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Meeting abstract

Using pharmacy information in a decision support system to improve efficient delivery of primary health care. A study focusing on the Swedish national drug register

A Johansson*[1], M Heurgren[2] and K Kinder Siemens[3]

Address: [1]Ensolution, Stockholm, Sweden, [2]The National Board of Health and Welfare in Sweden, Stockholm, Sweden and [3]Bloomberg School of Public Health, Johns Hopkins University, Baltimore, MD, USA

* Corresponding author

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Introduction

The aim of the project was to apply the John Hopkins ACG case-mix system, Rx-PM model, to the Swedish National Drug Register (period 2006-2008). Its intention was to analyze and compare results between different county councils, and analyze if drug use in the population can be employed to approximate the need for care, and as a tool to adjust the capitation payment system in the county councils. This paper focuses on the comparisons between the different county councils. Practical examples and usage of data are presented.

Methods

The ACG-Rx system, based on the unique Rx-MG categories, is an Rx-based risk adjustment tool (NDC, ATC, Read code) that can be used as a predictive model and to understand patterns of medication use. Pharmaceutical utilization is a proxy for underlying morbidity. The John Hopkins ACG case mix system, Rx-PM model, is a grouping logic that uses drug utilization to measure the severity of the underlying morbidity, the therapeutic goal of medication use, and the duration of treatment to present pharmacy data in a new perspective that had not been available previously.

The tool can be used for disease/case management, profiling (population and provider) and forecasting pharmacy and total costs for large groups. The analysis included Sweden's entire population (9 million persons) and their usage of drugs (6.2 million patients annually). This resulted in 29 million combinations of patients and used ATC-codes for each year. Results have been grouped for the periods 2006, 2007 and 2008. The analysis represents an annual cost of 24-25 Billion SEK (approx. 25 Mill Euro). The grouping went well in practice without any coding issues.

Results

The analysis model involves five steps: 1) Actual pharmacy cost and predicted pharmacy cost per county council. The purpose of this analysis is to determine the cost level. 2) Actual costs per inhabitant and predicted cost per inhabitant per county council/municipality. The purpose of this analysis is to determine the differences in consumption. 3) Proportion of high-risk patients per municipality. The purpose of this analysis is to determine how specific outliers influence the results. 4) Standard Morbidity Rates (SMRs) for major Rx-MGs per county council. The purpose of this analysis is to determine if specific groups and practices influence the results. 5) Comparisons of specific Rx-MGs per county council. The purpose of this analysis is to provide a detailed comparison on practices and costs.

Conclusion

The Rx-model works well for Swedish data. The analysis showed significant differences between county councils as well as on the municipal level. Measures generated from

the system could, therefore, be used in the Swedish benchmarking model Open Comparisons.

The model also provides functionality for predicting change in total cost. Comparison between predicted costs from the Rx-model and the actual costs showed a low variation (1%). The model provides a large amount of data for analysis and usage in practice, i.e., specific analysis for measuring costs for high-risk patients. More analysis with diagnosis and cost data on the county council level is still needed to prove if Rx-MG can be a useful tool for resource allocation in a capitation model.

The combined models (Rx-PM + Dx-PM) with diagnoses and pharmacy data are recommended for use. Pharmacy data alone has a higher explanatory value than age and gender, but it is still low in comparison with combined models.