



ABSTRACT BOOK

**Modernet meeting Kosice 31-1 and 1-2
2019**

Abstract

In this book you will find all the abstracts of the oral presentations and posters presented at the Modernet meeting in Kosice, Slovakia at 31-1 and 1-2 2019 with presenting authors in alphabetical order.

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SCOPING REVIEW: INFECTIOUS DISEASE RISKS ASSOCIATED WITH OCCUPATIONAL EXPOSURE AMONG NON-HEALTHCARE WORKERS

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Objective of the study

The purpose of this scoping review was to provide an overview of the nature of the published evidence on the role of infectious diseases in occupational health, based on a former key systematic review by Haagsma et al. (Haagsma JA, Tariq L, et al. Infectious disease risks associated with occupational exposure: a systematic review of the literature. *Occup Environ Med.* 2012; 69, 140–146). Haagsma's review was extended, starting from the date they ended their literature search: January 2009–December 2017, focusing on occupational groups other than health care workers.

Methods

The pseudocode of Haagsma et al.'s subqueries was translated into PubMed queries and the adequacy of these translations was checked. Studies were screened in two rounds by a single reviewer (SC). In the first round, the title and abstract were taken into consideration and compared with the inclusion criteria. In the second round, the title, abstract and, if necessary, the full text were assessed.

Results

697 unique results (and one duplicate) were yielded; 66 eligible studies were included. 88 occupations with infectious disease risks were found, some of which were overlapping. The most commonly described pathogens were HIV (n=11), HEV (n=8), *Coxiella burnetii* (n=7), Swine influenza (n=6) and *Leptospira* sp. (n=6). The occupations which were most frequently reported on were pig & swine workers (n=10), female sex workers (n=9), forestry workers (n=9), abattoir workers (n=7), farmers (n=7), municipal waste workers (n=6), animal breeding workers (n=5), and male sex workers (n=4).

Conclusions

A protocol for a new review will be published on Prospero, proposing analyses of subgroups to identify global exposure hazards for specific occupational groups (ISCO-2008); and immune related and respiratory conditions after exposure to bio aerosols. If a sufficient number of studies will be able to be selected for each occupation, quantitative meta-analysis will be performed.

BRAIN-DERIVED NEUROTROPHIC FACTOR AS A BIOMARKER OF OCCUPATIONAL STRESS EXPOSURE AND BURNOUT

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Abstract

Burnout is a chronic stress state characterized by symptoms of mental and physical exhaustion, detachment from work, and feelings of reduced personal accomplishment. So far, there were several attempts to identify biomarkers of burnout, but the results were inconsistent. Brain-derived neurotrophic factor (BDNF) is a protein that plays an important role in survival of neurons, neural differentiation, and synaptic plasticity. Expression of the BDNF protein is regulated by the BDNF gene, which has a complex structure and consists of 11 exons and 9 functional promoters. Both, changes in DNA methylation of the BDNF gene promoters and the serum levels of the BDNF protein have been linked to various stress-related disorders. Therefore, our aim is to investigate epigenetic (DNA methylation) changes of the BDNF gene and the serum BDNF levels related to occupational stress exposure and burnout. The biomarker potential of BDNF was tested in a cross-sectional study including individuals clinically diagnosed with burnout and healthy controls. A Dutch version of the Short Inventory to Monitor Psychological Hazards was used to assess work stress exposure. Burnout symptoms were assessed with Maslach Burnout Index General Survey (MBI-GS) whereas depressive symptoms were measured using the Beck Depression Inventory-II (BDI-II). In the preliminary analysis, DNA methylation of the BDNF gene and serum levels of the BDNF protein (determined by ELISA) were compared between individuals with burnout and healthy controls. Moreover, the correlation between these biomarkers with work-related stress exposure, burnout dimensions and depressive symptoms was investigated.

WRIST DISTRICT AS A TARGET FOR BIOMECHANICAL RISK IN MILKING PARLOR WORKERS: AN EMERGING OCCUPATIONAL RISK?

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ABSTRACT

Objective

Dairy parlours activities expose workers to biomechanical risk: repetitive movements and awkward postures of the hand and wrist may heighten the risk of carpal tunnel syndrome. Median nerve impairment can be investigated with ultrasonography and through nerve conduction studies. Since this approach is not feasible on a large scale, the development of other screening tools are needed to be used in the periodical health surveillance of dairy workers.

