

SHORT REPORT

Workers with occupational contact dermatitis: workplace characteristics and prevention practices

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Background	There are many gaps in knowledge related to prevention practices in place for workers who subsequently develop occupational contact dermatitis (OCD).
Aims	To describe the workplace characteristics and the prevention practices in workplaces where workers developed hand dermatitis.
Methods	Consecutive cases of probable OCD were enrolled from a specialist occupational health clinic. At the time of the initial assessment, questionnaires were administered to collect information about clinical presentation, workplace characteristics and prevention practices at work.
Results	100 workers with hand dermatitis were enrolled in the study and 78 were considered to have OCD. Two-thirds of these had had some occupational health and safety or Workplace Hazardous Materials Information System (WHMIS) training in their workplace, however, training related to glove use and skin care was less common. Unionized workers were more likely to have received training. Workers involved in wet work were less likely to report training.
Conclusions	These findings suggest that there are gaps in prevention programs for work-related skin disease. Research is needed on effective strategies that are sustainable in the workplace.
Key words	Gloves; occupational contact dermatitis; occupational health and safety; prevention; training; unions; wet work.

Introduction

Recent systematic reviews have provided information about practices to prevent occupational contact dermatitis (OCD) [1–4]. There is limited information about the general state of actual prevention practices in the workplace. Several intervention studies in high-risk industries in Europe have provided baseline information on prevention activities [5–7] and there is information from industry in the UK on skin prevention programmes [8,9]. There is little information from other countries about the state of prevention for OCD. If we are to make progress improving primary prevention, an understanding of the current state is important. The objective of the study was to describe the workplace and prevention practices of workers being assessed for OCD in Canada.

Methods

The study was approved by the Research Ethics Board of St. Michael's Hospital. Patients were invited to participate if (i) they had a possible diagnosis of contact dermatitis, (ii) they were employed and working or were employed but had stopped work because of their skin disease and (iii) they had hand involvement. One hundred patients who met the eligibility requirements were consecutively recruited from the occupational health clinic at St. Michael's Hospital, a speciality referral clinic for occupational disease.

A questionnaire was administered that collected information regarding the worker's clinical history and status, health care utilization and workplace characteristics, including prevention activities.

Table 1. Exposures, workplace characteristics and prevention practices

	All (n = 100)	Non-OCD (n = 22)	OCD (n = 78)
<i>Workplace exposures reported</i>			
Cleaning agents	78/100 (78)	7/22 (32)	71/78 (91)***
Oils and greases	38/100 (38)	2/22 (9)	36/78 (46)**
Metals	63/100 (63)	3/22 (14)	60/78 (77)***
Solvents	59/100 (59)	3/22 (14)	56/78 (72)***
Plastics	30/100 (30)	1/22 (5)	29/78 (37)**
<i>Workplace characteristics</i>			
Unionized	33/100 (33)	7/22 (32)	26/78 (33)
Number of employees (mean)	400	651	363
<i>Prevention activities (%)</i>			
Occupational health and safety training	51/98 (52)	6/21 (29)	45/77 (58)*
WHMIS training	59/97 (61)	7/21 (33)	52/76 (68)**
Skin protection training	26/93 (28)	1/20 (5)	25/73 (34)**
Report using gloves	63/97 (65)	5/21 (24)	58/76 (76)***
Glove training	21/56 (38)	0/9 (0)	21/47 (45)*
Hand washing training	26/87 (30)	1/16 (6)	25/71 (35)*

WHMIS, Workplace Hazardous Materials Information System.

Percent reporting in brackets.

* $P < 0.05$ for difference between OCD and non-OCD.

** $P < 0.01$ for difference between OCD and non-OCD.

*** $P < 0.001$ for difference between OCD and non-OCD.

The data were analysed using means and frequencies. Associations were explored with *t*-test, chi square and logistic regression analysis.

Results

Of the 100 workers enrolled in the study, 78 were determined to have OCD and 22 were deemed not to have OCD following assessment. Of those with OCD, a diagnosis of irritant contact dermatitis (ICD) was made in 83% and allergic contact dermatitis (ACD) in 51%. The mean age of those with OCD was 40 (19–63 years) and 64% were male. For workers who did not have OCD, the mean age was 41 (25–55 years) and 27% were male.

