

Occupational Skin Diseases

Global Workshop
organized by

the World Health Organization (WHO)
and
the European Academy for Dermatology and
Venereology (EADV)

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Summary report

Introduction

The World Health Organization (WHO) and the European Academy for Dermatology and Venereology (EADV) convened a two-day global workshop during which national situations and possible strategic directions for prevention and early detection of occupational skin diseases were discussed. The ongoing 11th revision of the International Statistical Classification of Diseases (ICD) in relation to OSD was another important agenda item.

While occupational skin diseases (OSD) are among the three most frequent groups of occupational diseases, they have so far attracted relatively little attention in the global and national agendas for prevention of occupational and work-related diseases. They can cause high rates of sickness absence, permanent disability, and in the context of increased exposure to solar UV radiation, occupational non-melanoma skin cancer (NMSC) is becoming a rising problem.

Hence, for the WHO, the International Labour Organization (ILO) and the EADV, OSD deserve particular attention which is the reason why the three organizations are putting increased emphasis on OSD in their present workplans. During the introductory remarks, all three representatives stated that OSDs are more often than not preventable, provided that adequate intervention strategies, including prevention measures are being put in place. The crucial role of primary health care, particularly in emerging and developing countries was emphasized by the WHO. There is an urgent need to bring the different stakeholders together with a view to working towards this objective. The importance of workers' education and raising awareness by means of global campaigns is equally important, as was further mentioned. Yet, there are a number of gaps in terms of knowledge, research and comprehensive data. The global workshop would therefore be a good opportunity to use the existing expertise to explore how one could proceed to fill the gaps as well as to bring OSD forward on the public health agenda.

The ILO representative then briefly outlined that there is an international definition of occupational diseases as well as a newly revised ILO list of occupational diseases, designed to assist countries in the prevention, recording, notification and where applicable, compensation of diseases caused by work. In view of the new and emerging risks at the work place and national practices in the recognition of occupational diseases, the revised list adopted in 2010 by the ILO Governing Body has for the first time specifically established a separate section on OSDs. Adding to the list of a new disease would not only help the victim in getting proper compensation, but also imply the extension of preventive measures to control the use of harmful substances and would assist a better health surveillance of workers. The ILO is to develop guidance on diagnostic and exposure criteria on the diseases included in its list of occupational diseases in collaboration with the WHO and professional bodies.

Prior the country presentations, a global overview on the situation of occupational skin diseases was provided. Comprehensive data exist only for some few high-income countries, which reveal that work-related skin diseases seem to be mainly occupational hand dermatitis accounting for up to 95 per cent of the cases. Atopic individuals are more prone to develop contact dermatitis. Apart from human suffering, OSD present a considerable socio-economic burden. In Europe, costs amount to more than € 5 billion, mainly due to OSD-induced loss of productivity; in the US, total annual costs for occupational skin diseases amount to more than \$ 1 billion. The biggest risk factors are wet work, exposure to chemicals and exposure to UV radiation. The permanent increase of allergens to which people are exposed at their workplace adds to the complexity of the challenge. There is furthermore a lack of information on the risks. Here primary prevention is of utmost importance.

Part I: Country presentations

Some data and what they reveal

According to a WHO survey undertaken in 120 countries, skin diseases represent 27 per cent of all diseases worldwide. The though scarce figures presented at the global workshop seem to confirm these findings:

- In India, recent review findings revealed that occupational skin diseases range (at least) at 5 per cent in the textile industry. Occupational skin diseases are particularly rampant in the fishing industry as this is a growing industry, involving approx. 10 million people. Yet, no concrete figures exist. Indeed, figures are extrapolated on assumptions.
- A one year study in the gold mine industry in South Africa shows that incidences of OSD are 1.8 to 0.5 per 10,000 workers. Data for other industries do not seem available.
- In the US, occupational diseases comprise 6 per cent of total recorded diseases, whereby skin diseases make 16 per cent. However, the absence of further numbers makes an overall assessment quite difficult since surveillance data do not keep track of irritants vs. allergic vs urticaria and so forth.
- In China, OSD account for 1.69 per cent of all occupational diseases. Occupational contact dermatitis represents approx. 27 per cent of all occupational skin diseases reported between 2006 and 2009.
- In Colombia, contact dermatitis represented 3 per cent of the total diagnosed occupational diseases in 2002. By January 2011, 429 cases of occupational skin diseases have been reported for the period 2005-2010.
- In Italy, reported OSD show a significant decrease, namely by 37.5 per cent in 2009, due to the automation of production processes, the use of personal protective equipment and withdrawal of the most important allergens. Underreporting is however still an issue.

