

THE APPLICATION OF ANALYTIC NETWORK PROCESS IN HOSPITAL MANAGEMENT

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ABSTRACT

Since the Analytic Network Process (ANP) was put forward, it has been widely applied in the many fields, such as conflict analysis, strategic planning. However, there are few applications of ANP relating to hospital management. This paper introduces ANP in the analysis of nosocomial infection and the evaluation of doctors' performance, which are two important aspects of hospital management. As a result, the main reasons of nosocomial infection can be identified and the performance of doctors can be systematically calculated, which will greatly benefit the hospital management.

Keywords: Analytic Network Process, Hospital management, nosocomial infection, performance evaluation

1. Introduction

Since ANP was put forward in 1996 by Professor Saaty, it has been one of the most effective methods in decision making and performance evaluation. It is widely applied in the many fields, such as conflict analysis, strategic planning, enterprise management, project scheme selection. With the development of economy and technology, people's life standard improves and health-related issues are of much concern. Hospitals are the main places where people seek medical help. However, there are few applications of ANP relating to hospital management.

The nosocomial infection and doctors' performance are two key issues in hospital management. There are many reasons that result in nosocomial infection. Using ANP, the main reasons of nosocomial infection can be identified and then corresponding measures can be taken to control infections. Since ANP performs very well in performance evaluation, we try to apply it to develop a systematically evaluation system to effectively analysis doctors performance. A reasonable evaluation systems can motivate doctors to perform well, which is of great benefit to hospital's management.

2. Literature Review

Satty (1996) put forward the Analytic Network Process for the first time. It introduced the main framework of ANP. There are many application of ANP. Pablo A-B et. al. (2013) applies the ANP to select solar power plant investment projects. Jerrold et. al. (2013) develops a methodology to analysis the sensitivity and stability of ANP-based models.

3. Hypotheses/Objectives

1. Develop a method using ANP to analysis the different reasons which contribute to nosocomial infections and give corresponding suggestions to control the infections.
2. Develop an ANP-based evaluation method to evaluate doctors' performance

4. Research Design/Methodology

The ANP-based model for analysis of nosocomial infections are based on pool of experts. The goal is to find the weights of different reasons results in nosocomial infections. The experts are to conclude the reasons and give scores. Besides, if historical data is available, they can be used to adjust the model, making the model more accurate.

The ANP-based model for evaluation of doctors' performance is based on literature review. Since there are lots of literatures on ANP-based performance evaluation in different contexts, we can learn from them and build the corresponding model suitable for doctors.

5. Limitations

The ANP-based model for analysis of nosocomial infections are based on pool of experts. Experts are to score for different score in different conditions. It is difficult to collection all the scores. When some scores are difficult to decide, the scores are not given. What's more, the reasons for nosocomial infections will vary from hospital to hospital. It is really challenging to build a general model suitable for different hospitals.

6. Conclusions

ANP has been widely applied in the many fields, such as conflict analysis, strategic planning. However, applications of ANP relating to hospital management are not much. In this paper we applied ANP in two important aspects of hospital management: the analysis of nosocomial infection and the evaluation of doctors' performance. Then, the weights of different reasons contribute to nosocomial infection can be identified and corresponding measures can be taken to control infections; doctors' performance can be systematically calculated, which can motivate doctors to perform well.

7. Key References

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