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THE EUROPEAN GUIDELINES ON SAFETY AT WORK AS AN OPPORTUNITY FOR INTERDISCIPLINARY HEALTH PROMOTION*)

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ABSTRACT

The European Guidelines on Safety at Work are a challenge for the countries of the European Union. In Germany there is a situation of change, which forces the so-called Berufsgenossenschaften to reformulate their accident prevention rules and brings them into the new role of service providers. Corresponding to this, there is a remarkable helplessness, particularly in small and medium-size companies, in relation to these new offers. The health insurers in Germany are no longer allowed to finance prevention. Furthermore, data protection "impedes" the persuasive demonstration of in-house applicable knowledge. In a project destined to develop a risk catalogue for the different branches of the glass and ceramics industry a grid analysis was devised, which served as a basis for the development of required work place analyses. The risk catalogue was also used for in-house considerations of health promotion measures.

Putting the new guidelines of the European Union on safety and health at work into practice poses a problem to most countries. Too many questions remain unanswered: Where is the compromise when, as is well known, all requirements of guideline 89/391 cannot be put into practice? Where are the marks of quality of a risk analysis? Questions of this kind often lead to extreme opinions: On the one hand a fussy bureaucratic insistence on the observance of every detail of the rules, on the other hand the Laissez faire of those, who are used to "just getting on with the job". Between these are the more or less scientifically based compromises, either inclining to the side of the employer or the trade union.

Three current trends in Germany induced us to devote special attention to this subject: Firstly, the necessity for the German Berufsgenossenschaften, the employment accident insurance funds, to reformulate their accident prevention rules (employees qualified for labor safety) VBG 122 and (doctors qualified in occupational medicine) VBG 123 to adapt them for small firms; secondly, the action program of the Federal Ministry for Work and Social Affairs on the prevention and the fight against work related diseases; and, thirdly, the relieving of the statutory health insurance from the task of accident prevention and health promotion.

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The present situation in Germany is characterized by its particular position within the European Union (the existence of employment accident insurance funds, state inspectorates of factories, a state regulated health insurance system and, despite all complaints, a favorable economic situation in many companies), so the situation is not immediately transferable to other countries. The need to adapt as a result of the European standardization and of problems related to the economic situation led - although usually slowly - to processes of change the present state of which can be described as follows:

1. The main focus and area of competence of employment accident insurance funds still centers on their classical tasks, i.e. prevention of accidents and occupational diseases. This follows logically from more than 100 years of work in this field. The orientation of employment accident insurance funds to particular branches of industry ensures their high efficiency. The new social statute book VII considerably extends their competence in respect of prevention. Whereas until now, accidents at work and occupational diseases made up the responsibilities of the so-called Berufsgenossenschaften, in the future job related diseases will extend its tasks. The prevention of such diseases will increasingly influence the job of technical supervisory staff i.e. they will have to deal more than until now with psychological, social, mental and sensory problems in the work place. Measures to structure work places which go beyond accident prevention regulations and safety rules will be among the tasks of employment accident insurance funds. They will take on service functions for the companies. This change of role - from an authority to a service provider - cannot come about from one day to the next. The same applies for the perception on the part of the industrial companies.
2. The role of the companies is characterized by a process of disproportionment: In large areas, particularly in middle management, the classical attitude towards the unreliable "human means of production" dominates, whereas lower management has a great store of knowledge of strains and risks. The real process of disproportionment occurs in higher management, because that is where the attempt was made to become more independent of the human factor by investing in modern technology, only to find that unintentionally the dependence upon humans has now become even greater. Qualification of the workforce in these areas is much more expensive, more capital is "entrusted" to individuals, and it is no longer days or hours when machines stand idle that count, but minutes or even seconds. This same process is already ongoing in Japan where for some time companies have been rehiring their pensioners (up to the age of 68). In several factories we even found that at the same time firing strategies were practiced, and on the other hand management was increasingly at a loss to know how to deal with the "human means of production". This is where the call for external expertise on the human factor comes in, where health begins to be recognized as a factor in production, where strategies of the "Healthy Company" gain ground. A central idea of the "Healthy Company" concept is turning towards a preventive approach in the company. However, the concept of prevention is interpreted very variously in different companies. There are only a few companies, usually larger ones, that on the basis of positive experiences with concrete solutions to problems on a shopfloor, have institutionalized a path of their own. They are usually unaware of the difference between behavioral and systemic prevention, and even less do they realise the necessity of integration. Like many functions within a company, health protection and preventive measures are, as a rule, carried out on the principle of division of labor, i. e. they are usually simply administered. In our opinion, it was of little help that German health insurers instrumentalized prevention in their competition for market shares. Industry was only too willing to hand over responsibility to them. Only in places where this kind of "prevention" was carried out on a large scale, did its limitations or even inefficiency begin to be recognised.

