

Energy Use in Terms of Operational Activity by Polish Hospitals*

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* Presented at the 44th IBIMA International Conference, 27-28 November 2024 Granada, Spain

Abstract

The dynamics of energy consumption within Polish hospitals have evolved, necessitating a thorough understanding of the trends and determinants influencing energy efficiency in these healthcare facilities. This study aims to analyze the trends in energy consumption in Polish hospitals from 2010 to 2019. A crucial aspect of the analysis involves assessing how hospital size affects energy consumption, taking into account various size-related factors, including the number of medical personnel, the value of fixed assets, and the number of operating rooms, as well as operational factors such as patient numbers and person-days of treatment. The analysis drew upon data from 3,061 hospital reports detailing financial data and medical operations during the specified timeframe. To quantify and compare energy utilization efficiency in hospitals, we developed specific energy efficiency indicators, which were then examined across different categories and sizes of hospitals. Descriptive statistics were computed for all data points, including means and standard deviations. Comparisons between variables were executed using the Student's t-test. The statistical analysis was conducted utilizing StatSoft Statistica version 13.3. This article contributes new empirical insights concerning the determinants of electricity consumption in Polish hospitals, particularly their operational activity. The findings indicate a clear correlation between hospital activity and electricity consumption. Specifically, hospital activity significantly influences the efficiency of electricity utilization concerning the number of patients and person-days of treatment. As anticipated, larger hospitals tend to have higher overall energy consumption; however, they exhibit greater efficiency in energy consumption per patient, per person-day of treatment. Understanding the factors that drive energy consumption in hospitals is essential for developing and implementing effective energy-saving strategies within the healthcare sector.

Keywords: energy efficiency; Polish hospitals; energy usage trends