

REPORTS

REPORT ON XXII INTERNATIONAL CONGRESS ON OCCUPATIONAL HEALTH, SYDNEY, 27 SEPTEMBER — — 2 OCTOBER, 1987

XXII International Congress on Occupational Health was held in Sydney, Australia, from 27 September — 2 October, 1987. It was convened at the initiative of the International Commission on Occupational Health (ICOH) which was founded eighty-one years ago to support and coordinate the activities of occupational health practitioners. The aims and objectives of the Congress were presented by Nancy Bundle, the Congress Chairman and Head of the Scientific Committee. She declared that the theme 'Work for Health' had two applications. "Firstly, it suggests that work should benefit health, not damage it. Secondly, the theme implies that occupational health practitioners from all over the world have a responsibility to work for the health of all workers by the year 2000, in line with the WHO's general policy".

The aim of the Congress was to review current research concerning occupational health, with special regard to activities aimed at health promotion. The Congress theme was responded to with keen interest by many specialists in different branches of occupational health from all over the world (more than 760 abstracts of reports and presentations were submitted). The Congress theme was also attended by a large number of medical practitioners, both physicians and nurses, toxicologists, ergonomists and psychologists from various research centres and other institutions. 288 oral reports were delivered and 178 posters displayed in poster sessions. The Congress language was English and, partly, French. The majority of reports came from Sweden — 79, Japan — 76, Australia — 66, USA — 38 and Finland — 36.

The Scientific Programme comprised morning and afternoon sessions. During the former, the Keynote Addresses and oral reports (according to particular problem groups) were delivered. The afternoon session was devoted to presenting oral reports as well as posters. There were 29 problem groups for oral and 27 for poster sessions. The prevailing problems included toxicology (with special regard to occupational metal poisonings) — 35 reports (i.e. 7.4% of all the presentations); work hygiene — 32 reports (about 7%); occupational cancer epidemiology — 23; work in the chemical industry — 22; occupational health nursing; the physical environment; psychophysiology; social aspects of occupational medicine; computer use in occupational health. Most of the presentations (both oral and poster) were based on empirical studies (diagnostic and analytic) rather than theoretical considerations. The high standard of presentation of all the materials — especially in the poster sessions — should be stressed. The essentials of the Keynote Addresses and the most significant of pioneer studies will be discussed later in the text.

KEYNOTE ADDRESSES

Eight Keynote Addresses concerning recent approaches to occupational health were presented during the Congress. The Scientific Committee would often stress that the speakers' intention was to present their own attitudes towards a problem

rather than elaborate on them. Thus it seems justifiable to discuss briefly the main ideas of these speeches delivered by eminent specialists in occupational health and safety.

The first to present a Keynote Address was Dr Dennis Else, Head of the Health Care and Work Safety department at the College of Advanced Education, Victoria, Australia. In his report on **Work injuries — multicausal theory** he pointed out the negligence and improper policy which often surrounds the organization of health care and work safety and hygiene services. He also discussed the unsatisfactory results of manpower development and training. In addition he demonstrated the inadequate recognition of occupational hazards, both on the part of workers and their employers. His report was the result of a thorough analysis of the current situation in this area. Dr Else has developed a multicausal theory concerning occupational diseases and work injuries, which is based on this study.

Another speaker was Bernadine Kuchinsky, a consultant in occupational health nursing in the National Institute for Occupational Safety and Hygiene (NIOSH), USA, who gave a presentation on **Occupational health practice**. The following problems were discussed:

1. workers' health conditions and their consequences such as the occupational **cancers** which result from exposure to work hazards, work-related diseases of the respiratory, musculoskeletal and circulatory systems;
2. projects and strategies concerning work hygiene and safety (the promotion of the WHO Project on Health for All by 2000 was encouraged). Dr Kuchinsky also stressed the importance of legal regulations in this respect, as well as the necessity of establishing relevant research institutes to deal with the problem;
3. projects and plans for modifying the activities of occupational health practitioners.

