Strategies to Prevent (STOP) Spillover

Impact Brief

Cambodia

Second-round surveillance findings from the bat-human interface in Kang Meas District, Kampong Cham Province

Activity 2.2.2.2: Coordination and Capacity Building of a Local Sentinel Surveillance Team

INTRODUCTION

Surveillance activities explore zoonotic disease transmission in bat guano farming communities located in Kang Meas district, Kampong Cham province, Cambodia. Zoonotic diseases are those that can jump from animals to humans, and bat guano farms present a unique environment where close contact with bat droppings increases the risk of spillover.

OH-DReaM members interviewed the communities and prepared tubes with RNA shield for livestock, bat guano and urine sample collection.

To investigate this risk, a Participatory Syndromic Surveillance (PSS) program is being implemented, combining participatory syndromic surveillance for case findings with active sampling and case investigation. This program is designed to detect and characterize potential zoonotic pathogens. Surveillance activities are planned quarterly, around the breeding season of the local bat species, *Scotophilus kuhlii*. During the first quarter, the focus was on training the surveillance team in participatory surveillance techniques. Sample collection did not occur during this initial phase. The first round of active surveillance was conducted from 8 to 12 January 2024 when bats entered a breeding period. This round involved collecting samples from humans, animals, and the environment. The initial round of testing identified one human sample positive for the beta coronavirus HKU1. However, this finding alone doesn't establish a link between the virus found in humans and the bat population or livestock in the community, as the virus has only been recorded in humans.

Analysis of animal samples is crucial for understanding the complete picture of potential zoonotic risk. Identifying the presence of the same or similar viruses in bats and livestock would help inform stakeholders on the level of risk faced by bat guano farming communities. This information is vital for designing and implementing appropriate measures to protect these communities from zoonotic spillover risks.

Surveillance Outcomes

Following the release of lab results, health officials visited participants to share individual test results and explore local perceptions of zoonotic disease risks from bats. This two-pronged approach facilitated informed communication and knowledge gathering.

All participants expressed health concerns, highlighting their awareness of potential health risks. About 50% of participants recognized the potential for bat-borne diseases, indicating a need for further education, awareness, or targeted messaging for the remaining 50%. Communities identified several self-protective measures, which demonstrated their willingness to act to protect their health. Additional measures suggested by communities to reduce zoonotic spillover risks provide a more comprehensive picture of their knowledge and concerns.

Communities emphasized the value of surveillance activities for disease monitoring and improving healthcare. This positive perception highlights the importance of continued engagement with these high risk communities.

Surveillance Results

Through community interviews, health officials identified 31 people in 11 households for coronavirus testing for the second round of surveillance. This included 16 individuals with target symptoms and 15 family members. The group undergoing testing was nearly evenly split by gender, with 52% male and 48% female. A variety of occupations were represented, with farmers making up the largest group including one bat guano harvester and others such as retired government officers, vegetable pickers and housewives.

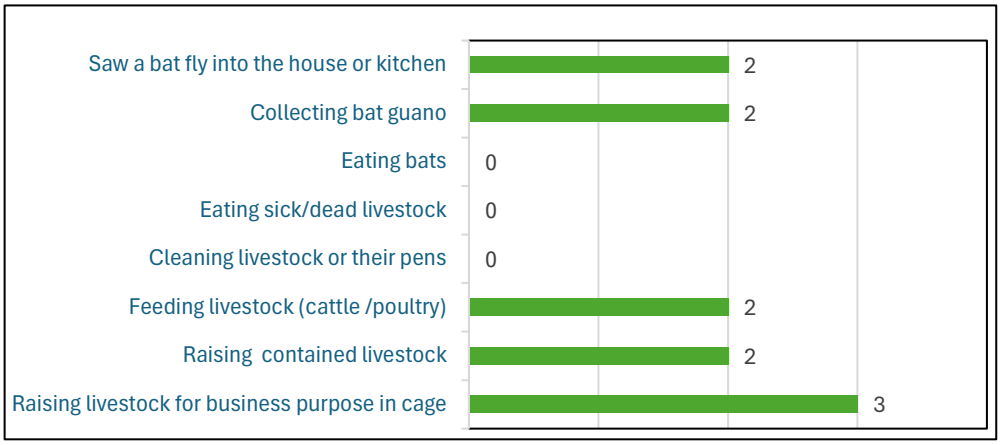

Figure 1: The number of communities with reported daily types of contact with livestock and bats.

In these 11 households, participants were asked about activities causing close contact with livestock and bats (Figure 1). The household selection for livestock and environmental sampling was guided by case data analysis. This resulted in the collection of livestock samples from five households and environmental samples from three bat guano farms.

During the second round of sampling, livestock and environmental samples were collected. All samples were sent to and stored at the National Animal Health and Production Research Institute (NAHPRI) laboratory for testing and analysis. Results from the laboratory tests of the 31 human samples reported no coronavirus positives in this round.

Using these results, One Health Design, Research, and Mentorship working group members at Khchau health center visited individual participants and shared with them their lab results. They also interviewed participants to understand their perceptions of zoonotic disease risk from bats. All participants in the second round said that they are worried about their health, and approximately 50% of them reported that bats carried lots of pathogens and bats flew everywhere in the community; no one can control them. In addition, participating communities shared their opinions regarding self-protection from bats by using good hygiene practices, closing windows and doors of their houses and kitchens properly, staying away from the bats and wearing masks. Communities underscored that the surveillance activities are a promising strategy and beneficial to their communities in terms of disease monitoring, which could help them stay safe and improve their health. During this second round of surveillance activities the team conducted surveillance work professionally and understood their roles clearly. The team was able to complete the mission one day ahead of schedule since they received good collaboration from communities. This indicates strengthened capacity and teamwork when conducting participatory syndromic surveillance.

STOP Spillover Cambodia support to Cambodia's GHSA and JEE scores

Year 4 Activities	GHSA priorities	JEE score (2016)
Activity 1.2.6.1 Bat guano farm study (continued from Y3) Activity 2.2.2.2 Coordination and capacity building of sentinel surveillance team	Category 1: Preventing the emergence or release of pathogens with potential for international concern: Zoonotic diseases (1.2) and biosafety (1.4)	Indicator P.5.1 Surveillance of zoonotic diseases (JEE Score 2 for P4.1 surveillance systems in place for priority zoonotic diseases; and JEE Score 2 for P6.2 biosafety training and practices)
Activities 2.2.2.1 and 2.2.2.3: Community level risk reduction interventions	3.5 Risk Communications	Risk Communication and Community Engagement (RCCE), Indicator R5.2: Risk Communication and R5.3 Community Engagement (JEE score 3 for R5.4 Communication engagement with affected communities)

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