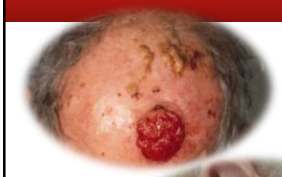


Occupational Dermatology




Prof. Dr. Swen Malte John

Professor and Chairman
Dept. Dermatology, Environmental Medicine, Health Theory
UNIVERSITY OF OSNABRUECK
Institute for Interdisciplinary Dermatological Prevention
and Rehabilitation (iDerm) at the University of Osnabrück
Lower-Saxonian Institute of Occupational Dermatology (NIB)

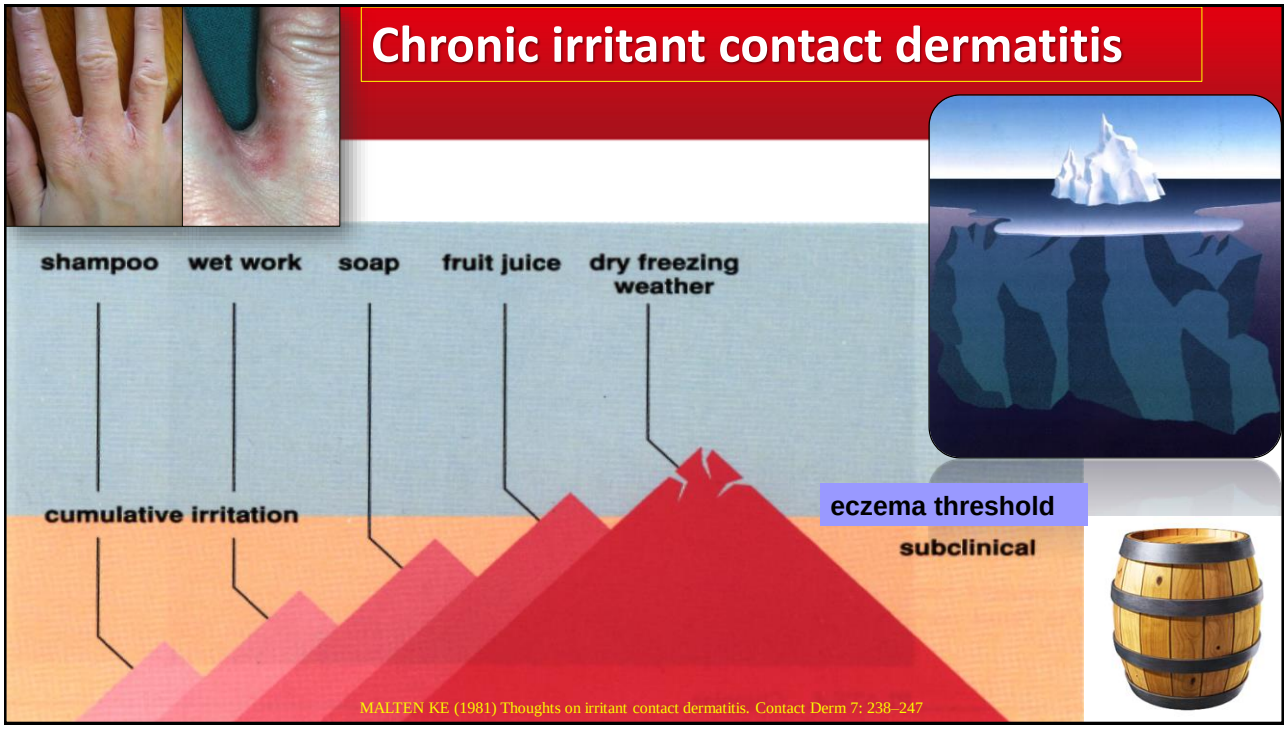
EADV Task Force on Occupational Skin Diseases
ICOH Scientific Committee Occupational and Environmental Dermatoses (SC OED)
Arbeitsgemeinschaft für Berufs- und Umweltdermatologie (ABD)

EADV UNIVERSITÄT OSNABRÜCK

YOUR SKIN. THE MOST IMPORTANT OF YOUR LIFE. 2m²
EADV - EUROPREVENTION CAMPAIGN: HEALTHY SKIN@WORK

Most frequent occupational disease: Dermatitis


Irritant contact dermatitis


Chronic irritant contact dermatitis
shampoo
wet work
soap
fruit juice
dry freezing weather
cumulative irritation
eczema threshold
subclinical
MALTEN KE (1981) Thoughts on irritant contact dermatitis. Contact Derm 7: 238–247


Most frequent occupational disease: Dermatitis
chronical
acute
irritant contact dermatitis
atopic palmar eczema
allergic contact dermatitis
contact urticaria
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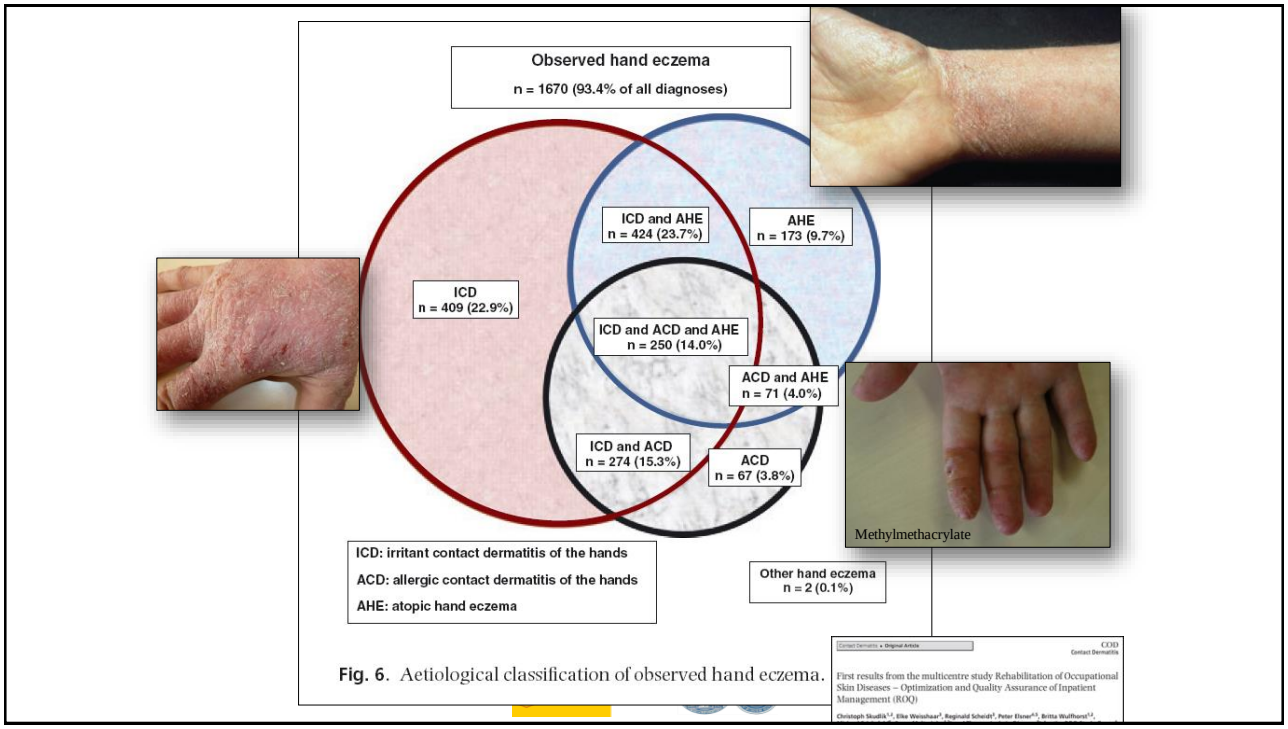
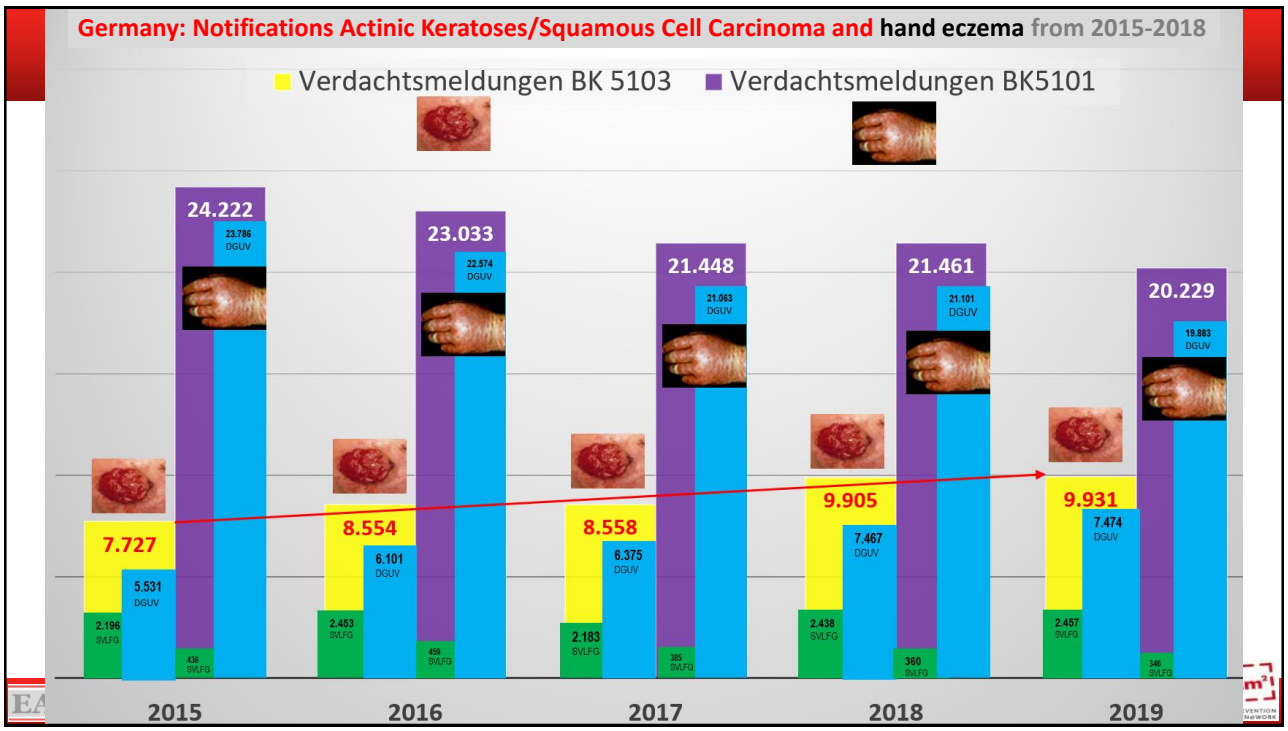
YOUR SKIN.
THE MOST IMPORTANT
OF YOUR LIFE.
2m²


