


Model Construction of Medical Endoscope Service Evaluation System-Based on the Analysis of Delphi Method

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Abstract

Background: Medical endoscope is widely used in clinical practice for the purpose of diagnosis and treatment, occupying around 5% of the medical device market. Evaluating the true service level of medical endoscope is essential and necessary to improve overall performance of medical diagnosis and treatment, and to maintain competitiveness of endoscope manufacturers, however, such a tool is not available in the market. This study develops an Evaluation Index System (EIS) to assess service level of medical endoscope, and to provide suggestions for improving the service level through the Delphi method.

Methods: Firstly, the possible factors influencing the service level were identified from literature review. In parallel, the Delphi expert method questionnaire was designed and 25 experts were invited to conduct three rounds of questionnaire, to evaluate and rate the possible factors. Finally, we determined the weights associated with the factors, using the analytic hierarchy process (AHP) and percentage method, and developed the service level EIS.

Results: The EIS consists of 3 first-level indicators, 24 second-level indicators and 68 third-level indicators. According to the weights computed using AHP, first-level indicators are ranked as post-sale (0.62), in-sale (0.25) and pre-sale (0.13). Through case verification, the medical endoscope brand Olympus had a total score of 4.17, Shanghai Aohua had a total score of 3.71, and Shanghai Chengyun had a total score of 3.28, which matches its market popularity and ranking in terms of market share. The results obtained from the EIS are consistent with the reality.

Conclusions: The EIS established in this study is comprehensive, reliable and reasonable with strong practicality. The EIS can act as a tool for the endoscope users to evaluate potential products and make informed choices. It also provides a measurable basis for endoscope manufacturers and service providers to improve service quality.

Full-text

Due to technical limitations, full-text HTML conversion of this manuscript could not be completed. However, the manuscript can be downloaded and accessed as a PDF.

Tables

Due to technical limitations, tables are only available as a download in the supplemental files section

Figures

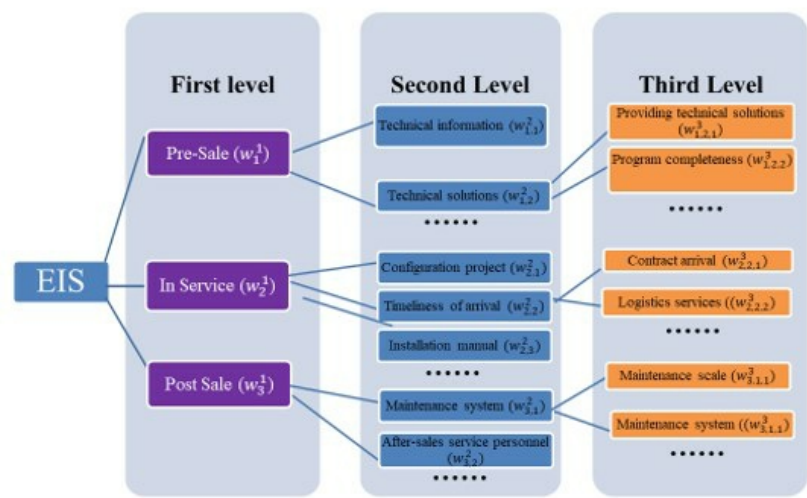


Figure 1

Hierarchical structure of indicators at three levels

Supplementary Files

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