Scand J Work Environ Health 1993;19(6):390-393

<https://doi.org/10.5271/sjweh.1457>

Issue date: 01 Dec 1993

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by [Wannag A](#)

Affiliation: Department of Health and Society, National Institute of Public Health, Oslo, Norway.

This article in PubMed: www.ncbi.nlm.nih.gov/pubmed/8153590

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Classification system for work in occupational health services

by Axel Wannag, MD¹

WANNAG A. Classification system for work in occupational health services. *Scand J Work Environ Health* 1993;19:390—3. Even though the World Health Organization has repeatedly advocated research on occupational health services to increase knowledge of its priorities and efficiency, no empirical study on work in such services is registered in major data bases. A common classification system for work in occupational health services is not available, but would facilitate comparison between studies. This report presents a feasible, reliable, and relevant classification for this purpose. Central among the policy-relevant questions on occupational health services is whether or not they work in accordance with their aims. Therefore, the project started from the aims of such services (in Norway and in the convention proposed by the International Labour Office in 1985) to obtain congruence between the instrument's eight categories of work and the aims of occupational health services. The classification was constructed in cooperation with occupational physicians and proved to be easy to use.

Key terms: evaluation, health service research, work planning.

Occupational health services in Norway cost around NOK 600 million a year and occupy about 5% of the worktime of all physicians (1). The services, aimed at assisting employers and employees in their work of preventing health risks (from physical, chemical, and psychosocial factors) and improving the work environment, handles a variety of tasks, and there has been much debate about their allocation of resources and their efficiency. In particular, occupational physicians have been accused of being more concerned with treatment than prevention (2—5). These discussions have generally not been constructive since they have been based on assumptions and not on empirical knowledge about occupational health services. So far, information is available from only a few cross-sectional studies focusing on the structure of occupational health services (2—7). These data shed some light on the effectiveness of occupational health services, but knowledge is also needed of the process — the work which is done in the services (8). The basis for such process research is the assumption that the closer a work task is related to the aims of a service, the better the chance that the outcome of the work is effective.

Even though the World Health Organization (WHO) has repeatedly advocated research evaluating occupational health services (9, 10), no empirical studies of the work in such services is registered in Medline, Excerpta Medica, Sociological Abstracts,

or Toxline data bases. The few studies which have been published in Norwegian and Swedish registered the time spent by occupational health service personnel on various activities (2, 3, 11—14). However, the activities chosen for registration (eg, meetings, health control, etc) are not sufficiently specific for a study of the priorities, effectiveness, and efficiency of occupational health services. For this purpose knowledge of the subject matter, the content of the work done by the personnel, is needed. Unfortunately no internationally accepted classification system exists for the work content of occupational health services at the moment. Neither WHO (15) nor the International Labour Office (ILO), in the convention and recommendation on occupational health services proposed in 1985 (16), have discussed or developed guidelines on the subject.

My goal in this article is to present a system for classifying the work content of occupational health services for use in future empirical studies. Such a system needs to be relevant, reliable, and feasible. Each of these aspects have been taken into consideration.

Relevance

The classification must divide and categorize the different work tasks of occupational health services in a way that enables questions to be answered on relevant policy. These questions often concern the relevance of the work to the aims of occupational health services. In fact, it is natural to start from the aims of services when such a system is constructed, to ensure that a work category has relevance for only one of the aims of occupational health services. However,

¹ Department of Health and Society, National Institute of Public Health, Oslo, Norway.

the objectives of occupational health services are often stated in general terms, and it has limited practical value to make one general category for all work with relevance to a general aim. One solution is to split a general aim into natural recognizable subaims and construct corresponding work categories for these. Such subaims are often described as tasks for occupational health services in official documents with comments and specifications on the general aims of such services. As different countries have different sets of objectives for their occupational health services, it might seem as if a system for categorizing the work must be a national affair. This problem can be overcome if the classification is constructed with enough categories to match the most extensive set of national aims. When the classification is used in a country with fewer objectives, some work categories simply collect information on work which is not related to the objectives of the occupational health services of that country. Such information can be valuable in the evaluation.

