Monitoring domestic hospital expenses

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Introduction
The Dutch system for hospital financing is a mixture of governmental regulations and free market principles. For a selection of treatments prices are prescribed by the government, but mostly hospitals are required to individually make pricing and volume arrangements with health insurance companies. The Ministry of Health, Welfare and Sport imposes a maximum budget (BKZ) of a 22 billion euros on the total expenses on hospital care. Medical doctors, hospitals and ministry have agreed to limit budget growth. However, health care expenses are still growing and have proven to be difficult to control in the past few years. Monitoring expenses has proven to be a complex and extensive task, since detailed information that covers all hospitals in not easily available, and with a considerable time lapse.

At the request of the NVZ (Dutch organisation of general hospitals) and NFU (Dutch federation of academic hospitals) DHD has started to gather the necessary data on a monthly basis and processing contract information. The aim is to enable hospitals and organisations to monitor hospital expenses on a local and national level, and to forecast expenses during the year. Thus making it possible to analyse and anticipate.

Methods
Choosing a structural approach after a successful proof-of-concept in 2012, DHD has started implementing the following stages:

In the first year of our research, we have gathered data from 2011 to june 2014. Hospitals were asked to deliver information on a treatment and patient level, and pricing and contracting information for each insurance company.

Contracts between hospitals and insurance companies are either fixed budgets, maximum budgets or post-calculation of negotiated volumes and prices. In the first stage of our research, we only asked hospitals for the main overall budgets. This indicated a maximum of expenses in 2012-2014. The next step is to analyze contracts on a more detailed level, so as to determine what impact these changes have on the total annual amount spent on hospital care.

Over the years, fundamental changes have been made in the financing system for hospital care. Definitions of (DRG) products and rules for invoicing change, sometimes from year to year. The government has transferred the funding of expensive drugs from a specific budget to the BKZ. The BKZ has been expanded with the same amount, however, the number and use of expensive drugs also increase, causing hospitals to exceed the total BKZ budget amount. This makes comparing different years difficult, since so may factors can be of influence on the expenses. By isolating different effects, we try to estimate the impact of various factors.

Results
Comparing the datasets to key parameters e.g. the annual number of admissions and other data sources e.g. invoices to insurance companies showed that nationally our data is within 2% of other data sources for 2012. It also shows that more recent years are still subject to corrections and additions up to an estimated 5%.

Analysis shows that the number of patients treated in Dutch hospitals has diminished by almost 4% between 2011 and 2014. This occurs mostly in hospitals with a high market density and for out-patient treatments, indicating that patients are less prone to go to a hospital for non-life threatening diseases, although accessibility is high. Exceptions are the number of patients under 18 or over 65 years old, and patient with life threatening illnesses such as cardiac or pulmonary problems or cancer. This results in a higher average
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cost per patient. Average prices of elective treatments like knee or hip replacements, and cataracts have decreased.

Conclusions
Improving data quality is one of the main issues for the coming period. The lag in completeness of the data emphasizes the importance of a timely and correct registration process. In 2015 we have started to have monthly data deliveries directly from the Hospital Information Systems; hospitals are still adapting and testing their processes.

Analyzing contracts and specifically the different local agreements, we attempt to find a general approach. Budget ceilings are the most common form of contract, but for sections of hospital care such as expensive drugs or specific patient groups, there are separate agreements that may or may not be interchangeable. One of the main questions is how much detail is needed for a reliable estimate of the total contracted amount.

Changes in the financing system and government policy are causing inconsistencies in the data. They also influence behavior, changing the way activities or products are registered. Since the same codes are used, isolating the impact of behavior is difficult.

Hospitals participate on a voluntary basis. In making it easier for hospitals to deliver the data, and providing them with benchmark and quality information in return, we hope more hospitals will want to invest time.

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