On the following day, the experts who presented Keynote Addresses were Edward L. Baker, Deputy Director of NIOSH, Prof. He Fengsheng, Director of the Institute of Occupational Medicine, Beijing, China, and Dr Kari Hemminki from the Institute of Occupational Health, Helsinki, Finland. The reports concerned, respectively, **Solvent neurotoxicity; Occupational toxicology — current problems and needs; Pregnancy outcome and occupation**.

The role of these Keynote Addresses was to introduce reports in particular problem groups including occupational toxicology, pesticide poisonings, cancer epidemiology, work hygiene, occupational allergies, psychophysiology, biological monitoring, health problems of chemical industry workers. These problems were commented upon at group meetings during the afternoon session on September 28 and the whole of September 29.

On the fourth day of the Congress, the speaker was Dr Paule Rey, specialist in occupational health and ergonomics, Deputy Director of the Institute of Social and Preventive Medicine, Geneva, Switzerland. Her report, on **Health effects of the new technology** provided evidence for the theory that although work automatization in industry, public services and administration leads to decreased workload and fatigue as well as to a lower incidence of work injuries and occupational diseases, it may bring about some serious problems, not previously encountered. According to Prof. Rey, new technologies contribute to the development of new occupational hazards.

Prof. Tores Thorell, of the Swedish Institute of Health and Psychosocial Factors, outlined the epidemiological, physiological and psychological factors which



underlie occupational stress. In his speech, **Stress at work and risk of myocardial infarction**, he introduced a Swedish project on the elimination of stress which heightens the risk of infarction.

The last of the Keynote Addresses was delivered by Dr Kazutaka Kogi from Japan, a specialist in occupational health and safety, ILO consultant for Asia and the Pacific Region. It was devoted to the **Organization of work and shiftwork in the developing countries**. The report dealt with the typical relationship between working conditions and the possibilities of ensuring occupational health and safety. He emphasized that, according to the ILO study, the improvement of conditions of particular workposts depends on proper work organization and ergonomics. Dr Kogi indicated three basic factors which must be considered in the designing of workplaces, namely:

1. necessity of limiting the so-called 'work in elements'
2. possibility of communication between workers
3. active participation of the workers in work planning as well as application of self-regulation and self-control techniques.

ORAL PRESENTATIONS

The problems discussed at Session 1 focused upon Education for Occupational Health (7 reports and 5 poster presentations). Apart from European countries, the speakers came from the Far East — Indonesia, Singapore and Hong Kong.

The reports described curricula and principles of education, with regard to both under-graduate and post-graduate training in medical colleges and university departments. The following presentations were delivered during that session: **Continuing education in occupational medicine; Education and training for occupational health and safety**. In the second of the reports, the need to integrate a two-system approach was stressed. On the one hand, the diagnosis and treatment of occupational diseases and health impairments should be the main objective. On the other, training curricula should be modified with a view to promoting a proper attitude towards health.

16 reports and 4 posters were presented during session 2, Epidemiology — General. Most of the time was devoted to discussing the epidemiological aspect of circulatory system diseases (3 reports from Australia, 1 from USA and 1 from Finland). Within that group, the Finnish study on **Mortality of doctors as compared with some other professions**, seemed to be the most interesting. N. Nurminen, A. Rimpela and P. Pulkkinen analyzed the causes of death of 166 male doctors (out of 3269) and 27 female doctors (out of 1232 women under study). The data concerning the mortality of physicians were compared with those for some other university graduates with equal social status and a similar yearly income (e.g. architects and engineers). The study revealed that, with the exception of mortality from malignant neoplasms, the mortality rate for physicians always exceeded that of other professional groups (for suicides the rate was even twice as high) thus it can be concluded that physicians do not make use of their competence and skills to cure themselves and the famous saying 'Medice cura te ipsum!' seems to be applicable here.

