



## Impact on Vector-Borne Diseases Challenges and Opportunities for Public Health

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## DESCRIPTION

Vector-borne diseases which are transmitted by arthropods like mosquitoes and ticks have long been a global health concern due to their impact on humans and animals. While much attention has been directed towards diseases transmitted by these vectors there is a growing realization that reptiles can also serve as reservoirs and vectors for zoonotic diseases. Reptile vector-borne diseases often cryptic in nature have the potential to emerge as significant threats to human health. The realm of reptile vectorborne diseases shedding light on their zoonotic potential and need for increased awareness surveillance.

Reptiles including snakes, lizards and turtles are diverse and ecologically important members of ecosystems around the world. However, these animals also harbour a variety of pathogens that can cause diseases not only in themselves but also in humans. These pathogens include bacteria, parasites, and viruses that can be transmitted through bites, scratches, direct contact or indirectly through the bites of vectors that feed on both reptiles and mammals. Zoonotic diseases are those that can be transmitted between animals and humans. In the context of reptile vector-borne diseases, this transmission can occur through several mechanisms. For instance, an infected reptile can directly transmit a pathogen to a human through a bite or scratch. Additionally, the vector that feeds on an infected reptile can then bite a human, transmitting the pathogen indirectly. This dual role of reptiles as reservoirs and vectors can facilitate the spread of diseases that might not otherwise cross species barriers.

Some reptile vector-borne diseases are already known to pose zoonotic risks. One notable example is *Salmonella*, a bacterial pathogen commonly associated with reptiles. While reptiles may not show symptoms of infection, they can shed the bacteria in their feces. This shedding can contaminate their environment and lead to human infection through direct contact or ingestion of contaminated food or water. Another example is the

Chikungunya virus, which can be transmitted by mosquitoes that bite both reptiles and humans. Detecting and tracking reptile vector-borne diseases can be challenging due to the often cryptic nature of these infections. Reptiles may not display obvious symptoms of disease, making it difficult to identify infected individuals. Additionally, the lack of routine health monitoring and reporting for reptiles further complicates efforts to understand the prevalence and distribution of these diseases. The potential for reptile vector-borne diseases to emerge as zoonotic threats highlights the importance of increased awareness among both the general public and healthcare professionals. Individuals who keep reptiles as pets should be educated about proper hygiene practices to prevent transmission of pathogens. Veterinarians and medical practitioners should also be vigilant in considering reptile exposure as a potential source of infection, especially when presented with patients exhibiting unexplained symptoms.

It plays a significant role in understanding the dynamics of reptile vector-borne diseases. Studies can help elucidate the prevalence of these diseases in reptile populations, identify the pathogens involved, and elucidate the mechanisms of transmission. Furthermore, study can shed light on the variables that lead to the spread of these illnesses from reptiles to humans, assisting in the creation of risk-mitigation methods. The interconnectedness of ecosystems and the potential for pathogens to jump species barriers necessitate a holistic approach to disease surveillance and prevention. Reptile vector-borne diseases, though often overshadowed by more well-known vectors, are a reality that demands attention. By recognizing the potential zoonotic risks associated with reptiles and their role in the transmission of diseases, we can better prepare ourselves to address these emerging threats. Increased awareness, research, and collaboration between the fields of veterinary medicine, public health, and ecology will be in mitigating the risks posed by these hidden agents of infection.

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