Quality Assessment of Family Medicine Teams Based on Accreditation Standards

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1. INTRODUCTION

Agency for healthcare quality and accreditation in Federation of Bosnia and Herzegovina (AKAZ) is authorized body in the field of healthcare quality and safety improvement and accreditation of healthcare institutions \textsuperscript{(1)}. Besides accreditation standards for hospitals \textsuperscript{(2)} and primary health care centers \textsuperscript{(3)}, AKAZ has also developed accreditation standards for family medicine teams \textsuperscript{(4, 5)}. In order to speed up and simplify the self assessment and external assessment process, provide better overview and access to accreditation standards and better assessment documents archiving, AKAZ has developed self assessment and externals assessment software for family medicine teams. This article presents the development of standardized software for self and external evaluation of quality of service in family medicine, as well as plans for the future development of this software package.

Keywords: family medicine, accreditation, healthcare quality, software development

2. ACCREDITATION STANDARDS

The standards have hierarchical structure comprising of 7 chapters or topics with 35 standards, their 161 criteria (both quantitative and qualitative) and number of sub criteria. Criteria are divided into three groups: basic, advanced and terminal. Similarly, the accreditation status family medicine team can achieve, can be basic, advanced and terminal accreditation. Beside mentioned, each criterion has its own measure components – sub criteria (quantitative or qualitative), thus accreditation standards structure being hierarchical with four levels: 1. Chapter (or topic); 2. Standard; 3. Criterion; 4. Sub criterion/Indicator. Criteria carry certain amount of points which is shared among its sub criteria/indicators. Sub criteria/indicators can be independent or interconnected for the purpose of assessment, and also can carry bonus points.

Family medicine team members (doctors and nurses), accreditation process facilitators, external assessors, accreditation board members and AKAZ personnel were identified as potential users. Information needs of each group as well as methods of entering, viewing, using, sharing and storing of those information were also taken into consideration. Based on accreditation standards structure and needs of different potential users, it was concluded that software backbone should be a database containing all accreditation standards, self assessment and external assessment details.
3. SOFTWARE DEVELOPMENT

We decided to create relational database comprising of four tables containing data about chapters (topics), data about each standard, basic data about each criterion and data about individual sub criteria/indicators as well as data about self assessment and external assessment, respectively. Unique identifier (primary key) was designated for every table. For table Chapters it was chapter’s number, for table Standards – standard’s number, for table Criteria – criterion’s number, and for table Sub criteria primary key was automatically generated number. In addition, in tables Standards, Criteria and Sub criteria, foreign keys (fields linked to primary keys of hierarchically higher tables) were designated. Because this was the first version of database, for simple design mechanism and straightforward user interface, we decided to utilize Microsoft® Access 2000. We created three MS Access files: one containing tables with data and relations (relational database), and the other two containing forms, queries and links on tables from the first file. The other two files acted as user interface, one for family medicine team's self assessment, and the other for external assessment. It was planned to provide family medicine teams with a two files – database and self assessment user interface. After the self assessment and before the external assessment, family medicine team would submit the database to AKAZ. Then, the database would be forwarded to the external assessor along with the external assessment user interface. It would enable external assessor to have insight into the self assessment results and to enter the external assessment findings. After the external assessment is done, automatically generated reports are printed and submitted to AKAZ along with the database.

Self assessment user interface is linked to database and contains several SQL queries for accreditation points summing by different levels of criteria, as well as several forms and sub forms for viewing and navigation trough chapters, standards, criteria, sub criteria/indicators, and entering self assessment data. External assessment user interface is somewhat similar to the one for self assessment, yet more complex. It is...
gram Based on Accreditation Standards for Family Medicine and Performance Indicators in Two Cantons – Tuzla and Posavina”. The database and the self assessment interface were installed on nine family medicine teams’ computers. Members of nine teams (doctors and nurses) were provided with basic training and support by telephone in case of unclear issues concerning the use of software. During one month all teams have done self assessment according the accreditation standards using the software and submitted their databases to AKAZ. During that period of time none of the users reported any error in the software functioning or any major difficulties in using it. On contrary, majority said that the software has been of great help and had very stimulating effect because they were able to follow their progress during the self assessment in any moment.

After reviewing of self assessments, AKAZ concluded that seven of the nine teams met the conditions for external assessment. Two external assessors were designated to every of the seven teams. External assessors were provided with teams’ databases and external assessment user interfaces. External assessment lasted for two days (17th and 18th of November 2008). For the purpose of external assessment external assessors used the software installed on their laptop computers. After completion of assessment they submitted the databases and printed reports to AKAZ. None of the external assessors has reported neither any errors in software functioning nor any dif-

linked to the database too, and contains several SQL queries for accreditation points summing by three levels of criteria, as well as several forms and sub forms for displaying and navigation through chapters, standards, criteria, sub criteria/indicators, and entering data from external assessment. It also automatically generates three types of printable reports on external assessment.

4. END USER TESTING

After the development the software was tested during the project of WHO and AKAZ “Quality Improvement and Accreditation Pro-

Figure 6. Main form of external assessment user interface

Figure 7. The first report with a summary of accreditation points by levels of criteria

Figure 8. The second (left) and third (right) detailed reports
All fourteen external assessors gave very positive comments on software and stressed the fact that the software has greatly eased their work during the external assessment of family medicine teams.

Data from all gathered databases AKAZ has imported into specially created database for analyzing and archiving. Preliminary results obtained by the analysis suggested that all seven family medicine teams could achieve basic level of accreditation. Rating of family medicine teams based on number of accreditation points was also determined, and all the results were forwarded to the Board which considers assessment reports and gives the final decision on accreditation. Further on, database of all self assessments and external assessments made possible analysis of overall fulfillment of all individual sub criteria/indicators and corresponding remarks given by family medicine teams’ members, facilitators and external assessors. Thus, identification of certain difficulties of some sub criteria/indicators fulfillment and need for their revision was made possible.

In meanwhile one limitation of the software was identified – prerequisite that appropriate version of MS Access is installed on user’s computer. In some cases that will not be practicable or it will require additional cost for purchase of MS Access application. In order to overcome the identified limitation, AKAZ plans further development utilizing the MS Visual Basic 2008 Express Edition tool for development of user interface linked to existing MS Access database. Software created in this way would eliminate the need for having MS Access installed on user computer. Further on, AKAZ also plans development of web based application which would allow online registration of family medicine teams, their online self assessment, and immediate feedback in the means of benchmarking, i.e. comparison against other family medicine teams. Bringing the spirit of competition into accreditation process, this could, further stimulate teams in their struggle for healthcare quality improvement. On the other hand, AKAZ would have a better and immediate insight in self assessments of teams who entered the accreditation process.

5. CONCLUSION

During this project we came to conclusion that software for self assessment and external assessment is ideal for accreditation standards distribution, their overview by the family medicine team members, their self assessment and external assessment.

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