Scand J Work Environ Health 1994;20(6):468-470

<https://doi.org/10.5271/sjweh.1372>

Issue date: 01 Dec 1994

43rd Nordic work environment meeting.

by [Leino T](#)

Affiliation: Finnish Institute of Occupational Health, Helsinki.

This article in PubMed: www.ncbi.nlm.nih.gov/pubmed/7701294

This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

43rd Nordic work environment meeting

In August of 1994 the Norwegian National Institute of Occupational Health organized the forty-third annual Nordic Work Environment Meeting in collaboration with the Nordic Program Committee. The meeting took place in Loen, 150 km northwest of Oslo. This tiny village of a few hundred inhabitants is situated in a beautiful green valley between snow-topped mountains in Fjordane. The meeting venue was the Hotel Alexandra, a luxurious congress hotel with good facilities and a wide selection of sea food on its menu. The meeting attracted some 200 participants from Norway, Sweden, Denmark, Iceland, and Finland. The main topics were sampling and analytical methods, company safety systems, musculoskeletal disorders, work-related health effects, studies in various economic sectors and hygienic surveys, and exposure and individual sensitivity; they were discussed in eight parallel sessions and a plenary session. Altogether 66 oral presentations were given, and 33 posters were presented.

Dr Jan Olof Levin of Umeå gave an overview of the Nordic Quality Assurance Conference, held on industrial hygiene the week before. The Conference reached a consensus in concluding that not enough industrial hygiene measurements are performed, authorities demand quality assurance, and also individual assurance of professional skills is needed. To improve quality, personal certification was favored by the Nordic industrial hygiene associations. It was suggested that for this purpose the Nordic Institute for Advanced Training in Occupational Health, better known as NIVA, could join others offering accreditation.

Four of the nine presentations on sampling and analytical methods dealt with the capacity of what is called the IOM sampler, developed by the Institute of Occupational Medicine (IOM), Edinburgh, to collect the respirable fraction of dusts as defined in the new standard of the European Committee for Standardization (CEN). It seems that the sampler collects bigger particles better and follows the CEN standard curve more accurately than the traditional 37-mm Millipore sampler. Consequently, either occupational exposure limits have to be corrected or norms have to be tightened. It was decided to organize a meeting later on these issues and to test the IOM sampler. The rest of the papers presented in the same session dealt with the analysis of coal particles in diesel exhaust fumes, dibenzofuranes and dioxins in chlorine bleaching in the paper and pulp industry, the collection of oil mist, the quantification of quartz particles with roentgen diffraction, and the

quantification of molds with gas chromatographic techniques.

The theme in the session on company safety systems was the health status of workers, the work environment, and safety in small and middle-size companies. All three lecturers were from Norway. Minimum requirements for company safety systems in Norway, according to new legislation, are a documented model for company and safety and health organizations, company policy and objectives for occupational safety and health, planning, prioritization, responsibilities and follow-up. Particularly work accidents, mishaps, and illnesses should be systematically documented.

Five speakers presented ergonomic risk assessment models and discussed musculoskeletal symptoms in work in magnetic fields, ergonomic analyses of lamination work, work load in work with visual display terminals, and the meaning of psychological stress in strain-related musculoskeletal disorders. In the session on musculoskeletal disorders Nils Fallentin, from Copenhagen, stressed that ergonomic risk assessment models are important, and they need to be introduced more widely. There is also a need to make policy decisions in this regard. In the discussion Professor Christer Hogstedt of Sweden pointed out that a Nordic criterion document on ergonomic risk assessment models is in preparation.

