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**PREDICT**

# VULNERABILITIES FOR EXPOSURE TO EMERGING INFECTIOUS DISEASE AT URBAN SETTLEMENTS

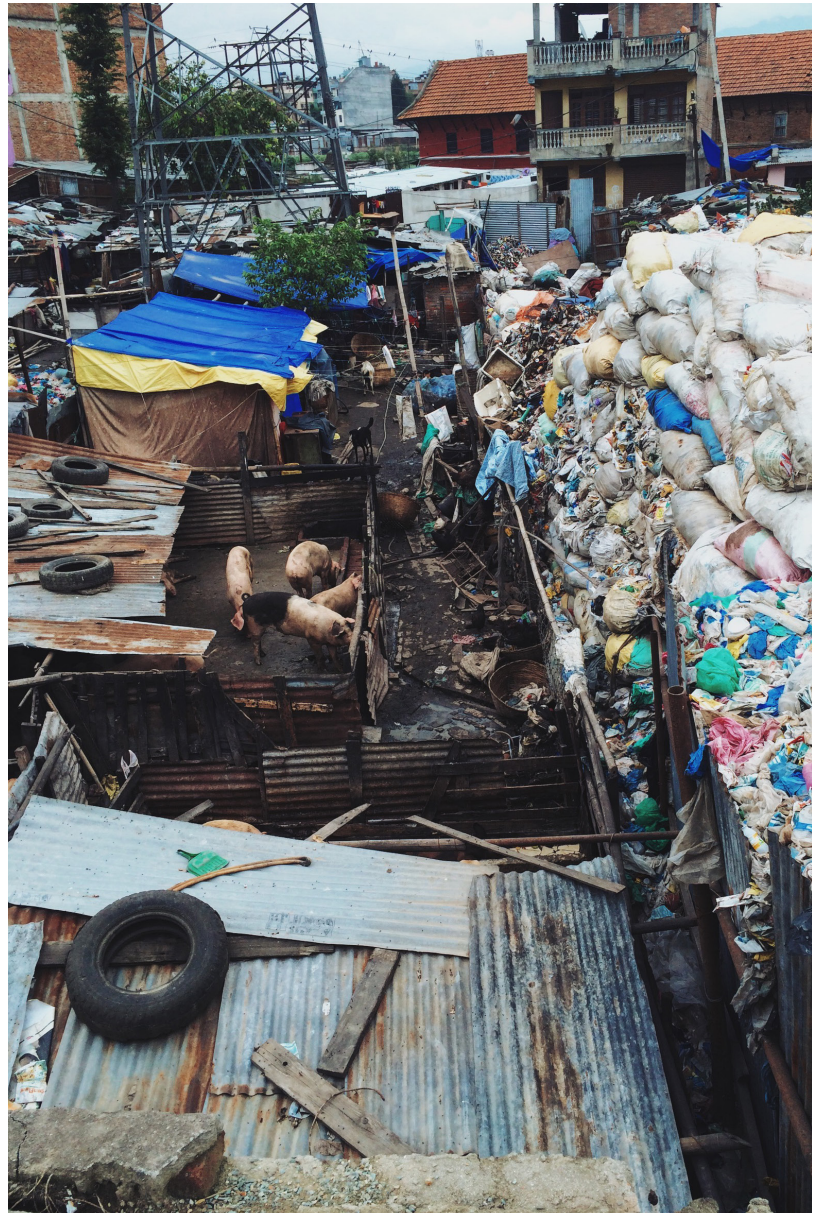
In Nepal, rapid urbanization and rural-to-urban migration especially due to internal civil conflict (1996-2006) have catalyzed the development of temporary settlements, often along rivers on undeveloped land.

In the first phase of PREDICT (2012-2014), we conducted surveillance for viruses in small mammals and assessed potential risks for virus transmission to people in urban settlements along rivers in Kathmandu. We collected samples from 411 small mammals (100 rodents and 311 shrews) at four riverside settlement sites and detected six viruses from four virus families including thottapalayam virus; a strain of murine coronavirus; two new paramyxoviruses; and two new rhabdoviruses.

Additionally, we conducted surveys of 264 residents to characterize animal-human contact. Forty-eight percent of individuals reported contact with wildlife, primarily with rodents and shrews (91%). Our findings confirmed that rodents and shrews should be considered a health threat for residents in these temporary settlements, and that assessment of disease transmission risk coupled with targeted surveillance for emerging pathogens could lead to improved disease control and health security for urban populations.

We recommend that interventions focused on disease prevention should consider the unique urban ecology and social dynamics in temporary settlements, along with the importance of community engagement for identifying solutions that address specific multi-dimensional challenges that life on the urban river margins presents.

This work informed the One Health surveillance efforts conducted by PREDICT teams in these communities from 2014-2019, especially the concurrent sampling of animals and people and the more in-depth investigations assessing and evaluating zoonotic disease transmission risks.



*Vulnerable communities such as this low-income informal settlement in Kathmandu, Nepal are at elevated risk for infectious diseases due to social marginalization, a lack of improved sanitation and access to health services, and their proximity to animals and other disease vectors.*