Therefore, it is likely that a system for categorizing the work of occupational health services can be constructed which can be applied internationally, if agreement can be reached on definitions of central concepts of the work done in occupational health services. However, the relevance of the work in a category to an objective of occupational health services must be established on a national basis.

It must also be taken into consideration that ILO, in its work with the convention and recommendation concerning occupational health services proposed in 1984 and 1985 (16–18), views occupational health services from the position of “the needs of the hired employees at work,” while WHO considers occupational health services as services to “the segment of the general population that is employed” (15). These two perspectives have resulted in somewhat different approaches concerning prevention and rehabilitation in the setting of occupational health services.

Rehabilitation, as used by the Norwegian labour inspectorate (19) and ILO (16), describes activities restructuring work conditions for ill or disabled employees in order to prevent further deterioration of their health from work strain. Thus occupational rehabilitation is in the realm of secondary and tertiary prevention. The primary preventive activities recommended for occupational health services in Norway and by ILO nearly all concern specific risks to employees at work. WHO (15), on the other hand, advocates the broad “health promotion” approach for occupational health services. This is to a large extent primary prevention aiming more at the health strain of employees in general than at strain from work.

For a categorization of work in occupational health services it seems better to keep the concept of occupational rehabilitation (as has already been defined by the Norwegian labour inspectorate and ILO), and split the primary preventive activities into those con-

cerned with risks from work and those concerned with health risks in general.

Furthermore WHO has an ambiguous definition of “work-related illness” (15). It comprises both the fact that work (to a varying extent) can cause illness and the fact that work can influence (most often aggravate) many illnesses once they are established whether factors in work or outside work are the causative agents. While fully recognizing that all illnesses and disabilities can be influenced by work (as reflected in the description of occupational rehabilitation already given), it seems better for a categorization of work in occupational health services to restrict the concept of work-related illness to those conditions in which a factor at work is the major cause (even if there is no good operational definition available at the moment).

The construction of the classification system started from the three general objectives of occupational health services in Norway as given by the labor inspectorate (19). These three aims also cover the functions of occupational health services as stated in the ILO 1985 convention (16): (i) improving the work environment, (ii) health surveillance of employees relevant to the exposures from work, and (iii) rehabilitation.

The general aims for occupational health services were split into subaims, and categories were devised for these subaims. Three occupational physicians individually evaluated the drafts of the categories and their definitions. The following eight categories were finally agreed upon.

1. Work which concerns the establishment of new work environments, for example, participation in projects deciding on new machinery, processes, buildings, and organizations and giving information on the health consequences of planned changes in the work environment. The category is called *securing future work environments*.
2. Work which concerns the existing work environment, for example, surveys of the workplace, evaluation of existing workplace hazards, documentation of previous workplace hazards, improving conditions in the workplace, education of employers and employees on workplace hazards, protection against workplace hazards which can not be removed, and assistance with solving conflicts in the workplace. The category is called *surveying and securing the current work environment*.
3. Work which concerns the consequences for the employees from work environment exposures, for example, documentation of individual employee's past and present exposures from work, health surveys (medical check-ups) of employees exposed to workplace hazards, construction of future supervision schemes for employees, treatment for work-related accidents and illnesses, help with vaccinations, health

certificates and similar requirements of work, and preemployment medical examinations (health requirements for specific jobs, eg, being a pilot). The category is called *individual work-related aid and surveillance*.

4. Work which is done to give employees with illnesses and disabilities work conditions that will not aggravate or strain their health condition. (The illness or disability can originally have been caused by the work or it can be unrelated to the work.) Examples are workplace and work practice modifications to match the employee's capacity and activities to promote the return of employees to work after sick leave (treatment for illness and addiction, as part of general rehabilitation, excluded and assigned to category 3 or 6). The category is called *occupational rehabilitation of individuals*.

