



National Institute of Hygiene and Epidemiology (NIHE) – Hanoi Vietnam

Department of Epidemiology

Currently, the Department of Epidemiology has 5 rooms / offices undertake various professional roles:

- ✚ Room Monitoring and Prevention,
- ✚ Office EPI exemption North,
- ✚ Office Project QG rabies prevention,
- ✚ the Health Department Quarantine International Clinical Trials Division of vaccines and biologicals.

Virology Department

Head of Virology Department: Hoang Vu Mai Phuong

Virology Department covers wide spectrum of virological issues in research, teaching and surveillance. Expertise in department includes:

- ✚ Arbo viruses
- ✚ Influenza viruses
- ✚ Zoonosis
- ✚ Respiratory viruses
- ✚ Rabies
- ✚ Enteroviruses
- ✚ Hepatitis viruses

Ultrastructure techniques with high quality staffs (3 Associate Professor, 6 PhD, 16 MSc and 14 BSc).

The international standard for medical laboratories (ISO 15189) has been applied for influenza, dengue, measles and rubella diagnosis.

The Department aims to:

- ✚ Strengthen research activities
- ✚ Enhance the surveillance for emerge/re-emerge **infectious diseases**
- ✚ Approach to the new technologies in viral diagnosis
- ✚ Technical support for regional institutes and **preventive medicine** centers.

I. Functions

The Department conducts

- ✚ Diagnosis
- ✚ surveillance
- ✚ research about viruses infected in human.

II. Duties

- To determine precisely and on-time the common and highly pathogenic viruses.
- To conduct the research and surveillance the **antiviral resistance** of viruses.
- To develop and up-date the Standard Operating Procedure (**SOP**) for common and highly pathogenic viruses, especially for emerging viruses.
- To apply and approach the new technologies in developing reagents and vaccines.
- To participate and be responsible for national/ministerial/institutional scientific research in viral infectious diseases.
- To implement activities and scientific exchange monthly to update and orient research relevant in the field of viral infectious diseases, within country, the region and the world.
- To perform other duties assigned by directorate of NIHE.

Achievement

Diseases control and Prevention

Virology Department is in charge of diseases control and prevention caused by highly pathogenic viruses as well as emerged and re-emerged viruses. From the beginning, our staffs involved in determination, investigation and control Polio outbreak leading to Polio eradication by the year of 2000 in Vietnam. With these experiences and modern technique applied, we could confidently overcome **SARS** outbreak in 2003, **avian influenza A/H5N1** outbreak in late 2005 and **A/H1N1** pandemic in 2009.

In 2014 and 2015, Virology Department staffs received supports in both knowledge and techniques from international institutes and organizations about **MERS-CoV** and **Ebola** virus, ready to implement the laboratory diagnostic capacity and ability to combat these two dangerous pathogens.

HIV/AIDS department

Department of HIV/AIDS is responsible for directing, managing, training, conducting research and related activities regarding HIV testing, surveillance, monitoring and evaluation of HIV/AIDS prevention and control programs.

Goal/Strategies:

Strengthening the quality of HIV/AIDS surveillance and testing in Viet Nam for planning HIV/AIDS prevention and control efforts.

Organization:

- ✚ HIV serology unit
- ✚ HIV molecular unit
- ✚ HIV/AIDS surveillance unit
- ✚ HIV/AIDS monitoring and evaluation unit of HIV/AIDS programs

Activity

Surveillance, monitoring and evaluation:

- ✚ Developing national HIV/AIDS surveillance system, strategies and guidelines.
- ✚ Disseminating HIV/AIDS surveillance data for planning and decision making.
- ✚ Collaborating with international organizations, donors, related institutions to conduct routine surveillance and new approach.
- ✚ Building capacity on HIV/AIDS surveillance for provincial HIV/AIDS centers staff.

Testing

- ✚ Developing **guidelines** on HIV serology testing in Vietnam.
- ✚ Developing quality assurance program for HIV testing system in Vietnam.
- ✚ As a reference laboratory "reference" in the case of samples difficult to diagnose.
- ✚ Perform **TCD4 cytometry** tests to support for treating patients with AIDS.
- ✚ Evaluation of HIV testkits in Vietnam
- ✚ Provide technical assistance and training in HIV testing for lab technicians in HIV laboratories across the country.

Research activities

- ✚ Identification of research problems related to HIV/AIDS/STI in order to improve the intervention, prevention, care and treatment of HIV/AIDS.
- ✚ Develop and implement research related to HIV/AIDS/STI in accordance with the principles of research ethics.
- ✚ Promotion and dissemination of research results to use for planning and decision making
- ✚ Implementation of targeted research and application of new tests and intensive testing.
- ✚ Capacity building on research for staff at Provincial HIV/AIDS centers.

