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Meeting abstract

A method to estimate expected day-surgery activity in hospitals of the Spanish National Health System

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Introduction

Day surgery arose as an attempt to improve quality, effectiveness and efficiency of healthcare resources, specifically in the surgical procedures of low-medium complexity. The high volume of these kinds of procedures, and the development of minimally invasive surgical techniques and new anesthetic approaches, favoured the implementation of day-surgery care.

The decision to assign a patient to a day-surgery program depends not only on the selected procedure, but also on the demographic and clinical characteristics of the patient and hospital variables.

The objective of this study is to develop a model to estimate expected day-surgery activity in hospitals taking into account the characteristics of the patients and hospitals in order to construct an observed vs. expected ratio.

Methods

Data source: Minimum Basic Data Set (MBDS) of hospital care episodes. Potential Day Surgery Episode (PDSE) was defined as the hospital episode with a surgical procedure (ICD-9-CM), programmed admission and home discharge. To be considered as PDSE, the selected procedure must appear in at least 50 day-surgery cases and be developed in at least 5 hospitals. The study database included: MBDS of 188 (85%) hospitals in the National Health System and 32 (15%) Spanish private hospitals in the year 2006 with 1,162,082 surgical admissions. From 1,770

procedures identified (ICD-9-MC), 798 fulfilled PDSE criteria that were finally grouped in 204 procedure groups. From the total number of surgical admissions, 931,630 episodes were considered as PDSE and 541,715 were observed as real day-surgery episodes (substitution index of 58.1%). A logistic regression model was applied to estimate the expected number of day-surgery episodes. The dependent variable was day-surgery case (yes/no).

Results

Diagnostic categories of Eye, Skin, Subcutaneous Tissue and Breast accounted for 56.3% of total day-surgery episodes. Significant independent variables finally included in the model to predict the likelihood of day-surgery for every patient were age at admission (categorical, 5 year intervals), sex, observed rate of day-surgery by combination of principal diagnosis and surgical procedure (the variable with higher weight), observed rate of secondary diagnosis that shows the lower rate of day-surgery (as an adjustment by clinical conditions that deter from applying day-surgery techniques), hospital level (teaching, non-teaching) and hospital service contract (public, private). The model showed a reasonable predictive performance, with 82% sensibility and 82.1% specificity. The ROC curve value was 91%.

Conclusion

This model may allow the setting of expected values to be used as reference patterns for day surgery in Spanish hospitals. This approach can be very useful for setting objec-

tives for increasing day-surgery activity in hospitals, based on objective data.