Observed hand eczema
n = 1670 (93.4% of all diagnoses)
ICD
n = 409 (22.9%)
ICD and AHE
n = 424 (23.7%)
AHE
n = 173 (9.7%)
ICD and ACD and AHE
n = 250 (14.0%)
ACD and AHE
n = 71 (4.0%)
ICD and ACD
n = 274 (15.3%)
ACD
n = 67 (3.8%)
Other hand eczema
n = 2 (0.1%)
ICD: irritant contact dermatitis of the hands
ACD: allergic contact dermatitis of the hands
AHE: atopic hand eczema
Methylmethacrylate
Fig. 6. Aetiological classification of observed hand eczema.
First results from the multicentre study Rehabilitation of Occupational Skin Diseases – Optimization and Quality Assurance of Inpatient Management (ROQ)


Germany: Notifications Actinic Keratoses/Squamous Cell Carcinoma and hand eczema from 2015-2018
Verdachtsmeldungen BK 5103
Verdachtsmeldungen BK5101
24.222
23.786 DGUV
436 SVLFG
5.531 DGUV
2.196 SVLFG
7.727
23.033
22.574 DGUV
459 SVLFG
6.101 DGUV
2.453 SVLFG
8.554
21.448
21.063 DGUV
385 SVLFG
6.375 DGUV
2.183 SVLFG
8.558
21.461
21.101 DGUV
360 SVLFG
7.467 DGUV
2.438 SVLFG
9.905
20.229
19.883 DGUV
346 SVLFG
7.474 DGUV
2.457 SVLFG
9.931
2015
2016
2017
2018
2019

GERMANY

Gewerbliche Berufsgenossenschaften und UV-Träger der öffentlichen Hand

BK-Nr.	Kurzbezeichnung	BK-Verdachts-anzeigen	Anerkannte Fälle		Confirmed cases	Anteil an allen bestätigten Fällen in %
			Insgesamt	darunter: neue BK-Renten		
5101	**Skin diseases**	21.101	505	119	18.375	48,3%
2301	Lärmschwerhörigkeit	13.497	6.714	212	6.714	17,7%
5103	**Skin cancer, natural UV radiation**	7.467	4.255	583	4.255	11,2%
4103	Asbestose, Asbest	3.505	1.713	479	1.713	4,5%
3101	Infektionskrankheiten	1.982	1.123	40	1.123	3,0%
4105	Mesotheliom, Asbest	1.262	882	778	882	2,3%
4104	Lungen-/ Kehlkopf-/ Eierstockkrebs, Asbest	4.938	767	690	767	2,0%
4101	Silikose, Quarz	1.116	497	252	497	1,3%
2108	Lendenwirbelsäule, Heben und Tragen	5.073	359	229	458	1,2%
4301	Atemwegserkrankung, allergisch	1.418	289	98	424	1,1%
Summe		61.359	17.104	3.480	35.208	92,6%

* inkl. DDR-BK-Nummern, ohne Fälle nach § 9 Abs. 2 SGB VII

60% of all confirmed OD cases: SKIN

UNIVERSITÄT

"Water damage"
Wear & tear eczema
Irritant contact eczema

UNIVERSITÄT OSNABRÜCK

iDerm Institut für interdisziplinäre Dermatologische Prävention und Rehabilitation an der Universität Osnabrück

"Water damage"
Wear & tear eczema
Irritant contact eczema

Allergic contact eczema, chronification

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Verfahren Haut DGUV (Osnabrücker Modell)

iDerm Institut für interdisziplinäre Dermatologische Prävention und Rehabilitation an der Universität Osnabrück

Hautarztbericht

Ambulantes dermatol. Heilverfahren = Hautarztverfahren

Hautschutzseminar: Sekundäre Individual-Prävention (SIP)

Tertiäre Individual Prävention
(modif. stationäres Heilverfahren)
DGUV Multicenter-Studie

John SM, Skudlik C et al. (2007) JDDG 5: 1146; Wulfhorst B, Bock M et al.(2010) IAOEH 83:165; Skudlik C et al. (2012); Weisshaar E et al. Contact Dermatitis 2013; 68: 169-74. Contact Dermatitis 66,140; Voß H, Skudlik C, John SM (2013). JDDG 11(7): 662-672; Brans R, John SM (2016) JEADV 30: 798-805, Brans R, Skudlik C, John SM et al. (2016). Contact Derm 75:205-12

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Verfahren Haut DGUV (Osnabrücker Modell)

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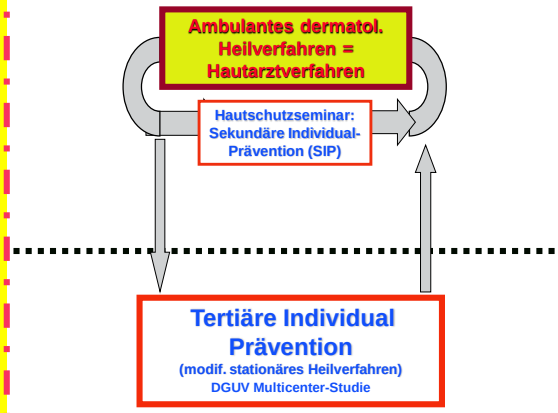
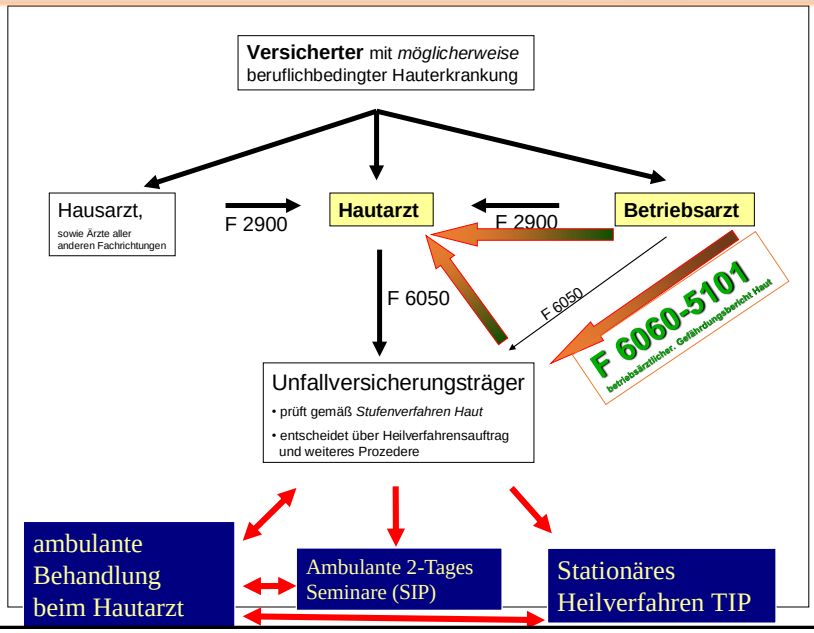
- Keine Kosten für Beschäftigte
- Keine Überweisung erforderlich
- Keine Rezeptgebühren
- Auch Basistherapie (anders als GKV)
- Fahrtkostenerstattung
- Zugriff auf alle Beratungsangebote
- Stat. HV (TIP): keine Zuzahlung *(anders als bei RentenVers, GKV)*
- Keine Kosten für Arbeitgeber *(keine Lohnfortzahlung, erfolgt durch BG)*
- Arbeitgeber erfüllt seine Verpflichtungen gem. §167, Abs. 2; SGB IX *(Betriebliches Eingliederungsmanagement)*

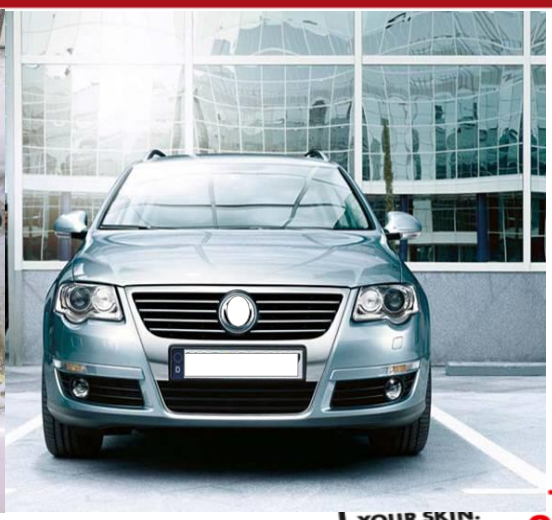


John SM, Skudlik C et al. (2007) JDDG 5: 1146; Wulfhorst B, Bock M et al.(2010) IAOEH 83:165; Skudlik C et al. (2012); Weisshaar E et al. Contact Dermatitis 2013; 68: 169-74. Contact Dermatitis 66,140; Voß H, Skudlik C, John SM (2013). JDDG 11(7): 662-672; Brans R, John SM (2016) JEADV 30: 798-805, Brans R, Skudlik C, John SM et al. (2016). Contact Derm 75:205-12

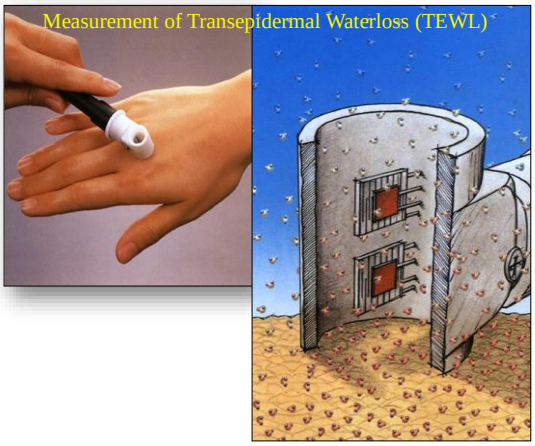
Betriebsärztlicher Gefährdungsbericht Haut: F 6060-5101 (30 € netto), seit 2013



Greatest risk in risk-professions:
Lack of information



„Crime scene“: work place



Kynemund Pedersen L, Duus Johansen J, Held E and Agner T. Br J Dermatol, 2005; 153: 1142-6.