Methods

Forty milking male parlours workers in the Region of Lombardy for almost three years were selected. The study protocol included: 1) identification of worker's symptoms through the administration of a questionnaire, 2) ultrasound imaging of the carpal tunnel inlet (portable ultrasound device) 3) nerve conduction studies (NCS).

Descriptive statistics analysis and univariate analysis were performed with statistical package SAS.

Results

The anamnestic questionnaire, considered positive if at least one symptom was present maximum two weeks before the examination, showed a high level of specificity (83, 3%) and sensibility (80%) if compared with electromyography results. The specificity of the questionnaire raises at 100% if 2 or more symptoms were present.

Ultrasound results showed a prevalence of median nerve sufferance (median nerve area major than 0.1cm²) of 55%. However, we didn't find a statistical correlation between US and nerve conduction studies (NCS).

Conclusions

This prototype questionnaire proved to be predictive of early stage carpal tunnel syndrome and may be adequate for the periodical screening of dairy parlor workers.

The use of ultrasound needs to be improved and its association with electromyography may be advisable. It is interesting to note the relative high prevalence of wrist disorders found in dairy parlour workers, that is somehow unexpected considering the recent improvement of milking routine through machineries.

ASSESSMENT OF OCCUPATIONAL EXPOSURES TO CARCINOGENS: SHOULD GENDER BE TAKEN INTO ACCOUNT?

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Abstract

While there is a consensus that occupational exposures can be multiple within a single job or industry, the difference in occupational exposure by gender remains relatively unexplored. This can have important consequences, particularly on prevention practices and, more broadly, on the recognition of a differentiated role of occupational exposures by sex.

Gender is an essential dimension of occupational health issues. Indeed, women and men do not experience the same occupational exposures and this is due to several factors. We can thus distinguish the differential exposures resulting from the sexual division of employment and work (segregation of tasks and jobs, hierarchical positions, design of workstations, etc.).

The purpose of this communication is to show the heterogeneity of occupational exposures by gender.

Two tools will be proposed to shed light on this particular aspect

MATGENE program which the objective is to realize job-exposure matrices (JEMs) specific to the working population in France and to provide occupational exposure indicators. Linking the JEMs developed for carcinogens with data from the French population makes it possible to describe this occupational exposure according to gender and sector of activity. Current employment as well as the entire professional career can be considered. The carcinogenic substances that are covered are those for which JEMs exist knowing that the considered classification the IARC one (1 or 2A). These results are set out by sector of activity, in order to identify those that are the most at risk according to gender.

MULTIEXPO program studies and quantifies occupational multi-exposure. Its purpose is to estimate the percentage of employees exposed to multiple agents and / or professional situations that likely produce the same adverse health effect and to identify groups at risk within the French salaried population. Occupational exposure to multiple carcinogenic hazards was studied. It included chemicals that are classified with sufficient/probable evidence of carcinogenicity, ionizing radiation and night work in women. Thus, the estimate multiple exposure to carcinogenic agents of the French salaried was based on a new exploitation of data from the 2010 French Sumer Survey (cross-sectional occupational survey of the French ministry of labor). The study of the occupational exposure according to the gender makes it possible to estimate the percentage of employees, women and men, exposed to multiple carcinogenic and to define the exposure indicators according to the sex, the sector of activity and the job.

FROM CLINICAL CASES TO EPIDEMIOLOGICAL EVIDENCE: ALERT SYSTEMS IN THE BELGIAN CONTEXT

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Abstract

One of the main current gaps in the prevention of work-related diseases (WRDs) is the inefficient link between the assessment of chemical hazards introduced at the workplace, clinical alert, epidemiological studies and policy actions. Alert systems aim to bridge this gap, by collecting information on diseases and exposures in order to raise alert to different stakeholders and trigger timely prevention.

