Development of Cross-Sector Health Care Quality Indicators Based on Claims Data

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Abstract. Quality indicators serve as a tool to measure and improve evidence-based health care. Often the transition from inpatient to outpatient care is not sufficiently included. The focus of this work was to develop and to evaluate methods to define relevant cross-sector quality indicators based on Austrian claims data, using myocardial infarction as tracer.

Keywords. Quality indicators, adherence, myocardial infarction, claims data

1. Introduction

Quality indicators (QIs) serve to assess the quality of health care [1]. They are commonly used to compare the process of care and patient outcomes over time or across health care providers or regions. QIs concentrate on important events like stroke or myocardial infarction (MI) [2]. In many countries QIs based on routinely collected data are established for the inpatient sector [3]. However, guideline-compliant treatment after hospital discharge is equally important for patient safety. Unfortunately, cross-sectoral indicators are rarely used, mainly because of barriers of data linkage across sectors [4]. The aim of this project was to develop and test methods for cross-sectoral QIs by means of Austrian claims data. Myocardial infarction was used as tracer.

2. Methods

All patients with a first MI event that occurred between 2011 and 2015 were selected from an anonymised population-wide data base provided by the Main Association of Austrian Social Security Institutions. Hospital discharge diagnoses and reimbursed drug prescriptions were used for the analyses. A team of cardiologists, data specialists and statisticians specified QIs to measure compliance of treatment processes with international guidelines and outcome quality. Compliance with specific recommendations contained in the guidelines was evaluated over an observational period of 12 months after the index event. Patient-level risk factors for non-adherence were

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evaluated by logistic and Poisson regression models, which also served to describe gender-and-age-adjusted geospatial and temporal differences. The impact of termination of adherence on mortality, readmission and the cumulative length of later hospital stays was evaluated by means of landmarked Cox and Poisson regressions.

3. Results

Six QIs were specified: high intensity statin therapy, dual anti-platelet therapy, ACE inhibitors therapy, beta blocker therapy, cardiac rehabilitation, and echocardiography and cardioverter-defibrillator implant. A total of 45.150 patients with MI (median age 69 years) were included. Adherence to all QIs after MI was low (10-35%) and varied regionally. QI compliance was associated with lower mortality and readmission.

4. Conclusions

Specification of QIs based on claims data may be imprecise because of missing information on over-the-counter dispensing or clinical data like body weight, and inaccurate patient inclusion caused by wrong discharge diagnosis codes. Here we demonstrated that QIs could still be meaningfully specified and adherence calculated. Our results confirmed the expectation that guideline-compliant care reduces mortality, but also revealed variation across regions and over time. The results are a basis for discussions in regional quality circles. Despite having used data from 2011-2015, the methods developed in our project serve as templates for monitoring guideline compliance in other medical fields. For future applications we plan to standardise the specification of the QIs and the data model and to refine statistical risk adjustment.

Acknowledgements

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