Often a chain of argument is heard of the following form: If a program for preventive behaviors exists in a company, its employees are expected to maintain their health and performance themselves, and, consequently, the company may feel itself to be released from its responsibilities. Thus, the reproach is soon heard that employees generally lack a positive attitude towards their health. This process supports the disproportionment or polarization into an irreplaceable core workforce or the indispensable "pilots of the company" on the one hand and ancillary staff and rationalization reserves on the other. While the first group represents the core area for more or less strongly established active prevention, health impairment in the second group is de facto accepted.

No solution is yet in sight since, for the entrepreneur as for the employee, there is a lack of consistent feedback: The consequences lie in the distant future and cannot be definitively ascribed to this or that cause. At the same time, in Germany the entrepreneur is not directly liable for negative consequences of his own field of activity. As a consequence of the cost splitting practiced by employment accident insurance funds in Germany, health damage in less health-and-safety conscious firms is subsidized by the more health-and-safety conscious firms.

A result of this dilemma is that the interests of the insured are ignored, as is their knowledge on the facts at issue: Prevention, if implemented at all, is pushed upon the employees from above, instead of developing it with them.

Problems with health promotion and prevention occur particularly in medium sized companies. In small companies a knowledge of the important factors in strain usually exists, as does a basic willingness to institute change, but due to a lack of specialized knowledge, it is often difficult to put the changes into practice. In large companies specialized knowledge is by and large available (for instance a special department of ergonomics, a specialized occupational health service etc.). However, managers in large companies often lack the detailed knowledge of their counterparts in small companies. Besides, ergonomics in such companies is primarily directed towards an intensification of work, not towards prevention.

Medium sized companies suffer the evils of both sides: neither do they have access to lack of specialist knowledge nor are they personally affected by the fate of the workers.

Furthermore, it must be said that companies do not make proper use of the resources at their disposal. For instance, a company often pays external services to attend it in respect at VBG 122/123, but then contents itself with whatever these experts choose to provide "voluntarily". It does not call on them for active support about problems, often on the erroneous assumption that this is outside their area of competence (for details, see Mayer H et al. 1992). As a rule, there is a barrier to the application of knowledge on both sides: There is hardly any further training available for specialists in work safety, once they have qualified. News of findings takes a long time to reach the companies. Furthermore, the specialists in work safety are primarily company employees whose main job lies in other areas.

3. Health insurers are another problem area: In Germany § 20 of the social welfare statute VII regulates the tasks of health insurers in the field of prevention and health protection inside and outside of industrial factories. To comply with cost saving considerations, this paragraph has now been changed in such a way that it must be regarded virtually deleted. To put it simply: German health insurers must not spend money in future on prevention and health protection, and thousands of sports instructors and dieticians etc. are out of a job.

Over the years, German health insurers have more or less kept step with each other in establishing health protection services, 99 % of which lay in the area of behavioral health promotion. Back exercises, healthy eating courses, stress prevention and other activities from Tai Chi to belly dancing were distributed at large to the population. In our opinion, this gave only a limited advantage in the competition between the health insurers. A few health insurers attempted to introduce health promotion within companies, however, more (Federal Association of Employment Accident Insurance Funds) or less (Allgemeine Ortskrankenkassen) professionally and successfully.