EADV - EUROPREVENTION CAMPAIGN: HEALTHY SKIN@WORK

CONTACT DERMATITIS AND ALLERGY DOI 10.1111/j.1365-2133.2005.06875.x

Less skin irritation from alcohol-based disinfectant than from detergent used for hand disinfection

L.K. Pedersen, E. Held, J.D. Johansen and T. Agner*

National Allergy Research Centre for Consumer Products, Gentofte Hospital, University of Copenhagen, DK-Denmark
*Department of Dermatology, Gentofte Hospital, University of Copenhagen, Denmark

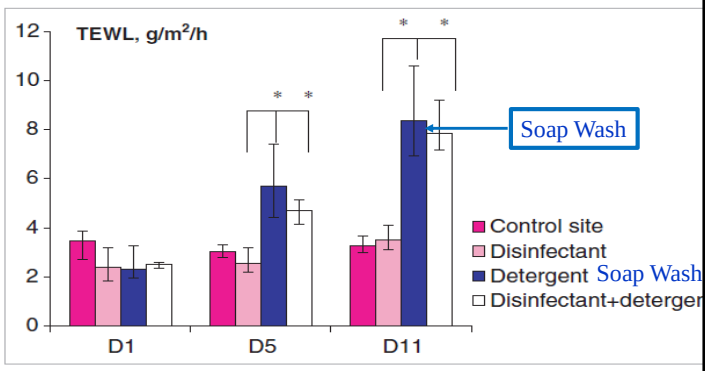


Fig 1. Comparison of evaporimetric responses between control site, disinfectant, detergent and alternate applications of disinfectant and detergent on days 1, 5 and 11 (median values and quartiles); *P < 0·05.

(TEWL measurements taken at volar forearm)

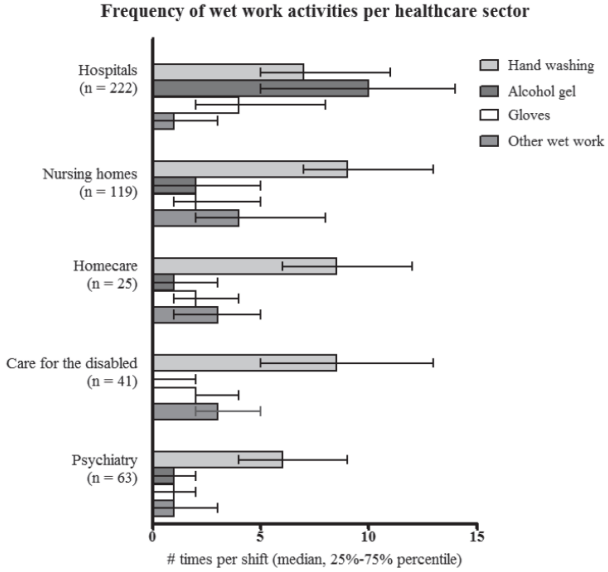


Fig. 3. Frequency of wet work (median and interquartile limits) reported by 383 apprentice nurses during 470 traineeships, stratified by healthcare sector. 'n' refers to the number of participants who worked in the healthcare sector concerned; the sum of n exceeds 383 because a number of apprentices participated in more than one traineeship.

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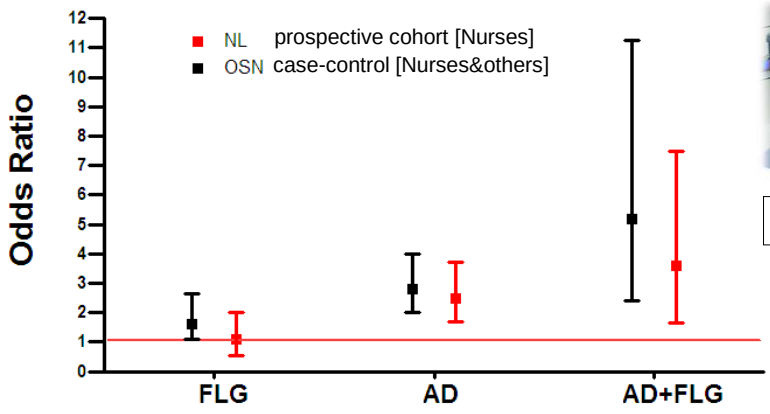
YOUR SKIN. THE MOST IMPORTANT OF YOUR LIFE. 2m²

(Visser et al, Contact Dermatitis 2013)

Apprentices in risk professions

OR for occupational irritant contact dermatitis



Hand washing >8 times/day

Dr. Sanja Kezic, Amsterdam

Visser M, et.al., BJD 2013, Contact Dermatitis 2014

Circulus vitiosus

- Haut der Hände
- Häufiges Händewaschen
- Austrocknen der Haut der Hände (Exsiccation)
- Vermeidung von Desinfektion wg. Brennens
- Noch mehr Händewaschen
- Leichtes Handekzem
- Mehr Händewaschen
- Schweres Handekzem, Eintrittspforte für Allergene

Alarmsignal Brennen !

YOUR SKIN. THE MOST IMPORTANT OF YOUR LIFE. 2m²

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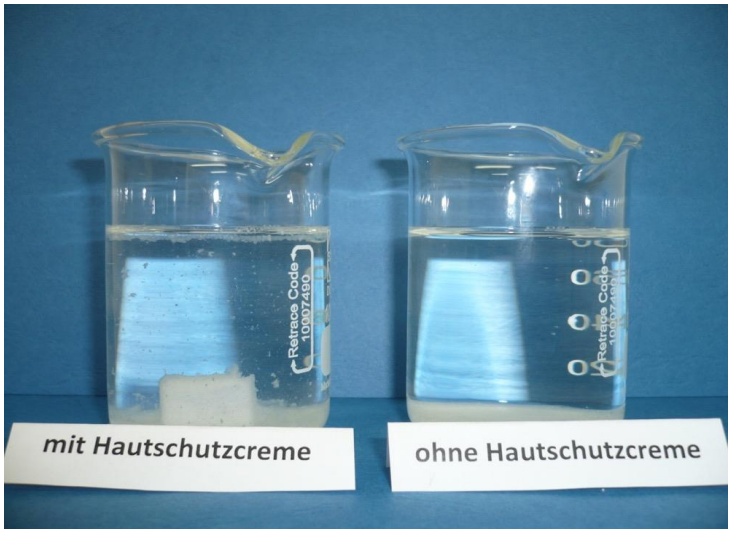
Würfelzucker in Wasser

iDerm
Institut für interdisziplinäre Dermatologische Prävention und Rehabilitation
an der Universität Osnabrück



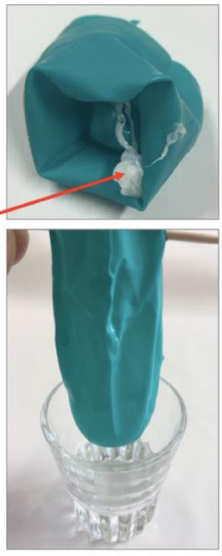
Experiment zur Wirkung von Hautschutzcremes
bei Feuchtarbeit

Kurzzeit-Experiment

Ziel: *„Die unsichtbare Gefahren sichtbar machen“*,
d. h. das Durchwandern von Chemikalien (z. B. Epoxidharze, Lösemittel)
auf molekularer Ebene durch flüssigkeitsdichte Handschuhe (Permeation)

Konsequenz für Hautschutz am Arbeitsplatz:
Flüssigkeitsdichte „Chemikalienschutzhandschuhe“ müssen konsequent und rechtzeitig gewechselt werden.

ca. 3 Minuten



Der Handschuh hat kein sichtbares Loch und trotzdem ist Aceton im Handschuh.

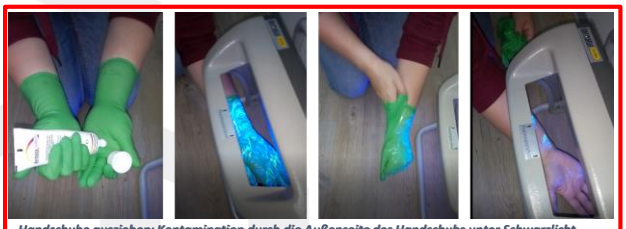
Das Styropor ist vollständig aufgelöst.

How to remove gloves?

43 hairdressers and apprentices

First round: all (100%) had contamination of skin

Range between 0.02 and 101.37 cm2



Handschuhe ausziehen: Kontamination durch die Außenseite des Handschuhs unter Schwarzlicht.
A: Die Handschuhe werden vollständig mit fluoreszierender Creme eingecremt;
B: Es erfolgt eine Kontrolle, ob die Handschuhe vollständig eingecremt wurden;
C: Die Handschuhe werden ausgezogen;
D: Es erfolgt die Kontrolle unter Schwarzlicht, ob und an welchen Stellen es zum Kontakt mit der Außenseite des Handschuhs gekommen ist (Stellen fluoreszieren weiß-bläulich)

Second round: 55.8% had contamination of skin

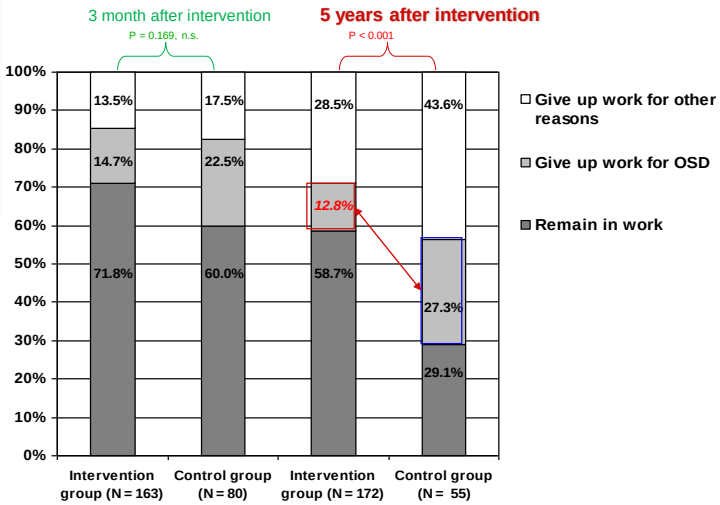
Range between 0.00 and 3.08 cm2

NATIONAL ALLERGY RESEARCH CENTRE

Katia W. Oreskov[1], Heidi Søsted[2] and Jeanne D. Johansen
Contact Dermatitis, **72**, 362–366 2015 .

