



HEALTH, HYGIENE, SANITATION, ENVIRONMENT IN PANDEMIC ERA

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KEYWORDS :

Swasthi means one's own, belonging to oneself, innate, inherent, natural, inborn is also a reference to the soul, and asthi means present, existing or being. Therefore, swasthi means self-existence, the fact that one is alive and awake. This essentially starts with purity of thought, which spreads as purity of ambience. Swasthi acknowledges well being universally with an affirmative wish that the sound wellbeing of ambience and the self continues by the grace of the omnipresent component of all constituents of the Universe. Pure ambience attracts peace and prosperity. Isopanishad exhorts "This universe is the creation of the supreme, meant for the benefit of all His creations. Individual species must, therefore learn to enjoy its benefits by forming a part of the system in close harmony with other species. Let not any one species encroach upon the others right". Charaka and Susruta observed not only that bodily health as a personal problem, but also its relations to heredity, geographical environment, climate, water supply, quality of air, time and seasonal variation.

With the world tackling a raging pandemic in 2020 many lessons emerged especially in areas of health and sanitation which ought to be implemented going forward. The general trend turned on paying attention to respiratory, nasal, oral, food, surface and air hygiene. Human interference with biodiversity – such as deforestation, habitat degradation and fragmentation, agriculture intensification, wildlife trade, and climate change – helps to create the conditions for pathogens to leap from animals to humans. Greenhouse gas emissions (fuel combustion from electricity, industry and transport), are also major sources of air pollution. Exposure to ambient pollution increases the risk of cardiovascular, respiratory and developmental diseases, as well as premature death, and makes individuals more vulnerable to pandemics. There is an urgent need to ensure proper ventilation and indoor air quality during confinement, especially in areas heading into winter and those relying on wood burning. Effectively addressing waste generation, management and recycling minimises health and environmental risks. Halt and reverse biodiversity loss to protect people from the transmission of pathogenesis also the need of the hour.

Good WASH (water, sanitation and hygiene) and waste management practices, when consistently applied, serve as barriers to human-to-human transmission of the diseases including COVID-19 virus at homes, communities, health care facilities and other public spaces. These help to mitigate secondary negative impacts with potential for other pandemic outbreaks too. If ignored the brunt of the problem creates human tragedy of tremendous dimensions with economic devastation that leaves the vulnerable and marginalised sections to mercy of the ravaging pandemics. Impact on FCV – fragile, conflict and violence based countries take its huge toll with catastrophic results.

Action strategies centre on

1. Safe WASH services in health care facilities (HCFs) to

deliver quality health services; protect patients, health workers, and staff; and to prevent further transmission.

2. Improving hand washing behavior, food hygiene, and safe water practices.
3. Emergency support to secure and extend water and sanitation service provision
4. Safe water supply, sanitation and hygiene services and medical waste management in health care facilities are essential to deliver quality health services, protect patients, health workers and staff, and to prevent further transmission
5. Communication and preparedness related to hand washing behavior change and promotion, food hygiene and safe water practices
6. Rapid, low-cost water service provision for communities, health care facilities and schools that currently lack access to a reliable and safe water supply is critical to enable hand washing, hygiene and disinfection
7. Emergency support to water and sanitation utilities to ensure the continuity of water supplies, enhanced monitoring, staffing levels and spare parts
8. Emergency response to Fragility, Conflict, and Violence countries: The main principle of an emergency WASH response is to ensure the consideration of water supply, sanitation and hygiene factors at the site selection and planning stages, while also coordinating the response closely with physical planning, public health and environmental stakeholders
9. Medical waste generation increases exponentially in an epidemic outbreak and it may, if improperly collected or treated, accelerate disease spread and pose a significant risk to medical staff, patients and waste collection and treatment staff. Medical and hazardous waste include infected masks, gloves and other personal protection equipment (PPE). The safe and environmentally sound handling, treatment and final disposal of this waste is therefore essential to prevent negative effects on human health and the environment.
10. Mitigate secondary effects- by providing financial and technical assistance (Congo, Haiti, Sri Lanka, Ethiopia)
11. Building resilience against future diseases