In most cases nobody paused to reflect on the functionality in this field of activities, and no synthesis between the approaches to health promotion developed by the social sciences and those resulting from disease prevention ever took place.

Like the employment accident insurance funds, health insurers in the Federal Republic in Germany have in recent years always given the impression that their real role is that of an insurer. Commitment to the field of behavioral prevention particularly within companies, was restricted to the participation of a few lower ranking employees in planning sessions etc.

Due to the particular situation in Germany which is characterized by competition between health insurers projects by others and ourselves have failed to bring a group of health insurers to join together on the matter of workers' health. Viable cooperative relations between health insurers and employment accident insurance funds did not develop on a broader scale at all. However, this is just what is called under the auspices of the new § 20(1) SGB VII, although it is to be feared that the new wording of § 20, "work-related health risk" means no more than the old familial "occupational diseases".

4. Data protection laws in Germany obstruct many prevention measures, or are readily used as an excuse for lack of action. The health relevant data of a company are usually distributed among the following:

- several health insurers,
- occupational co-operative,
- occupational practitioners,
- qualified employee for labor safety,
- management staff,
- personnel department,
- employees and
- employee's attending physicians.

Nobody knows what information the others hold, or has access to it, resulting in loss of information and duplication.

In a project intended to investigate, prevent and fight job related diseases, we were able to demonstrate that the health disturbances which very probably have a crossrelation with working conditions, are the same as those for which applications for recognition as an occupational disease. Until now, we failed to analyse such data sets. Curiously enough, facts which are close to a recognized occupational disease, are not considered as input variables of preventive measures!

Due to the data protection most health insurers fail to specify data analyses from the mass of those insured by shop related classification criteria, because the latter are not stored.

It would also be most desirable, if it were possible to merge treatment data from employees with for example diagnoses certifying the inability to work. This is, however, principally not possible.

5. The next item is the importance of prevention for the national economy. Although the situation in Germany is regarded as overregulated and Germany considers itself as one of the leaders in health protection, exact comparisons on investments in ergonomics, prevention etc. in relation to the total investment volume of the national economy and as well as to the costs caused by investments not carried out are missing! It is, however, more likely, that such investigations are lacking because health related investments are marginal with respect to the total investment volume. This raises the suspicion that standards are not directed at the protection of health but at the interests of a lobby (one must think only of the, contrary to newer findings, much too high light intensities at computer work places prescribed by DIN 5035). Guidelines often reveal themselves as "rubbery paragraphs" containing too many exceptions, too long transitory periods (for example the EU guideline for video display units) etc. This, basically, "serves" only the interests of those companies, with little interest in effective prevention.

For more than 20 years the investigations of our Stress Research Group at Heidelberg University have been devoted to the humanization of working life and, thus, essentially, to the improvement of quality of life in the workplace. This included health promotion and disease prevention. In cooperation with a Centre for Occupational Medicine and Labor Safety, we now have a project running since 1994 as part of the action programme of the Federal Ministry for Labor and Social Affairs on prevention of work related diseases: From this project, the Saxonia, Sachsen-Anhalt and Thuringia "Occupational Medicine, Diagnostic and Advisory Centre" which seeks to define routine functions in the field of company prevention of job related diseases, the collaboration of the above mentioned partners arose with the Berufsgenossenschaft for the

glass and ceramics industry, with the aim of working out a “catalogue of risks and tasks” for the new accident prevention regulation VBG 123 for small enterprises. Here a matrix like grid procedure was developed suited to the classic watchdog role of Berufsgenossenschaft and as well to open prevention. Only if the data structures at the different levels are comparable to each other, and the constructs are of tested validity and reliability, cooperation between statutory work and health protection on one side and health promotion and disease prevention on the other side can succeed. This yields an input for the promulgation of scientific findings by health insurers and Berufsgenossenschaften that goes beyond the self advertisement. What we need now is to try to make this information accessible to all those active in the field of health protection and disease prevention.

