as an Environmental Scientist can be introduced as a pointer to these actions to limit the environmental impact on general health.

REFERENCES

- [1]. World Health Organization. What is the Environment in the Context of Health.
- [2]. Pruss-Ustun A, Corvalán CF, World Health Organization. Preventing disease through healthy environments: towards an estimate of the environmental burden of disease. World Health Organization; 2006.

- [3]. Zarocostas J. Millions of deaths from environmental causes are preventable, says WHO. *BMJ*. 2006 Jun 17;332(7555):1412.
- [4]. Leemans R, De Groot RS. Millennium Ecosystem Assessment: Ecosystems and human well-being: a framework for assessment.
- [5]. Remoundou K, Koundouri P. Environmental effects on public health: An economic perspective. *International journal of environmental research and public health*. 2009 Aug;6(8):2160-78.
- [6]. McMichael AJ. Global environmental change and human health: new challenges to scientist and policy-maker. *Journal of public health policy*. 1994 Dec;15(4):407-19.
- [7]. McCally M. Environment and health: an overview. *Cmaj*. 2000 Sep 5;163(5):533-5.
- [8]. Kriebel D, Tickner J, Epstein P, Lemons J, Levins R, Loechler EL, Quinn M, Rudel R, Schettler T, Stoto M. The precautionary principle in environmental science. *Environmental health perspectives*. 2001 Sep;109(9):871-6.
- [9]. Chandrashekar J, Vinita S, Joe J. Public health: The true role of public health dentist. *Journal of Indian Association of Public Health Dentistry*. 2016 Apr 1;14(2):241.
- [10]. Verma S, Ahmad M, Parwal R. Green Audit-A Boom to Human Civilization. *International Journal of Trends in Economics Management & Technology (IJTEMT)*. 2012 Dec 31;1(6).
- [11]. Bhattacharya SC. The energy-cum-environment audit: Concept, approach and advantages. *Environmentalist*. 1992 Sep;12(3):187-9.