Prof Jeanne Duus-Johansen, Copenhagen

Health education: Frequency of job loss in hairdressers 5 year follow-up



Wulfhorst B, Skudlik C, John SM et al (2010) Sustainability of an Inter-disciplinary Secondary Prevention Program in Hairdressers. Int Arch Occup Environ Health 83:165-171

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iDerm Institut für interdisziplinäre Dermato-logische Prävention und Rehabilitation

Osnabrücker Modell

iDerm Institut für interdisziplinäre Dermato-logische Prävention und Rehabilitation an der Universität Osnabrück

Verfahren Haut DGUV

Ambulantes derm. Heilverfahren

Hautschutzseminar (SIP)

Tertiäre Individual Prävention
(modif. stationäres Heilverfahren)
DGUV Multicenter-Studie

John SM, Skudlik C et al. (2007) JDDG 5: 1146; Wulfhorst B, Bock M et al.(2010) IAOEH 83:165; Skudlik C et al. (2012); Weisshaar E et al. Contact Dermatitis 2013; 68: 169-74. Contact Dermatitis 66,140; Voß H, Skudlik C, John SM (2013). JDDG 11(7): 662-672; Brans R, John SM (2016) JEADV 30: 798-805, Brans R, Skudlik C, John SM et al. (2016). Contact Derm 75:205-12

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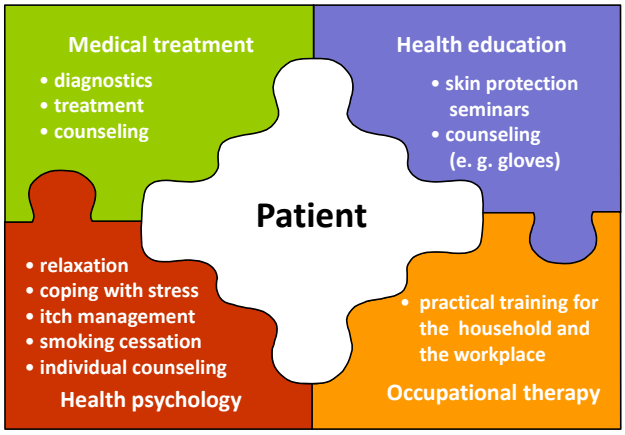
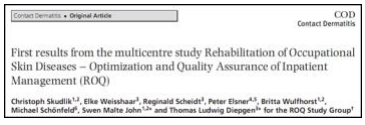
The „Osnabrück“ model



DGUV Studie "Optimierung und Qualitätssicherung des Heilverfahrens (ROQ)

iDerm
Institut für interdisziplinäre Dermatologische Prävention und Rehabilitation an der Universität Osnabrück


Contact Dermatitis • Original Article

COD
Contact Dermatitis

First results from the multicentre study Rehabilitation of Occupational Skin Diseases – Optimization and Quality Assurance of Inpatient Management (ROQ)

Christoph Skudlik[1,2], Elke Weisshaar[3], Reginald Scheidt[3], Peter Elsner[4,5], Britta Wulfhorst[1,2], Michael Schönfeld[6], Sven Malte John[1,2]* and Thomas Ludwig Diepgen[3]* for the ROQ Study Group†

Stationäre Phase

- (Berufs-) Dermatologie
  - Gesundheitspädagogik
  - Gesundheitspsychologie
  - Ergotherapie mit Hautschutztraining am Arbeitsplatzsimulationsmodell
  - Berufshelfer

3 Wochen

Ambulantes Heilverfahren I

- niedergelassener Dermatologe
- 3 Wochen nachstationäre Arbeitskarenz (Barriere-Regenerat.)

3 Wochen

Ambulantes Heilverfahren II

- niedergelassener Dermatologe Beratung und Therapie nach Wiederaufnahme der beruflichen Tätigkeit

Dauer des ambulanten Heilverfahrens (§ 3 BKV): Individuell in Abhängigkeit des Verlaufes der Hauterkrankung

1 Jahr
3 Jahre
5 Jahre

Beispielhafte Handschuhempfehlungen für die Nahrungsmittelzubereitung inkl. Typenbezeichnungen und Hersteller

	Handschuhe	Hersteller	Bezug z.B. über
1	Maximo – Baumwollhandschuh, kurze Stulpe; Art-Nr 5/6101/022	Bruno Barthel GmbH & Co.KG, Boetcherstraße 10 09117 Chemnitz/Rabenstein Tel.: 0371/81551-35 Fax: 0371/8155111	A. Brickwedde Technischer Handel GmbH &Co.KG Albert-Brickwedde-Straße 2 49084 Osnabrück Tel.: 0541/58485-0
2	proFood 92-481 – Nitril-Einweghandschuh, strukturierte Fingerspitzen, Länge 300 mm (lange Stulpe), Schichtstärke: 0,12 mm, puderfrei, Farbe: blau Art. Nr. 92-481	Ansell Healthcare Europe NV Riverside Business Park, Spey House Boulevard International 55 B – 1070 Brussels – Belgium	A. Brickwedde Technischer Handel GmbH &Co.KG Albert-Brickwedde-Straße 2 49084 Osnabrück Tel.: 0541/58485-0 Fax.: 0541/5848517 **ODER** IHT Werkzeuge und Industriebedarf Osnabrück Tel.: 0541/937070
3	Optimo 454 Schutzhandschuh aus Synthetik-Material (Elastomer), innen velourisiert, außen Dessin Länge: 310 mm, Schichtstärke: 0,35 mm, Farbe: grün Art.Nr. 454	MAPA Professionnel SPONTEX Deutschland GmbH Broichmühlenweg 40-44 41066 Mönchengladbach Tel.: 02161/69465-0 Fax: 02161/69465-60 www.mapa-professionnel.com	A. Brickwedde Technischer Handel GmbH &Co.KG Albert-Brickwedde-Straße 2 49084 Osnabrück Tel.: 0541/58485-0 Fax.: 0541/5848517
4	Temp-Cook 476, Nitril, Hitzeschutz bis 350 Grad Celsius, Farbe weiß, Länge 45cm, Art.-Nr.: 476	MAPA Professionnel SPONTEX Deutschland GmbH Broichmühlenweg 40-44 41066 Mönchengladbach Tel.: 02161/69465-0 Fax: 02161/69465-60 www.mapa-professionnel.com	A. Brickwedde Technischer Handel GmbH &Co.KG Albert-Brickwedde-Straße 2 49084 Osnabrück Tel.: 0541/58485-0 Fax.: 0541/5848517

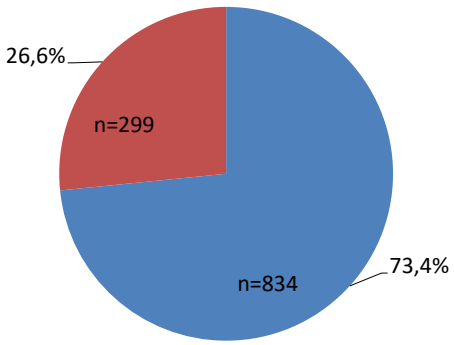
zu 1 als Unterzieh-Handschuh und zur Unterstützung der Externatherapie
zu 2 für die Nahrungsmittelzubereitung
zu 3 für Reinigungsarbeiten
zu 4 als Hitzeschutzhandschuh

iDerm Institut für interdisziplinäre Dermatologische Prävention und Rehabilitation an der Universität Osnabrück

EADV UNIVERSITÄT OSNABRÜCK

Biggest long-term follow-up study of severe occupational HE: Only unattended hand eczema stays incurable !

(until 5 yrs after discharge from TIP; 73.4 % returned to work)

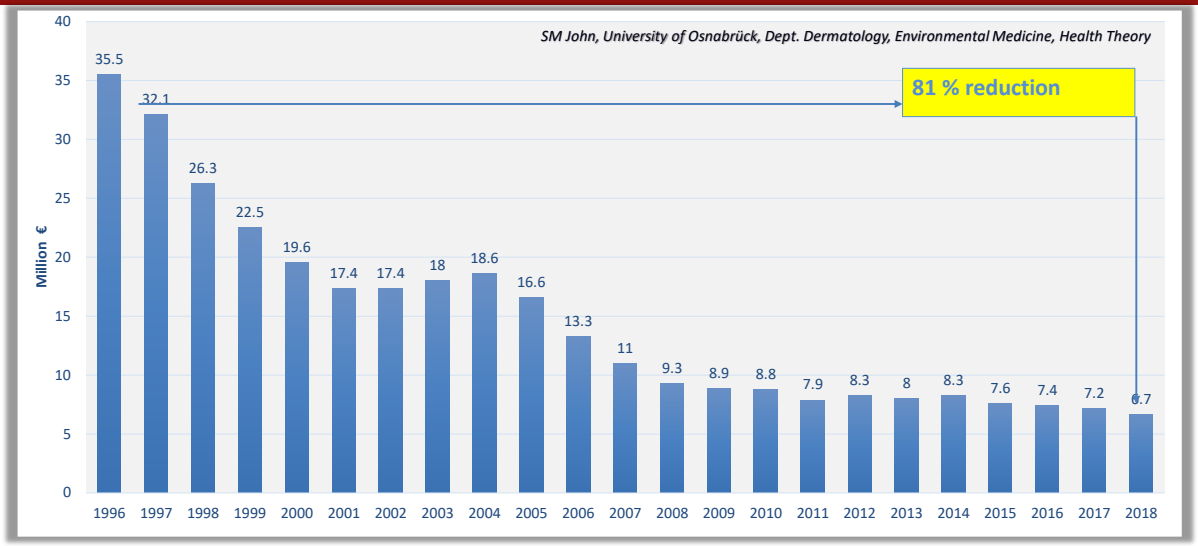


UNIVERSITÄT OSNABRÜCK ROQ

Brans R, Skudlik C, Weisshaar E, Scheidt R, Ofenloch R, Elsner P, Wulfhorst B, Schönfeld M, John SM, Diepgen TL (2016) Multicentre cohort study 'Rehabilitation of Occupational Skin Diseases – Optimisation and Quality Assurance of Inpatient Management (ROQ)': results from three-year follow-up. Contact Derm 75: 205-212

