A survey of occupational skin disease in UK healthcare workers

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Background
Occupational skin disease is a common problem among healthcare workers (HCWs). The prevalence of occupational skin disease in HCWs has been reported in several international studies, but not in the UK.

Aims
To estimate the prevalence of occupational skin disease in a population of UK HCWs and to explore possible causative factors.

Methods
Clinical and non-clinical HCWs attending for an influenza vaccine during October and November 2013 were invited to complete a brief skin questionnaire. Data from staff who stated their skin had suffered as a result of work were compared with data from staff who did not, to explore differences in potential causative factors.

Results
A total of 2762 questionnaires were analysed. The estimated prevalence of occupational skin disease was 20% for clinical and 7% for non-clinical staff. In total, 424 clinical staff stated their skin had been made worse by work. There were statistically significant differences between clinical staff with and without reported skin symptoms regarding a history of eczema, frequent hand washing and moisturizer use but no statistically significant difference in the relative proportions of soap and alcohol hand gel use. Non-clinical staff reported significantly more use of soap relative to alcohol gel than clinical staff.

Conclusions
This study demonstrated the prevalence of occupational skin disease in a population of UK HCWs. More work is indicated to explore if the ratio of soap and alcohol gel reported in this study are typical and whether this has any impact on the development of occupational skin disease.

Key words
Alcohol gel; hand washing; healthcare workers; moisturizers; occupational skin disease; soap.

Introduction
The Health and Safety Executive defines occupational skin disease as ‘any disorder of the skin which is caused or made worse by work or workplace activity’ [1]. Skin changes are often seen in healthcare workers (HCWs), the main responsible agents being wet work, soaps and cleaning materials [1–3]. Wet work increases the opportunity for dermatitis due to recurrent exposure to water and drying of the skin and is defined as frequent washing of the hands (>20 times per day) or skin exposure to liquids for greater than 2h per day [1–2]. Although the UK reporting scheme THOR provides an estimation of the number of cases of contact dermatitis per 100 000 workers [1], and numerous international studies have estimated the prevalence of occupational skin disease in HCWs as between 17 and 55% [3–5], there are no studies which explore the actual prevalence of occupational skin disease in a population of UK HCWs. This survey aimed to address this and to explore possible causative factors.

Methods
HCWs who attended for an influenza vaccine during October and November 2013 completed an immunization questionnaire which asked for details of occupation and age. During that time, a brief skin questionnaire (modified from the Nordic Occupational Skin Questionnaire) [6] as reported in previous studies [3] was appended for self-completion. Staff were invited to complete the additional (skin) questionnaire. Data relevant to the current study were extracted to a single anonymous database for analysis and further independent ethical review was not sought.
The collection of data based on workers’ self-reporting of symptoms by questionnaire has successfully been used in other studies to estimate the prevalence of occupational skin disease [3,7]. In this study, the definition of self-reported occupational skin disease was a positive response to the question: ‘Do you believe your skin has suffered as a result of your work?’ Each subject who returned a positive response to this question was matched (by sex, age and occupation) with a subject who returned a negative response. Both groups were asked questions about history of eczema, redness of skin, if hands were washed >20 times per day, if moisturizers were used at work and what percentage of soap and/or alcohol gel was used. The responses of each group were then compared. Clinical roles were defined as doctors (all grades), nurses (including midwives and health care assistants) and allied health professions (AHPs), e.g. physiotherapists, radiographers, etc. Non-clinical roles were defined as administration (including managers), scientific support (pharmacy, laboratory staff) and non-scientific support (caterers, stores etc.). Chi-square tests were performed to calculate P values.

Results

A total of 2979 staff who attended for influenza vaccine completed the skin questionnaire. In total, 217 incomplete questionnaires were excluded, thus 2762 questionnaires remained for analysis of which 424 contained a positive response to the question: ‘Do you believe your skin has suffered as a result of your work?’ (377 positive responses were reported from clinical staff and 47 from non-clinical staff).

The overall point prevalence for clinical staff was calculated as 20% (doctors: 20%, nurses: 20% and AHPs: 20%). For non-clinical staff, it was 7% (administration: 4%, scientific support: 10% and non-scientific support: 6%) (Table 1). Clinical staff who reported their skin had been made worse by work reported statistically significant differences when compared with their matched counterparts regarding: a history of eczema, redness of skin, hands washed >20 times per day and use of moisturizers, but no significant difference in the percentage using soap and/or alcohol gel used (Table 2). Clinical staff reported using soap 62% of the time and alcohol gel 38% of the time. By comparison the respective percentages reported for non-clinical staff were 82 and 18% (P < 0.01).

