

## Editorial introduction

Preservation of health through preventive measures is a major focus in health policies around the world, and, in particular, in Europe and North America. It is widely recognised that prevention programs in an increasing number of areas are not only beneficial to those persons covered, but also more cost-effective than out-patient or in-patient treatment.

Prevention of work related accidents and occupational disorders is an important aspect of such programs. In particular, evaluation of risks associated with exposure to airborne dusts (causing e.g., lung cancer, alveolitis, asthma, chronic bronchitis) have been of great concern to scientists and practitioners in the field of occupational health. In the last few years, the ever increasing numbers of cumulative trauma disorders (or repetitive strain injuries) associated with exposure to monotonous or repetitive work, have gradually become a major concern to industry, to health care systems and to society at large.

From the point of view of scientific study, occupational health is an entity of its own, and not just applied internal medicine or orthopaedic surgery. Major areas for study include,

- development of methods for characterising occupational exposure;
- study of mechanisms linking occupational exposure to disease;
- epidemiological mapping of incidence and prevalence of diseases in various exposed groups;
- development of methods to trace sub clinical signs of illness;
- setting threshold limit values or standards for occupational exposure;
- evaluation of preventive programs and measures taken at the workplace.

Since the problems under study tend to be multifactorial, in many cases the studies themselves require a multidisciplinary input, involving, e.g., medicine, physiology, technology and behavioural sciences. In this issue of *Technology and Health Care*, three papers

based on presentations read at the 2nd European Conference on Engineering and Medicine (ESEM '93) in Stuttgart are included. They illustrate well the multidisciplinary character of this field of study, and the different scientific aspects listed above. The first paper, written by Dr. Göran Hägg, a medical engineer specialising in signal processing and model development in work physiology, focuses on methodological aspects of characterising load on the musculoskeletal system during work. In the second paper, Professor Ulf Lundberg, a medical psychologist, focuses on the measurement of psychological stress at work, using biochemical, physiological and psychological methods, as well as the implications of such measurements. The third paper concerns the problem of characterising past exposure to metal aerosols by measuring retained dust in lungs, using sensitive biomagnetic measurements. This last paper is written by two medical engineers (with Per Högstedt, M.S. as the principal author) and a physician.

I believe that these three contributions to this special issue of *Technology and Health Care* may help to make clear that occupational health is a worthwhile area for scientific study, indeed also by medical engineers. There is, for instance, a great need for development of methods for tracing subclinical signs of occupational illness with high sensitivity and specificity. This is an example where methods developed in clinical medicine may not necessarily be fit to serve the specific purposes of occupational health. However, experience gained in clinical medicine research provides often an adequate basis for taking on research also in this challenging field of study.

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