Skudlik C, Weisshaar E, Ofenloch R, Elsner P, Schönfeld M, John SM, Diepgen TL(2017) ROQ 2: Langzeit-Evaluation der stationären tertiären Individualprävention bei Patienten mit schweren Berufsdermatosen. DGUV Forum 1-2/2017: 51-59

Cost reduction for retraining for Occup. Contact Dermatitis in the German Hairdressing and Health Service by preventive measures: > 80 %



EADV UNIVERSITÄT OSNABRÜCK

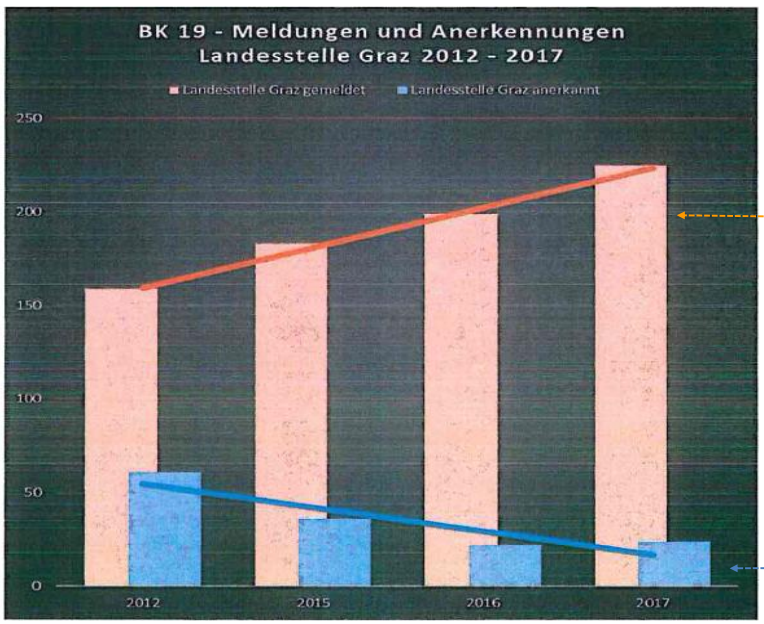
Source: German Accident Insurance for the Health and Welfare Services [BGW], Dr Lindemann, Prof. Brandenburg 2019

YOUR SKIN. THE MOST IMPORTANT OF YOUR LIFE. 2m²

Occup.
contact dermatitis
prevention
with out-patient and
in-patient care
in Steiermark, AUSTRIA
since 2015

Medical University of Graz

AUVA



Notified cases in preventive care

Job loss

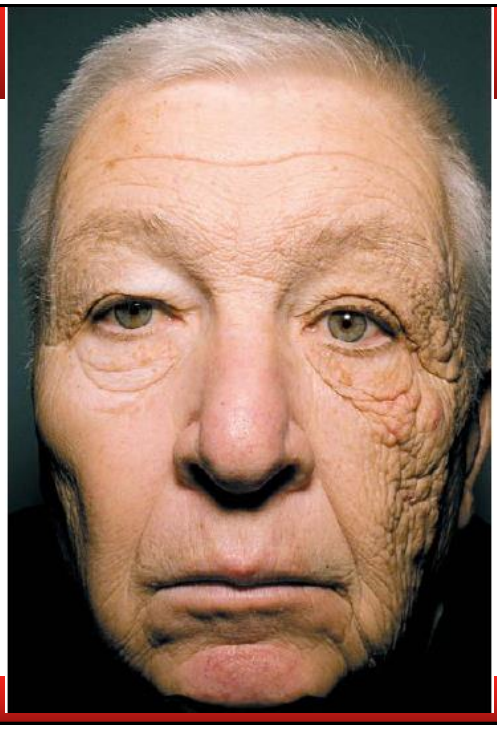
UNIVERSITÄT OSNABRÜCK

Source: Dr R. Hosemann, AUVA, Graz, Austria

Skin slackening by solar UVA

69 y,
delivery truck driver for 28y from Chicago. 25 y history of actinic damage by UVA through (closed) lateral car window. Solar elastosis.

Gordon JRS, Brieva JC (2012) n engl j med 366:16



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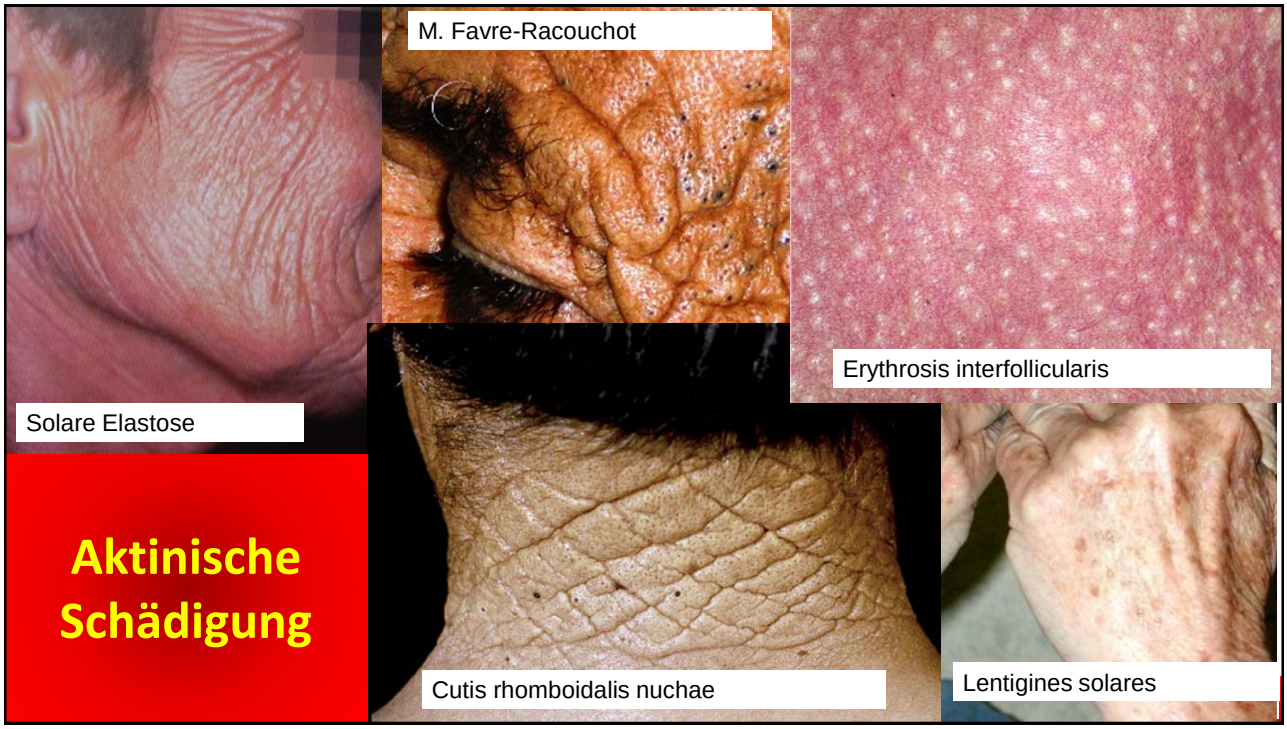
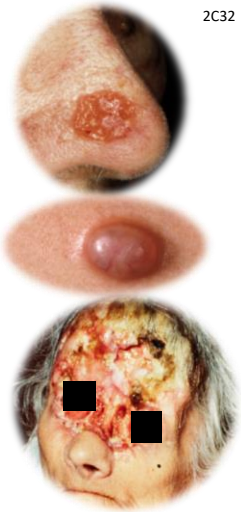


What is non-melanoma skin cancer?

Basal Cell Carcinoma
2C32



Actinic Keratosis → Squamous Cell Carcinoma
(IN SITU Squamous Cell Carcinoma, 2E64.01)
2C31

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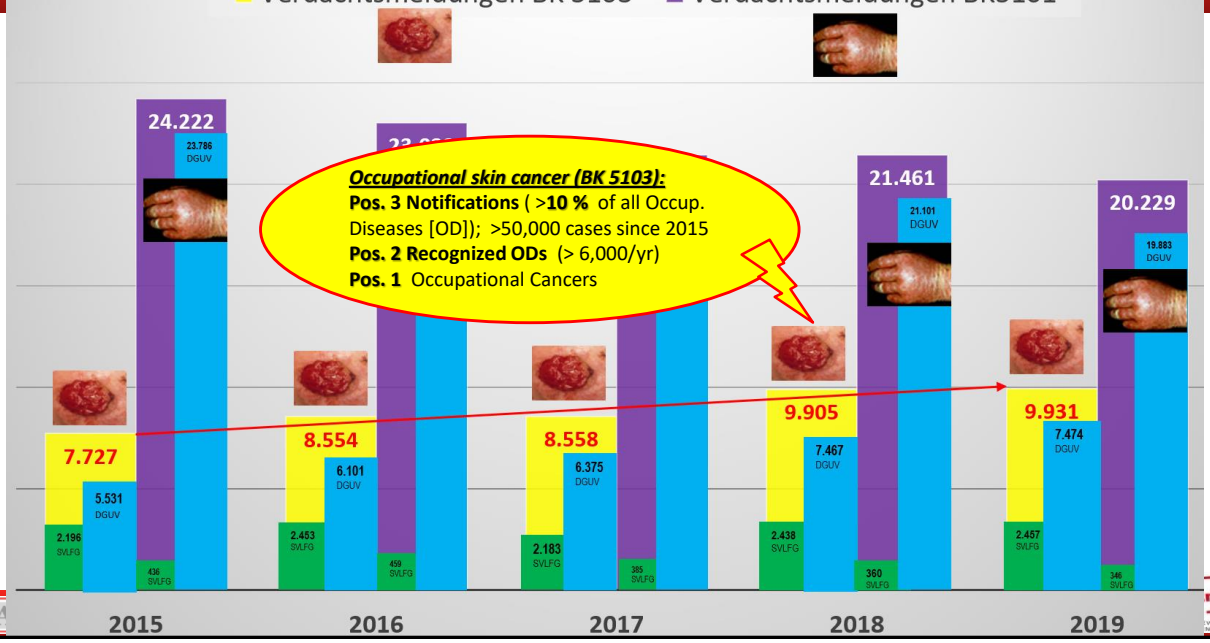
Germany: Notifications Actinic Keratoses/Squamous Cell Carcinoma and hand eczema from 2015-2018



