Overseas Practice on（Field Epidemiology・Collaborative Research）report form（For Student）

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Laboratory	Infection and Immunity
Year (Grade)	Doctor course 1
Place of practice	Vietnam: National Institute of Hygiene and Epidemiology (NIHE), in Hanoi and Oxford university Clinical Research Unit (OUCRU)- in Ho chi min city.
Period of practice	NIHE (6 days) OCURU (6 days).
Purpose	Field Epidemiology (Seroprevalence of *Streptoccus suis* in Vietnam)

Sero-prevalence of *Streptococcus suis* among individuals with occupational exposure to pigs.

Streptoccus suis (*S. suis)* is a gram positive, falcultatively anaerobic, non motile and catalase (–) coccus, that is increasingly recognized as an emerging zoonotic agent in Asia. Human *S. suis* infection can cause endocarditis, meningitis, septicemia and arthritis. The risk factors associated with *S. suis* infection include; eating high risk dishes such as undercooked pig blood and intestines, preparation of pork in the presence of skin lesions and occupational exposure to pig and pig products.

The picture below showing one of the high risk Dishe's of *S. suis* infection, that we observed being served at a local restaurant.

tiet canh

The main objectives of our participation in the study include:

- To know and understand how international organizations work with the local authorities.
- To understand and know how to conduct surveillance studies in local areas.
- To assist with the WHO mission i.e., laboratory work and data analysis.

Nam ding province: Week one

Meeting with the focal persons at the World Health Organization office (WHO) and the National Institute of Hygiene and Epidemiology (NIHE) in Hanoi. The training session was held in Nam ding province. The content of the training session included; how to conduct field survey, review of questionnaire to be used in the study and blood sample collection.

The sampling was done in a total of 4 communes out of a total of 30 that are to be sampled. And a total of 86 human blood samples where collected with a corresponding number of questionnaires to capture the knowledge, attitude and practices of the target study population.

We observed an interesting network between the animal and human health sectors as well international organizations, on how they collaborate at both the national and local levels to achieve the study objectives. At the local level there's a joint network as both animal and human health workers, work together and closely to address the field situations. Below is a flow chart illustrating the organizational structure and levels in networking.

Abbreviations

NIHE: National Institute of Hygiene and Epidemiology

WHO: World Health Organization

MOH: Ministry of Health

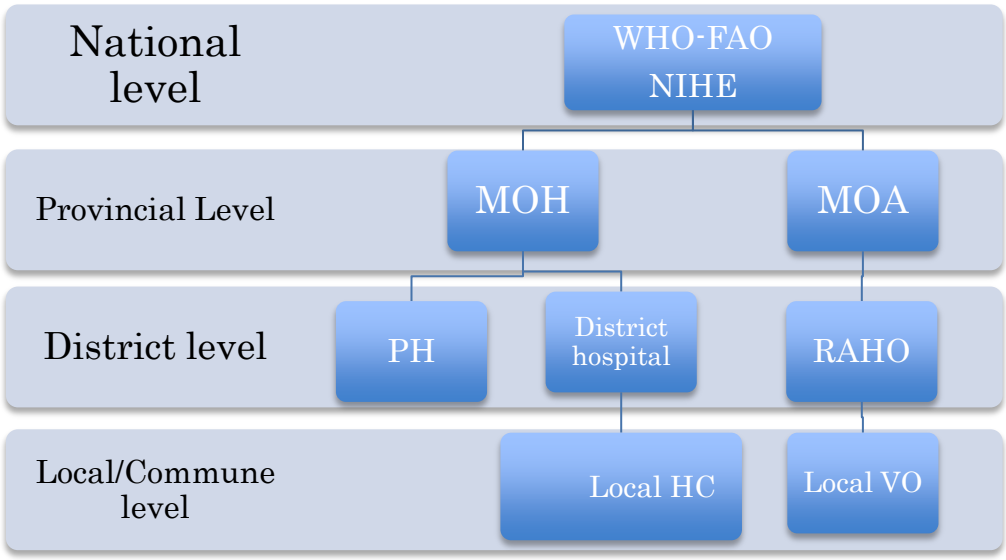
MOA: Ministry of Agriculture

PH: Public Health

RAHO: Regional Animal Health Office

HC: Health Center

VO: Veterinary Office



Human sample collection

A cross sectional survey using cluster sampling was done. Individuals had to sign a consent form prior to their participation in the survey.

Figures below showing 1) flow chart of sampling from each commune. 2) Map of Vietnam with Nam ding province in red. 3) Summary of steps in human sampling.

