

QUALITY ASSESSMENT IN OCCUPATIONAL HEALTH SERVICES: A REVIEW

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Abstract. Various understanding of occupational health services (OHS) roles, structures and functions in European countries depends mainly on the legal, financial and organizational issues, which influence the health of employees. The OHS aims and functions are often related to public health, and/or to the management of enterprises. In consequence, quality assessment (QA) of OHS is used in the management of enterprises and the implementation of health policy. The study was performed to delineate the methods and techniques used in OHS QA and to find the most useful ones, which might be applied in Polish occupational health services. The web pages, current literature, and international reports on OHS were reviewed. The OHS tasks, activities and methods for OHS QA are different in different European countries. Numerous voluntary methods are believed to be more effective, but their effectiveness is not as yet unequivocally proven. Quality assessment methods in Polish OHS are more similar to those used in clinical medicine. Good Practice in Health Environment and Safety Management in Enterprises (GP HESME) offers a new insight into in OHS QA.

Key words:

Quality assessment, Occupational health service, Good practice in health, Environment and safety management in enterprises

INTRODUCTION

Occupational health services (OHS) take on medical and non-medical activities, which are generally directed towards the protection of employees' health. The minimum requirements for OHS are declared by the countries, which differ from each other in economic, social and medical problems. However, various understanding of the OHS role, structure and functions depends mainly on the legal, financial and organizational issues, which influence the health of employees. The general information on different OHS systems in EU countries may be found in the Information Network of the European Agency for Safety and Health at Work [1]. It should be noticed, that the OHS quality is one of the Agency's priorities for the years to come. The OHS aims and functions are more and more

often related to public health, and/or to the management of enterprises. Globalization influences occupational health in different ways, and the problem of OHS efficiency also becomes an international issue, which cannot be solved without quality improvement and quality assessment (QA) [2]. Mutual exchange of information plays here an important role, and specialized networks may be useful tools. [3]. As quality assessment of OHS becomes the relevant factor for enterprise management and for health policy, a need emerges for right choice of QA methods according to the needs, capacities and possibilities of OHS units and employers. This work was undertaken to provide a general overview of the methods used in quality assessment of OHS with special reference to these methods, which are used in or are applicable to Polish OHS units.

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METHODS

Three methods of looking for information were used: websites survey, MEDLINE search and classic library search. The same sets of key words were used separately or in combination: occupational health, occupational medicine, and quality assessment.

The websites survey was performed by the use of 4 searchengines: Altavista, America on Line (AOL), Google and Yahoo [4–7], which are believed to be the most effective and/or the most popular ones in Poland. MEDLINE [8] was used for search without mapping. Finally, Evidence-Based Medicine (EBM) and Cochrane Databases were reviewed. The Internet searches were performed three times every quarter. Only the results of the last search on 1 March 2002 were taken into consideration.

Available reports on OHS QA were reviewed with special reference to legislation, inspection(s), financial incentives, supervision, accreditation/certification, training, research priorities and management.

RESULTS AND DISCUSSION

Looking for the websites containing the same key words provided surprisingly different results. A number of “hits” (i.e. websites found) is presented in Table 1. These data came from the last search in March 2002, but essentially the same proportions of results were obtained in September and December 2001. The differences in the number of ‘hits’ are very prominent if “QA” was looked for from 210 in Yahoo up to almost 1 500 000 in Google. On the other hand, AOL provided the largest number of “hits” referred to occupational medicine. However, the great majority of AOL information were advertisements

of different services and units of occupational health. It is striking that the difference in the number of websites with the issues on quality assessment and occupational health services in 4 studied engines was as high as over dozen times.

The number of “hits” did not provide the information on the contents of website and quality of information. However, the results of search of EBM reviews were not optimistic ones. No EBM review dealt with occupational health service, or occupational medicine, only three reports were found on occupational health [9–11], and two of them were devoted to health promotion. Better results were obtained from Cochrane Database search: 15 reports on occupational health, 2 – on occupational health service and 2 – on occupational medicine. None of the reports referred to the quality of occupational health care. This need for evidence-based information on the quality of occupational health care was shared by an Italian study on priorities in occupational health [12].

More information on OHS QA was obtained from websites if more specified questions were asked, or if tracking of links between consecutive websites was used. If you find good websites with regularly updated information and links then you can easily trace the data required. The abundance or lack of information is closely related to the formulation of key-words set. It very often happens that a wrong (too broad or too narrow) set results either in thousands of pages or in no effect at all. Better results of search could be obtained if one uses websites of an international organization [13] or research institution. Special source of information on European OHS is the Information Network of the European Agency for Safety and Health at Work. The Agency has been set up by the European Union in order to serve the information needs of

Table 1. The results of search for web pages containing given terms by different searchengines (1 March 2002)

Key words	Searchengine			
	Altavista	AOL	Google	Yahoo
Occupational health service (OHS)	1861	3591	6980	4310
Quality assurance (QA)	335 874	587 728	>1 440 000	210
OHS and QA	37	154	470	331
Occupational medicine	27 299	44 555	>98 600	25

people with an interest in occupational safety and health. [14]. Special website “Health, Environment and Work” has been issued and regularly updated by R. Agius [15] with valuable links to relevant information.

