"Analysis and assessment of two models of pharmaceutical expenditure prediction."

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Introduction: Pharmaceutical expenditure is undergoing a very high growth, approximately 30% of overall healthcare expenditure in Spain.

Clinical Risk Groups (CRGs) is a relatively new system that classifies individuals into mutually exclusive categories and, using enrollment data, claims or other encounter level data, assigns each person to a severity level if s/he has a chronic health condition.

On the other hand, the Anatomical Therapeutic Chemical (ATC) Classification System, is used for the classification of drugs aaccording to the organ or systems. Lamers et al. used this code to develop a classification of medications for chronic condition.

In this paper we design a multivariate model in order to explain pharmaceutical expenditure using firstly Clinical Risk Groups (CRG) and secondly the classification of medications for chronic condition system. Then, we compare the results of both models in order to analyze which system gives a better explanation of pharmaceutical expenditure.

Objectives: The objective of this paper is to design two models for analyzing the predictive capacity of CRG's and secondly the classification of medications for chronic condition system regarding pharmaceutical expenditures in order to identify which model explain better this expenditure.

Data and Methodology: A database of around 235.000 population resident in one health district from an east region of Spain (Valencia Community) was used. Each patient register contained the follow information: age, nationality, copayment status, CRG group assigned, chronic conditions and pharmaceutical expenditure between January 2008 and December 2008.

From this information multivariate linear regression was employed to obtain two models able to explain the pharmaceutical expenditures through to classification systems.

Our dependent variable is the pharmaceutical expenditure, and we run two regression models in order to examine how two models explained prospective expenditure and use. This comparison allows us to conclude what system predicted better pharmaceutical expenditure.

Conclusion: Results of this study could be useful in order to establish rational criteria of reimbursement and budget assignation in hospitals.