As can be seen, in different countries different information prevails. Data are not comparable and the above figures speak for themselves as they clearly show that there is a massive data collection gap.

Prevalence of occupational skin diseases and sectors

The country presentations confirm the above statements that contact dermatitis seems to be most prevalent amongst OSD. This pertains to China as well as to South Korea, where in 1995, 60 per cent of the then reported diseases related to contact dermatitis. In India, skin irritations are presently exceeding 20 per cent in the small scale industry. Also, many workers painting in the shipyard industry in South Korea are prone to OSD.

Challenges - Problems - Barriers

It was one clear result of the workshop that the challenges related to OSD are very similar in many countries. One major problem relates to the absence of comprehensive data due to lack of notification and massive underreporting. The reasons behind vary: in South Korea and South Africa the disease classification system changed, making it impossible to differentiate between the various work-related diseases. In India, OSD are not included in the classification list at all, while in the US data are captured differently in the different states and hence cannot be used to extrapolate across the country. Compensation schemes in Canada are at the provincial level, covering approx. 60 per cent of the population. Certain sectors (e.g. hairdressing) therefore remain uncovered (e.g. Ontario).

Definitions of occupational diseases, including OSD, are diverse and vary according to national jurisdiction. In certain instances, there is no such legal definition.

There is also absence of efficient risk assessment tools and of comprehensive surveillance programmes, particularly with regard to sectors, where small and medium sized enterprises are prevalent. OSD are thus often not or not correctly classified. In many instances, the available numbers are old and have not been updated since years.

One further problem is the low capacity of health staff in general (e.g. Colombia, India) and in rural areas even more (e.g. China).

Reporting of OSD is moreover made impossible where a large proportion of the working population is in the informal sector (in India up to 90 per cent and in Colombia approx. 70 per cent) or working as seasonal migrant workers. Safety and health regulations, including labour inspection, do not cater for a large part of this population segment. Hence, diseases caused by work in the (uncovered) informal sector do not appear in national statistics on occupational safety and health. However, skin diseases may not only be work-related but as well linked to poor hygienic living conditions. In India, in certain areas the ground water of the river Ganges is highly contaminated by arsenic, leading to strong skin manifestations (keratosis, necrosis) and thus becoming an increasing public health problem.

Some countries also report that health professionals have very little motivation to report OSD. This can be much attributed to the lack of incentives on the one hand and on insufficient knowledge on OSD of general practitioners, nurses and other health care staff on the other. They lack the necessary expertise as training does not include specifically OSD in their respective curricula. The existing abundant but very specialized information on evidence-based prevention strategies, moreover, does not seem easily accessible nor understandable.

What is more, sometimes the insurance system can be a cause of severe structural, administrative hindrances. In countries such as South Africa and Colombia, assessment of occupational skin diseases can take up to 5 or 6 years before the claim has been processed and approved. Not only does this discourage from registering a claim and seeking for prescribed treatment, but also does it add to the unreported cases. Other means and ways are then being sought, for instance directly through the enterprise.

One additional challenge in relation to the high prevalence of occupational skin diseases is the mere fact that workers do not have or do not use the necessary personal protective equipment (PPE) to protect against dangerous products. On the one hand, employers are not ready to invest in PPE and often still believe that it is the responsibility of the worker to look after this. Workers on the other hand see PPE as a barrier to perform well, despite the fact that PPE might be available at the workplace. PPE may not only prevent dermatitis but also systemic toxicity in case of workplace substances with high skin absorption.

Last but not the least, workshop participants pointed to the un-coordinated actions between the different stakeholders. The implementation of coherent prevention strategies fail in some cases because the key players cannot reach agreement on the prevention criteria. Multiple parties may lead to multiple interests. Changes can however occur with the necessary political will.

What can be done – some examples

Despite the multiple challenges and problems encountered, a number of successful initiatives were presented during the workshop. Hence, more often than not, persevering efforts have led to positive effects at all levels, from a change of individual behaviour up to the introduction of legislation.

A change of patterns has been achieved for instance in India in the fishery industry through the use of gloves. A similar positive outcome can be stated in South Africa, where health care staff now uses hypoallergenic gloves. In China, since 2002, efforts focus on raising awareness of the population by means of a yearly national occupational health week. This campaign is integrated into the national health plan. Research is in addition being conducted in specific sectors (currently health care workers).

