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## A hybrid methodology for differential diagnosis of confusable diseases

Okure U Obot<sup>1</sup>, Udoinyang G Inyang<sup>1</sup>, Joseph Osuji<sup>2</sup> and Faith-Michael E Uzoka<sup>2</sup>

<sup>1</sup>University of Uyo, Nigeria

<sup>2</sup>Mount Royal University, Canada

Some tropical diseases are no longer localized in tropical regions of the world and are increasingly seen in the emergency units of major medical centers in the developed world. A number of these tropical diseases present with overlapping symptoms that can be confusing to medical practitioners during the process of medical diagnosis. The combination of non-specific clinical manifestations that characterize these conditions and the probable lack of expertise and experience among primary care and emergency physicians in the developed world exponentially increases the potential for misdiagnosis and subsequent increased morbidity and mortality rates of these diseases among travelers who have visited areas where they are endemic. The challenge therefore for physicians who have limited experience investigating, diagnosing, and managing such conditions is how to make sense of these confusing symptoms in order to facilitate accurate diagnosis in a timely manner. The application of an intelligent system, based on fuzzy logic technology is harnessed in this study to facilitate successful differential diagnosis of confusable tropical diseases. Data from patients who were already diagnosed conventionally (and confirmed by laboratory tests) of viral hepatitis, malaria, typhoid fever and urinary tract infection were collected at a general hospital in Nigeria. The results show that the diagnosis carried out using the fuzzy system compares favorably with diagnosis arrived at conventionally by experienced physicians.

[abatakure@yahoo.com](mailto:abatakure@yahoo.com)