Another interesting report was that of F. D. K. Liddell from Canada who tried to answer the question **How healthy is the 'healthy' worker?**. The Japanese presentation **Women's health in employment status**, by M. Masaki, was also of

some interest. The speaker compared health conditions of housewives and workers in public service.

A great number of reports (16 oral and 7 poster presentations) were discussed during Session 8, Epidemiology — Cancer. The session dealt with the problem of occupational cancer in different countries. The investigations concerned various professional groups including metallurgists, welders, telecommunication industry workers, chimney-sweepers, butchers, etc.

A very interesting presentation was delivered by Australian researchers who had studied **Mortality from cancer in relation to intensity and duration of occupational exposure to krocidolite**. Also worth noting was the report of J. Claude and E. Kunze (FRG). The German speakers confronted some aspects of lifestyle, such as smoking, drinking habits, daily diet, pastimes and relaxation, with work-related factors of the risk of urinary system cancers. Their findings revealed that drinking excessive amounts of various liquids (more than 2 litres a day), a diet of fatty foods lacking in fruit and vegetables, contributed to an increased risk of cancer. The authors pointed to the link between lifestyle and professional work which may even contribute to the development of so-called 'reinforced' hazards.

The work at Session 3 concentrated on computers in occupational health. Most of the reports came from the Scandinavian countries (Sweden and Denmark). During the meeting, 14 reports and posters were presented dealing mainly with the problem of standardization of data banks which would facilitate the design and implementation of national research projects on occupational health and safety. As was stated in the Australian report, at present there is no comprehensible and compatible data bank which concerns occupational diseases and work-related health impairments.

As regards the number of presentations, the toxicological session dominated. Two main problem groups were discussed, Toxicology — General (19 reports and posters) and Toxicology — Metals which referred to metal poisonings (35 presentations including 20 reports). The Japanese and Swedish reports predominated during those sessions (26 and 11 reports, out of 54 total, respectively). The prevailing problem was that of the effects of exposure to organic solvents such as benzene, toluene and styrene (general toxicology) and heavy metals (toxicology-metals) both in relation to humans and experimental animals (apes, rabbits, rats). Among other things, the reports concerned the following aspects: **Possible interaction between toluene and noise causing auditory impairment in rats; Mutual metabolic suppression between benzene and toluene in man; Genotoxicity of benzene and its metabolites in the battery of in-vitro short-term bioassays; Quantitative determination of nickel in lung tissue as an index of previous occupational exposure; The kinetics of chromium in welders after short-term exposure to stainless steel welding fumes; Renal function in workers exposed to inorganic mercury.**

Practically all of the reports were based on empirical studies carried out by occupational health practitioners or other researchers from medical colleges or university departments.

Session 15 dealt with problems related to Ergonomics (19 reports) including static and excessive workload and forced work postures. The studies referred mainly to corrective ergonomics, except for a few reports regarding conceptual ergonomics, e.g. an Israeli study on **New design for the bus driver's workplace to increase crash worthiness and reduce injury risks**; or the Swedish report on **Ergonomic programme for warehouse workers**. The presentation by G. Sundelin and M. Hagberg is also worth considering. The authors, trying to answer the title question **No benefits of teaching ergonomy among workers?** discussed the example

of a 6-month training course in ergonomics for shoe factory workers. It was discovered that 80% of women workers adopted an appropriate health attitude thanks to the course. The general improvement of their health condition, due to the application of certain ergonomic techniques, could also be observed.

Australian researchers commented upon the results of electromyographic examinations in which 1000 office and factory workers participated. The resulting data confirmed that it is the workpost and work performance that account for the development of so-called 'occupational pain'.

A very interesting publication, **Postures and loads — guide of the strain in different body positions** was introduced by E. Hammarskjöld and C. Carlsoo from Sweden. In the nine chapters of the book, they not only discussed work postures and workload but also classified them and evaluated the impact that these factors may have. The guide was prepared in consultation with specialists in the construction industry as well as rehabilitation and kinesitherapy.