In the US, one public health goal is to reduce OSD amongst full-time workers. NIOSH disposes of a dermal programme consisting of 41 projects and it includes risk assessment and intervention studies and dissemination of information.

With regard to national regulations, the Colombian Government adopted in 2008 within its national health plan evidence-based guidelines for comprehensive health care for occupational contact dermatitis. A set of comprehensive recommendations are included therein concerning risk assessment, intervention, diagnoses and treatment. Public primary health care in Colombia is furthermore been reinforced through a new regulation issued in January of this year. It aims at catering more for the uncovered working population, thus giving them access to primary health care.

Good results were obtained in Germany. By the early 90s, the German statutory accident insurance for the health care and well-being sector was facing enormous costs for compensation and rehabilitation in the hairdressing trade. Hence, over the years a number of measures were introduced, including the ban of specific chemicals in hair dyeing products (acid perm, glycerolmonothioglycolate), an improved dermatological treatment via the development of an interdisciplinary approach and integrated evaluation mechanisms, establishing ten training advisory centers over the country and carrying out a number of targetted national campaigns. The results speak for themselves as more than 80 per cent of participants of the intervention strategies do nowadays remain permanently in their jobs. Rehabilitation and compensation costs have been reduced by 77 per cent from € 32 million to € 8 million. Based on the very positive outcomes, further innovative pilots are carried out with a view to incrementing the motivation of employers and workers to occupational safety and health with regard to skin diseases. Furthermore, options for dermatologists for meticulous patch testing of workplace substances were recently improved.

At the EU level, a directive on chromium VI in cement was introduced in 2005 to protect workers in the construction industry from chromium allergy and severe disabling hand eczema. The directive is based on positive experiences made in the Scrandinavion countries in the 80s when introducing such legislation. A first report on its efficacy has been published in Germany.

The workshop participants also pointed to the urgent need of improved training and capacity building and on the improvement of safety conditions at the workplace. Some urged for the revision of the national list of occupational diseases in their country as well as the design of proper OSD prevention programmes. Awareness raising at local, national and international level is furthermore key.

Part II: Primary Prevention of OSD, including risk assessment and reduction

When it comes to primary prevention of OSD, the workshop participants unanimously agreed that this is essential to help reduce the incidence of occupational skin diseases. A multidisciplinary approach is needed to be effective. It is important to look into mechanisms on how OSD can be stopped. One basic requirement is diagnostics (e.g patch testing), including the identification of the hazards the workers are exposed to and to what extent. This goes hand in hand with a clear commitment of management to support the measures needed to eliminate or at least successfully manage exposure of the worker. A regulatory framework and enforcement, e.g. through labour inspection, is moreover a crucial driving force to ensure that prevention measures are implemented. For monitoring reasons, an on-going surveillance system needs to be put in place.

The important role of healthcare professionals and primary healthcare services in general was pinpointed in this context as they are often the first level of contact between the patient and the national health care system. This is particularly true for workers in the informal sector. Primary healthcare services need to be well-equipped to fulfill their core functions, namely to recognize the disease, to react properly (provide first aid) and where needed to refer to other specialized professionals. Health education should be equally included in their functions. The lack of resources in many cases however seems to be a contributing factor to the sometimes poor performance of the primary healthcare system as was mentioned by several participants. There is in addition a lack of relevant knowledge on (work-related) skin diseases. This was confirmed by studies conducted over the past 15 years in Canada with clinic population where only one fourth had received specific skin training.

So, what could be done? Staff needs continuous information and training pertaining to occupational skin diseases. Participants suggested that this could be achieved by means of easy-to-read fact sheets and brochures, posters with simple key messages, internet platforms containing basic information on hazards, on personal protective equipment and other important items. Another proposal was to collect all patch test centers' results in order to monitor trends in allergic contact dermatitis including new immunogenic diseases and those with rising figures (sentinel database). From a global perspective it would be useful to identify the most hazardous occupations worldwide in terms of severity of exposure to provide adequate prevention guidance and raise awareness. Participants felt that wet work is a particular high-risk in the following branches:

- Health sector
- Hairdressing
- Construction work
- Food industry
- Electroplating
- Tanning industry
- Horticulture

Throughout the discussion participants furthermore highlighted the need of further research into the critical exposure of the skin, on identifying sensitizing substances and their properties. Here, an international surveillance study on allergens compiling all available knowledge at national level would be most useful.

DAY TWO

Part III: Raising awareness – how?

