

Audit matrix for evaluating Finnish occupational health units

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Objectives The aim of this article is to describe how an audit matrix for occupational health units was formulated, what the preliminary results tell about its applicability, and how the matrix can help to implement the principles of “good practice in occupational health services”.

Methods Twelve areas eligible for auditing were selected for the matrix. According to the recently issued principles of good practice, the principles of total quality management and continuous quality improvement, each area was divided into descriptions of 4 quality levels, the lowest being given 0 points and the highest 5—6 points. The maximum total score was 72 points.

Results Of the 30 external audits, no unit had less than 18 points. Nine units had 19—36 points, 17 units had 37—54 points, and 4 units had over 54 points. “Maintenance of work ability” received the highest mean of the given points (4.1), followed by “curative care” (4.0) and “multidisciplinarity” (3.9). The lowest means were for “planning of activities” (3.1), “customer orientation” (3.2), and “quality improvement” (3.2).

Conclusions The audit matrix proved to be a practical method for auditing occupational health units, revealing both the most common flaws and strengths in the quality of Finnish occupational health services. Because the matrix has been accepted well by occupational health professionals and it manages to classify the units, it is probably a useful instrument for evaluating the performance of occupational health units and promoting good practice.

Key terms good practice in occupational health services, health services research, implementation of guidelines, quality improvement.

Since 1979 every Finnish employer has been obligated by the Act on Occupational Health Services to provide basic preventive health care for staff. These services were offered by 1025 occupational health units in 1992 (1). To enhance quality and effectiveness in occupational health services, the Ministry of Social Affairs and Health introduced the concept “good practice in occupational health services” in 1994. The aims of good practice are stated to be a healthy and safe work environment, a well-functioning work community, the prevention of work-related diseases, and the maintenance and promotion of the health and work ability of workers.

According to the regulations of the Ministry of Social Affairs and Health, “good practice in occupational health services” is ethical, effective, and high in quality. It is implemented by a multidisciplinary team whose members regularly update their knowledge and skills by means of supplementary training. The practice is method-

ical and includes follow-up and an evaluation of the quality and results of occupational health activities (both output and effects). Close collaboration with the workplace is essential to determine the actual needs and expectations of customers, to set goals for activities, and to receive feedback for quality improvement.

One of the most important elements in the procedure of quality assurance and quality improvement is the issuing of guidelines, since they provide advice on how daily medical practice should be carried out. Guidelines also constitute the basis for the criteria and standards used to assess the quality of care (2). In Finland, a guidebook on good practice in occupational health services was produced on the initiative of the Ministry of Social Affairs and Health; it was the result of collaboration between occupational health professionals and the representatives of authorities, trade unions, employer organizations, and relevant professional organizations.

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In order to support the preparation of the guidebook, the Ministry also initiated action-oriented field experiments on occupational health services. These experiments were started by our center in 1994 to observe the practices used in occupational health services, to describe the variation in practices and causes for such variation, and, ultimately, to develop standards for good practice. This approach follows the principles of a "pragmatic audit circle" suggested by Agius (3). Already during the preparation of the guidelines, emphasis should be placed not only on the scientific basis of the guideline but also on their implementation (2). One of the main aims of these experiments was to develop methods to enable and encourage occupational health professionals to attain high quality, customer-oriented occupational health services.

In health care, "audit" is the term used to describe the review of medical work by medical professionals (4). Both the structure (resources), processes (what done), and output (what achieved) of health care can be audited by auditors who are either from inside (internal audit) or outside the organization (external audit).

The process of audit is that of observing practices and comparing them with standards (5); this definition implies that agreed standards must be set prior to the audit. An audit, at its best, can offer the auditees educational

opportunities by providing a critical evaluation of current practices. The principles of audit have been implemented in occupational health services, for example, in evaluating patient consultation notes (6, 7), sickness absence, and fitness-for-work referrals (8), as well as in the management of employees with low-back pain (9). In 1990, 57% of 119 British occupational physicians were engaged in some form of audit (3). In Finland, so far, audit has not been a common approach to quality assurance.

This article describes how, in one action-oriented field experiment, an audit matrix for evaluating occupational health units was formulated and tested, what it reveals about the audited units, and how it can help to implement the principles of "good practice".