In a recent project supported by EU-OSHA, we have performed a review of the international alert systems, with the aim of identifying good practices and learning more about prerequisites, drivers and obstacles to implement such approaches. Furthermore, this knowledge has been applied into the Belgian context, where alert systems on three levels have been implemented. 1) Exposure assessment of hazardous chemicals has been introduced through the PROBE system, in which 47 occupational physicians participated. During the periodic health examinations of workers, the physicians filled in a web survey regarding occupational exposure of a random sample of workers to 22 selected hazardous chemicals during the last working week. Results of the first study showed that 47% of workers were exposed to at least one chemical product from the list, with diesel exhaust being the most frequently reported substance (n=91; 14% of workers). 2) Clinical alert has been established through an online platform called SIGNAAL, where physicians can report suspected cases of new WRDs (new exposure-disease combinations). Each reported case is followed by an investigation of exposure and work-relatedness performed by experts. So far, 22 cases have been reported to the platform. 3) Alert to public health authorities is mainly established through collaboration with the Federal Agency for Occupational Risks (FEDRIS). FEDRIS provides support in the maintenance of these systems and in turn, data derived from the systems is used as an input for FEDRIS regarding the potential preventive strategies.

TRENDS IN BURNOUT AND WORK-RELATED MENTAL DISEASES IN FRANCE

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Objective : To describe data concerning burnout and work-related mental diseases (WRMD) provided by French national occupational surveillance and prevention network (rnv3p) and French National Health Insurance Fund (NHIF).

Methods: Rnv3p collects data from French Occupational Disease Centers to identify and describe risks and/or emerging work-related diseases. Data recorded in the database between 2010 and 2016 with a medium or high work exposure-attributability were analyzed. Burnout situations were identified from two sources: 1. Cases coded Z73.0 (ICD10) in the database; 2. WRMD cases in which the clinical memo figured the word 'burnout', identified with text-mining methods. These data were compared to compensated occupational diseases provided by NHIF during the same time period.

Results: Over 18 000 WRMD and 1833 cases of burnout (33% men, 67% women; mean age = 46.0 ± 8.9) were recorded in the rnv3p database. Most frequent business sectors were public administration, health and social action, retail business and education. Most represented occupations were managers and teachers. Most reported occupational risk factors were high workload, bad relationships at work and changes in work organization and management. Rnv3p data are globally consistent with NHIF concerning compensated occupational mental diseases. Cases of compensated WRMD increased significantly, from less than 50 in 2010 to 600 in 2016. Burnout is not recognized as an occupational disease. WRMD may also be compensated as work injuries. In 2016, NHIF compensated over 10,000 mental disorders as work injuries, mostly caused by external events or inadequate working conditions. Health and social activities and retail business were the most heavily affected business sectors.

Conclusion: Data from rnv3p and NHIF indicate that work-related mental diseases have serious implications for both workers and companies with more work disruptions in number and duration than for other diseases. They provide valuable information to improve prevention in occupational sectors at risk.

PSYCHOLOGICAL CORRELATES OF BURNOUT SYNDROM IN HELPING PROFESSIONS

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Abstract:

Burnout is considered as the multifaceted, three-dimensional concept characterized by emotional exhaustion, depersonalization, and the lack of personal accomplishment. There is empirical evidence that burnout has work-related and psychological consequences, such as low work productivity, low job satisfaction, low self-esteem, experiencing poor mental health - greater depression, and anxiety.

In our research project titled „Self-care as a factor of coping with the negative consequences of the practicing the helping professions,“ we have focused on the creating and verifying a model of self-care, as well as the revealing the correlates of burnout, primary and secondary traumatic stress. Performed self-care has been confirmed as significant predictor of the level of positive and negative consequences of the practicing the helping professions (e.g. compassion satisfaction, job satisfaction, and personal accomplishment, as well as the burnout, perceived stress, and secondary traumatic stress). The performed self-care, especially psychological self-care and professional self-care, are significant predictors of burnout syndrome and perceived stress. Additionally, the results showed that compassion satisfaction and secondary traumatic stress were significantly correlated with, as well as predicted by, the selected personality variables (emotional experiencing, optimism, personality traits such as conscientiousness and extraversion). In searching for the nature of association among burnout, secondary traumatic stress and family relationships satisfaction in helping professionals we have revealed that there are significant correlations between dimensions of relationship satisfaction and burnout. Burnout was confirmed as the only significant (negative) predictor of consensus and satisfaction in relationships with a partner. The higher level of consensus and satisfaction with a partner was associated with lower levels of burnout. These research results are the knowledge base for creating the intervention programmes aimed to foster the self-care and reduce the negative consequences of practicing the helping professions.