The session on work-related health effects comprised 24 presentations representing one-third of the lectures given at the meeting. Health outcomes of exposure to isothiazolinones, enzymes, mercury, aluminum, terpenes and 3-carene, cedar dust, acrylates, oil mist, and magnetic fields were covered. Individual sensitivity in exposure, individual health-risk assessment for intervention, and the quality system for the examination of occupational diseases were discussed. Seafarer's cancer risk, exposure assessment of solvents in the building industry, occupational accidents among elderly workers, occupational health problems and their causes in waste collection and recycling, and hairdressers' respiratory and skin symptoms were some of the specific topics discussed. Three presentations were based on the Swedish Information System for Occupational Diseases and Accidents. Ralph Nilsson, from Göteborg, reported an increased risk for oral, liver, and pulmonary cancer and also mesothelioma among seafarers. Possible work-related explanations could be exposure to asbestos and ultraviolet radiation. The risk for soft-tissue cancers was also increased. In another presentation on seafarers, Rolf Nordlinger, also from

Göteborg, noted that an association between cancers of lymphopoietic origin and work in tanker ships had been found in a nested case-referent study ($P < 0.03$). In Sweden a multicenter study is being aimed at finding individual variation in sensitivity to carcinogens, neurotoxic substances, and allergens. Margareta Warholm from Sweden had interesting data on the polymorphism of glutathione transferase (GST) isoenzymes. In earlier studies persons lacking one of the isoenzymes (GSTM1) were shown to have a higher risk for lung cancer. In Margareta Warholm's study of 200 workers 11% of the subjects lacked GST activity; this figure is considerably lower than that observed, for example, for a German population (30%). Fifty-two percent had no GSTM1 activity when tested with the PCR method. Agneta Rannug of Sweden continued on the same topic. GSTM1 seems to increase risk to different lung cancers in the Swedish population when compared with the risk determined for Japanese people exposed to tobacco smoke. New differences in the sequences of the CYP1A1 and CYP2E1 genes are under investigation to explain the difference. Several studies are under way among populations exposed to, for example, polycyclic aromatic hydrocarbons, isocyanates, and solvents. The N-acetyltransferase (NAT2) gene may cause the variation in the observed sensitivity to lung damage from exposure to isocyanates. Timo Leino of Helsinki reported the results of an epidemiologic study in which a fivefold risk for chronic bronchitis (odds ratio 4.9, 95% confidence interval 2.3–10.4) was found among hairdressers when the group was compared with saleswomen. Airway irritants used by the hairdressers were considered possible causes. Waste collectors had also been found to have an excess risk for work-related health problems (risk ratio 1.6, 95% confidence interval 1.4–1.8) in comparison with the entire Danish population. Otto Poulsen of Copenhagen reported on the joint program of the Danish Environmental Protection Agency and the Danish Work Environment Service. This five-year program aims at prevention and includes detailed exposure assessments and studies on adverse health effects among waste workers, who are exposed to a wide variety of microbiological organisms and their toxins.

Under the theme of study in various economic sectors and hygienic surveys altogether 18 presentations were given on topics dealing with the food industry, home waste collection, saw mills, agriculture, the construction industry, reinforced plastics, coke production, welding, anesthetic gases, and indoor air. Björg Eli Hollund of Bergen had measured organic dust concentrations with an IOM sampler in a large food manufacturing company and found levels varying between 0.1 and 30 $\text{mg} \cdot \text{m}^{-3}$, the highest concentration being found in the weighing section. Kåre Eriksson of Umeå had investigated Swedish saw mills and found terpene concentrations above the occupational exposure limits in some cases. Esti-