Material and methods

Fifty occupational health units participated in the action-oriented field experiments, lasting from spring 1995 to the end of 1997. The researchers collaborated with the occupational health professionals in meetings and

Table 1. Contents and structure of the audit matrix. [1 = good occupational health practice (5-6 points), 2 = good (3-4 points), 3 = satisfactory (1-2 points), 4 = poor (0 points)]

Planning of activities	Maintenance of work ability	Work-place surveillance	Health examinations	Curative care	Sickness absence monitoring	Multidisciplinary	Customer orientation	Quality improvement	Resources	Computer programs	Team work and training
1 Measurable objectives, follow-up and schedule documented	Role of occupational health services and cooperation with management and employees documented	Systematic follow-up and its documentation performed	Objectives defined and documented	Information used systematically to benefit preventive occupational health services	Regular reports on individual and group level	Cooperation with physiotherapist and psychologist or hygienist	Measured systematically to find opportunities for improvement	Systematic, continuous and documented quality improvement	Possible to produce occupational health services according to "good practice" in all workplaces	Serve follow-up and evaluation of occupational health services in many ways	Continuous improvement of work organization in the occupational health unit
2 Customer needs and demands defined and documented systematically	Primary and secondary prevention also by groups	Processes and objectives documented but follow-up insufficient	Summaries and follow-up even by workplace and by groups	Equal to primary care	Systematic monitoring	Regular cooperation with physiotherapist or psychologist	Customer satisfaction measured occasionally	Continuous but not documented quality improvement	"Good practice" can be almost fully applied	Everybody can use computers in all necessary functions	Systematic evaluation of the need for supplementary training organized
3 Action plan including key processes in appropriate details	Primary and secondary prevention on individual level	On-site visits performed systematically	Action plan including target groups, schedule and contents	Less comprehensive than primary care	Occasional monitoring on demand	Occupational health physician and nurse as a team in cooperation with safety personnel	Attention paid to customer complaints only	Occasional quality improvement	"Good practice" cannot be applied in all workplaces	Limited use of computers	At least monthly meetings planned in advance
4 Superficial action plan	Primarily curative care	No written reports	No systematic planning	No curative care or it is not given by occupational health physicians	No monitoring	Occupational health practically a responsibility of one expert only	Customer satisfaction never measured	No quality improvement projects	"Good practice" cannot be applied in workplaces	No available computer programs	Only occasional meetings

discussed their processes and work principles, comparing the different approaches. The field experiments lacked a rigorous study plan and could be flexibly changed according to the results and the needs of both the units and the researchers. This method was selected to avoid the "top-down" approach and to encourage innovations among the occupational health professionals themselves in implementing the principles of good practice in their daily work.

Because every participating unit was visited by the researchers, a structured audit matrix was formulated to give a uniform structure to the meetings. The criteria for the audit matrix were set according to the principles of continuous quality improvement and total quality management (10, 11) and the issued criteria for good practice. First, processes have to be recognized and documented; second, measurable objectives for activities have to be set; and, third, the systematic follow-up and evaluation of all activities has to be a standard procedure. The aim of the audit matrix was to help to document the work principles of the occupational health units and to make comparisons between them.

Table 1 presents the 6 key functions and 6 policies selected for auditing, based on the assumption that they could be reliably audited by an outsider. The matrix consists of the following key functions: planning of activities, maintenance of work ability, workplace surveillance, health examinations, curative care, and sickness absence monitoring. Multidisciplinary, customer orientation, quality improvement, adequacy of resources, availability of computer programs, and team work and training were chosen for auditing.

Each of the 12 areas has descriptions of 4 quality levels. Reaching an upper level demands that the criteria of the lower level(s) be fulfilled. The criteria have been set so that verification of the quality level would be possible with the use of existing documents. To make the result of the auditing even more concrete, the lowest quality level is given no points, followed by 1 to 2 points on the "satisfactory" level, 3 to 4 points on the "good" level, and 5 to 6 points on the "good practice" level. Meeting completely all criteria of a level leads to higher points. If the criteria are met only partially, the lower points must be used. Consequently, the lowest possible total score of the audit is 0, and the highest is 72 points.