International cooperation:

- ✚ Department of HIV / AIDS is a trusted partner of many international organizations such as the Center for prevention and disease control (**CDC**), the World Health Organization (**WHO**), **UNAIDS**, the Organization world family health (**FHI**)

Department of Bacteriology

The goal of scientific development is enhanced **Bacterial research activities, monitoring** and disease prevention, access to new techniques in the diagnosis of **infectious diseases** in human, technical assistance and regional central institutes preventive medicine Center of the province.

Laboratories:

- Intestinal bacteria
- Respiratory Bacteria
- Pneumococcus micro Phuan
- Experimental antibiotic
- Special bacteria
- Mycobacterium
- Anaerobes
- Preparation Environment

IMMUNOMODULATORY AND MOLECULAR BIOLOGY

Scientific Leader: *TS. BS. Lan Anh*

Laboratories:

- ✚ Molecular Diagnostics
- ✚ Molecular Biology
- ✚ Vaccine Immunology
- ✚ Molecular Genetics

Functions and duties.

- Research and development of techniques and methods of immunological and molecular biology to develop biological products for diagnosis, treatment and prevention of infections and non-infectious.
- Look at the transformation of pathogenic microorganisms, related mechanisms and pathology of the model hoc. Trian antibiotic immunity studies *in vitro* .
- Identify new pathogens are bacteria and viruses against **infectious diseases** and **epidemics** by methods of molecular biology and immunology .
- Coordinate and support the specialized units in the building routine diagnostic immunological and molecular biology in the lab for pathogenic microorganisms common, and new dangers arise.

The research projects and international cooperation projects are implemented:

Research projects at all levels:

- ✚ Project "Surveying diverse single nucleic acid (SNPs) in the gene **IL28B** involves culling wild virus in patients infected with the **hepatitis C** virus in Vietnam", Fund NAFOSTED.
- ✚ The study of genes (polymorphisms and susceptibility) for **metabolic syndrome** in Vietnam. Funds NAFOSTED

- ✚ Research and molecular epidemiological characteristics of drug resistant strains *Staphylococcus aureus* methicillin resistant isolates in Vietnam . Period 2013-2016. NAFOSTED Fund
- ✚ Diarrhea in children have room Rotavirus vaccine: effect of **maternal antibodies** in **breastmilk** and detect new pathogens in **Belgium** and **Vietnam**. NAFOSTED Fund
- ✚ Research building diagnostic procedures **delayed type allergy** drug based on quantitative **ELISA** γ ; 2014-2016. Department of Science and Technology in Hanoi
- ✚ Research and manufacture of rapid diagnostic biologicals **PCR** *Streptococcus agalactiae* and assess prevalence among pregnant women in the area of Hanoi. 2015-2016. Department of Science and Technology in Hanoi

International cooperation projects:

- ✚ Project "Maintaining research collaboration between the **Institute** for Virus **VSDTTW**-center of national standards, the University of **Dublin** in the field of **infectious diseases**." Organizations AP.
- ✚ Du Capacity Project study of infectious diseases in Vietnam forgotten by NIID, Japan
- ✚ Nghiem the impact of livestock development to public health (ECOMORE)
- ✚ Dap immune response after infection with Norovirus and relation blood group antigens. Non-refundable aid of Children's Hospital of Cincinnati - Ohio, United States
- ✚ Describe the impact of **rotavirus vaccine** use to the situation of gastroenteritis in children Vietnam / Collaborative Research some infectious diseases and re-emerging in Vietnam: Capacity - Phase II, 2011-4. **Nagasaki VSDT**-University Project
- ✚ The discovery of the causative agent of diarrhea in children. Nagasaki University JSPS-

The ISO 15189 accredited laboratory in effect:

- ✚ HBsAg antigen (Biomerieux)
- ✚ Quantification of anti-HBs antibodies (DIASORIN)
- ✚ HBe antigen (Vidas)
- ✚ Anti-HBe antibody (Vidas)
- ✚ Anti-HCV antibodies (Vidas)
- ✚ HCV RNA Quantification (Internal)
- ✚ Quantification of HIV RNA (Internal)
- ✚ Quantification of HBV DNA (Internal)
- ✚ HCV viral genotype (Internal)
- ✚ Genotype and mutations of HIV drug resistance (Internal)
- ✚ Genotype and resistance mutations of HBV virus (Internal)
- ✚ Diversity in human IL28B gene location (Internal)
- ✚ Regulation the real time RT-PCR detection of norovirus (Internal)
- ✚ Process of RT-PCR detection of norovirus (Internal)

INSECT AND ANIMAL SCIENCES MEDICINE

Insects and Animals Sciences medical supervision function, prevention, training, research vectors, host vector diseases and infectious diseases transmitted from animals to humans.

The Faculty has 4 office / professional undertake assigned tasks: Office National Dengue fever, medical Entomology Division, Department of Animal medicine and insecticide Chemicals Division.