Another way of connecting the twin levels is to expand ways of thinking about economic efficiency expanding the sense of time. It is a commonplace that in the long run prevention can lower costs and thus be more economical than not practicing prevention. Nevertheless, this economic efficiency is usually hard to prove, and most companies employ methodologically outdated ways of calculating economic efficiency. Furthermore, effects are often covered up by phases of economic recession and people often orient themselves unthinkingly to stereotypes (“sanatorium Germany”). Proof (usually disproof) of the effects of efforts at prevention is often based on ridiculous criteria e.g. expecting a reduced rate of absence due to sickness at the same time as the work process is being intensified.

The Berufsgenossenschaft for the glass and ceramics industry recognized early on the possibilities that might result from an open concept of an industrial medical care system not only oriented to risks but also to strains. It is centered on a grid survey which can be added to according to where particular areas of risk and strain are found to exist in a given company. Once the basic structure of the problem situations has been worked out, one can easily add on general approaches of prevention and health promotion, especially if the opinions of persons affected are fed into the grid analysis, and not merely so-called objective criteria. In the experimental phase currently running, not only the main foci of the operation of classical monitoring industrial medicine are established by this survey but it also serves as a basis for documentation of the workplace called for by the European guidelines.

This procedure has the advantage that now it is not only the external know-all expert who determines what the risks and strains are in a factory, but the company and all those on the shopfloor are given the chance to say “where it hurts”. A basic survey of facts relevant to health is, in our opinion, too good merely to serve in a reductionist way for monitoring purposes. It “ought” to be the informational-logistic basis of a comprehensive way of thinking and acting on health matters at the work site.

The analysis was designed to produce a data base on the distribution of strains and risks in small and medium sized companies in the 32 branches of industry covered by the particular Berufsgenossenschaft.

The first time, technical supervisors singled out for each branch individually those items from the catalogue of recommendations of the Association of Berufsgenossenschaften (see Table 1) whose occurrence could be ruled out in the target group. In this way, specific questionnaires were generated for each trade branch which were then applied in 308 firms with between 1 and 49 employees. These lists were used first to the production steps and departments in each shop, even if these, as often happens in small enterprises, there was overlap in the staff operating them. The numbers of employees, specified as women, men, juveniles and disabled persons, in each department were then added to the first list. Next, for each department the number of employees exposed to the respective risks and stressors was recorded. For the purposes of this survey the frequency and intensity of exposure to strain or risk, and also, except for special selected risks, the dosage involved are irrelevant. An excerpt of this catalogue is reproduced in Appendix 1.

The empirical data were statistically evaluated, yielding a trade-specific catalogue that revealed the percentage of companies under investigation in which both individual risks and stressors existed, and what partition of the work force in the various branches of the industry were affected. Since the emphasis was on qualitative, not quantitative data, the results are biased by the error of overestimation.

Tab. 1: Systematic representation of risks and strains assigned to 11 groups as recommended by a working group of the Association of Employment Accident Insurance Funds.

1. Mechanical risks.
2. Risks from electrical means of production and equipment.
3. Hazardous substances.
4. Biological risks.
5. Risks of fire and explosions.
6. Special physical influences.
7. Hazards caused by organisational shortcomings.
8. Other ergonomic deficiencies.
9. Nervous, mental, psychological and social strains.
10. Strains and risks resulting from the use of personal protective equipment.

