OBJECTIVES
PREDICT 2 is working with EPT and other partners to operationalize One Health surveillance and strengthen functional technological capacities in local, national, and regional contexts for surveillance system design, field sampling, laboratory techniques, behavioral risk characterization, information management, public data dissemination, and data analytics and forecasting. PREDICT’s capacity building objectives are to support the development of the core skills and capabilities required by One Health professionals today. Training and capacity building activities conducted in Viet Nam have included biosafety; safe animal capture, handling, and sampling; human surveillance and sampling; safe sample transport and shipping; ethics; field epidemiology and surveillance; data and information management; laboratory safety and viral detection; social sciences and behavioral risk investigations; and modeling and analytics.

ACHIEVEMENTS
PREDICT has provided refresher and in-service trainings designed to enhance the skills of the existing health workforce. PREDICT has focused on increasing capacity within the animal and public health sector, especially with a focus on biosafety and safe sample collection with small mammals, such as bats and rodents, which represent the highest risk for viral spillover and spread to people. PREDICT in Viet Nam has trained a total of 142 individuals (32% female), including 88 government staff working on the frontlines of disease surveillance and detection, and 17 local and international students who are the future One Health workforce.

PREDICT-2/Viet Nam continued strengthening capacity with project partners and stakeholders

<table>
<thead>
<tr>
<th>Staff</th>
<th>Government</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>88</td>
<td>42</td>
</tr>
</tbody>
</table>

PREDICT has provided ongoing training to improve the quality of information on zoonotic disease transmission in Viet Nam by frequently updating partners on any changes to sample collection protocols and sharing techniques for improving data collection through administration of questionnaires to collect data on human risk behavior. PREDICT surveillance and laboratory protocols all incorporate best practices in biosafety and biosecurity.

PREDICT trains staff in national animal health and public health laboratories in molecular diagnostic techniques for viral discovery

PREDICT has built capacity in Viet Nam’s national animal health and public health laboratories for the application of consensus polymerase chain reaction (cPCR) as a method for detection of both known and novel viruses in a wide range of samples and host species. The advantages of this approach include:

1. An inexpensive testing method (cPCR) run on basic equipment, such as thermal cyclers for conventional PCR already available in animal and human health laboratories in Viet Nam and globally.
2. The “universal” amplification of viruses within a given viral family or genus.
3. Synthetic “universal controls” that provide standardized control material without any danger of pathogen transmission.
4. Increased safety to laboratory workers as any microbes in the samples are killed during the PREDICT nucleic acid extraction steps so laboratory workers are not exposed to dangerous pathogens.
5. Ability to extend the PREDICT diagnostic strategy beyond the detection of viruses in wildlife to the diagnosis of mystery illnesses in medical hospitals or in solving an unknown disease outbreak in livestock or domestic animals.

PREDICT-2/Viet Nam conducted tests at its key partner laboratories

3,394 completed viral PCR tests
14,224 completed viral PCR tests
18,802 completed viral PCR tests

PREDICT has built capacity for novel virus detection and identification of potential zoonotic viral pathogens strengthening capacity in Viet Nam’s national public health and animal health laboratories. The PREDICT partner laboratories in Viet Nam are the trained in the full range of activities required for safely detecting zoonotic viruses, including biosafety and biosecurity, cold chain, safe sample storage, data management, safe sample transport and shipping, and molecular viral detection techniques.

The main PREDICT partner laboratories in Viet Nam include:
• The Regional Animal Health Office No.6 (RAHO6),
• The National Institute of Hygiene and Epidemiology (NIHE),
• The Viet Nam National University of Agriculture (VNUJA),
• Additional partner laboratories: RAHO7 – trained to diagnostic wildlife samples using PREDICT protocols and Pasteur Institute in Ho Chi Minh City – shared protocols and universal controls.

PREDICT protocols for laboratory testing and training manuals for One Health surveillance.

Diagram of the PREDICT project sample collection and testing protocols from the field to the laboratory

PREDICT has built capacity in Viet Nam’s national animal health and public health laboratories for the application of consensus polymerase chain reaction (cPCR) as a method for detection of both known and novel viruses in a wide range of samples and host species. The advantages of this approach include:

1. An inexpensive testing method (cPCR) run on basic equipment, such as thermal cyclers for conventional PCR already available in animal and human health laboratories in Viet Nam and globally.
2. The “universal” amplification of viruses within a given viral family or genus.
3. Synthetic “universal controls” that provide standardized control material without any danger of pathogen transmission.
4. Increased safety to laboratory workers as any microbes in the samples are killed during the PREDICT nucleic acid extraction steps so laboratory workers are not exposed to dangerous pathogens.
5. Ability to extend the PREDICT diagnostic strategy beyond the detection of viruses in wildlife to the diagnosis of mystery illnesses in medical hospitals or in solving an unknown disease outbreak in livestock or domestic animals.

PREDICT-2/Viet Nam conducted tests at its key partner laboratories

3,394 completed viral PCR tests
14,224 completed viral PCR tests
18,802 completed viral PCR tests

PREDICT has built capacity for novel virus detection and identification of potential zoonotic viral pathogens strengthening capacity in Viet Nam’s national public health and animal health laboratories. The PREDICT partner laboratories in Viet Nam are the trained in the full range of activities required for safely detecting zoonotic viruses, including biosafety and biosecurity, cold chain, safe sample storage, data management, safe sample transport and shipping, and molecular viral detection techniques.