mating solvent exposure is a known problem. Gun Nise of Stockholm studied carpenters and painters exposed for less than 40 years to solvents in the construction industry by using cumulative exposure indices and estimated their relevance to actual exposure. More measurements are still needed, he concluded. Brigitte Nielsen of Lersø followed home waste collectors, who are exposed more to molds than to bacteria, *Penicillium* being the most common strain. Endotoxin levels were, in most cases, under 1.5 $\text{ng} \cdot \text{m}^{-3}$. Maj-Len Henriks-Eckerman of Turku had measured glycol ethers in 15 water-based paints. Their proportions ranged from 2.2 to 11%, and emissions from newly painted surfaces reached a rate of 67–390 $\text{mg} \cdot \text{m}^{-2} \cdot \text{h}^{-1}$. The proportion of ammonia was 0.01–0.42%. Construction materials containing gelatines were also found to emit ammonia, as noted by Beatrice Bäck of Helsinki. She had measured concentrations of 10–130 $\mu\text{g} \cdot \text{m}^{-3}$. After an environmental renovation program costing FIM 50 million the levels of polycyclic aromatic hydrocarbons had decreased in a coke production plant to one-tenth the level before 1987. The average exposure level to benzo[a]pyrene is now 0.3 $\text{g} \cdot \text{m}^{-3}$ as reported Lauri Pyy of Oulu. Per Söstrand of Oslo had found high levels of fluorine (4–67 $\text{mg} \cdot \text{m}^{-3}$) during the welding of stainless steel pipes, and also cadmium (maximum 6 $\text{mg} \cdot \text{m}^{-3}$), although the substances in use were claimed to be cadmium-free. As part of the EUREKA project, emissions from metal coating with the use of laser techniques were studied in Luleå, and they were found to be low. Lillian Berg, from Göteborg, had studied plasma-cutting techniques; the safest procedure was determined to be cutting under water. Smoke emissions were 100 times higher and nitrogen oxide four times higher with the dry-cutting method.

In two of the four papers given in the session on exposure and individual sensitivity, cancer markers were the topic of focus. One dealt with the current health parameters for indoor air, and Per Lundberg of Sweden asked if there should be special values for sensitive groups in the population. Herman Autrup of Aarhus reviewed current cancer markers and risk assessment using recent study data of a Nordic group. Methods for studying carcinogen adducts are immunologic, biochemical, and P32-postlabeling, the last of which is the most accurate method. For example, ethylene oxide adducts to hemoglobin can be used as an exposure marker. Exposure to creosotes has been followed with CYP1A1-gene expression. A relationship between exposure and cancer-specific P53 suppression gene mutations had already been found. If aflatoxin B₁ and hepatitis B antibody levels were both increased, the risk for cancer was considerably higher (risk ratio 53.6) than if only one of them (risk ratio for hepatitis B being 6.8 and that for aflatoxin B₁ being 3.3) is elevated. Chromosome aberrations can also be used for cancer risk assessment. A joint Nordic study found that, if aberrations were few, the

standardized incidence ratio for cancer was 0.7—0.9 and, if frequent, it was 2.1 (95% confidence interval 1.5—2.8).

Thirty-three posters were presented in the poster session. Also this year, the participants had the opportunity to select the best poster; this activity made the poster session much more interesting. Both the jury and conference participants were unanimous in selecting the poster by Bernt Bergstöm, of Örebro, and his co-workers; its title was "Comparison of Fibre Glass Tube and PVC-filter in Collection of Oil Mist." The study problem was precisely defined, the methods had been chosen well, and the results and conclusion were presented clearly. All this information was packed into a poster with taste and a beautiful layout. The runner-up was also from Sweden. In their study, Eva Dahlgren and her co-workers had found an increased risk for deaths from asthma among sulfite workers (odds ratio 2.4, 95% confidence interval 1.1—5.1). The winning group was presented with the "Nordfjord kärä" as a challenge

cup to be handed over from year to year to the winner.

Nordic work environment meetings have a long tradition in providing a forum for Nordic scientists to review topics in their subject areas, exchange new study results and ideas, and meet friends and colleagues. This year the meeting had been very well organized, and many thanks are due to the local organizing committee and its chairperson, Dr Ingvar Thomassen. Next year the forty-fourth meeting will be held in Naantali (Nådendahl), Finland, on 27—29 August 1995. It will be especially important because of the changes in the relationship between the Scandinavian countries and the European Union. Welcome!

Timo Leino, MD
Finnish Institute of Occupational Health
Topeliuksenkatu 41 a A
FIN-00250 Helsinki
Finland