Patient Rating Sites for Daily Supervision by Healthcare Inspectorates: Implementation Into Practice

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Abstract

Background: Social media and especially patient rating sites (PRS's) have shown to be an interesting new source of information about quality of care from the patient's perspective. Although the literature is not unambiguous, several studies indicate a modest relationship between information on social media and quality of health care including patients' experiences, mortality ratio's, readmission rates and infection rates. Therefore, information on PRS's could have added value in supervision the quality for care by official supervising bodies such as a healthcare inspectorate.

Objective: To implement a system in which relevant information about the quality of care is efficiently identified and extracted from PRS's and presented to inspectors by adding it to the risk judgment system for day-to-day supervision.

Methods: The study consisted of three parts: (1) Exploration based on expert opinion by supervision experts of the Dutch Healthcare Inspectorate (DHI) of the added value for individual reviews with a poor rating (<6.5 on a scale from 1-10) by making use of pre-developed scales. (2) Investigation of the opportunities for preselecting information by DHI researchers by scoring reviews in duos in order to test interrater agreement. (3) Designing a process description with all relevant stakeholders to create a realistic implementation path.

Results: For 72 of 116 cases in supervision of long-term elderly care on four major risk themes (medication safety, hygiene, expertise and restriction of freedom) information was considered to be relevant. Preselecting information from PRS’s showed acceptable agreement for four out of five researchers. Based on these results we designed a process description of adopting PRS data into the risk database of the DHI for long-term elderly care by using a File Transfer Protocol, extracting data from the PRS. Starting from June 1st 2015 the DHI inspectors will
receive information about long-term elderly care organisations of the major Dutch PRS, next to other quality and safety indicators.

**Conclusions:** The results show that PRS’s could be used to include the patient’s perspective in day-to-day supervision. Important conditions are sufficient number of reviews and enthusiastic inspectors. These findings indicate that PRS’s may enable supervisory bodies to include the patients’ perspective in an efficient way. Future research should explore the opportunities of other healthcare sectors and other social media such as Twitter and Facebook.

**Introduction**

Insight into the quality of health care is important for any stakeholder including patients, professionals, and governments. In light of a patient-centered approach, it is essential to assess the quality of health care from a patient’s perspective, which is commonly done with surveys or focus groups. Unfortunately, these ‘traditional’ methods have significant limitations that include social desirability bias, a time lag between experience and measurement, and difficulties in reaching large groups of people. Information on social media could be of value to overcoming these limitations, since these new media are easy to use and are used by the majority of the population [1]. Furthermore, an increasing number of people share health care experiences online or rate the quality of their health care provider on physician rating sites (PRS’s) [2,3]. The question is whether this information is relevant for determining or predicting the quality of health care.

Although the current literature does not provide definitive conclusions about the relationship between online ratings and quality of care, a scoping review by Verhoef et al. showed that weak to modest correlations exist between patient ratings and patients’ experiences, mortality ratio’s, readmission rates and infection rates, primarily in the field of hospital care [4]. Before using ratings to determine the quality of care, it should be taken into consideration that ratings are mostly shared anonymously, and that rating values are not always risk adjusted and may therefore be vulnerable to multiple reviews by one individual or fraud. Moreover, ratings are often based on only a few reviews and are predominantly positive [5-7]. Furthermore, people providing feedback on health care via social media are presumably not always representative for the patient population. Nevertheless, social media and particularly rating sites are at least an interesting new source of information about quality of care from the patient’s perspective, and should be further explored since this information could be of
additional value for supervising the quality and safety of health care services by regulatory bodies, thereby stimulating participation by consumers. In England, for example, the Care Quality Commission (CQC) actively uses information from NHS Choices to identify potential patient safety risks, alongside with other PRS [8,9]. The CQC considers this a valuable data source for inspectors to take into consideration in addition to the regular methods of supervision. Similar initiatives are found in Australia and Ireland [10].

Stimulated by their colleagues abroad and the growing emphasis on patient participation, the Dutch Healthcare Inspectorate (DHI) became interested in using information of PRS’s to expand their methods used to detect poor performance. Early research on expectations of DHI inspectors with patient participation showed that inspectors acknowledged that patients are capable to detect poor performance or risks that might be missed by regular inspection visits. They recognize that patient information not only includes service aspects like the quality of food and attitude of the staff, but also serious signals about the technical quality and safety such as unclear responsibilities in case of many involved caregivers for chronic patients [10].