During 1996, after the matrix was formulated, 30 of the 50 occupational health units were audited using the audit matrix, nearly all by the same researcher (KPM). During the visit, lasting for 2–3 hours, the areas of the matrix were discussed together with the representatives of the occupational health unit, and existing practices were compared with the descriptions of the quality levels. Due to lack of time, no documents were requested for verification even if it would have increased the reliability of the audit. The participating representatives of

the occupational health unit varied from the responsible occupational health physician and nurse to the whole occupational health team.

Results

The distribution of the total scores is shown in figure 1. If the maximum total score (72 points) is divided into 4 categories, no unit had less than 18 points. Nine units had 19–36 points, 17 units had 37–54 points, and 4 units had over 54 points.

The points given for the audited areas are shown in table 2. Of all the 360 assessments made by an external auditor in 30 units, 31% were rated "poor" or "satisfactory", 37% were rated "good", and 33% received a rating of "good practice".

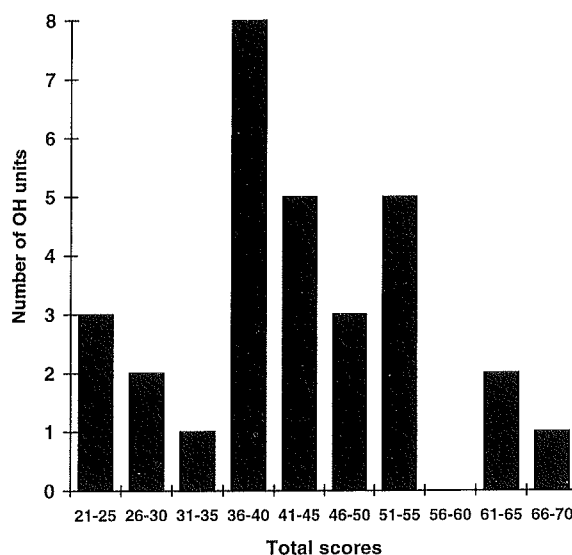


Figure 1. Total scores of the audit matrix in 30 occupational health (OH) units.

Table 2. Points given in external audits by area (number of units 30)

Area of activity	Level of assessment				
	Poor	Satisfactory	Good	Good practice	Mean of given points
Planning of activities	-	11	14	5	3.1
Maintenance of work ability	-	1	20	9	4.1
Workplace surveillance	1	8	8	13	3.7
Health examinations	-	13	7	10	3.4
Curative care	2	-	13	15	4.0
Sickness absence monitoring	-	11	8	11	3.4
Multidisciplinary	2	5	13	10	3.9
Customer orientation	-	11	14	5	3.2
Quality improvement	3	9	8	10	3.2
Resources	-	12	6	12	3.8
Computer programs	-	11	10	9	3.4
Teamwork and training	1	8	12	9	3.6

The fewest assessments of "poor" or "satisfactory" were given to "maintenance of work ability" (1 unit), whereas the most was given to "health examinations" (13 units). "Planning of activities" and "customer orientation" had the fewest assessments on the "good practice" level (5 units both), and "curative care" had the most (15 units).

"Maintenance of work ability" had the highest mean, one of 4.1, in the external audits, followed by 4.0 for "curative care", and 3.9 for "multidisciplinary". The lowest means were recorded as 3.1 for "planning of activities", 3.2 for "customer orientation", and 3.2 for "quality improvement".

Discussion

The audit matrix was formulated to give an overall picture of the key processes and principles of an occupational health unit. Some important areas worth auditing, for instance, "maintenance of first-aid skills", "management of occupational diseases and work accidents", and "health counseling" were not included because similar verifiable quality-level criteria have not, so far, been formulated for these activities.

The matrix applies the principles of continuous quality improvement to Finnish occupational health services, and it concretizes the concept of "good practice in occupational health services". It has been found essential to develop quality assurance standards and audit criteria for the policies, structures, key processes, and outcomes which have a critical bearing on occupational health care (12). The ideal occupational health services represented by the matrix is not at all unrealistic because 3 units already gained over 60 points, one unit being the first occupational health unit in Finland to get an ISO 9002 certificate. The variation in total scores reflects the ability of the matrix to classify occupational health units. The fact that the assessments were evenly divided between the quality levels (poor or satisfactory, good, or good practice) indicates that the given criteria match the situations in reality.