The session started with a presentation on some current national and European initiatives with a view to achieving more awareness as well as placing OSD higher on the public health agenda. One such example is the current EADV-europrevention „healthy skin@work“ campaign launched in 2009 by the European Academy of Dermatology and Venereology (EADV). The campaign seeks to raise public and political awareness to the problem of OSD and the possibilities of their prevention through a number of national sub-campaigns. National campaigns have already been introduced in Bulgaria, the Czech Republic, Germany, Romania and Switzerland. A number of activities are undertaken such as kick-off press conferences, free-of-charge consultations, information leaflets, internet platforms, workshops and seminars for practitioners and young trainees.

Another example is the EU-funded SafeHair project (2010), which, for the first time, aimed to develop common safety and health standards for the prevention of OSD in the hairdressing trade. Its main outcome is a scientifically-guided *voluntary* consensus on the importance of prevention and of implementing respective measures in the hairdressing trade amongst all stakeholders (European hairdressers' employers' and workers' associations, suppliers and safety engineers) embedded in the *European framework agreement on the prevention of health risks in the hairdressing sector*, also referred to as the Declaration of Dresden (DoD; www.safehair.eu). This is an extremely important achievement as it underlines that trades affected by OSD are increasingly getting aware of the disease burden and that proper dermatological diagnosis based on patch testing and patient management, education and training in occupational safety and health can offer sustainable solutions.

The workshop then focused on what would be the most important ingredients of a campaign to ensure success and gain political interest. While various strategies seem feasible, the most important issue is to identify the stakeholders in a given country and to try to establish close ties with them so as to ensure their political and if possible, financial, support. The different stakeholders need to be convinced that the prevention of OSD is a worthy undertaking. This can be reached through evidence-based information, piloting intervention studies as well as through well-documented anecdotal information in order to make it a case, which, according to the experience of some participants is sometimes even more convincing from a policy point of view than the mere facts. If international or regional organizations such as the WHO, ILO or EADV take a strong interest for the issue, this may be pivotal.

Another critical issue is how to disseminate important messages to the relevant target populations. How can meaningful knowledge transfer be achieved, and with which means? Messages need to be understandable. Small and micro enterprises are in addition particularly difficult and timely to reach. Different strategies might need to be applied here.

One good example of a professionally designed public campaign in the field of hairdressing can be currently found in Germany (www.lebe-deinen-traum.de). The WHO highly recommends its collaborating centers to consider such a model in their country. It should be envisaged to include such a type of campaign in the forthcoming workplan of the collaborating WHO centers (2012-2015). One recommendation of the global workshop could be to build upon this campaign. In this context, it was suggested that collaborating centers should be called upon to document OSD and to build comprehensive databases on OSD. But a campaign could also be centered around a specific intervention such as the removal of chromium e.g. from cements and leather goods. Another global project could be on healthy workplaces to stimulate business and develop programmes to promote

and protect health. Here public health settings offer many possibilities: in Canada for instance community health centers have been used to deliver occupational health prevention training in agriculture (pilot).

The WHO informed the workshop participants that it is currently developing a set of intervention strategies for the prevention of OSD, based on six groups of risk factors. It will then look into how these intervention strategies can be delivered by public health services to those in need in the agricultural sector, with a particular focus on small enterprises.

Part VI: Follow-up action

Assessing the diseases burden

To be able to develop targeted prevention measures, it is necessary to assess the disease burden. The methodology applied by the WHO is carrying out a systematic assessment of the data available (literature review, data from registers) on all diseases and injuries in order to produce comprehensive and comparable estimates of the burden of diseases, injuries and risk factors. The overall burden of disease is then assessed using the disability-adjusted life year (DALY), a time-based measure that combines years of life lost due to premature mortality and years of life lost due to time lived in states of less than full health. It was pinpointed that one major problem encountered by this approach is the massive underreporting of OSD in many countries. The assessment of the disease burden is therefore being reached by means of a synthesis of all existing evidence, including case studies. An expert committee then undertakes an informed approximation, taking into consideration other risk factors that are occupational and will try to narrow down the data as much as possible to acquire a meaningful result in terms of best estimate rather than no estimate at all. This is the big challenge bearing in mind that no other data are available.