Multi-Stakeholder Summit, 26 April 2019, EADO Congress (Paris)

Aims regarding UV skin cancer:

- Notifications of cases
- NMSC in Cancer Registries
- EU Directive solar optical radiation *(work protection)*
- EU recommendation of occ. diseases *(recognition and compensation of cases)*

- Prevention
- Workers' education
- Surveillance
- Compensation

CURRENT WHO/ILO-efforts towards occup. UV-skin cancer within the UN sustainable development goals (SDG) 2030

ELSEVIER

journal homepage: www.elsevier.com/locate/envint

Environ Int 2019; 126: 804-815. doi: 10.1016/j.envint.2018.09.039

WHO/ILO work-related burden of disease and injury: Protocol for systematic reviews of occupational exposure to solar ultraviolet radiation and of the effect of occupational exposure to solar ultraviolet radiation on melanoma and non-melanoma skin cancer

Marilia Silva Paulo[a,b], Balazs Adam[a,c], Cyril Akagwu[d], Issaka Akparibo[e], Rami H. Al-Rifai[a], Sholeh Bazrafshan[e], Fabriziomaria Gobba[f], Adele C. Green[g,h], Ivan Ivanov[i], Sanja Kezic[j], Nancy Leppink[k], Tom Loney[a,l], Alberto Modenese[f], Frank Pega[i], Cheryl E. Peters[m,n], Annette M. Prüss-Üstün[i], Thomas Tenkate[o], Yuka Ujita[k], Marc Wittlich[p], Swen M

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UV-exposure Dosimetry in European Construction Workers

GENESIS-UV GENeration and Extraction System for Individual expoSure

PD Dr. M. Wittlich, DGUV

461 SED
± 37 SED

602 SED
± 74 SED

Butacu et al. 2020,
Kovacic et al. JEADV 2020,
Moldovan et al. 2020,
Modenese et al. 2020
Wittlich et al. JEADV 2020

2017

Bucharest

Exposures of up to 5 SED/day against WHO tolerable risk of 1,3 SED/day

504 SED
± 32 SED

621 SED
± 35 SED

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EADV Project #18

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Annals of Work Exposures and Health, 2019, Vol. 63, No. 6, 679–688
doi: 10.1093/annweh/wxz044
Advance Access publication 5 June 2019
Original Article

Original Article

Solar Ultraviolet Radiation Exposure among Outdoor Workers in Three Canadian Provinces

Cheryl E. Peters,[1,2,*] Elena Pasko,[3] Peter Strahlendorf,[3] Dorothy Linn Holness[4,5,6,7] and Thomas Tenkate[3]

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*Author to whom correspondence should be addressed. Tel: 1-403-698-8023; e-mail: cheryl.peters@ahs.ca

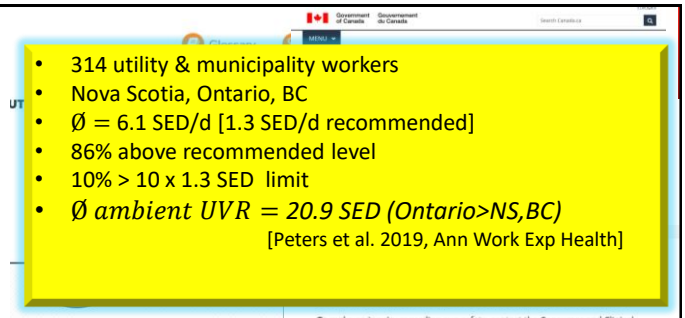
Submitted 23 November 2018; revised 2 April 2019; editorial decision 1 May 2019; revised version accepted 13 May 2019.

Solar ultraviolet (UV) radiation is the second most prevalent carcinogenic exposure in Canada and is similarly important in other countries with large Caucasian populations. The objective of this article was to estimate the economic burden associated with newly diagnosed non-melanoma skin cancers (NMSCs) attributable to occupational solar radiation exposure. Key cost categories considered were direct costs (healthcare costs, out-of-pocket costs (OOPCs), and informal caregiver costs); indirect costs (productivity/output costs and home production costs); and intangible costs (monetary value of the loss of health-related quality of life (HRQoL)). To generate the burden estimates, we used secondary data from multiple sources applied to computational methods developed from an extensive review of the literature. An estimated 2,846 (5.3%) of the 53,696 newly diagnosed cases of basal cell carcinoma (BCC) and 1,710 (9.2%) of the 18,549 newly diagnosed cases of squamous cell carcinoma (SCC) in 2011 in Canada were attributable to occupational solar radiation exposure. The combined total for direct and indirect costs of occupational NMSC cases is $28.9 million ($15.9 million for BCC and $13.0 million for SCC), and for intangible costs is $5.7 million ($0.6 million for BCC and $5.1 million for SCC). On a per-case basis, the total costs are $5,670 for BCC and $10,555 for SCC. The higher per-case cost for SCC is largely a result of a lower survival rate, and hence higher indirect and intangible costs. Our estimates can be used to raise awareness of occupational solar UV exposure as an important causal factor in NMSCs and can highlight the importance of occupational BCC and SCC among other occupational cancers.

Direct costs; economic burden; health-related quality of life; indirect costs; intangible costs; NMSCs; occupational cancer

- 314 utility & municipality workers
- Nova Scotia, Ontario, BC
- Ø = 6.1 SED/d [1.3 SED/d recommended]
- 86% above recommended level
- 10% > 10 x 1.3 SED limit
- *Ø ambient UVR = 20.9 SED (Ontario>NS,BC)*

[Peters et al. 2019, Ann Work Exp Health]



- Canada:
- 1.5 million workers >2 hours outdoors (10% workforce [CAREX])
- 4,500 occup. NMSC incidence
- Costs: $ 28.9 million/y by occup. sun exposure ($15.9m BCC, 13.0m SCC)
- [Mofidi et al. 2018, J Occup Environ Hyg]

Countries with reported associations between BCC or SCC and occupational exposure to solar UVR

REVIEW ARTICLE
BJD British Journal of Dermatology

Global evidence on occupational sun exposure and keratinocyte cancers: a systematic review

T. Loney,[1] M.S. Paulo,[2] A. Modenese,[3] F. Gobba,[3] T. Tenkate,[4] D.C. Whiteman,[5] A.C. Green[5,6] and S.M. John[7,8]

[1]College of Medicine, Mohammed Bin Rashid University of Medicine and Health Sciences, Dubai, United Arab Emirates
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[5]QIMR Berghofer Medical Research Institute, Royal Brisbane Hospital, Brisbane, QLD, Australia
[6]CRUK Manchester Institute, University of Manchester, Manchester, UK
[7]Department of Dermatology, Environmental Medicine and Health Theory, University of Osnabrück, Osnabrück, Germany
[8]Institute for Interdisciplinary Dermatological Prevention and Rehabilitation (iDerm) at the University of Osnabrück, Lower-Saxonian Institute of Occupational Dermatology, Osnabrück, Germany

Summary

Individual studies have suggested that the association between occupational exposure to solar ultraviolet radiation (UVR) and the development of keratinocyte cancers (KCs) may only be valid in populations of European ancestry living in certain geographical regions. Comparative global data are scarce and so this review aimed to summarize current evidence on the association between occupational exposure to solar UVR and the development of KCs, with a specific focus on geographical location and skin colour. Ovid MEDLINE, PubMed, Embase and Web of Science were searched for potentially relevant records. Extracted data were summarized by study, country and region. We included one prospective cohort study and 18 case–control studies ($n = 15\,233$) from 12 countries in regions where the majority of the population is white skinned (Americas, Europe and Oceania). Eighteen of the 19 studies reported effect estimates suggesting an increased risk of basal cell carcinoma (BCC) and/or squamous cell carcinoma (SCC) among outdoor workers. Only 11 studies found a significantly increased risk and many had imprecise estimates. There was a significantly increased risk of BCC and SCC in individual studies in North America, Latin America and the Caribbean, Western Europe and Southern Europe, but not across regions or countries. Overall, 95% of studies reported higher risks among outdoor workers, although the increases in risk were statistically significant in just over half of the studies. Well-designed and sufficiently powered occupational case–control and cohort studies with adequate adjustment for confounding factors and other risk factors are required to provide more accurate risk estimates for occupational KC.

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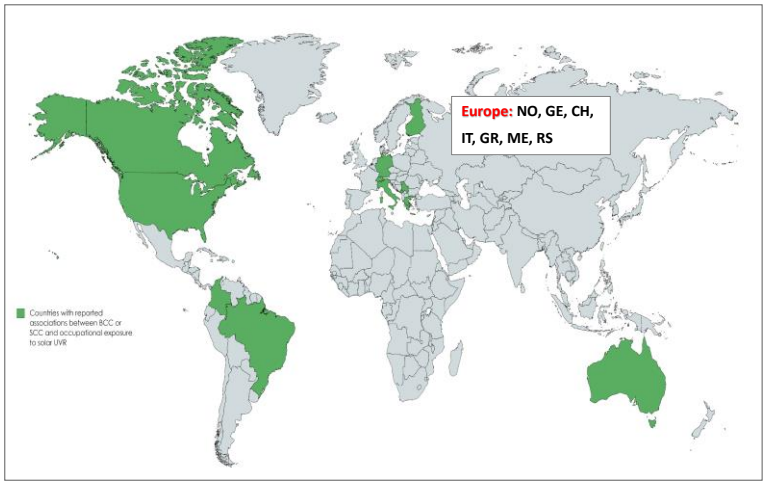
Email: sjohn@uos.de

Accepted for publication
17 April 2020

Funding sources
The authors gratefully acknowledge the financial support of the International League of Dermatological Societies (ILDS) to the University of Osnabrück for costs associated with travel and logistics. The funder had no role in the study design, analysis and interpretation of data, decision to publish, or preparation of the manuscript.

Conflicts of interest
The authors declare they have no conflicts of interest.