Still, involving patients is not systematically included in everyday supervision [11]. Therefore, the DHI and the Radboud university medical center explored the opportunities of using patient experiences reported on PRS in day-to-day supervision and aimed at implementing a system in which relevant information about the quality of care was efficiently identified and extracted from PRS’s and presented to inspectors by adding it to the risk judgment system of the healthcare inspectorate.
Methods

We performed an exploratory study followed by an implementation study at the DHI. This is the official governmental body that supervises around 40,000 healthcare related organizations and about 800,000 healthcare providers [12]. We used the PRS ZorgkaartNederland [13], which is a non-commercial initiative of the Federation of Patient and Consumer Organisations (NPCF). ZorgkaartNederland has the largest number of ratings in the Netherlands, with more than 238,000 ratings and 980,000 visitors per month, and its own editorial office. This editorial office checks every individual review submitted in the PRS on IP address and content, thus minimalizing the chance of receiving multiple ratings from one computer and restricting unfounded reviews. On ZorgkaartNederland all care sectors and individual care professionals are listed. People rate on six items, which together provide an overall score, and add narrative comments to support their ratings.

First, we explored the added value of information on PRS’s by asking DHI inspectors to rate the relevance of reviews of the PRS Zorgkaart Nederland for their day-to-day supervision. The inspectors selected long-term elderly care with the themes that were the most important for them in supervising elderly care organizations: medication safety, hygiene, expertise and restriction of freedom. We supposed that the useful information for inspectorates might be found in low ratings so we selected all ratings on these themes in the research period of two years. There were 116 ratings below 6.5 on those themes. We presented them blinded to the inspectors. We hereby follow the international known measure of recommendation, the Net Promotor Score, which considered scores 0-6 on a 10-scale as ‘detractors’, or negative recommendations[14]. We furthermore reasoned that useful information for inspectors would be found in low ratings. Inspectors could determine the relevance of the information found by selecting one of the following options: Relevant, information leads to immediate action (3), Relevant, information leads to further investigations (2), Relevant, information found leads to a signal in the file of the organization (1), or No additional value (0). A more detailed description of this step including results can be found in our recently published article [15].

Second, we explored the opportunity of restricting the needed time by inspectors because the DHI had mentioned the sparse availability of inspectors as a potential implementation problem by testing the agreement of rating reviews. Therefore, we selected 48 reviews about long-term elderly care organizations on the PRS Zorgkaart Nederland. We asked five experienced DHI
researchers to score the reviews on the same scale as mentioned above. All five were given a short introduction of the scale. To get insight into the agreement of scoring between the different raters we calculated the correlation between the scores. Next, we organized a training session of the five raters in order to reach consensus on rating issues and made an instruction for rating. Finally we repeated the agreement measurement with 57 new reviews and compared the interrater agreement. In consultation with the DHI we took 80% or more as an acceptable agreement.

Third and last, we organized meetings with DHI employees and representatives of the PRS Zorgkaart Nederland to design a process description in order to get an overview of the activities needed to implement the system. First we identified the requirements and different steps that had to be taken to extract and import data. We then discussed technical issues including automated and manual solutions. We will describe key issues and selected solutions.

Since this study used anonymous data from the public domain and without patient involvement, no ethical approval was needed in the Netherlands. More specifically, all data we used from the rating site ZorgkaartNederland.nl are publicly available. Furthermore, we obtained permission from the DHI to perform the study and acquired the data needed for this study.

**Results**

The first step in which we determined the relevance of ratings showed that the added value of the information varied between the four themes: restriction of freedom (100%, 2/2), hygiene (88%, 22/25), medication safety (76%, 16/21), and expertise (47%, 32/68). Table 1 provides more detailed information about the number of hits, ratings that remained after exclusion, and the results after assessment by a health care inspector.

Table 1. Added value of ratings.

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<tr>
<td>Hits (n)</td>
<td>79</td>
<td>117</td>
<td>49</td>
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The second step in which we aimed at determining and further improve the interrater agreement showed that there were differences between reviewers, and that agreement was diverse: some combinations had poor agreement (60% or less) and some had good agreement (80% or more). After the training session, agreement improved to moderate to good. Figures 1 and 2 provide detailed information about the percentages of agreement between the five raters before and after training.

**Figure 1.** Interrater agreement in percentages before training.

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<tr>
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<th>Rater 1</th>
<th>Rater 2</th>
<th>Rater 3</th>
<th>Rater 4</th>
<th>Rater 5</th>
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<tr>
<td>Immediate action required (n, %)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Information leads to further research (n, %)</td>
<td>9 (36%)</td>
<td>1 (1%)</td>
<td>1 (5%)</td>
<td>0</td>
<td></td>
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<tr>
<td>Information leads to signal (n, %)</td>
<td>13 (52%)</td>
<td>31 (46%)</td>
<td>15 (71%)</td>
<td>2 (100%)</td>
<td></td>
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<tr>
<td>No added value of the information found (n, %)</td>
<td>3 (12%)</td>
<td>36 (53%)</td>
<td>5 (24%)</td>
<td>0</td>
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<td>1</td>
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The group meetings resulted in two feasible options, which are presented in Figure 3. All relevant stakeholders considered these options as being realistic. Data can be extracted manually using FPT data and automated using and Open API. After adding reviews to a database, they have to be filtered by DHI employees. Using their expertise, they will exclude irrelevant reviews e.g. false positive reviews or reviews where crucial information about the healthcare provider or organization is missing. This step will reduce the number of reviews that will be presented to the healthcare inspectors and thus it will reduce their workload. We also discussed the dashboard on which relevant reviews will be presented. After consensus was reached, the DHI developed the dashboard of which a screen shot is provided in Figure 4. It presents the selected reviews of a (fictive) long-term care organization to the DHI inspectors in
the risk database. From June 1, 2015 this representation of reviews will be integrated in the risk-based dashboard used by inspectors.