5. Work done to inspire and help employees to change unhealthy life-styles. The category is called *influencing individuals' life-styles*.

6. Work with treatment and aid for nonwork-related accidents, illnesses, and problems. The category is called *individual nonwork-related aid*.

7. Work with the administration of the occupational health service organization itself. (All other administration, such as project planning and report writing, is allocated to the other appropriate categories depending on the content of the work which is done.) The category is called *administration*.

8. Work done to increase the competence of occupational health service personnel. (Education supplied by occupational health service personnel to employers and employees is allocated to the other appropriate categories depending on the aim and content of the education.) The category is called *education of occupational health service personnel*.

Reliability

Persons using the classification system must be able to assign the same work task to the same category.

Table 1. Individual rater's classifications of 39 descriptions of work tasks in occupational health services compared with the modal classifications of seven raters.

Rater	Kappa ^a	Standard error
1	0.61	0.06
2	0.73	0.08
3	0.88	0.06
4	0.70	0.08
5	0.70	0.08
6	0.72	0.08
7	0.91	0.05

^a Kappa calculated according to Cohen (21).

To test the interrater reliability, seven physicians were asked to categorize 39 written descriptions of work tasks in occupational health services. The overall interrater kappa was 0.59 with an approximate standard error of 0.02 (20). This is good agreement according to Fleiss, who says that kappas above 0.75 represent excellent agreement beyond chance and kappas between 0.75 and 0.40 represent good agreement beyond chance (20). None of the individual physicians disagreed markedly with the rest. All of the kappas, calculated according to Cohen (21), showed good to excellent agreement when the classifications of one rater were compared with the modal classifications of the group as a whole (table 1).

The classification system also gave good to excellent results in three test-retest situations. Two occupational physicians rescored the 39 written descriptions of work tasks after three months. This length of time was deemed sufficient for them to forget the initial scorings. One physician obtained a kappa of 0.79 with a standard error of 0.07; the other had a kappa of 0.61 with standard error of 0.09 (21).

I rescored 210 work tasks obtained by interviews with occupational physicians three and six months after the initial scoring. The 95 % confidence interval for my combined kappa was 0.91—0.95 (20).

Feasibility

To ensure that the classification system is feasible in practical work, I developed it in cooperation with three occupational physicians who made sure that the chosen work categories would be natural to occupational health service personnel. Seven physicians, two of them occupational physicians, have used the instrument. They found it simple to use and had no problem when classifying 39 written descriptions of work tasks in occupational health services.

Concluding remarks

The way this classification system was constructed seems to have ensured adequate relevance for the chosen work categories. The system has proved feasible for use in test situations and has excellent to good interrater and test-retest reliabilities.

Thus far, the classification system has been used by physicians to categorize work tasks in test situations. The procedure could easily be expanded to let occupational physicians describe how their own work time is divided between different categories. Surveys based on this approach could give valuable information on how the resources of occupational health services are used, for example, how resources are divided between work-related and nonwork-related problems, how much time is spent on preventive versus curative activities, and how official guidelines for services are met. Results from such a survey, based

on telephone interviews with 50 Norwegian occupational physicians, can be found elsewhere (22).