The problems of inappropriate work postures are associated with the subject of Session 9, i.e. Musculoskeletal Disorders (8 reports and 5 posters were presented). Within that group, reports from USA, Australia and Scandinavian countries dominated.

Most frequently encountered are diseases of the shoulder, neck and spine, which develop in workers of different professions, such as machine operators (Swedish and American studies), social care workers (Japanese study), shoe factory workers (Japanese study).

An interesting report was delivered by B. Nilsson, a Swedish therapist who discussed the activity of different practitioners who specialize in 'occupational' physiotherapy. The groups consisting of a physician, a nurse, a physiotherapist and a work safety specialist organize special training courses concerned with teaching appropriate work postures and relaxation techniques.

The problems of musculoskeletal ailments were also discussed during Session 11 on the Construction Industry. The following reports were presented: **Causative factors in occupational injuries in the construction industry; Predictability of back trouble in construction workers; Systemic survey for health and safety hazards of workplaces in the construction industry and its use in Finland; Physical training and ergonomic counselling for Swedish construction workers with the largest low-back pain.**

The majority of reports (9 out of 12) were delivered by representatives from the Scandinavian countries (mainly Sweden).

Session 6, which concerned the problem of Occupational Lung Diseases, comprised 8 reports and 11 posters. According to the speakers, the highest risk of occupational lung diseases is found in work in coal and metal ore mines (especially copper mines) as well as in fire-fighting and welding. As regards occupational diseases of the respiratory system, it seems that the best recognition of the problem, as well as the application of relevant diagnostics, may be encountered in the USA. The American representatives described **Additional methods for measuring cough and breathing difficulty in respiratory health surveys.** They also commented on **Energy-dispersive X-ray analysis of transbronchial biopsy specimens in the diagnosis of silicosis** and discussed the results of **The fourth round of the national study of coalworkers' pneumoconiosis.** Here, not only was the subject of the study interesting, but so was its methodology which included the avoidance of systemic errors.

There was also a number of presentations from Far Eastern countries, eg. Singapore. The topics referred to **Assessment of small airway function of fire-**

-fighters using the forced expiratory spiogram; Effects of coalworkers' pneumoconiosis and lung function changes in silicosis — a ten-year follow-up study; Closing volume of coalworkers' pneumoconiosis in Korea.

The adverse effect of smoking in persons suffering from occupational lung diseases was also emphasized within the reports presented during that Session. Also related to those problems were the subjects of Session 18, Organic Dusts, and 36, Mineral Fibres, which are both hazardous to the respiratory system, particularly the lungs. The reports described organic dusts and powders (turf, tobacco, cotton, soya, condiments) as agents inducing respiratory system diseases. The role of smoking in the activation and development of symptoms of disease was frequently discussed (e.g. Chinese report on **Pulmonary function study in retired cotton textile workers and its relationship to cigarette smoking**). During that session, only 4 reports and 2 posters were presented, whereas at the session on mineral fibres 8 reports were discussed and as many as 10 posters displayed. Discussions focused on asbestosis (11 reports) and its specific aspects including: the cause of asbestosis (Canadian study), the symptoms (Japanese study), mortality (Canadian study), diagnosis (American study), exposure to high and low doses of the agents of asbestosis (British and Chinese studies). The majority of presentations followed empirical studies in mineral industry workers, mostly men.

An interesting case study was discussed by J. M. G. Davis, from Edinburgh, who provided **Experimental evidence for lack of tissue damage and diseases following exposure to low doses of asbestos**.

The reports presented at Session 10 dealt with the problems of Mental Health in Industry. Special attention was paid to the necessity of applying a systematic approach to mental health care in industry (something suggested by M. Takigawa, Japan). Among the reports there was an attempt to answer the question **How much feeling of stress does the worker have?** (M. Kumashiro, Japan) and a description of **Methods of preventing stress**, as applied in Sweden (M. Hane). Of special interest was the Japanese study on **Self-regulation method and mental health: physiological considerations**. The British speakers remarked on the **Problem of stress in the entertainment industry**. Another report referred to **Emotional problems of the disabled worker who cannot return to his former occupation**. The study concerned workers who have become disabled due to traffic accidents or work injury.

