

## **The analytic decision-making preference model to evaluate the disaster readiness in emergency departments: The A.D.T. model.**

Ortiz Barrios, Miguel Angel, Aleman Romero, Brandon Antonio, Rebolledo Rudas, Janeth, Maldonado Mestre, Heberth, Montes Villa, Lizeth, De Felice, Fabio, Petrillo, Antonella

### **Abstract**

In recent years, a series of important emergencies have been taken place worldwide in industrial plants. After the occurrence of a disaster, it is essential to activate the correct emergency procedures. Particularly, it is important to direct people injured in hospitals which are able to handle emergencies. Thus, nowadays, the emergency services require a management process starting from the disaster moment to the involvement of all actors participating in the process to provide integral, safe, and quality attention. The aim of this study is to help hospitals become better prepared for major disasters and public health emergencies and to evaluate the readiness of emergency departments for a disaster situation. A hybrid model called the "analytic decision-making preference model" based on analytic hierarchy process, decision-making trial and evaluation laboratory, and technique for order of preference by similarity to ideal solution methods is proposed. Analytic hierarchy process is used to determine the criteria and subcriteria weights. Then, decision-making trial and evaluation laboratory is used to evaluate interdependence between criteria and subcriteria. After this, technique for order of preference by similarity to ideal solution is applied to rank the emergency departments from highest to lowest according to their closeness coefficient. A real-life application in Colombia is presented.