Based on the analysis outlined above, the catalogue of risks and tasks evolved as an aid for the management, works committee members, occupational practitioners, employees qualified for labor safety and all others interested in structuring a humane working environment. Beyond that, the Berufsgenossenschaft fulfills the obligation to develop occupational medicine and labor safety cover for all firms in accordance with the accident prevention regulations “labor safety” VBG 122 and “occupational medicine” VBG 123 on the basis of branch-specific risk analyses and task catalogues. The catalogue is divided into a specialized part B, the product of the survey and a general part A, in which the individual protection goals are defined for all stressors and risk factors or, if these are also prescribed by laws or regulations, the standardized protection goals are indicated. In addition, aids for decision making, measures and possible solutions for risk reduction and so forth are appended, divided in

- safety technology and
- occupational medicine.

Since an up to date, integrated view of workplaces leads to overlap in the tasks of labor safety and occupational medicine, it is inevitable that similar matter will appear under both headings. General measures for labor safety as required of the employer by different laws and regulations have not been listed separately but have been indicated only for special risk situations. For example :

- to use safe and tested machines and equipment which are regularly checked and serviced,
- to identify dangers (for example from toxic substances, noise etc.) (if necessary by measurements),
- to elaborate and display operating instructions, and instruct employees in them regularly,
- to plan and supervise the employment of juveniles, women (especially in the case of expectant and nursing mothers) and disabled persons particularly carefully,
- to display regulations and laws requiring publication by law (for example accident prevention regulations, the law on working hours, the law for the protection of expectant mothers, the law for the protection of working juveniles),
- to organize an effective first aid service in accordance with VBG 109.

After the aforementioned analysis, a still running empirical phase was started. This revealed that, especially in small firms, a specific and systematic inspection of risks and strains, with the aim of establishing care, almost inevitably led to a discussion of health promotion.

The results of this initial joint discussion together with an inspection of the workplace can easily be used as a basic documentation for the workplace analyses called for by the European Union. In many cases this procedure led to an intensive dialogue about problems solving which culminated in cooperation on the redesign of workplaces and work procedures. As occurs in many projects for the detection of job related diseases, we create in the process the basis for long-term prevention and health promotion that goes far beyond labor accidents, occupational diseases and the original brief of occupational medicine. In the initial phase, labor safety and occupational medicine cannot be divided.

Beyond that, taking these experiences and the good working relationship between our institutions as our starting point, we shall develop trade branch-specific health promotion programs which run the gamut of disciplines from ergonomics to industrial sociology. We could start with the potters (ceramics factories). A similar program is in progress with our assistance in a hairdresser's guild, where a - financially unsupported - project on environment and health protection at the workplace (oriented to hazardous substances) has now been extended to the overall working conditions of the hairdressers, including body position, vision and lighting conditions etc. A number of hairdressers are participating voluntarily in the project with their own financial resources. In the same way as for large companies with an internal health insurance plan, where we have been supplied for many years by the Federal Association of Works-Based Health Insurers (Association of Health Insurers Internal to Companies) with works-specific or even department-specific evaluations of unfitness-for-work diagnoses the same is possible in the skilled trade in Germany. The hairdressers' guild health insurer has provided us with similar evaluations. This input is of decisive importance as it supplies, in addition to the occupational diseases reported to the hairdressers' employment accident insurance fund and the grid surveys in the workplace, possibly followed by specific, intensive investigations in selected areas, the parameters of the task catalogues, on the basis of which the knowledge held by the persons affected can be input via health groups or other small units. The external expert remains an important link here, but actions are taken internally by the company staff themselves.

Our Centre for Occupational Medicine and Labor Safety in Saxony in collaboration with another Berufsgenossenschaft (Food Industry and Catering), is taking part in an innovative project of risk analysis in the baking trade. This project analysed causes and possible preventive measures against obstructive lung diseases and led to the development of a prevention model for work related diseases. First of all, the complex interdependencies between the individual and the working environment are registered on a broad basis through an interdisciplinary collaboration to obtain an analysis of the risk state. This risk state analysis consists of four sections:

- Medical examination including an interview,
- a shop profile of the workplace,
- case history,
- material and nonmaterial investigations

Exceptional features of a simultaneous analysis of man and his work environment are investigations and measurements concurrently with the work routine , i.e. in the case of bakers also during night time.

