

TLIF Hospitalization Cost Reduction Due to a New Device Improving Procedure Efficiency and Safety

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Introduction

Transforaminal Lumbar Interbody Fusion (TLIF) is a commonly performed spinal fusion procedure. The cost of this expensive procedure can further increase due to unexpected complications, risking its profitability. Therefore, in addition to clinical benefits, reducing complication rates is essential to reducing the overall cost. Introducing new, safer, devices may increase direct costs but can potentially reduce the overall cost. Cost-effectiveness analysis of a new device is therefore an important tool for decision-makers.

This study estimates the reduction of hospital cost due to the use of a new device designed for quick and safe nucleus removal.

Methods

The records of 100 single-level TLIF procedures were examined. Procedures on previously-operated levels were excluded. 65 procedures were performed using the new device and 35 were performed using traditional tools. Readmission incidence was estimated for both groups. The average normal operation length and blood loss were calculated and compared for sub-groups excluding outlier patients with substantial bleeding. Durotomy incidence was extracted from a

Results

The average operation length was reduced by 10.2 minutes, equivalent to a cost reduction of \$307. Blood loss was reduced by 79ml, equivalent to a cost reduction of \$52. Readmission incidence decreased from 5.9% to 1.7%, representing a weighted cost reduction of \$652. The incidence of device-related dural tears was estimated to decrease from 3% to 0.5%, representing a weighted cost reduction of \$162. The overall cost reduction was therefore \$1172.

Conclusions

In addition to the clinical improvement, the studied device reduced the cost by \$1172, suggesting that it would be cost-effective for a lower device cost. Cost-effectiveness analysis should include the reduction of indirect cost to represent the overall financial consequences.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the main factors contributing to potential cost reduction of TLIF procedures. 2) Describe the characteristics of the suggested approach. 3) Describe potential methods to assess the cost of different procedure components and complications.

References