Reported workplace characteristics, exposures and prevention practices are presented in Table 1 for both those with and without OCD. Workers with OCD were more likely to report exposure to skin hazards. There were no significant differences between those with and with no OCD regarding size of company and unionization status. Workers were asked about the content of the skin prevention training, including the use of gloves and the use of barrier creams and appropriate skin cleansers. Of those with OCD, 76% were provided with gloves, though only 45% reported training in the use of gloves, and 35% reported training in hand washing. Training related to hand washing included direction when to wash the hands and frequency of hand washing. Those with OCD were more likely to report having had any of these forms of training.

Table 2. Reported prevention activities in unionized and non-unionized workplaces

	All (n = 100)	Non-union (n = 64)	Union (n = 36)
Number of employees	400	356	542
Occupational health and safety training when started at company	51/98 (52)	26/63 (41)	25/35 (71)*
WHMIS training when started at company	59/97 (61)	31/62 (50)	28/35 (80)**
Skin prevention training	26/93 (28)	10/61 (16)	16/32 (50)**
Use gloves at work	63/97 (65)	38/62 (61)	25/35 (71)
Glove training	21/56 (38)	10/39 (26)	11/27 (65)*
Hand washing training	26/87 (30)	9/55 (16)	17/32 (53)**

Percent reporting in brackets.

* $P < 0.05$ for difference between unionized and non-unionized.

** $P < 0.01$ for difference between unionized and non-unionized.

Workers, including health care workers, hairdressers, laboratory workers, cleaners/janitors, wait staff and food handlers were classified as being exposed to wet work for the purpose of this study. While glove use was significantly more common in workers exposed to wet work in comparison to those who were not (97 versus 64%, $P < 0.01$), workers involved in wet work were less likely to report training related to glove use (25 versus 55%, $P < 0.05$). Prevention practices and training related to skin care and wet work were also examined by diagnosis. Glove use was significantly higher in workers exposed to wet work regardless of diagnosis of ACD or ICD. Among those diagnosed exclusively with ICD, training in the use of gloves was reported less among workers exposed to wet work (13 versus 63%, $P < 0.05$).

Workplace characteristics and prevention activities were compared between unionized and non-unionized workplaces (Table 2). Unionized workplaces had more employees. All prevention activities except glove use were significantly greater in unionized workplaces. As the number of employees was significantly different, logistic regression was done adjusting for this variable. All prevention activities except glove use were significantly greater in unionized workers.

Discussion

This study found that a proportion of workers from a variety of industries report gaps in occupational health and safety training at work, particularly in education related to prevention of skin exposure. Workers in unionized workplaces reported higher levels of training. Workers

exposed to wet work, while reporting more frequent use of gloves, reported less training related to skin protection, particularly if they had ICD.

The strengths of the study are that it represents workers in a variety of industries who were being assessed for an occupational cause of hand dermatitis. It includes not only glove use but also information on training. Limitations include self-reporting and a modest sample size of 100.

A strength in relation to other studies is the inclusion of a variety of industries. Other studies have examined a particular high-risk industry. Flyholm [6] reported glove use in approximately 40% and information and discussion related to OCD prevention in approximately 55% of gut cleaners. Dulon *et al.* [7], studying geriatric nurses, found just over 10% using gloves more than 4 h per day and approximately 60% familiar with the skin care policy. Douglas [8] did a survey of industries in the UK where there is a regulation requiring surveillance if a skin hazard is present. Of the 71% of companies that used procedures requiring gloves, 76% reported using gloves and 64% had training for glove use. There are few studies that have compared unionized and non-unionized workers. Gillen *et al.* [10] in a study limited to construction workers ($n = 247$) found that 84% of unionized workers reported training in comparison to 48% of non-unionized workers, similar to our numbers of 75 and 49%, respectively.

Occupational health clinic patients are a source of information for prevention practices in their workplaces. While strategies to prevent OCD are known, there are reported gaps in their implementation in workplaces in Ontario. Strategies to improve training and prevention related to OCD are needed, with particular attention to non-unionized workers and workplaces with what may be perceived as minimal risk because the key exposure is wet work. More research is needed to understand barriers to prevention and methods to improve implementation of workplace prevention.

Key points

- Occupational health clinic patients provide a source of information on prevention practices in workplaces.
- Workers in unionized workplaces are more likely to report the presence of prevention practices.
- Workers exposed to wet work are less likely to report training related to skin protection and glove use.

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Conflicts of interest

None declared.

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