DOI: 10.1111/bjd.19152



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Loney T, Paulo MS, Modenese A, Gobba F, Tenkate T, Whiteman DC , Green AC , John SM.
Global evidence on occupational sun exposure and keratinocyte cancers: a systematic review. BJD, April 2020
https://doi.org/10.1111/bjd.19152

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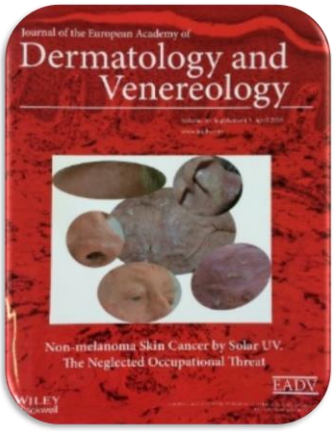
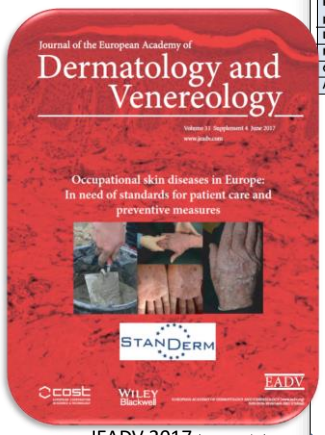
Multi-purpose notification forms for occup. UV skin cancer:

FREE DOWNLOAD:
http://onlinelibrary.wiley.com/doi/10.1111/jdv.2017.31.issue-S4/issuetoc



JEADV 2016 (30, suppl 3)
Wittlich's formula: When is skin cancer occupational ?
(≥40% additional occup. UV-exposure/total lifetime UV-exposure)

Wittlich M. et al., JEADV 2016 (30, suppl 3: 27-33)



JEADV 2017 (31, suppl 4)
https://doi.org/10.1111/jdv14320

Skudlik C, Tiplica GS, Salavastru C, John SM (2017)
Instructions for use of the OSD notification forms. JEADV 31(Suppl. 4):44–46

TO THE RESPECTIVE NATIONAL HEALTH AUTHORITY

Patient notification with suspicion of non-melanoma skin cancer

*The risk of non-melanoma skin cancer is doubled for outdoor workers who are required to spend long periods of time working in the sun, year after year. In many European countries these solar-related cancers can be acknowledged as an occupational disease. To comply with the recommendations of the EU H2020 COST Action **StanDerm**, this form provides the details of a patient who has a suspicious **occupational** non-melanoma skin cancer by solar radiation. Patient consent has been provided.*

Name of reporting person: _____

Date of report: _____ **Signature:** _____

Full name of patient			
Date of Birth			
Nationality			
Gender	☐ Male	☐ Female	☐ Other
Address			

1) **Occupation(s) of the patient:** **years in that occupation**
. . . . . .
. . . . . .
. . . . . .

2) **Total outdoor working time:**
☐ <30% ☐ 30-70%
☐ >70% ☐ Usually outdoors between 10 am and 2 pm

3) **When did the first skin cancer occur (incl. > 5 actinic keratoses)? Year:** _____

4) **Which parts of the body are affected ?**
☐ capillitium ☐ face/forehead ☐ ears ☐ neck
☐ chest ☐ back ☐ arms ☐ hands
☐ legs ☐ other: _____

5) **Diagnosis:**
☐ Actinic keratoses, how many: ☐ >5 ☐ >20 ☐ field cancerization
☐ Squamous cell carcinoma, how many: _____ histology: ☐ YES ☐ NO
☐ Basal cell carcinoma on actinic damage: _____ histology: ☐ YES ☐ NO
☐ Other(s): _____ Which causations: _____

6) **Are sun protection measures available at the workplace?**
☐ No If Yes: ☐ hat/helmet ☐ protective clothing ☐ sun glasses ☐ sun screen
☐ others (eg. sun shields) _____
☐ don't know

7) **Are there options for improvement of sun protection measures at the workplace?**
If Yes: ☐ provision of sun protection measures at the work place
☐ education for better personal use of sun protection measures
☐ organizational measures, which: _____
If No, is job loss threatening due to occupational skin cancer: ☐ Yes ☐ No

ICD 11, 25 May 2019 WHA adopted !

ICD-11 for Mortality and Morbidity Statistics (2018)

Search 2C31.Z [Advanced Search] Browse | Coding Tool | Special Views | Info

- ICD-11 - Mortality and Morbidity Statistics
  - 01 Certain infectious or parasitic diseases
  - 02 Neoplasms
    - Neoplasms of brain or central nervous system
    - Neoplasms of haematopoietic or lymphoid tissues
    - Malignant neoplasms, except of lymphoid, haematopoietic, central nervous system or related tissues
      - Malignant neoplasms, stated or presumed to be primary, of specified sites, except of lymphoid, haematopoietic, central nervous system or related tissues
        - Malignant mesenchymal neoplasms
        - Malignant neoplasms of lip, oral cavity or pharynx
        - Malignant neoplasms of digestive organs
        - Malignant neoplasms of middle ear, respiratory or intrathoracic organs
      - Malignant neoplasms of skin
        - 2C30 Melanoma of skin
        - 2C31 Squamous cell carcinoma of skin
          - 2C31.0 Verrucous squamous cell carcinoma of skin
          - 2C81.0 Squamous cell carcinoma of penis
          - 2C70.2 Squamous cell carcinoma of vulva
          - 2C31.Z Cutaneous squamous cell carcinoma
        - 2C32 Basal cell carcinoma of skin
        - 2C33 Adnexal carcinoma of skin
        - 2C34 Cutaneous neuroendocrine carcinoma
        - 2C35 Cutaneous sarcoma
        - 2C36 Malignant neoplasm of eyelid NOS

2C31.Z Cutaneous squamous cell carcinoma

Parent
2C31 Squamous cell carcinoma of skin

This category is an '**unspecified**' residual category.

Postcoordination

Add detail to **Cutaneous squamous cell carcinoma**

Laterality *(use additional code, if desired)*
XK9J Bilateral
XK8G Left
XK9K Right
XK70 Unilateral, unspecified
XK6G Unspecified laterality

Specific anatomy *(use additional code, if desired)*
Search

Extension codes

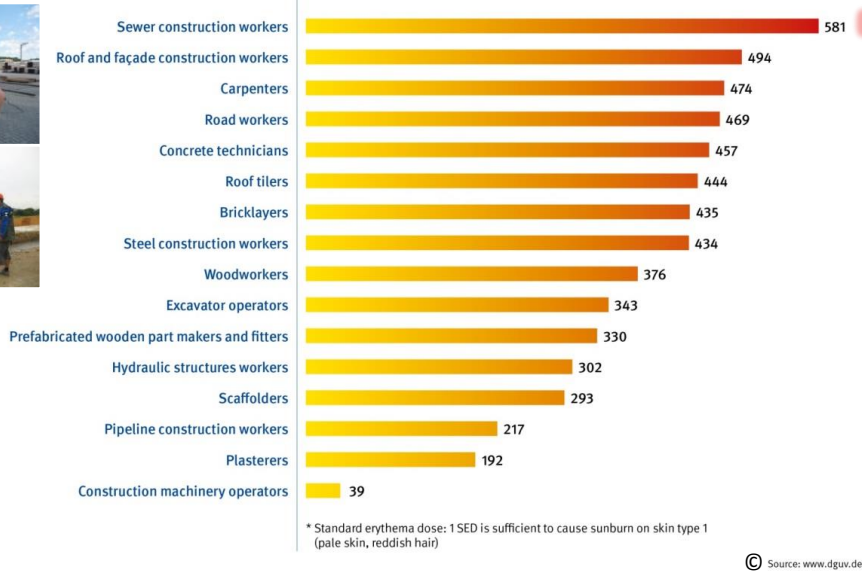
Histopathology *(use additional code, if desired)*
Search

Associated with *(use additional code, if desired)*
XB0A Occupational relevance
XB17 Occupation as primary factor
XB5G Occupation as cofactor
XB80 Not occupation-related
XB72 Occupational relevance unknown or unstated

Building trade UV radiation exposure

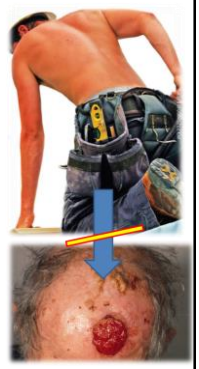
DGUV

Extrapolated annual exposure value in SED*



130; *private exposure*

* Standard erythema dose: 1 SED is sufficient to cause sunburn on skin type 1 (pale skin, reddish hair)



Dr Marc Wittlich

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Wittlich's formula (German Social Accident Insurance)

$$\mathbf{H_b/a} = \sum \underbrace{\underbrace{f_{WT} \cdot \underbrace{f_{MS} \cdot f_{JZ}}_{\text{Tage}} \cdot \underbrace{f_b \cdot f_{TZ}}_{\text{Stunden}}}_{\text{Time of exp.}} \cdot \underbrace{f_{Lat} \cdot f_{Höhe} \cdot f_{Reflex}}_{\text{Geographical factors (altitude, albedo…)}} \cdot \underbrace{f_{Körp} \cdot f_{Schutz}}_{\text{Personal factors (angle, body position…)}}}_{} \cdot \mathbf{H_b/a(ref)}$$

$$\frac{\text{Additional work UV exposure: 300 SED / year}}{\text{Lifetime UV exposure: 130 SED / year}} > 0.4$$

If additional work exposure is > 40 % of lifetime UV exposure:

- Cancer risk is expected to be doubled
- Occup. exposure is relevant and occupational cancer acknowledged

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Wittlich M et al. (2016) An approximation of occupational lifetime UVR exposure: algorithm for retrospective assessment and current measurements. J Eur Acad Dermatol Venereol. 30 (Suppl. 3):27-33. doi:10.1111/jdv.13607

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Definitions of „outdoor work“

EU-OSHA:

“an outdoor worker is someone who spends more than 75% of their working time outdoors”

Federal Law Gazette Volume 2019 Part I No. 27, issued at Bonn on July 17, 2019

Second Ordinance
amending the Ordinance of 12 July 2019
on Occupational Medical Prevention

On the basis of § 18(2), points 4 and 5 and § 19 of the Occupational Safety and Health Act, of which § 18(2) was last amended by Article 227(1) of the Ordinance of 31 October 2006 (...), the Federal Government decrees:

4.2 Activities in Germany

(1) Employers shall offer employees a occupational health provisions under the following conditions, all of which must be fulfilled:

For outdoor work:

- **in the period April to September**
- **between 10 am and 3 pm CET (corresponds to 11 am to 4 pm CEST)**
- **for a total duration of at least one hour per working day**
- **for at least 50 working days.**

https://osha.europa.eu/en/highlights/world-cancer-day-2020-committed-working-t

Suchen

4 Feb 2020

Home ▸ Highlights ▸ World Cancer Day 2020:...

