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PREDICT

ONE HEALTH CASE STUDY

UNDERSTANDING PATHOGEN CIRCULATION & EXPOSURE RISKS IN AN INDIGENOUS POPULATION MALAYSIA

The Orang Asli are the indigenous people of Peninsular Malaysia and account for 0.61% of the total population. Orang Asli communities are often remotely located, and in heavily forested areas. The Orang Asli people practise traditional and in many cases subsistence hunting of wild animals and raise domestic animals such as chickens and hunting dogs around their villages. Their health and nutritional status tends to be far worse than the rest of Malaysia. Many of these communities have limited access to medical services which means disease spill over events could be going unrecorded. Because of the high degree of contact with wild and domestic animals through hunting and rearing practices the Orang Asli are vulnerable to infection with zoonotic pathogens. Encroachment on their ancestral lands for agriculture expansion and mining leads to increased contact and conflict with wildlife, contamination of their water supplies and disrupts their traditional way of life, increasing their vulnerability.

What One Health Added

Surveillance of Orang Asli communities represents a critically important opportunity to detect spillover of zoonotic viruses. They are not entirely isolated from the rest of Malaysia, traveling for education, work, health care, or to visit other communities. As these communities become increasingly connected through agricultural expansion, urban spread, and an improved road network they become increasingly important as a sentinel population. To improve understanding of pathogen circulation and exposure risks, PREDICT Malaysia conducted concurrent animal-human sampling in Orang Asli villages. Behavioral surveys were conducted to identify perceptions and practices around wildlife, domestic animals, hunting, and livelihood. Working with our partners from the Ministry of Health (MOH) District Health Teams (from Gua Musang, Kuala Lipis

and Kuala Kangsar), the Department of Wildlife and National Parks (DWNP) and the Department of Veterinary Services (DVS), we sampled 1,391 people, 736 wild animals (bats and rodents) and 695 domestic animals and pets, including dogs, chickens, goats, wild boars, monkeys and a masked palm civet.

Despite the remoteness of many of the sites and the logistical challenges they posed, the need for multiple visits to each village to meet community leaders to explain the study and how it would benefit their communities, the team managed in just two dry seasons to do what many thought was not possible. This huge sampling effort helped strengthen the One Health Partnership between MOH, DWNP and DVS and provided an opportunity to talk to over 1,000 Orang Asli villagers at community meetings about zoonoses, the One Health concept and the risks posed by contact with wildlife and how to minimize these risks, such as not touching dead wildlife.

Gaining the trust of these communities generated an entry point for continued engagement. Each sampling trip started with a community meeting and meal to share information about zoonoses and also provided a chance for these communities to get to know the team. Participants were given a health assessment, and provided with treatment by the District Health Teams, providing a pathway for improved access to health care. Returning to each community to share results with participants and a summary of project findings strengthened this relationship and provided another opportunity to share health information such as the PREDICT guide "Living Safely with Bats". This work demonstrates how One Health novel pathogen surveillance and outreach can be combined with wider public health service delivery for known disease threats to tackle overall health needs.

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