

Peer-Review

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«A set of four simple performance measures reflecting adherence to guidelines predicts hospitalization: a claims-based cohort study of patients with diabetes»

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Stand September 2016

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Nutzungsrecht: Verein Ethik und Medizin Schweiz VEMS, Verwendung der Texte, auch auszugsweise, nur mit Quellenangabe

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Background

The link between guideline adherence and outcomes is a highly demanded issue in diabetes care. We aimed to assess the adherence to guidelines and its impact on hospitalization using a simple set of performance measures among patients with diabetes. Methods: We performed a retrospective cohort study, using health care claims data for adult patients with treated diabetes (2011–2013). Patients were categorized into three drug treatment groups (with oral antidiabetic agents [OAs] only, in combination with insulin, and insulin only). Performance measures were based on international established guidelines for diabetes care. Multivariate logistic regression models predicted the probability of hospitalization (2013) by adherence level (2011) among all treatment groups.

Results

A total of 40,285 patients with diabetes were enrolled in 2011. Guideline adherence was quite low: about 70% of all patients received a biannual hemoglobin A1c measurement and 19.8% had undergone an annual low-density lipoprotein cholesterol test. Only 4.8% were exposed to full adherence including all performance measures (OAs: 3.7%; insulin: 7.7%; and in combination: 7.2%). Increased guideline adherence was associated with decreased probability of hospitalization. This effect was strongest in patients using OAs and insulin in combination.

Conclusion: Our study showed that measures to reflect physicians' guideline adherence in diabetes care can easily be calculated based on already available datasets. Furthermore, these measures are clearly linked with the probability of hospitalization suggesting that a better guideline adherence by physicians could help to prevent a large number of hospitalizations.

VEMS post-publication review, last update 03. September 2016

The largest health insurance company of Switzerland uses claims data to perform health demand studies and associated quality of care delivery ([link](#)). In this study, authors measured 4 performance measures in patients with diabetes. The study hypothesis seems to be that when measuring this set of variables as recommended by a paper about the standards of medical care in Diabetes - 2013 ([link](#)), the risk of hospitalisation could be reduced. In order to test this hypothesis, authors measured the frequency of insurance claims for these 4 variables (HbA1c, Lipid, Blood Pressure, Eye Visit) in the year 2011 and measured the frequency of hospitalisations in the year 2013. They found in Table 3, that non adherence (Level 0) was associated with the risk of any hospitalisation of 32.7%, adherence to at least biennial HbA1c (Level 1) with 26.9% risk of hospitalisation, additional measures of Lipids (Level 2) resulted in the highest hospitalisation rate of 33.6%, while adherence to Level 3 and 4 was associated with a sharp drop in the risk of hospitalisation (3.2% and 3.6% , respectively). Authors performed some more adjusted analyses (Table 4 und 5), where adherence higher levels of performance measures was statistically significant.

As stated by the authors, "A poor health status can act as confounder in our analyses". Indeed, this study does not explain the reasons for the hospitalisations, it just finds an association, which may be the result of a severe "omitted variable bias", where confounding variables are simply not known. The conclusion of the authors that "... a clear relation between adherence levels and the hospitalization probability of diabetes patients could be proven", overstates the relevance of the results, because there is just a hypothesis generating association and no proof with respect to a cause-effect relationship. Vice versa, by intensifying the performance measure, there is no proof that the risk of hospitalisation can be reduced as stated by the au-

thors: "...suggesting that a better guideline adherence by physicians could help to prevent a large number of hospitalizations".

Comparing Swiss diabetes treatment with OECD data cited by Dr. J. Schlup, president of the Swiss Medical Federation in the Tagesanzeiger (03. Sept. 2016) showed that Switzerland ranges among the top performers in range 2 out of 31 countries without reports about large numbers of preventable hospitalizations: 70 per 100'000 hospitalisations for Diabetes in Switzerland, 217 in Germany and 336 in Austria. Further, a Swiss national registry ([link](#)) with Co-Author Prof. Brändle as leading researcher, shows according to Mr. Schlup, that based upon preliminary results Diabetes control and treatment over 5 years appears to be excellent.

Based upon these observations, suspicion arises, that the Helsana Study cited above is the result of a yet unknown but severe bias, eventually based upon a selection process of those subjects allowed to be entered into the datafiles.

On 8th August 2016, the CEO of the Helsana Health Care Insurance Company, Mr. Daniel Schmutz, published a guest report in the Tagesanzeiger. Based upon Table 3, he calculated that assuming costs of 24'400 Swiss Francs per hospitalisation in 2013, the measure of the 4 variables would have avoided hospitalisation costs of 170 Mio Swiss Francs, if extrapolated to Switzerland. From this he deduces, that the performance of physicians is bad and that selective contraction must be introduced in order to avoid to pay insurance claims to poorly performing physicians in Switzerland.

This straight forward calculation is only acceptable if every hospitalisation from any cause is causally due to the Level 0 (no performance measures applied to patients). Since Mr. Schmutz has no proof for that, his calculation is wrong. As an example: if all instead of zero performance measures were assessed in Patient X in 2011, he could have avoided to be hospitalized for pneumonia, which of course is nonsense.

We believe, that such pseudo scientific activity has a political background, leading to confusion about the real performance of health care delivery in Switzerland. By consequence, Mr. Schmutz abuses weak scientific studies from Helsana owned data to give political directions in Health Care. Although nobody denies the need for performance studies, we urgently demand to use high profile study designs and peer reviews in order to receive helpful hints for improvements in health care delivery. Such activity is in the wrong hands, when health insurance companies use them. Quality measures and studies about room for improvements are a public health task which asks for high skills and cautious interpretations when using Big Data in Health Care. Further information about the results of this study have been promised by co author Michael Brändle, MD, St. Gallen Hospital, Switzerland in a SRF Broadcast.



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