The results have revealed both the most common flaws and the strengths in the quality of Finnish occupational health services, even if the audited 30 units cannot be taken as a representative sample of all occupational health units. During the last few years, the maintenance of work ability has been actively promoted in Finland, and this activity explains the good results of the audit. Relatively high scores were also given to a multidisciplinary approach and to curative care, both of which have a long tradition in Finnish occupational health services. Curative care is an optional part of Finnish occupational health services, but it is often arranged by employers. Because it can be seen as supplementary to preven-

tive services, it was included in the matrix. In the units that do not offer curative services this area can be considered nonapplicable.

The level of documentation is still too low in many units. The key processes are well known by the occupational health professionals themselves, but only superficial documentation is usually available, even if documenting the processes is a prerequisite for their improvement. The needs of the customers and the objectives of key processes are also too often regarded as self-evident. In closer scrutiny, however, the "self-evident truths" usually display great variation even among occupational health professionals themselves. These defects explain the lowest mean scores in the planning of activities, in customer orientation, and in quality improvements.

The matrix has been accepted well by occupational health professionals because it is the first means to enable them to evaluate occupational health services to find the strengths of the services and their needs for improvement. The matrix has already encouraged occupational health units to use the matrix for self-evaluation even outside the experiments. Because the criteria are written in practical terms, no complicated instructions are needed. The audit matrix has been published in Finnish journals for both occupational health physicians and nurses.

The audit matrix can be expected to promote the implementation of guidelines for "good practice in occupational health services" because its use can support every step that needs to be taken to change behavior (13). The matrix helps people become informed about the existence of the new guidelines (orientation); it increases awareness of one's own performance and helps persuade one of the need to change (insight); it creates intention to change and provides confidence in success (acceptance); and it helps one recognize the positive outcomes maintaining the change.

The audit matrix has proved to be the first practical method for self-auditing and for external auditing in Finnish occupational health services. Comparison of the results between occupational health units is not reliable because the interpersonal variation among auditors has not yet been studied. Before the end of the experiments, all participating occupational health units will be re-audited by the researchers, and the causes for possible changes in processes and work methods will be discussed and documented. For the time being, auditing with this matrix has been subjective, but its verification with the help of existing documents, can help develop it into a more objective means of auditing.

References

1. Räsänen K, Husman K, Peurala M, Kankaanpää E. The performance follow-up of Finnish occupational health services.

- Int J Qual Health Care 1997;9:289—95.
2. Casparie AF. Guidelines to shape clinical practice: the role of medical societies: the Dutch experience in comparison with recent developments in the American approach. *Health Policy* 1991;18:251—9.
 3. Agius RM, Lee RJ, Murdoch RM, Symington IS, Riddle HFV, Seaton A. Occupational physicians and their work: prospects for audit. *Occup Med* 1993;43:159—63.
 4. Shaw CD. Aspects of audit, 1: the background. *BMJ* 1980;280:1256—8.
 5. Macdonald EB. Audit and quality in occupational health. *Occup Med* 1992;42:7—11.
 6. Agius RM. Peer review audit in occupational medicine. *J Soc Occup Med* 1990;40:87—8.
 7. Agius RM. An audit of occupational medicine consultation records. *Occup Med* 1994;44:151—7.
 8. Agius RM, Seaton A, Lee RJ. Audit of sickness absence and fitness-for-work referrals. *Occup Med* 1995;45:125—30.
 9. van der Weide WE, Verbeek JHAM, van Dijk FJH, Doef J. An audit of occupational health care for employees with low-back pain. *Occup Med* 1997;47:294—300.
 10. Berwick DM, Enthoven A, Punker JP. Quality management in the NHS: the doctor's role — I. *BMJ* 1992;304:235—9.
 11. Berwick D M, Enthoven A, Punker J P. Quality management in the NHS: the doctor's role — II. *BMJ* 1992;304:304—8.
 12. Agius R. Audit and quality in occupational health — searches for the weak links. In: *Quality and audit in occupational health services conference, abstracts*; November 1995. Glasgow: ICOH Scientific Committee on Health Services Research and Evaluation in Occupational Health, 1995.
 13. Grol R. Implementing guidelines in general practice care. *Qual Health Care* 1992;1:184—91.