



Infectious disease environmental risk factors and microorganisms effects in climate change

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DESCRIPTION

Infectious diseases are caused by microorganisms such as bacteria, viruses, fungi and parasites that can invade and multiply in the human body. Infectious diseases can be transmitted from person to person, from animals to humans or from the environment to humans. The environment plays a crucial role in influencing the occurrence, distribution and severity of infectious diseases by affecting the exposure, susceptibility and transmission of pathogens. Environmental factors that can determine the risk of infectious diseases include physical, chemical, biological and social aspects of the natural and human made surroundings. These factors can interact with each other and with the host and the pathogen in complex ways, creating a web of causal links that can be difficult to trace and quantify. However, understanding these links is essential for developing effective strategies for preventing and controlling infectious diseases. Some examples of environmental determinants of infectious diseases are Climate change can alter the temperature, precipitation, humidity, wind patterns and sea level, which can affect the survival, reproduction and distribution of pathogens and their vectors (such as mosquitoes, ticks and rodents). Climate change can also increase the frequency and intensity of extreme weather events (such as floods, droughts, heat waves and storms), which can

disrupt water supply, sanitation, health care and food security, and increase the exposure and vulnerability of populations to infectious diseases. For instance, climate change has been associated with increased risk of malaria, dengue fever, cholera, leptospirosis and lyme disease in various regions of the world. Water is essential for life, but it can also be a source of infection if it is contaminated by faecal matter, chemicals or pathogens. Waterborne diseases (such as cholera, typhoid fever, dysentery and hepatitis A) can occur when people consume or come into contact with unsafe water. Water scarcity can also increase the risk of infectious diseases by limiting the availability of water for drinking, hygiene and sanitation purposes. Water scarcity can also lead to conflicts over water resources, displacement of populations and reduced access to health care services. For example, water scarcity has been linked to increased risk of trachoma, schistosomiasis and guinea worm disease in some parts of Africa. Land use and agriculture can affect the ecology and biodiversity of ecosystems, which can influence the emergence, transmission and spread of infectious diseases. Land use changes (such as deforestation, urbanization and agricultural expansion) can alter the habitat and behavior of wildlife species that can act as reservoirs or hosts for pathogens. Land use changes can also increase human contact with

wildlife or domestic animals that can transmit zoonotic diseases (such as rabies, anthrax, ebola and COVID-19). Agriculture can also introduce new pathogens or vectors into the environment through irrigation systems, livestock production or crop cultivation. Agriculture can also contribute to the development of antimicrobial resistance by using antibiotics in animal feed or spraying pesticides on crops. For example, land use changes have been associated with increased risk of Hantavirus pulmonary syndrome in North America, nipah virus infection in Southeast Asia and lyme disease in Europe. Indoor environment the indoor environment can also affect the exposure and transmission of infectious diseases by influencing the quality of air, water and surfaces within buildings. Indoor air pollution (such as smoke from biomass fuels or tobacco) can increase the risk of respiratory infections (such as pneumonia, tuberculosis and influenza). Indoor water pollution (such as lead or arsenic) can increase the risk of gastrointestinal infections (such as diarrhoea or

cholera). Indoor surfaces (such as carpets or furniture) can harbor dust mites or allergens that can trigger asthma or allergic reactions. Indoor environment can also affect the behaviour and social interactions of people who live or work in buildings. For example, overcrowding, poor ventilation or lack of hygiene facilities can facilitate the spread of airborne or contact transmitted diseases (such as measles, meningitis or scabies).

CONCLUSION

In conclusion, environmental determinants of infectious diseases are diverse and interrelated factors that can modulate the exposure, susceptibility and transmission of pathogens in human populations. Understanding these factors is important for developing effective interventions for preventing and controlling infectious diseases at local, national and global levels.