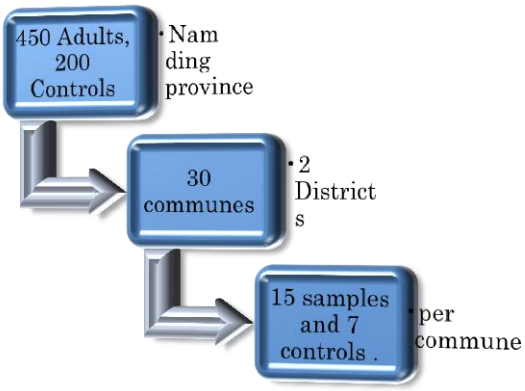


Fig 1.

Fig 2.

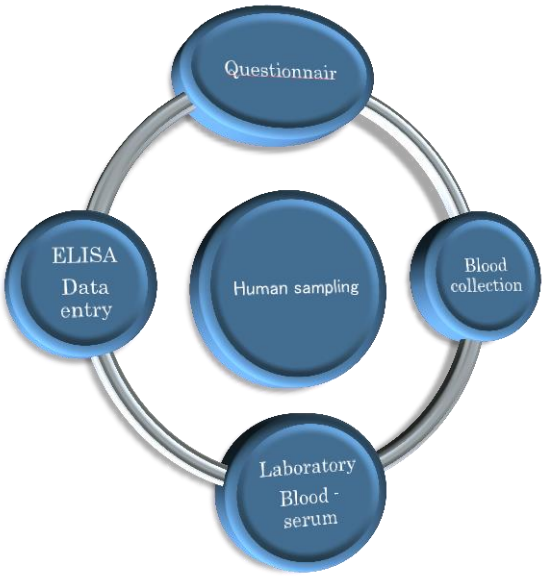


Fig 3.

Pig sample collection

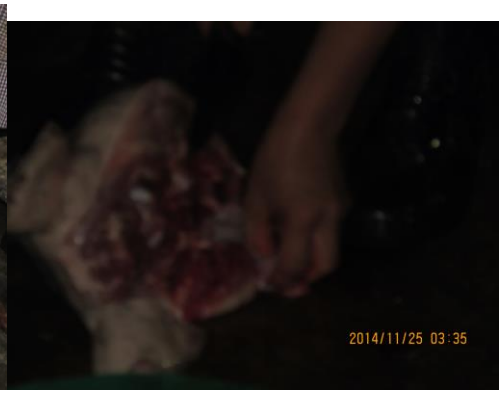
Blood and tonsil samples where collected at the slaughterhouse receiving pigs from communes in Nam ding district. Prior to sample collection the age, owner and origin of each pig was recorded. The pigs where killed by electrocution then bleed, during this phase, blood sample was collected and directly after decapitation the pharyngeal tonsil was removed and stored in a sterile container.

Below, pictures showing the summary of activities at the local slaughterhouse where sample collection was done.

Electrocution

Bleeding and blood collection

Blood used to prepare dishes



Pharyngeal tonsil collection

Dissection of pig

cutting and ready to market

Sample collection tubes, containers and data entry sheets for record of all specimens collected.

WEEK TWO- (Ho chi Min city)

Oxford University Clinical Research Center (OCURU)

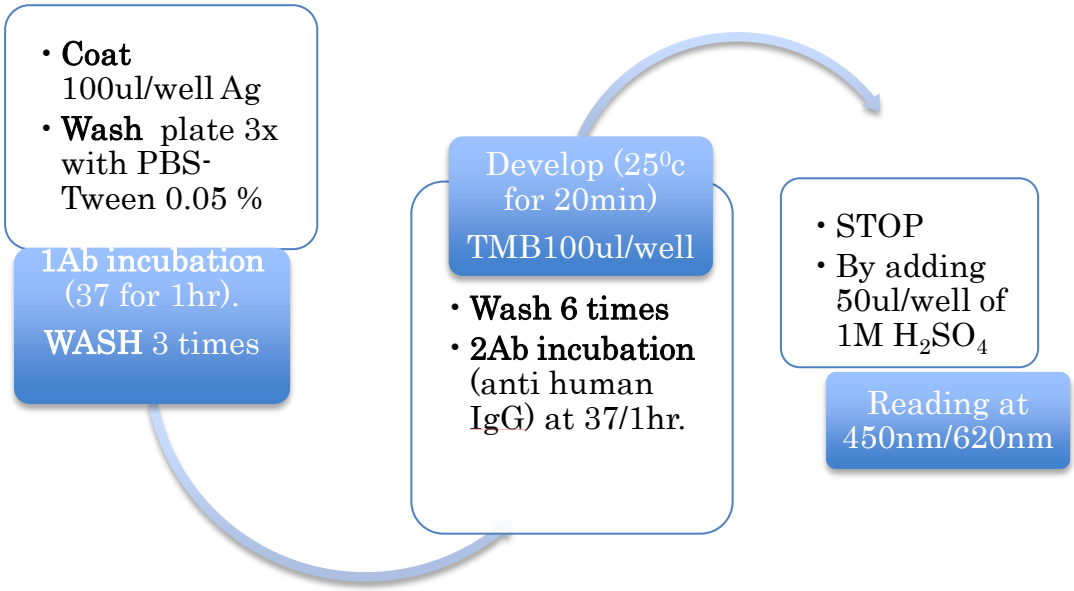
At OCURU laboratory analysis of the collected samples was done.