From the point of view of methodology and practice, one of the outstanding reports was that of S. Suzuki and S. Aoki, Japan, who have developed a **Health questionnaire to measure and evaluate subjective feeling of health (Todai Health Index)**. The questionnaire is based on data concerning symptoms of ailments and 'feeling ill' reported by 40,000 Japanese people. The register of symptoms was verified and the usefulness of the index evaluated according to the results of the study on these symptoms in 6,000 trade and office workers in Japan.

At the session devoted to Occupational Allergy, 3 reports and 5 posters were presented, whereas the session dealing with Chemical Industry comprised 8 oral and 6 poster presentations. It was the reports of British, Swedish and Japanese researchers that dominated both the sessions. They were concerned with the problems faced by the workers of laboratories and chemical plants.

The session on allergies centred upon several aspects of this topic including **Allergy in the pharmaceutical industry; Occupational asthma — antibody identification; The value of Serial Peak Flow Rates in the diagnosis of occupational asthma; Follow-up of patients with occupational asthma due to tetrachlorophthalic anhydride**.



At the session on occupational diseases of workers in the chemical industry, the speakers discussed the problem of **Occupational dermatitis at a factory producing laminates containing phenol-formaldehyde resins; Bronchial activity and exposure to amines and isocyanates**. The prevailing theme was that of the adverse effect of a given chemical on workers under exposure compared with the results obtained in the control group. Another method of study consisted in analyzing causes of death in workers exposed to the agent in question.

Session 13 referred to Accident Prevention. A very interesting report was presented by Finnish researchers who discussed means and methods for the improvement of accident prevention. They had undertaken a project on the principles and procedures for work safety designed to stress proper work supervision and surveillance. The 'safety' project was designed in collaboration with the crews of two ships, a passenger liner and a tanker. As the findings indicated, an appropriate attitude to work hygiene and safety brought about some positive effects in terms of a decreased number of emergencies. The data revealed by the study made it possible to prepare grounds for future activities related to work safety and particularly accident prevention. Recently, the problem of small industry has greatly preoccupied specialists in work organization, social policy and occupational health. For the latter, the problem chiefly concerns the activity of the health service in small factories (under 100 workers). That subject was also discussed at the Congress, in 5 reports presented by participants from Belgium, Finland, USA and Canada. S. Jaakkola, a Finnish speaker, made an interesting comment on occupational health services in small industries. She pointed out the obstacles that such health services may encounter and attempted to answer who, where, how and when workers' health care should be established in small industry factories.

A great number of reports and posters (19 and 3, respectively) were presented at the session on occupational health nursing, both in highly industrialized (U.K., Australia, USA) and developing countries (Thailand, Chile). The role of the activities of occupational health nurses for health promotion was emphasized. Other topics included **Intensified health education in occupational health care with a special focus on the occupational health nurses' contribution; Practical approach to 'in-house' rehabilitation — the role of occupational health nurse as an innovator and coordinator**.

Within that session, the necessity of professional training and the continuing of education for occupational health nurses was discussed (American, Finnish and Australian studies). The speakers commented on the usefulness of computers in the work of occupational health nurses.

In summarizing, one should stress the high standard of studies carried out by occupational health nurses as well as the way in which the materials were presented. As compared to the work of Polish occupational health nurses, the activity of nurses in Western European countries seems to be superior with regard to individual approach and work independence.

As many as 32 different reports and posters were presented during the session on Occupational Hygiene. The speakers were mainly delegates from the USA, Japan and the Scandinavian countries. The studies concerned occupational exposure to solvents, formaldehyde, mercury vapours and other noxious agents (e.g. organic dusts). Apart from these issues, self-protection measures were also described (mostly in the Japanese and British reports).