Discussion

This study estimated the point prevalence of self-reported occupational skin disease in clinical roles at 20%; this figure is comparable with previously reported international data [3–5]. By comparison, the estimated point prevalence of self-reported occupational skin disease in non-clinical roles was 7% which is comparable with the background level of eczema in

<table>
<thead>
<tr>
<th>Role</th>
<th>Occupation</th>
<th>Staff with work-related skin symptoms (n = 424)</th>
<th>Total staff numbers (n = 2762)</th>
<th>%</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical</td>
<td>Doctors</td>
<td>66</td>
<td>325</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Nurse</td>
<td>232</td>
<td>1155</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>AHP</td>
<td>79</td>
<td>410</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Non-clinical</td>
<td>Administration</td>
<td>25</td>
<td>585</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Scientific support</td>
<td>11</td>
<td>108</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-scientific support</td>
<td>11</td>
<td>179</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Table 1. Prevalence of skin disease by occupation

<table>
<thead>
<tr>
<th>Role</th>
<th>Occupation</th>
<th>Eczema, n (%)</th>
<th>Redness, n (%)</th>
<th>Wash 20+, n (%)</th>
<th>Moisturizer, n (%)</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work-related skin symptoms reported (n = 377)</td>
<td>Doctor (n = 66)</td>
<td>28 (42)</td>
<td>30 (46)</td>
<td>52 (79)</td>
<td>45 (68)</td>
<td>52:48</td>
</tr>
<tr>
<td></td>
<td>Nurse (n = 232)</td>
<td>93 (40)</td>
<td>139 (60)</td>
<td>203 (88)</td>
<td>172 (74)</td>
<td>70:30</td>
</tr>
<tr>
<td></td>
<td>AHP (n = 79)</td>
<td>29 (37)</td>
<td>50 (63)</td>
<td>54 (69)</td>
<td>61 (77)</td>
<td>70:30</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>150/377 (40)</td>
<td>219/377 (58)</td>
<td>309/377 (82)</td>
<td>278/377 (74)</td>
<td>64:36</td>
</tr>
<tr>
<td>No work-related skin symptoms reported (n = 377)</td>
<td>Doctor (n = 66)</td>
<td>5 (8)</td>
<td>2 (3)</td>
<td>43 (65)</td>
<td>21 (32)</td>
<td>51:49</td>
</tr>
<tr>
<td></td>
<td>Nurse (n = 232)</td>
<td>34 (15)</td>
<td>6 (3)</td>
<td>166 (71)</td>
<td>153 (66)</td>
<td>65:35</td>
</tr>
<tr>
<td></td>
<td>AHP (n = 79)</td>
<td>5 (6)</td>
<td>2 (3)</td>
<td>33 (42)</td>
<td>52 (66)</td>
<td>66:34</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>44/377 (12)</td>
<td>10/377 (3)</td>
<td>242/377 (64)</td>
<td>226/377 (60)</td>
<td>61:39</td>
</tr>
<tr>
<td>Significance (P)</td>
<td></td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>NS</td>
</tr>
</tbody>
</table>

NS, not significant.
Occupational skin disease is a significant issue among health care workers (HCWs) in the UK, i.e. 2–10% of adults [8]. The study confirmed previous observations which showed that moisturizers are used more often in staff reporting skin problems and that occupational skin disease was reported more commonly where there was a history of eczema, where redness was reported and where hands were washed >20 times per day [7,9]. No difference was found in the proportions of soap and alcohol gel use between the symptom and non-symptom groups, as reported in previous studies [5]. Accepted advice is that in general, hand washing should be the exception to be performed only when skin is soiled or visibly contaminated with proteinaceous material [4,10]. It was also found that non-clinical staff reported significantly more use of soap relative to alcohol gel than clinical staff, most likely because there is less need for them to use alcohol gel which is predominantly used in clinical settings.

The method used in this study enabled the direct comparison between subjects from the same population. However, due to the nature of the study, the skin was not examined. Neither was it possible to record hours of work and data such as hobbies and personal circumstances (e.g. caring for young children) [7]. More work is required to explore if the observed soap and alcohol gel ratios recorded in this study are commonplace and whether the type of skin preparation used has any impact on the development of occupational skin disease in HCWs.

### Key points

- The estimated prevalence of self-reported occupational skin disease in this population of UK health care workers was 20% for clinical and 7% for non-clinical staff.
- Clinical staff with skin symptoms reported more frequent hand washing and moisturizer use than clinical staff without symptoms.
- Non-clinical staff reported significantly more use of soap relative to alcohol gel than clinical staff.

### Acknowledgements

I wish to thank my colleagues for their help in distributing the questionnaire.

### Conflicts of interest

None declared.

### References