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A new method for estimating morbidity rates based on routine electronic medical records in primary care

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Background & Aim: Routinely recorded electronic health records (EHRs) from general practitioners (GPs) are increasingly available and provide valuable data for estimating incidence and prevalence rates of diseases in the general population. Valid morbidity rates are essential for patient management by health care providers and developing and evaluating health care policy. In this study we developed an algorithm to construct episodes of illness based on EHR data to calculate morbidity rates.
Method: The algorithm was developed in discussion rounds with two expert groups and tested with data from NIVEL Primary Care Database, which consisted of a representative sample of 386 participating general practices with approximately 1.2 million patients in 2012. Morbidity data were used from EHRs in the period 2010-2012, including recorded ICPC-coded episodes of care, encounters and prescriptions.
Results: All 685 symptoms and diseases of ICPC-1 were categorized as acute symptoms/diseases, long-lasting reversible diseases, and chronic diseases. Based on knowledge of the duration of a disease, for each category an algorithm was developed to construct episodes of illness ('time between symptom onset to complete resolution') based on recorded episodes of care ('time between the first and last encounter for a complaint'). Compared with recorded episodes of care, for acute and long-lasting diseases, applying the algorithm resulted in a reduction of both the number and average duration of the episodes up to 53% and 94%, respectively. On the other hand, for chronic diseases, the algorithm resulted in a slight increase in the number of episodes as well as the episode duration.
Conclusions: An algorithm was developed to construct episodes of illness based on routinely recorded EHR data to estimate morbidity rates. The algorithm constitutes a simple and uniform way of using EHR data and can easily be applied in other registries, especially in registries based on recorded episodes of care.