

## Abstract of Master's Dissertation

No.1

Course	Tropical Medicine	Name	Tomohiro Ono
Thesis Title	Study of Leptospirosis among Hospitalized Patients with Undifferentiated Fever at Bach Mai Hospital in Hanoi, Northern Vietnam		

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Objective: Leptospirosis is one of the important zoonotic diseases found all over the world. Due to the expansion of slum society and climate change in Southeast Asia, the number of patients with leptospirosis may increase in Southeast Asia in the future. Patients with leptospirosis are often misdiagnosed because they present non-specific symptoms similar to other tropical infectious diseases. They have good clinical outcomes if properly managed, so an accurate diagnosis is important. However, doctors at hospitals in northern Vietnam wonder how much leptospirosis should be suspected when treating patients with acute undifferentiated fever, because epidemiological information on leptospirosis is unknown. This study aims to understand the situation of leptospirosis in the hospitalized patients with undifferentiated fever in northern Vietnam. The primary objective is to clarify the proportion of leptospirosis among the hospitalized patients with undifferentiated fever in northern Vietnam. The secondary objective is to clarify the differences in clinical and demographic characteristics of *Leptospira* Patoc-Immunoglobulin M Enzyme Linked Immunosorbent Assay (Patoc-IgM ELISA) positive and negative patients.

Method: This study is a hospital-based descriptive cross-sectional study in the Infectious Disease Department of Bach Mai Hospital in Hanoi, northern Vietnam. Plasma samples of 2440 patients admitted to the Infectious Disease Department of Bach Mai Hospital as undifferentiated fever patients between June 2012 and May 2014 were screened for *Leptospira* Patoc-IgM ELISA. We calculated the ELISA optical

\* The abstract, containing the objective, method, result and conclusion should not exceed 300-500 words and printed double sided on A4 paper)

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<p>density (OD) values in 200 plasma samples taken during the health examination as negative control samples. The cut-off OD value was determined to be 0.7052, which is the sum of the mean of the OD values and the three standard deviations. We have also applied more stringent diagnostic criteria: (i) OD value <math>\geq 1.0</math>; (ii) OD value <math>&gt; 1.4</math> and/or a <math>&gt; 2</math>-fold increase in the OD value in the paired samples; and (iii) a <math>\geq 3</math>-fold increase in the OD value in the paired samples. Their general and clinical information gathered in previous studies was also used to compare the demographic and clinical characteristics of the positive and negative groups.</p> <p>Results: We detected 208 positive cases (8.5% of 2440 patients) for the <i>Leptospira</i> Patoc-IgM ELISA. The positive group was significantly younger and had higher alanine transaminase (ALT) levels, but had a lower proportion of males than the negative group. When the stringent diagnostic conditions were applied, it was found that the positive group had a younger peak in the age distribution, more continuous fever, higher levels of ALT, creatinine, and c-reactive protein.</p> <p>Conclusion: Clinical characteristics of patients with the low stringent diagnostic criteria were considerably different from previously described leptospirosis, whereas clinical characteristics of patients with the stringent diagnostic criteria became similar. This result indicates that among undifferentiated fever inpatients in northern Vietnam, leptospirosis patients may have a certain frequency. However, there were some differences from previous studies in the demographic and clinical characteristics of Patoc-IgM ELISA positive group suggesting a considerable proportion was false-positive. Further verification using the gold standard test, such as microscopic agglutination test or polymerase chain reaction is required. (498words)</p>			

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