**Figure 3.** Data processing options.

**Figure 4.** Screenshot of definitivedashboard for inspectors (in Dutch).

Explanation: the table summarizes the number of ratings (row 1), mean score (row 2), number of ratings lower than 6.5 on a scale from 1 (Extremely poor) to 10 (Extremely good) (row 3) and percentage of ratings < than 6.5 (row 4). The second part consists of qualitative data. A translation is provided below:

13-3-2015: “This long-term elderly care organization performs very badly. Especially the management and the personnel responsible for logistics completely lost the contact with patients. Absenteeism is very high which results in serious mistakes like forgetting to provide medication on time, patients pressing the emergency button and having to wait for 20-30 minutes before a nurse arrives etc. The personnel have no empathy, which results in a very ‘cold’ ambiance.

29-11-2014: “The rooms (the elderly must name them ‘apartments’), are inhumanly small. Communication with elderly and their relatives is poor, since it is not structurally organized. No daily activities are organized for the elderly on days when they do not receive visitors. Moreover, communication about this matter is very poor. At the moment I am completely unsatisfied. My mother has been living her for three years now and when she arrived everything
was in order. Now her health has become more fragile and she needs more support, it turns out that the care that is provided is very poor. All due to lack of structure and supervision by the management. The quality of care is falling and personnel and management are very amicably but they talk ‘about’ my mom and not ‘to’ my mom. Sometimes she has to wait very long before she receives support.

11-09-2014 “My mom has problems with bladder control. Just like the other elderly, she is only allowed to visit the toilet once every 3 hours. This really stimulates incontinence. It would be good to work more efficiently, so not all together...

Discussion

Principal Results

In this study, we showed that a Dutch health care rating site could be used to identify additional information for supervising quality and safety, especially in long-term elderly care. These findings indicate that social media may enable supervisory bodies to include the patients’ perspective in a more efficient way. Regarding incident-based supervision, social media provided relevant additional information in six of 40 incidents, and for risk-based supervision, social media provided relevant additional information in 72 of 116 cases. We also showed that the agreement about rating was acceptable for four out of five researchers.
results the DHI started with pre-selection by researchers, evaluating regularly the agreement with inspectors. We finally agreed with all stakeholders on a process of data import from the major PRS Zorgkaart Nederland into the risk database of the DHI, with presentation of the selected low scoring reviews for all long-term elderly care organizations next to other quality and safety indicators. To the best of our knowledge, this has been the first study of the added value of information on PRS’s for day-to-day supervision by healthcare inspectors.

During the preparations for implementation, we especially discovered that scarcity of time is one of the most relevant barriers for implementation. This is in line with implementation literature [16]. To prevent resistance by inspectors we tried to involve them during the design and restrict the time needed to spend as much as possible by pre-selecting only the negative reviews and filtering the reviews by urgency. In that way only the most relevant reviews appeared in the risk-based dashboard, ready for use by the inspectors. Nevertheless, enthusiastic inspectors are an important condition for such an implementation.

**Limitations**

First, not all health care providers or organizations have sufficient numbers of ratings to be of value for healthcare inspectorates. Therefore, caution is advised and it is important to verify the number of ratings. A second limitation is related to our study design that stops at the moment of daily use. It might be that inspectors will not use the system at all or will encounter all kind of barriers in daily practice. At this stage, we did not test the system.

**Future Work**

In the present study, we performed searches in the long-term elderly care. Future projects should investigate the generalizability to other health care sectors. This seems to be particularly relevant since the use of rating sites might vary between different demographical groups. Therefore, we assume differences between the sectors on content of reviews and their added value for supervision might be found. We are also planning research of the added value of other social media for day-tot-day supervision such as Twitter. This micro blogging service contains tweets about quality of care. A study performed by Greaves et al. in the UK found that 11% of tweets directed at hospitals were related to care quality[17]. Especially in the Netherlands, one of the most tweeting countries in the world, there might be an opportunity to retrieve useful information from those tweets for judging the risk of healthcare providers.
Conclusions
We conclude that social media could be used to include the patient's perspective in supervision. This information could be of importance for health care inspectorates, particularly for its enforcement by risk-based supervision of elderly care. Further research is needed to determine the added value for other health care sectors. During the conference we will be able to present the experiences of healthcare inspectors during the first half year of using PRS information in daily supervision.

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Conflicts of Interest
None declared

Abbreviations
DHI: Dutch Healthcare Inspectorate
JMIIR: Journal of Medical Internet Research

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