Risk assessment

Risk assessment is as much an important issue when it comes to defining concrete prevention strategies. The ultimate aim is the reduction of exposure. Here it is relevant to identify the risk, including hazardous substances which can penetrate the skin. Follows thereafter the risk assessment itself, namely how often and how long is a risk encountered because not unsurprisingly this is often underestimated. It would be equally useful to identify harmful substances. Participants suggested that the questionnaire developed by Toby Mathias¹, where seven questions address occupational relevance, could be a useful tool to be used by dermatologists. Spain and Canada for instance do apply this questionnaire. With regard to skin diseases, the problem of mixtures to which skin is exposed to, adds to the complexity of the exercise. In certain instances, protective equipment such as advertant reactions by using gloves can cause new additional problems in the risk assessment.

Capacity building and raising awareness

As has been mentioned several times during the global workshop, capacity building and raising awareness are key to help prevent OSD. But often enough there is an absence of regulatory help in raising awareness and in promoting prevention of OSD. Hence, no training material is available and/or training on OSD is not included in training modules. Also, different training modules should be applied to different sectors and risks. What is more, costs are a driving factor and it is argued that

¹ Mathias C G T. Contact dermatitis and workers compensation: criteria for establishing occupational causation and aggravation. *J Am Acad Dermatol* 1989; 20: 842-848.

Mathias C G T, Maibach H I. Perspectives in occupational dermatology. *West J Med* 1982; 137(6): 486-492.

prevention is costly. Overall, a number of barriers need to be overcome with a view to achieving a workplace prevention culture in enterprises, as was mentioned by Canada. While many efforts were made over the past years to raise awareness and work together with key partners such as the Ministry of Labour, insurance schemes, key associations, workers' and employers' associations and health professionals, the Centre for Research Expertise in Occupational Disease, Canada, was confronted with the re-organization and restructuring of bodies, which hampered achievements. Hence, it takes endurance to achieve results.

Based on the above, a coordinated effort at various levels is needed to achieve some tangible results. The global workshop therefore concluded to undertake the following follow-up steps:

- 1. Put together a comprehensive publication:** includes contributions presented at the global workshop in written format (2-3 pages, ready for publication with references, illustration as necessary [copyrights]). Deadline: one month; peer review.
- 2. Fix the health impact - global burden of disease:** this item includes a literature review of data on exposed populations and relative risks to collect available evidence related to contact dermatitis and occupational skin cancer.
- 3. Collect practical tools for workplace risk assessment and management** which non-dermatologists can use to address the risks of OSD (e.g. control banding, checklists).
- 4. Involvement of WHO Collaborating Centres for Occupational Health:** consider a facilitating project on OSD under the forthcoming WHO Collaborating Centers workplan for 2012-2015. Who will initiate?
- 5. Develop key messages:** for primary health care providers, general practitioners, occupational health experts; develop WHO fact sheet on OSD.
- 6. Develop networking:** there is a need to further the integration of different disciplines; collaboration with occupational health community, occupational hygienists, dermatologists.
- 7. Standardization:** contribution to ICD 11 (will provide an opportunity to achieve more consensus on definition of OSD as WHO strive for integrating a clinical definition of what is a specific disease); contribution to ILO diagnostic and exposure criteria. Thus, improving on documentation and factual epidemiology of OSD.
- 8. Technical interventions,** for example elimination of hexavalent chromium 6 in cements, allergenic protein from latex gloves.
- 9. Capacity building:** exchange or develop standard lecture and training materials for primary health care providers, occupational health experts. Identify what should be included on OSD, what examples could be provided, what can be shared so as to ensure that OSD is included in training modules.

Part VII: Occupational skin diseases in ICD11

Attention was also devoted to the ongoing 11th revision of the International Statistical Classification of Diseases, and Related Health Problems. Here the focus of attention laid on developing diagnostic and exposure criteria for occupational skin diseases, risk assessment and reduction and on reflecting the clinical entities and their causes.

The very productive session laid the ground for a fruitful collaboration between the Dermatology Topic Advisory Group of the ICD Revision Project and participants from the Global Workshop. This has resulted in a comprehensive section on contact dermatitis and occupational dermatoses in the ICD11 draft which can be viewed at [http://apps.who.int/classifications/icd11/browse/f/en#/%40 %40who 3 int 1 icd 2 Class 1394](http://apps.who.int/classifications/icd11/browse/f/en#/%40%40who_3_int_1_icd_2_Class_1394).

This will greatly facilitate the recording and epidemiological study of occupational skin disease and of its most common presentation, contact dermatitis. Furthermore, as a result of the meeting, Drs Mahler and Gimenez-Arnau are coordinating the assembly of a classification of important contact allergens which will be available within ICD-11 Chapter 99 as supplementary information. These allergens will be ordered according to the classes presented in the main ICD-11 classification.