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Anthropogenic drivers of emerging viral zoonoses and vector-borne diseases

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In recent years, a number of infectious diseases have emerged or re-emerged, including many viruses. The majority of these novel pathogens have animal origins (HIV, SARS, influenza), and many are vector-borne (Chikungunya fever, Japanese encephalitis). The factors that contribute to pathogen emergence are complex and interrelated, but a number of ongoing human activities are at least partially responsible. These include global alterations in biodiversity, habitat modifications such as deforestation for purposes including agriculture and practices that place humans in close proximity to animals such as through the wildlife trade or livestock production. Anthropogenic climate change is also anticipated to exert pressures on infectious disease emergence and re-emergence. These drivers will likely accelerate in light of the increasingly dense and mobile global human population. Given the lives lost from these diseases, as well as the economic disruption and civil unrest that may ensue, more investment is needed into emerging infectious disease research, surveillance and control strategies. A crucial step towards developing effective interventions is engagement of professionals beyond just human health specialists to include veterinarians and environmental scientists. Many of the emerging infectious disease hotspots are located in low-income countries that lack the resources to adequately prevent and manage outbreaks among human and animal populations; international partnerships that focus on local capacity building must be forged to fill in these gaps. Finally, effective governance and public sector policy efforts that reflect the available evidence are essential for successful management of this threat.

Biography

Neil M. Vora is a second year resident in Internal Medicine at Columbia University (New York, NY). He received his BA from the University of Southern California (Los Angeles, CA) in International Relations and Biological Sciences. He completed medical school at the University of California, San Francisco.