← Back to highlights

Highlights

04/02/2020

World Cancer Day 2020: committed to working together for cancer-free workplaces

Image by Jill Wellington from Pixabay

In the last 20 years, the World Cancer Day on 4 February has grown into a powerful movement inspiring organisations, communities and individuals to increase awareness and take action for reducing the global impact of the disease.

Work-related cancer remains the biggest occupational health challenge in Europe. 120,000 cancer cases occur annually because of exposure to carcinogens at work.

Through research and awareness raising activities, EU-OSHA contributes actively to the fight against work-related cancer. We are now in the preparatory phase of a survey to collect comprehensive data on the **workers' exposure on cancer risk factors in Europe**. The aim of the survey is to better target awareness-raising campaigns and preventive measures, and to contribute to evidence-based policy-making.

Learn more about our project Workers' exposure survey on cancer risk factors in Europe

Check out our web section on work-related cancer

Discover the Roadmap on Carcinogens and the active role played by EU-OSHA

Join the World Cancer Day and the #IAmAndIWill campaign

OSHmail newsletter

Get our monthly update on safety and health at work.
See more info

E-mail address

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Related

Publications

- Summary - Biological agents and work-related diseases: results of a literature review, expert survey and analysis of monitoring systems
- Biological agents and work-related diseases: results of a literature review, expert survey and analysis of monitoring systems
- Slovenia: Controlling worker exposure to dangerous substances in the manufacture

Europe´s Beating Cancer Plan – adopted 4 Feb 2021


European Commission

ROADMAP

TITLE OF THE INITIATIVE	Europe's Beating Cancer Plan
LEAD DG – RESPONSIBLE UNIT	DG SANTE C4: Health determinants and international relations
LIKELY TYPE OF INITIATIVE	Communication and accompanying Staff Working Document(s)
INDICATIVE PLANNING	Q4 2020
ADDITIONAL INFORMATION	DG SANTE Public Health

A. Context, Problem definition and Subsidiarity Check

Context (max 10 lines)

Cancer – a leading cause of death in the EU

Every year, 3.5 million people in the EU get the devastating news that they have cancer. And 1.3 million people

prediction;

- Potential instruments: the intervention could consider the pivotal role of ta
tobacco consumption, in particular to deter youth from smoking and abus
strategy could help ensure that EU citizens have access to affordable
Pollution Strategy could address air, water and soil pollution. In a
frameworks on chemicals and occupational health, interventions could also explore further **legislative and soft measures** to reduce exposure to carcinogenic substances in the workplace, in products and in the environment, and to UV and ionising radiations from natural and artificial sources. Possibilities to help optimise the use of radio-nuclear medical applications through the sharing of best practices could also be explored. It could include innovative approaches involving civil society and in particular the

Pollution Strategy could address air, water and soil pollution. In addition to existing regulatory frameworks on chemicals and occupational health, interventions could also explore further **legislative and soft measures** to reduce exposure to carcinogenic substances in the workplace, in products and in the environment, and to UV and ionising radiations from natural and artificial sources. Possibilities to

Early detection and diagnosis:

- Possible objectives – intervene early: to reduce the time to diagnosis, to increase the coverage of the target population for breast, cervical and colorectal cancer screening; to provide evidence-based indications to broaden the scope of cancer screening to other cancers (e.g. lung, prostate and gastric).
- Possible instruments: measures in the "**digital**" area including training, artificial intelligence and remote access to high-quality care and increasing use of the European Rare Diseases Network could help meet objectives in terms of reduced time to detection and improved diagnosis, as well as inequality

Springer

SPRINGER REFERENCE

SWEN MALTE JOHN
JEANNE DUUS JOHANSEN
THOMAS RUSTEMEYER
PETER ELSNER
HOWARD I. MAIBACH
EDITORS

Kanerva's Occupational Dermatology

Third Edition

2020; 2585 pages

Springer

Further reading

Free download from JEADV

DOI: 10.1111/jdv.17011 JEADV

POSITION STATEMENT

Improved protection of outdoor workers from solar ultraviolet radiation: position statement

S.M. John,[1,*] C. Garbe,[2] L.E. French,[3] J. Takala,[4] W. Yared,[5] A. Cardone,[6] R. Gehring,[7] A. Spahn,[8] A. Stratigos[9]

[1]EADV Task Force Occupational Skin Diseases and Dept. Dermatology, Environmental Medicine, University of Osnabrueck, Osnabrueck, Germany
[2]European Association of Dermato Oncology (EADO) and Department of Dermatology, Eber, hard Karls University, Tübingen, Germany
[3]International League of Dermatological Societies (ILDS) and Department of Dermatology, University Hospital, Ludwig-Maximilians-University of Munich, Munich, Germany
[4]International Commission on Occupational Health (ICOH), University of Tampere, Tampere, Finland
[5]European Cancer Leagues (ECL), Brussels, Belgium
[6]European Cancer Patient Coalition (ECPC), Brussels, Belgium
[7]Safety and Health, European Federation Building and Woodworkers (EFBWW), Brussels, Belgium
[8]Agriculture Section, European Federation of Food, Agriculture and Tourism Trade Unions (EFFAT), Brussels, Belgium
[9]European Academy of Dermatology and Venereology (EADV) and Dept. Dermatology, National and Kapodistrian University of Athens, Athens, Greece Open access funding enabled and organized by Projekt DEAL.
*Correspondence: S.M. John. E-mail: sjohn@uos.de

Abstract

The vast majority of non-melanoma skin cancer (NMSC) is attributable to excessive exposure to ultraviolet radiation (UVR). Outdoor workers are exposed to an UVR dose at least 2 to 3 times higher than indoor workers and often to daily UVR doses 5 times above internationally recommended limits. The risk of UVR workplace exposure is vastly neglected, and the evident future challenges presented in this statement are contrasted with the current situation regarding legal recognition, patient care and compensation. While prevention is crucial to reduce cancer risks for outdoor workers, it is as much of relevance to better protect them through legally binding rules and regulations. Specific actions are outlined in five recommendations based on a Call to Action (table 1). The role of health professionals, including dermatologists, in this context is crucial.

Keywords: exposure, non-melanoma skin cancer, occupational disease, outdoor workers, prevention, regulations, ultraviolet radiation.
Received: 30 July 2020; Accepted: 15 October 2020

Conclusion

- Watch for Occup. Skin Cancer:
  - History: outdoor worker (>5yrs; 1hr for 1/3 of worktime)
    - Skin type; medication [immunosupression, photosensitizers]; syncanerogenicity [eg. tar]
  - Actinic damage in occup. exposed body areas
  - AK/SCC or BCC
  - Save your patients a chronic disease

- **R**eport suspected cases;
  use EADV notification forms

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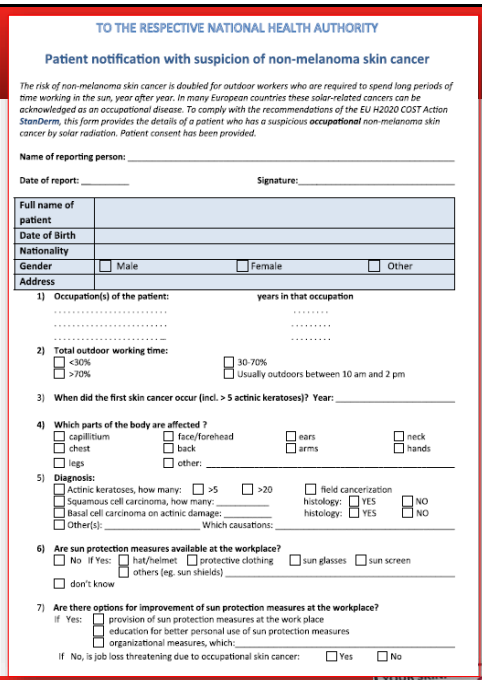
https://doi.org/10.1111/jdv14320



TO THE RESPECTIVE NATIONAL HEALTH AUTHORITY

Patient notification with suspicion of non-melanoma skin cancer

*The risk of non-melanoma skin cancer is doubled for outdoor workers who are required to spend long periods of time working in the sun, year after year. In many European countries these solar-related cancers can be acknowledged as an occupational disease. To comply with the recommendations of the EU H2020 COST Action StanDerm, this form provides the details of a patient who has a suspicious **occupational** non-melanoma skin cancer by solar radiation. Patient consent has been provided.*

Name of reporting person: _____

Date of report: _____ Signature: _____

Full name of patient	
Date of Birth	
Nationality	
Gender	☐ Male ☐ Female ☐ Other
Address	

1) Occupation(s) of the patient: years in that occupation

2) Total outdoor working time:
☐ <30% ☐ 30-70%
☐ >70% ☐ Usually outdoors between 10 am and 2 pm

3) When did the first skin cancer occur (incl. > 5 actinic keratoses)? Year: _____

4) Which parts of the body are affected ?
☐ capillitium ☐ face/forehead ☐ ears ☐ neck
☐ chest ☐ back ☐ arms ☐ hands
☐ legs ☐ other: _____

5) Diagnosis:
☐ Actinic keratoses, how many: ☐ >5 ☐ >20 ☐ field cancerization
☐ Squamous cell carcinoma, how many: _____ histology: ☐ YES ☐ NO
☐ Basal cell carcinoma on actinic damage: _____ histology: ☐ YES ☐ NO
☐ Other(s): _____ Which causations: _____

6) Are sun protection measures available at the workplace?
☐ No If Yes: ☐ hat/helmet ☐ protective clothing ☐ sun glasses ☐ sun screen
☐ others (eg. sun shields) _____
☐ don't know

7) Are there options for improvement of sun protection measures at the workplace?
If Yes: ☐ provision of sun protection measures at the work place
☐ education for better personal use of sun protection measures
☐ organizational measures, which: _____
If No, is job loss threatening due to occupational skin cancer: ☐ Yes ☐ No

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Skudlik C, Tiplica GS, Salavastru C, John SM (2017) Instructions for use of the OSD notification forms. J Eur Acad Dermatol Venereol 31(Suppl. 4):44–46. https://doi.org/10.1111/jdv14320