At the session on Psychophysiology, the discussions focused on the effects

of chemicals (benzene, toluene, xylene) on the nervous system. Examples here are reports presenting **Clinical experience on possible interaction of toluene and ethanol**; or **Effects on central and peripheral nervous system of exposure to toluene**; **Video-analysis of general motor activity after 1-hour exposure to high concentration of toluene or xylene vapours in mice**.

Practically all the studies were empirical in nature (a comparison of the activities of the exposure and control groups or a comparison of psychophysiological abnormalities after single and long-term exposure to low doses of various harmful agents).

The problems presented at the session on Physical Environment chiefly concerned noise and vibration. Small workshops were organized with representatives of Austria, Japan and Scandinavian countries where the following issues were discussed; **Neuropathy and vasospastic reaction in fingers of dental technicians exposed to high-frequency vibration from drilling machines**; **Hand-arm vibration and impulse noise in the genesis of hearing loss**; **Finger blood flow and pressure in chain sawyers with a past history of vibration-induced Reynaud's phenomenon**.

An interesting report was presented by the German participants. They discussed occupational hearing impairment in symphony orchestra players. The study revealed that some musical instruments produce high intensity sounds which have an adverse effect on hearing. The exposure to these sounds during performance was estimated to range from 87–96 dB up to 112 dB for woodwind instruments; 88–97 up to 117 dB for violin and viola and up to 110 dB for cello and double-bass. It also appeared that the operas most hazardous to the hearing were Puccini's "Tosca" and Wagner's "Walkiria".

A special session was devoted to the problems of workers' health care in industry, transport and agriculture in the Developing Countries (8 oral presentations and 6 posters). The discussions were conducted by both native researchers and by foreign scientists visiting the developing countries. The following problems were discussed; **Methods and results of occupational hygiene survey in Tanzania (Finnish study)**; **Sentinel sites in small industries and agriculture**; **a framework for occupational epidemiology in developing countries**. The reports usually referred to the general organization of health care for workers in developing countries or problems related to work hygiene and safety (**Study of the health and safety problems of the construction industry in a developing country**; **Problems of Sri Lankan migrant workers returning from the Middle East**).

Most theoretically-oriented was Session 27 which dealt with social aspects of occupational health. 10 oral reports and 3 posters presented such problems as **Planning the occupational health service of the future (Canadian report)**; **Research action in occupational health in the European strategy HFA 2000 of the WHO (German report)**; **Global strategy of HFA 2000 in promoting occupational health and safety (Australian report)**; **Joint regulation of occupational health and safety in Britain**.

An interesting study on **Industrial ecological sciences — a new approach to occupational health** was presented by T. Okubo and K. Tsuchiya (Japan). They postulated a new approach which consists in a joint evaluation of the geographical distribution of industry and working conditions which determine an increased occupational risk.

The last session was devoted to the problems resulting from shiftwork, particularly its negative influence on human physiology and the development of cir-

culatory system impairments. The reports were presented by researchers from Japan, Sweden, Germany, Austria and Finland.

In view of the scientific programme and the course of the meeting, the universality of problems of occupational health and work hygiene in different countries is quite apparent. At the same time, a number of diverse approaches towards these problems can be distinguished, which reflect the attitudes of particular 'schools' — American, Scandinavian, Western European, Japanese, or of the developing countries.

As for the Congress itself, its high scientific standard and perfect organization should be emphasized.

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ANNOUNCEMENTS

THE XXIII INTERNATIONAL CONGRESS ON OCCUPATIONAL HEALTH

"Sharing Solutions" will be the theme of the XXIII International Congress on Occupational Health, to be held in Montreal between September 23 and 28, 1990. Organized under the aegis of the International Commission on Occupational Health (ICOH), the congress will bring together occupational health and safety scientists from all over the world.

The organization of such a congress would not be possible without the participation of a great many people, both locally and internationally.

On the local level, we have brought together a representative team of extremely competent scientists whom I would like to introduce to you.

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XIII International Congress on Occupational Health

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