References

1. Wannag A. Bedriftslegene i Norge — antall og arbeidstid [The occupational physicians in Norway — number and working hours]. *Tidsskr Nor Lægeforen* 1989;108:2575—8.
2. Natvig H. Bedriftshelsetjenesten i Norge. Nå — og i fremtiden [The occupational health service in Norway — now and in the future]. Oslo: Tiden, 1979.
3. Svarva A. Idealer og realiteter i bedriftshelsetjenesten [Ideals and realities in the occupational health service]. Tromsø: Institutt for industriell miljøforskning, 1986. (SINTEF rapport nr STF 82 A86009.)
4. Natvig H, sen Thiis-Evensen E. Arbeidsmiljø og helse. Yrkeshygienens og bedriftshelsetjenestens frembrudd og utvikling i Norge [The work environment and health: the start and development of occupational health service in Norway]. *Norsk bedriftshelsetjeneste* 1983; 4:1—333.
5. Steen A. Offentlig styring i privat sektor. Styringsambisjoner og konflikter i bedriftshelsetjenesten i Norge [Public governing in the private sector: the will to govern and the conflicts in the occupational health service in Norway]. Oslo: Institutt for statsvitenskap, Universitetet i Oslo, 1992. (Forskningsrapport 01/92.)
6. Wannag A. Den mest heterogene helsetjenesten? Struktur og fagpersonellressurser i bedriftshelsetjenesten i Oslo 1988 [The most heterogeneous health service? Structure and personnel resources in the occupational health service in Oslo 1988]. Oslo: Statens Institutt for Folkehelse, Avdeling for samfunnsmedisin, Seksjon for helsetjenesteforskning, 1990. (Rapport nr 5—1990.)
7. Wannag A. Hva har de? Hva får de? Hva betaler de? Organisering, ressurser og kostnad for helsetjeneste blant NHOs medlemsbedrifter i Oslo 1989 [What do they have? What do they get? What do they pay? Organization, resources and costs for health service among the members of the Employers' Confederation in Oslo 1989]. Oslo: Statens Institutt for Folkehelse, Avdeling for samfunnsmedisin, Seksjon for helsetjenesteforskning, 1991. (Rapport nr 3—1991.)
8. Vuori HV. Quality assurance of health services. Copenhagen: Regional Office For Europe, World Health Organization, 1982. (Public health in Europe; no 16.)
9. World Health Organization (WHO). Evaluation of occupational health and industrial hygiene services. Copenhagen: Regional Office For Europe, WHO, 1982. (EURO reports and studies; no 56.)
10. Järvisalo E, Kalimo E, Lamberg M, Rantanen J, ed. Occupational health as a component of primary health care. Helsinki: National Board of Health in Finland, 1986. (Publications of the National Board of Health in Finland; no 94.)
11. Sveriges läkarförbund. Läkars arbetstider och tjänster 1979 [Physicians' working hours and services 1979]. Stockholm: Sveriges läkarförbund, 1979. (Latt 79.)
12. Svenska företagsläkarföreningen. FAFLA: Fördelning av företagsläkarens arbetstid [The distribution of the working hours of occupational physicians]. *Företagsläkaren* 1989;3:4—10.
13. Ekeberg C, Jonsson Ö, Persson PL. Företagshälsövrården i Jämtlands län. Verksamhet och inriktning av företagshälsövrården [The occupational health service in Jämtland county: activity and priority of the occupational health service]. Stockholm: Arbetsmiljöfonden, 1989.
14. Arbetsmarknadsdepartementet. Företagshälsövrården 1989 [The occupational health service 1989]. Stockholm: Arbetsmarknadsdepartementet, 1990. [Ds 1990: 23.]
15. World Health Organization (WHO). Identification and control of work-related diseases. Geneva: WHO, 1985. (Technical report series; no 714.)
16. International Labour Office (ILO). International labour conference 71st session: occupational health services. Geneva: ILO, 1985. (Report IV(1).)
17. International Labour Office (ILO). International labour conference 70th session: occupational health services. Geneva: ILO, 1984. (Report V (1).)
18. International Labour Office (ILO). International labour conference 70th session: occupational health services. Geneva: International Labour Office, 1984. (Report V (2).)
19. Arbeidstilsynet. Bedriftshelsetjenesten [The occupational health service]. Oslo: Arbeidstilsynet, 1990. (Bestillings; nr 501.)
20. Fleiss JL. Statistical methods for rates and proportions. New York, NY: Wiley-Interscience, 1981.
21. Cohen J. A coefficient of agreement for nominal scales. *Educ Psychol Meas* 1960;10:37—46.
22. Wannag A, Nord E. Work content of Norwegian occupational physicians. *Scand J Work Environ Health* 1993;19:394—8.

Received for publication: 11 January 1993.