Project 9: Occupational hand eczema and atopic diathesis
10-year follow-up of the PACO Study

Project Supervisor: Prof. Dr. med. Thomas L. Diepgen
Cooperation Partner: Dr. med. M. Bock

State of Research:
The one-year prevalence for hand eczema in Swedish adults is reported to be 9.7% (1). Occupational skin diseases are among the most reported work-related diseases; they have a high socio-economic significance and are going along with a great loss in quality of life (2). They mostly manifest as contact eczema (irritant and allergic contact eczema), mostly affecting the hands. The number of unreported cases of hand dermatitis caused by the work-related contact with irritants and allergens is several times higher than the number of reported cases. Many factors contribute to the development of hand dermatitis, among which the exposure to potentially harmful substances and constitutional factors are of importance. Atopic skin diathesis is considered the most important endogenous risk factor. To this day, only very few epidemiological studies exist about the work-related hand eczema in exposed collectives of the metalworking industry. In a cohort study including 1564 employees of the Swedish car manufacturing industry, it was found that 4.4% of the workers developed hand eczema, whereby the incidence was 21% in some subgroups (7). No follow-up was done of these collectives. In particular, there is a lack of cohort studies over longer periods of time. The prognosis for the cases of hand dermatitis observed is generally considered to be relatively poor, despite a lack of epidemiological studies and even though most conclusions drawn are based on hospital patients (9). The same is true for the evaluation of possible risk factors. This often leads to false or scientifically unfounded recommendations. In the context of the PACO study (Prospective Audi Cohort Study) including a collective of 2078 trainees who started their training in the car manufacturing industry between 1990 and 1994, a one-year incidence of 8.6% and a cumulative three-year incidence of 14.1% were observed. (follow-up rate 98.2%) (8).

Project Aim
The aim of the project is to carry out a 10-year follow-up study of the collective of metal workers who were included in the PACO Study, in order to gain new insights into the role of exogenous and endogenous risk factors contributing to the development and continuation of occupationally induced hand dermatitis. The goal of this long-term follow-up is, in particular, to gain new insights into the disease course and prognosis of the allergic and irritant contact eczema. Additionally, the significance of atopic skin diathesis as well as different atopic disease manifestations (atopic dermatitis, allergic asthma, allergic rhinoconjunctivitis) in the development of occupationally induced hand dermatitis is to be investigated and validated in a long-term comparison. The investigations will also allow to gain new insights into the natural disease course of different atopic disease manifestations in young adults.

Study Plan
As outlined above, the project is to be carried out primarily in the context of the follow-up investigations of the PACO Study. The doctoral student will assist in the collection of the necessary data (especially concerning atopic diseases, allergic and irritant contact eczema, disease courses, etc.) and will carry out some of the necessary investigations by himself. The required clinical, dermatologic and occupational medical examinations will be carried out by the Department of Clinical Social Medicine of the University of Heidelberg and the Department “Gesundheitswesen” of the AUDI AG under the guidance and supervision of staff members of these departments.

Future Funding
The basic infrastructure (rooms, laboratory facilities, equipment) will be primarily supplied by the Dept. of Clinical Social Medicine. The basic funding of the PACO Follow-up Study will be supplied by the Dept. of Clinical Social Medicine and the Dept Gesundheitswesen (Health Care) of the AUDI AG, Ingolstadt. Furthermore, both departments will jointly apply for additional funding by third-party sponsors.
Selected Literature: