A Proposed Fuzzy Framework for Cholera Diagnosis and Monitoring

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Abstract

In this paper, a fuzzy expert system for the diagnosis and monitoring of cholera is presented for providing decision support platform to cholera researchers, physicians and other healthcare practitioners in cholera endemic regions. The developed fuzzy expert system composed of four components which include; the Knowledge base, the Fuzzification, the Inference engine and Defuzzification. Object oriented Design tools is adopted in the design of our database. We develop our knowledge based on clinical observations, medical diagnosis and the expert’s knowledge. We employ Mamdani’s MAX-MIN fuzzy inference engine to infer data from the rules developed. This resulted in the establishment of some degrees of influence of input variables on the output. The technique allows for mild, moderate and severe symptoms to be applied in order to get the estimation result. Triangular membership function is employed to evaluate the degree of participation of each input parameter and the defuzzification technique employed is the Centriod of Area (COA). Twenty patients with cholera are selected and studied and the observed results computed in the range of predefined limit by the domain experts. This system will offer potential assistance to medical practitioners and healthcare sector in making prompt decision during the diagnosis of cholera.
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Index Terms

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Keywords
Cholera Fuzzy Logic object oriented design healthcare diagnosis and monitoring.