Human sample processing; An Enzyme Linked Immunosorbent assay (ELISA) was done on the first batch of 88 serum samples (Human samples). Below is the plate layout and summary of steps and results obtained.

Plate layout

Ag	1	2	3	4	5	6	7	8	9	10	11	12
08ZN												
Ag-												
												PC
08ZN												NC
												Ab1-
Ag-												BLK

ELISA protocol used;



Abbreviations.

PBS: Phosphate Buffered saline

IgG: Immunoglobulin

BLK: Blank

PC: Positive Control

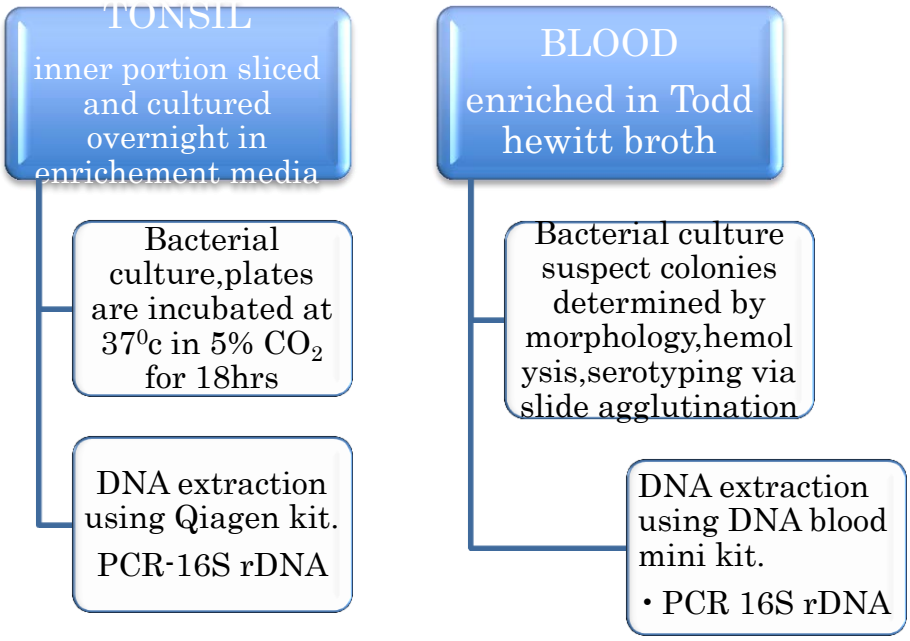
NC: Negative Control

Ag-: Antigen minus

The first batch of samples did not reveal a significant difference between the exposed and the non-exposed of individuals, however this was not the conclusive result as more samples where yet to be processed.

Processing of the Pig samples

The first batch of Pig samples consisted of 63 tonsil and 63 blood samples. Below, is the summary on how tonsil and blood samples where cultured, DNA extraction and polymerase chain reaction (PCR) where performed.



Further processing of the samples and analysis continued, such as another PCR reaction to amplify cps2J, so as to rule out non *S. suis* type 2 candidates.

Conclusion

In conclusion we participated in the first phase of the epidemiological study "seroprevalence of *S. suis* in Nam ding province of Vietnam. We joined the training session on how to carry out the field survey and participated in the sample collection. Further we also participated in the processing of the samples that where collected.

Although the study is still ongoing, we appreciated and attained an in depth knowledge on the structure and organization of how an epidemiological survey is implemented from the national level to the local level. And also on how different sectors collaborate at all levels to ensure that the study objectives are being meet.