CONCLUSION

Pandemic highlights the need for a comprehensive and integrated approach to human health. Water access, water quality, biodiversity protection are key to battling the pandemics, with equal emphasis on effective waste management being essential to minimise possible secondary impacts. In the longer term, use stimulus packages to strengthen the ability of waste management systems to address the challenges of highly contaminated waste. Limiting exposure to hazardous agents in air, water, soil, food, and other environmental media will reduce vulnerability to future pandemics, increase health and well-being. Polluting automobile and other fuels should pave way to better and safer energy alternatives in near future. Life style choices,

nutrition intake, sleep, rest and physical activities, people can build a better immune system. Consumption of a balanced diet comprising all major food groups every day with adequate fresh fruits and vegetables can promote all round health. Technological advances would provide necessary impetus but we need to be open to the options of change from the norm. *Ayurveda's* relevance in the present age lies in its, subtle, scientific, and holistic approach to the cure and treatment of a disease. It aims at healing not only the body, mind surrounding and soul. Its understanding of the similarities of the laws of nature and the functioning of the human body helps to strike a balance between Man and Nature.

May peace radiate there in the whole sky as well as in the vast ethereal space everywhere. May peace reign all over earth, in water and in all herbs trees and creepers. May peace flow over the whole universe. May peace be in the supreme being Brahman. And may there always exist in all peace and peace alone.

Om Dyauh Shantirantariksha Shantih Prithivi
Shantirapah Shantiroshadhayah Shantih
Vanaspatayah Shantirvihvedvah Shantirbraha Shantih
Sarva Shantih Shantireva Shantih Sa Ma Shantirdehi

REFERENCES

1. WHO and UNICEF (2019), *Progress on household drinking water, sanitation and hygiene 2000-2017*, https://www.who.int/water_sanitation_health/publications/jmp-report-2019/en/.
 2. WHO and UNICEF (2019), *WASH in health care facilities - Global baseline report 2019*, https://www.who.int/water_sanitation_health/publications/wash-in-health-care-facilities-global-report/en (accessed on 16 April 2020).
 3. Wu, X. et al. (2020), *Exposure to air pollution and COVID-19 mortality in the United States*, Cold Spring Harbor Laboratory, <http://dx.doi.org/10.1101/2020.04.05.20054502>.
 4. Xu, C. (2020), *The 2019-nCoV epidemic control strategies and future challenges of building healthy smart cities*, <https://journals.sagepub.com/doi/10.1177/1420326X20910408>.
 5. Zuo, M. (2020), "Coronavirus leaves China with mountains of medical waste", *South China Morning Post*, <https://www.scmp.com/news/china/society/article/3074722/coronavirus-leaves-china-mountains-medical-waste> (accessed on 16 April 2020).
 6. KWR (2020), *What we learn about the Corona virus through waste water research*, <https://www.kwrwater.nl/en/actueel/what-can-we-learn-about-the-corona-virus-through-waste-water-research> (accessed on 16 April 2020).
 7. Bannerji, A. (2020), *Has India's 'airpocalypse' put the poor more at risk from coronavirus?*, <https://news.trust.org/item/20200414122042-jc9jj/>.
- WASH in Health Care Facilities: Global Baseline Report 2019, WHO and UNICEF
 - Water and sanitation for health facility improvement tool (WASH FIT), WHO and UNICEF
 - WEF Water Professionals Guide to COVID-19
 - CDC: Guidance for Reducing Health Risks to Workers Handling Human Waste or Sewerage
 - Occupational Safety and Health Administration: COVID-19 Control and Prevention
 - AWWA Guidance on Shutoffs and Return to Service: Given the importance of hygiene and sanitation in mitigating the spread of COVID-19, AWWA recommends utilities postpone water shutoffs during the COVID-19 pandemic.
 - COVID-19 response: Water Utility Preparation Guidelines, American Water Works Association (AWWA)
 - Emergency Planning for Water and Wastewater Utilities, AWWA
 - Drinking Water Utility Emergency Response Plan Template and Instructions, United States Environmental Protection Agency (EPA)
 - Letter to utility chief executives on COVID-19 response, Ofwat (UK regulator)
 - Astanga Hridaya. Commentator Kaviraj Sri Atri Dev Gupta published by Chowkhamba Sanskrit series office, Varanasi (1976).
 - Bhavaprakas Nighantu. Commentary by Dr. K. C. Chuneekar, edited by Dr. G. S. Pandey, published by Chowkhamba, Varanasi (1969).
 - Charaka Samhita. Editor - Translator Prof. P. V. Sharma. Vol. II (English) published by Chowkhamba Orientalia, Varanasi (1983).
 - Susruta Samhita. With Nibandha Sangraha Commentary of Sri Dalhanecharya, edited by Vaidya Jadavji Trikamji Acharya and Narayan Ram Acharya published by Pandurangawaji Nimaya Sagar Press - Bombay (1938)