Each is analysed in an interdisciplinary manner and provided with an assessment of its effects (Vonier J, Rosenau C 1996). This analysis is paid for and directed by the Berufsgenossenschaft for the Food Industry and Restaurants. All data are collected together by this body. The initial experiences show that substantial health and economic advantages do indeed result. Independently of this, for instance the experiences in Saxony show (Seibt A, Clemens J 1996) that here again an intermediary level is found at which health promotion and prevention in the workplace can be initiated cooperatively with the company, and this can be done in a way that keeps costs down.

Our work of improving the quality of life in the workplace over many years with well reputed companies, for example the Meissen Porcelain Factory, the software producer SAP, the Bosch Company and others, has shown that collaboration between a company, research and advisory institutions, Berufsgenossenschaft and health insurer create the long overdue basis from which on the one hand to meet the socio-political and national-economical concerns of European health and labor protection, and on the other to help companies in the short term to solve the problems that inevitably result from the limited degree to which human work deployment can be planned. Additional methods - from analysis of absenteeism to motivation analysis - can be of further value. We think that a routine advisory service, particularly in a time of shrinking financial resources, represents an ideal start at this level. The ideal situation, however, exists when a company already has a particular problem that it wants to solve.

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Appendix 1

Factory:	Sum for the whole factory	1. Administration	2. Goods entry and storage	3. Transport	4. Mechanical treatment (cutting, polishing)	5. Cleaning	6. Surface finishing	6.1 Coating	6.2 Screen printing	6.3 Chemical surface conditioning	7. Laminated glass assembly	8. Thermal treatment (tempering)	9. Quality control	10. Packing, shipping	11. Auxiliary departments	11.1	11.2	12. Workers unassigned to a department (eg. executives)	Remarks
16.5 Allergenes	2		1		1													1	
16.6 Carcinogenes																			
16.7 Materials hazardous at contact	2				2		2	2											
16.8 Other hazardous materials	3				2		1	1				2							
17. Physical requirements																			
17.1 Lifting and carrying of heavy loads	4		3	3							2			2					
17.2 Work in sitting position	2	2																	
17.3 Monotonous muscular strain	5		3								3			2				1	
17.4 Isometric muscle strain																			
17.5 Working above the head work																			
18. Gross and/or evident ergonomic deficiencies	5	2	3	3															
19. Poor accessibility of and/or restriction at the workplace	2												2						
20. Protective clothing required																			
20.1 Heat protection												2							
20.2 Skin protection			1																
20.3 Protective gloves																			
20.4 Respiratory protection																			
20.5 Head protection																			
20.6 Hearing protection	3																		

Appendix 2

Catalogue of Risks and Tasks of the Employment Accident Insurance Fund of the Glas and Ceramics Industry

Nr.	Risks, strains	(Normalized) protection goal	Aid to decision-making, measures, solutions towards risk reduction
1.	2.	3	4.2. Occupational medicine
8.2.	Lighting		4.1. Safety technology
8.2.1.	Inadequate lighting	- Detection of danger Avoidance of strains due to unsuitable lighting	- Creation of optimum lighting conditions - Adequate luminosity in relation to the work task - Observance of ZH 1/190
8.2.2.	Glare	- Detection of dangers - Avoidance of visual irritation Avoidance of monotonous body posture in cases of glare	- Creation of optimal lighting conditions - Ergonomic layout of workplaces
8.2.3.	Nonwhite light	- Prevention of accidents - Recognition of colored danger signals - Avoidance of impairing the employee's sense of well-being	- Striving for lighting close to daylight conditions - Optimization of danger signals with regard to the technical lighting requirements - Avoidance of dim light
8.3.	Factors relating to perception and handling		
8.3.1.	Ergonomic deficiencies	- Avoidance of risks and damage to health by adaptation of the workplace to the needs of the employee	- Medical check-up according to the individual work places (G25, G 37) - Personal and work place related consultation - Workplace-related consultation