

Cost and length of stay study surgical site infections after Ventriculo Peritoneal (VP) shunting: A matched healthcare cost and length of stay study

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Background: Surgical site infections after neurosurgery pose surgical complications which makes patients vulnerable to septic shock or the need for further operational procedures, especially if they involve device implantation. Accordingly, SSIs influence healthcare settings by increasing hospital length of stay and health care cost, which leads to the draining of resources and subsequent significant financial wastage.

Objective: This study aimed to assess the increased hospital length of stay and healthcare costs associated with surgical site infections, in addition to identifying the most frequent etiological microorganisms of SSIs among ventriculoperitoneal shunting surgery patients in Jordan.

Design: This study adopted a descriptive, correlational, retrospective, and nested 1:1 matched case-control design.

Setting: A non-probability convenient sample of 48 VP shunt patients was recruited from a university-affiliated hospital in the north of Jordan. This clinical setting is considered the main referral acute care setting in the region.

Participants: A computerized list of 48 patients who had undergone VP shunt surgery during the period between January 2016 and August 2021 in the targeted hospital was generated.

Methods: An SSI group and a non-SSI control group were used to standardize the matching variables and exclude their effects on the dependent variables (HCCs and hospital LOS). Data were retrieved from the electronic medical records for a six-year period, starting from the point of admission through to discharge for each patient. To identify hospital LOS, the number of days each patient had spent in hospital from the date of admission to the date of discharge were calculated. Moreover, the HCCs for both groups were provided by the Financial Affairs department.

Results: The total sample included 48 patients. As compared to the non-SSI group, the SSI-group had an extra mean healthcare cost of \$13,696.53 ($p=0.001$) and longer hospital length of stay (22.64 mean additional days). Furthermore, *Acinetobacter baumannii* and *Klebsiella pneumonia* were identified as being the most predominant causative agents of SSIs, causing 23.1% of SSIs among the SSI-group patients.

Conclusion: The results of this study may provide baseline data for national and regional benchmarking to evaluate the quality of care provided to likewise patients. The study findings may encourage nursing administrators to adhere to infection control strategies and protocols, as well as developing new surveillance methods which adhere to universal precautions. In turn, this may reduce pathogen contamination in surgical wounds, shorten hospital length of stay, and decrease healthcare costs.

Keywords: Ventriculoperitoneal shunt, Health care cost, Length of stay, Neurosurgery, Surgical site infections.

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Biography

Issa M Hweidi is a doctoral degree holder, has rich experience as a clinical nurse educator in the field of Medical-Surgical Nursing. Currently, she is a tenured associate professor of adult health nursing at Jordan University of Science and Technology.

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