Countries and enterprises generally accept OHS QA. However, the understanding of OHS tasks and activities varies considerably. In consequence, the methods for OHS QA have to be derived from the defined priorities. The most important terms referring to health of employees are:

- Occupational Health
- Occupational Medicine
- Occupational Safety and Health
- Occupational Health and Safety
- Health Environment and Safety.

Although all these terms refer to multidisciplinary approach to the protection of workers’ health, there are different accents and responsibilities of safety engineers, occupational nurses, occupational physicians and various consultants. The most important differences are among the concepts of occupational health service, occupational safety and health, and occupational medicine. The Polish approach to OHS QA is reported elsewhere [16]. In brief, the difference between the majority of OHS models in EU countries and in Poland results from the significant role played by occupational physician (decision maker, not consultant) in the Polish system. So the QA methods in Poland are more similar to those used in clinical medicine. On the other hand, occupational health is understood mainly as a set of engineering and organizational methods of workers’ health protection with advisory role of occupational physician. This concept is supported by EU Directive 89/391/EEC [17]. Consequently, more technical and organizational methods are used for QA. Obligatory, minimum requirements resulting from legislation are QA methods based on the supervision system with remarkable role of labor and sanitary inspectorates. Besides, numerous voluntary methods (ISO standards, Good Practice, accreditation etc.) are believed to be more effective, but their effectiveness has not as yet been unequivocally proven.

The methods used for quality management in OHS are regularly reviewed and reports published. A certain

progress in OHS QA has been observed since 1994 [18]. Few years later WHO/ECEH material [19] was based on the outcome of the meetings of European experts. After next two years a similar review resulted in the report on good occupational health practice [20]. All the reports present a similar approach to OHS QA, i.e. an overview of aims, methods, and results of their implementation. The common feature of those reports is a holistic approach to workers’ health problems. The latest effect of the international co-operation on OHS QA are the WHO guidelines entitled “Evaluating Workplace Health – Guidance on Assessing Good Practice in Occupational Health Services”.

One may reveal some differences between materials based (mostly) on experiences of occupational physicians and other reports and guidelines prepared by the authors who are experts in organization, even if the physicians are supported by various experts in risk assessment, occupational hygiene, occupational psychology, etc.

The most popular and most famous system for quality assurance is undoubtedly ISO 9000–14000. The family of standards is presented in Table 2. There are standardized descriptions of the principles as they appear in ISO 9000:2000 and ISO 9004:2000. In addition, it provides examples of the benefits derived from their use and of actions that managers usually take in applying eight principles to improve the performance of the organization: (i) customer focus, (ii) leadership, (iii) involvement of people, (iv) process approach, (v) system approach to management, (vi) continual improvement, (vii) factual approach to decision making, and (viii) mutually beneficial supplier relationships.

There are many different ways of applying the quality management principles. The nature of the organization and the specific challenges it faces determine how to implement them. Many organizations find it beneficial to set up quality management systems based on these principles [20,21]. Also several other systems are based on the same assumption, i.e. that quality management does not depend on the sector, size, or maturity of enterprise [22,23]. However, there are some doubts resulting from the specificity of health care and occupational health serv-



Table 2. The family of ISO-9000 standards [20]

Standards and guidelines
ISO 9000:2000, Quality management systems – Fundamentals and vocabulary
ISO 9001:2000, Quality management systems – Requirements
ISO 9004:2000, Quality management systems – Guidelines for performance improvements
ISO 19011, Guidelines on Quality and/or Environmental Management Systems Auditing (currently under development)
ISO 10005:1995, Quality management – Guidelines for quality plans
ISO 10006:1997, Quality management – Guidelines to quality in project management
ISO 10007:1995, Quality management – Guidelines for configuration management
ISO/DIS 10012, Quality assurance requirements for measuring equipment – Part 1: Metrological confirmation system for measuring equipment
ISO 10012-2:1997, Quality assurance for measuring equipment – Part 2: Guidelines for control of measurement of processes
ISO/TR 10014:1998, Guidelines for managing the economics of quality
ISO 10015:1999, Quality management – Guidelines for training
ISO/TS 16949:1999, Quality systems – Automotive suppliers – Particular requirements for the application of ISO 9001:1994

ices. The development of quality systems in OHS requires that a fundamental question on whether health is a product should be answered. A positive reply implies that all rules and methods applicable to, e.g. the production of cars should also be applicable to health care. Unfortunately, the discussion on this question is far from being concluded. There are many specific problems, which cannot be defined as precisely as a car. The WHO definition of health does not facilitate the solution of this problem.