Keywords: self-care, work satisfaction, perceived stress, burnout, secondary traumatic stress, compassion satisfaction, personality traits, and relationship satisfaction

ASSOCIATION BETWEEN DUPUYTREN ´S DISEASE AND OCCUPATIONAL EXPOSURE TO HAND-TRANSMITTED VIBRATION AND HANDWORK

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Abstract

Introduction and objective:

Dupuytren´s disease (DD) is irreversible, slowly progressive, fibroproliferative disorder of the palmar fascia. It is characterised by thickening of the palmar skin and contracture of the fourth and fifth fingers of the hand towards the palm. This is a condition that results in decreased functionality of the affected hand. The presence of a higher prevalence of DD is described in individuals of white ethnicity, more frequently in men and increases with age. The genetic susceptibility and multifactorial aetiology of DD is well known. The risk factors include diabetes mellitus, hypertension, dyslipidaemia, epilepsy, liver disorders, alcohol consumption, smoking, carpal tunnel syndrome and hand injury. However history of manual work and local exposure to vibration seems to be other exogenous risk factor. This fact is important for occupational medicine. Therefore the aim of our study was explored associations between DD and occupational exposure to hand-transmitted vibration and handwork.

Methods:

The study included 488 investigated male patients at the Department of occupational medicine a clinical toxicology University Hospital in Košice, Slovak republic. Patients were divided into three groups. The first group consisted of 193 miners with significant occupational exposure to local vibrations. The second group comprised 106 workers with significant occupational exposure to task repetition and awkward work postures (long-term, inordinate workload), not exposed to vibration. The control group included 189 men without exposure to vibration and task repetition and awkward work postures of the upper limbs. Each group was split into four age categories (<40 years, 40-49 years, 50-59 years, >60). The prevalence of the was compared between the groups in each age categories.

Results:

In the age category less than 40 years old, DD did not even exist in any group. In all age categories more than 40 years was the DD prevalence highest in group of patients exposed to vibrations. The highest frequency was in patients older than 60 years (33,9%) compared to group of patients exposed to task repetition and awkward work postures of the upper limbs (19%) and control group (7,6%). In the age category less than 40 years old, DD was not found.

Conclusions

In conclusion, the study confirmed that exposure to hand-transmitted vibration and handwork increases risk of DD. It seems that professional exposure in working conditions is higher risk factor than other endogenous and non-occupational factors. Our finding suggests, than it is appropriate to consider assessing DD as occupational disease, a part of work-related hand-arm vibration disease and work-related musculoskeletal disease from overload.

EPIDEMIOLOGICAL EVALUATION OF EXPOSURE-RESPONSE RELATIONSHIPS FOR CRYSTALLINE SILICA AND RISK OF SILICOSIS AND LUNG CANCER: IMPLICATIONS FOR REGULATION AND PREVENTION

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Abstract

Effects of crystalline silica on the respiratory tract have been demonstrated in a large number of epidemiological studies. Crystalline silica is a known occupational carcinogen with the lung as main target organ and can cause silicosis as well as chronic obstructive pulmonary disease (COPD). While these hazards are well characterized, there is an ongoing debate on the quantitative exposure-response relationships for crystalline silica and these respiratory endpoints.

Both for regulative and preventive purposes, the demonstration of an exposure threshold which almost excludes any human health risk would be highly desirable. Another option would be the derivation of an exposure-risk relationship associating a given exposure level with a specific lifetime risk, e.g. for lung cancer. However, chronic inflammation – believed to be a threshold effect - is currently considered as the most likely mechanism relevant for both the development of silicosis and lung cancer, while it is unclear whether silica-induced lung cancer requires the presence of silicosis.

This presentation will review the current epidemiological evidence for the derivation of a threshold with respect to the development of lung cancer and silicosis focusing on high-quality studies with good quantitative long-term exposure data. Although minor or acute inflammatory effects might occur before the detection of silicosis, low-grade silicosis and lung cancer are the only chronic effects which could so far be assessed with reasonable confidence in epidemiological studies.

The available data would support threshold limit values for occupational exposure to crystalline silica in the range of 50 to 100 $\mu\text{g}/\text{m}^3$ which are already in place in several countries.

OCCUPATIONAL CANCERS IN SLOVAKIA.

