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### **Evaluation of a case definition for leptospirosis diagnosis using serological assays**

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Leptospirosis has been a public health problem in many parts of Sri Lanka and has had a great effect on the economic and social development of the country. A large number of leptospirosis cases are recorded in Sri Lanka every year. Leptospirosis is often mistaken for other acute febrile illnesses because of its nonspecific presentation. All bacteriologic, serologic, and molecular methods are expensive and available only at reference laboratories, especially in developing countries like Sri Lanka. For proper management of leptospirosis patients, it is important to diagnose leptospirosis as soon as possible after admission to a hospital. This study was aimed to evaluate the leptospirosis surveillance case definition using serological assays. Adult patients, admitted to the medical wards of the two main hospitals of the District of Gampaha from 1<sup>st</sup> of January 2011 to 31<sup>st</sup> of December of 2012 with undiagnosed acute febrile illness were included to test a case definition of the WHO guidelines-2003. Serological assays were performed on blood samples taken from each patient after 7 days of fever. Leptospirosis case definition was evaluated with regard to sensitivity, specificity and predictive values using a MAT titer  $\geq 1:800$  and/or positive band in commercially available IgM kit for confirming leptospirosis. Of 191 patients, the clinical features of 107 only were compatible with the surveillance case definition. Of the 107 only 60 were true positives and 47 were false positives based on serological assays. Out of the 84 only 4 were false negatives. According to these results the test sensitivity was 93.75% (60/64) and specificity was 62.99% (80/127). Positive predictive values and negative predictive values were 56.07% (60/107) and 95.27% (80/84) respectively. This study confirms that the surveillance case definition has a very high sensitivity and negative predictive value with an average specificity in diagnosing leptospirosis based on serological assays.

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