Moreover, ISO procedures are usually recognized as very complex, time-consuming and requiring professional support to the enterprise. For small and medium size enterprises other methods could be applied, namely accreditation and good practices, that require simplified methods – as compared with ISO standards. Good practices are usually poorly defined and, depending on the source, their definitions are based rather on intuition than on expert evaluation. The best defined terms are: Good Laboratory Practice (GLP), Good Clinical Practice (GCP) and Good Manufacturing Practice (GMP). Audits based on GLP, GCP or GMP have to be performed according to rigid rules and requirements. On the other hand, Good Practice in Occupational Health Services or Good Practice in Health Promotion are based more on the auditor's knowledge and experience than on the measurements of indicators [24,25].

The disintegration of different services (health, environment and safety) results in the dispersion of efforts, lead-

ing to poorer quality for higher costs of individual services that exist independently from each other. So, it is reasonable to concert all efforts directed towards the similar, or even identical aims. Good practice in health, environment and safety management in enterprises (GP HESME) is a process that aims at continuous improvement in health, environment and safety performance, involving all stakeholders within and outside the enterprise [26,27]. The key partners in GP HESME are employers and their organizations, representatives of employees, governmental agencies, local authorities, financial and insurance institutions, occupational health services, environmental and social services, associations of professionals, research and training institutions. The HESME system is intended to function at different levels: international, national, local community, and enterprise setting. In such an approach, GP HESME is fully integrated with health policy and environment policy at the local level.

GP HESME has been implemented in selected enterprises in Łódź (central Poland). Preliminary results indicate different needs of similar enterprises, even in the same sector. The majority of managers expect first of all economic appraisal and other methods of the OHS evaluation. Moreover, GP HESME may also be surprisingly recognized as a marketing technique, used for the enterprise promotion.

More popular than GP HESME are different methods of accreditation of OHS units. Accreditation is used mostly

for accreditation of hospitals, and different systems of accreditation are based on the fulfillment of numerous accreditation standards. The Joint Commission on Accreditation of Health Care Organization (JCAHO) is updating the standards regularly and advancing the methods for standard setting. However, the JCAHO is not even intending to accredit OHS. The Netherlands has the longest experience in OHS accreditation [28]. This concept becomes also popular in Poland. However, now the most important problem is the right choice of criteria and indicators used for accreditation standards. If the indicators are too detailed, the comparison of different OHS units is not feasible, and if the accreditation approach is too extensive, the idea of accreditation may be even lost, as all OHS units might gain high standard too easily.

An excellent description of the OHS evaluation was recently published by Park et al. [29]. There was shown the actual number of indicators, which have to be taken into account in practice. The problem of the right choice of criteria and indicators should be solved for different purposes: benchmarking, international comparisons and mostly for OHS QA. The significance of correct setting of indicators was shown by van der Weide et al. [30] in the study on rehabilitation of patients with low back pain in the Netherlands.

All methods of OHS QA require an appropriate set of criteria and indicators. This problem is well known, and the division of criteria and indicators into the categories of input, process, output, outcome, and performance is generally accepted. More complex is the limitation of the number of indicators, and the precise definition of particular parameters. The value of the right set of indicators cannot be overestimated [27,31]. The basis for setting indicators was shown in the report on work and health country profiles produced by the Finnish Institute of Occupational Health [32]. The indicators are divided into three groups:

- Indicators of prerequisites for occupational health and safety
- Indicators of working conditions
- Indicators of OHS outcomes.

Too large number of parameters does not facilitate their usage, on the contrary, the difficulties in the comparison may be due to an inappropriate (too extensive) set of indicators. That is why the term “core set of indicators” has been developed. The criteria of good core set of indicators are [32]:

- Consistency
(indicators well-defined, valid and comparable)
 - Non-redundancy
(each indicator addresses a different issue)
 - Comprehensiveness
(indicators cover all relevant areas of OHS)
 - Parsimoniousness
(indicators are as simple as possible, and not too many).
- Nevertheless, the most popular indicators of occupational health are still referring to accidents at work, occupational diseases, and sickness absenteeism, i.e. the ill-health parameters.

The success in OHS QA depends on the main forces engaged in the processes. So the fundamental question is: who is actually interested in better quality of OHS? A possible answer involves central authorities, local authorities, employers and their organizations, employees and their representatives, research institutions, the Labor Inspectorate, and the Sanitary Inspectorate. There are a few (if any) studies on the roles of different stakeholders in OHS QA. The future research in this field is required. The Polish OHS differ significantly from that of other countries as an occupational physician is still the core of the system being a decision maker and not an advisor. Therefore, QA methods in Poland are more similar to those used in clinical medicine. Consequently, the accreditation of OHS units seems to be the most promising method for providing the quality assurance.

CONCLUSIONS

1. Different methods of quality assurance in occupational health services reflect different models, terminology, and scope of occupational health services in different countries. The most common methods are based on supervision/enforcement: labor inspection and sanitary inspection.

2. Numerous voluntary methods (ISO standards, Good Practice, accreditation etc.) are used and believed to be more effective. However, their effectiveness has not been unequivocally proven.
3. GP HESME offers a new insight into OHS QA: occupational health as a managerial problem.

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