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Abstract

Introduction and objective

Occupational cancers belong to the most severe occupational diseases with the poor prognosis. Links between oncological diseases and workplace is described in many types of cancers. But in generally, relative low attention is giving to this field. Some studies from Slovakia and Czech republic confirmed, that occupational cancer creates a minimum cases of all cancers, despite the increasing prevalence of oncological diseases. In Slovakia, there is even decreasing number of cases during last years. Previous Slovak study found, that the most prevalent type of occupational cancer was lung cancer and the most cases were in East Slovakia region. But more detailed analysis was not done. So the aim of present study was to analyse patients with occupational cancer in Department of Occupational Medicine and Clinical Toxicology at the Louis Pasteur University Hospital in Košice, Slovakia, between years 1990 – 2017.

Methods

We evaluated the changes in prevalence during following period, types of cancers, histological type and TNM classification. Than the past occupations of affected workers, etiological factors and latency period were analysed.

Results

Occupational cancer was diagnosed in 96 patients. We found the decreasing trend in the prevalence. The most prevalent was lung cancer (89 cases). Other cancers were very rare - leukaemia (3 cases) and mesothelioma, paranasal cancer, cancer of hypopharynx and oral cavity were found only in one case. From lung cancer, squamous cell carcinoma was the most frequent type followed by small cell carcinoma and adenocarcinoma. The most advanced stage of tumour (TNM classification) was small cell carcinoma. The most frequently affected workers were miners in iron ore mines (79%) with ionizing radiation exposition followed by metallurgical workers exposed to polycyclic aromatic carbohydrates. We confirmed that squamous cell carcinoma and small cell carcinoma were induced nearly exclusively by ionizing radiation, whereas adenocarcinoma by heterogeneous factors - polycyclic aromatic carbohydrates, asbestos, chromium and silicon dioxide (squamous cell carcinoma vs. adenocarcinoma $p < 0.05$; small cell carcinoma vs. adenocarcinoma $p < 0.001$). The latency period between end of exposition and cancer manifestation was much longer in ionizing radiation compared to polycyclic aromatic carbohydrates ($p < 0,001$).

Conclusions

Study documented especially lung cancer, were differences in histological types, clinical stages, etiological factors and occupations were found. Other cancers were rare, what shows probably insufficient diagnosis. Therefore, education and a close collaboration between the occupational physicians with other specialist physicians are necessary.

CANCER INCIDENCE AMONG FINNISH MALE COBALT PRODUCTION WORKERS IN 1969-2013: A COHORT STUDY

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Abstract

Objective: There is inadequate evidence for the carcinogenicity of cobalt and cobalt compounds in humans. Consequently, the International Agency for Research on Cancer (IARC) has evaluated cobalt metal without tungsten carbide as possibly carcinogenic to humans (Group 2B). The aim of the study was to assess the risk of cancer among workers employed in a Finnish cobalt plant since the beginning of production in 1968.

Methods: The study cohort consisted of all males employed by the Finnish cobalt plant for at least a year during 1968–2004. The follow-up for cancer was performed by studying the files of the Finnish Cancer Registry, using personal identity codes as a key. The cohort was divided into subcohorts by exposure levels. Standardised incidence ratios (SIRs) and 95% confidence intervals (95% CIs) were calculated as ratios of the observed numbers of cancer cases and the numbers expected on the basis of incidence rates in the population of the same region.

Results: The follow-up cohort consisted of 995 men with 26 083 person-years. During the follow-up period, 92 cases of cancer were diagnosed (SIR 1.00, 95%CI 0.81-1.22), six of which were lung cancer cases (SIR 0.50; 95%CI 0.18-1.08). The only cancer type with increased incidence was tongue cancer (three cases, SIR 7.39; 95%CI 1.52-21.6). We observed no dose-response effect across the different exposure levels and the incidence of any cancer type.

Conclusions: The results suggest that occupational exposure to cobalt is not associated with an increased overall cancer risk or lung cancer risk among cobalt workers. Because of the small number of cancer cases the results must be interpreted with caution.

DUTCH GUIDELINES FOR OCCUPATIONAL MUSCULOSKELETAL DISEASES: EXAMPLES OF EXPOSURE CRITERIA FOR SUBACROMIAL PAIN SYNDROME, KNEE OSTEOARTHRITIS AND NON-SPECIFIC LOW BACK PAIN

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Abstract

Objective: The aim of this presentation is to explain the development of criteria for the work-related assessment of subacromial pain syndrome (SAPS), knee osteoarthritis and non-specific low back pain in Dutch guidelines to assess musculoskeletal disorders as occupational disease (OD).

Methods: Occupational physicians use a structured anamnesis and other information obtained through clinical examination (symptoms) and tests (signs) and work-related exposure assessments to decide whether or not for the patient at hand an OD is present and should be reported. Exposure criteria are based on systematic reviews of the scientific literature, preferably including a meta-analysis. Exposure criteria are, if possible, defined in terms of the intensity, frequency and/or duration of specific occupational demands.

Results: At the moment, the Netherlands Center for Occupational Diseases (NCOD) has 23 guidelines for work-related musculoskeletal disorders. The exposure-criteria for the same job demands are grouped together, for instance in exerted hand force, movement, posture and vibration. For SAPS, arm-hand elevation ($\geq 60^\circ$ 1 h/day), hand force ($\geq 10\%$ maximum voluntary force exertion) and hand-arm vibration ($> 2.5 \text{ m/s}^2$ 8h/day) are examples of minimum exposure criteria. For knee osteoarthritis, kneeling or squatting ($> 1\text{h/day} \geq 1$ year), lifting of loads ($\geq 5 \text{ kg} \geq 10$ times/week ≥ 1 year), jumping (> 15 times/day ≥ 10 years), climbing (> 30 stairs/day ≥ 10 years) are examples of minimum exposure criteria. For non-specific low back pain, lifting or carrying of loads ($> 5 \text{ kg} \geq 2$ times per minute 2 h/day or $> 25 \text{ kg} \geq 1$ time per day), bending or twisting of the trunk ($20^\circ > 2$ h/day) and whole-body vibration ($> 0.5 \text{ m/s}^2$ per day) are examples of minimum exposure criteria.

Conclusions: International comparison of OD exposure criteria could be enhanced by more scientific collaboration and agreement in defining evidence-based work-related diagnostic criteria and guidelines. The knowledge could be anchored in instruments and tools for health and safety professionals.

Reference: Van der Molen HF, Frings-Dresen MHW, Kuijer PPFM. Systematic Reviews as Evidence-Base for Dutch Guidelines to Assess Musculoskeletal Disorders as Occupational Disease: Examples of Shoulder, Knee and Low Back Disorders. Proceedings of the 20th Congress of the International Ergonomics Association (IEA 2018) Volume III: Musculoskeletal Disorders Pages 19-21.

IMPACT OF OCCUPATIONAL MUSCULOSKELETAL DISEASES AT A NATIONAL LEVEL. THE NETHERLANDS AS AN EXAMPLE

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Abstract

Background and objective: Registries for occupational diseases (ODs) are dependent on the behaviour of occupational physicians and case definitions for ODs. Alternative approaches could enhance insight into the impact of ODs at a national level. The objective is to explore the impact of musculoskeletal disorders as occupational diseases (MSD-ODs) through estimations of population attributable fractions (PAFs) for the Netherlands.

Methods: PAFs were calculated for seven prevalent MSD-ODs of the low back and lower and upper extremities. Existing data were used on the prevalence of exposure to risk factors at work and the strength of their association with these seven diseases based on systematic reviews. Seven systematic reviews with meta-analyses were identified. Prevalence figures for exposure to work-related risk factors were retrieved from the Dutch National Working Conditions Survey (NWCS) based on self-reports by approximately 40,000 workers. The specific risk factors retrieved from the reviews were matched with the available and dichotomized self-reported exposure items from the NWCS by two authors.

Results: The seven selected MSD-ODs among the Dutch working population revealed PAFs varying between 7% and 25%. Lateral epicondylitis and hip osteoarthritis had the highest attributable fractions, with percentages of 25% and 17% respectively. For lumbosacral radiculopathy syndrome (14%), knee osteoarthritis (13%), shoulder soft tissue disorders (10%), non-specific low back pain (10%) and carpal tunnel syndrome (7%) approximately one in ten cases were attributable to work.

Conclusion: Data from systematic reviews and self-reported data on work-related exposure provide opportunities to estimate the impact of ODs at a national level. For the Netherlands, these outcomes revealed substantial and varying attributions of work for prevalent MSDs. Knowledge of PAFs of prevalent ODs might stimulate work-related exposure reduction as a short-term and easily obtainable proxy for the prevention of ODs.

References:

Van der Molen HF, Hulshof CTJ, Kuijer PPFM. Occup Environ Med Epub ahead of print: doi:10.1136/oemed-2018-105387
Van der Molen HF, Hulshof CTJ, Kuijer PPFM. TBV 2018;26:40-41