

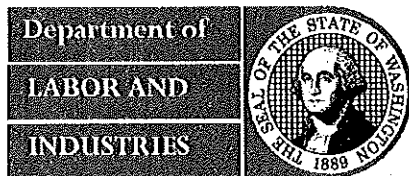
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Evaluation of the Educational Booklet,  
*Prevention of Hand Dermatitis*  
*in the Health Care Setting*

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Technical Report Number 66-7-2002

July 2002



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## **List of Acronyms**

CHG:	Chlorhexidine Gluconate – used in certain anti-bacterial hand washing agents
OSHA:	Occupational Safety and Health Administration
SHARP:	Safety and Health Assessment and Research for Prevention

## **Executive Summary**

We evaluated the educational booklet titled, *Prevention of Hand Dermatitis in the Health Care Setting* with the aims of determining whether the booklet was a valuable tool for health care personnel and to assess the opinion of the health care worker population on the optimal length and method of dissemination for future informational materials on workplace safety and health.

We developed and sent the educational booklet to 601 health care facilities, including 93 hospital infection control personnel, as well as the nursing supervisor at hospices, nursing homes, rehabilitation centers, and home health care agencies. We mailed a one-page feedback survey using the same mailing list. The survey assessed whether six pre-defined objectives were satisfied. In a subset of the surveyed population, we used a before-and-after analysis to determine whether the booklet contributed to awareness of two issues involved in the selection of moisturizers for health care workers. A survey to the 93 hospital infection control personnel conducted in 2000 assessed “pre-intervention” awareness of these two key issues, while the current survey assessed “post-intervention” awareness.

We received a response rate of only 27%, hindering our ability to generalize the findings. Criteria for five of the six objectives used to evaluate the effectiveness of the educational booklet were exceeded. All respondents stated that the document was clearly written and easily understood and 99% believed that it provided practical tips for preventing hand dermatitis. In the before-and-after analysis, a statistically significantly greater proportion of individuals were aware of the moisturizer incompatibility issues after receiving the booklet than before its receipt. Limitations to this analysis exist including the inability to conclude that the increase in awareness resulted solely from the educational booklet. Nevertheless, the booklet appears to have prompted at least initial steps toward positive change. More than 50% of the respondents indicated that they had checked the compatibility or considered making changes to the products used in their facilities since receiving the booklet.

Lessons were learned regarding the preferred length and methods of distribution for future educational materials to health care professionals. Respondents overwhelmingly prefer brief (1-2 page) written materials in the mail.

## **Introduction**

In 2000, the Safety and Health Assessment and Research for Prevention Program (SHARP) at the Washington State Department of Labor and Industries administered a hand care survey to 93 hospital infection control personnel representing all 106 hospitals in Washington State.<sup>1</sup> The survey had two purposes: (1) to characterize the moisturizers, hand washing agents, alcohol gels, and gloves used in Washington hospitals, and (2) to assess the awareness of compatibility issues associated with certain hand washing agents, gloves, and moisturizers.

In response to the survey results, we created an educational booklet titled, *Prevention of Hand Dermatitis in the Health Care Setting*.<sup>2</sup> The overall goal of the booklet was to assist employers and employees to prevent hand dermatitis in the health care setting. The document aimed to: (1) provide results of the hand care survey; (2) offer recommendations to prevent hand dermatitis; (3) raise awareness of previously published hand washing guidelines and compatibility issues surrounding hand washing agents, gloves, and moisturizers; and (4) supply reference information for health care personnel.

We mailed a total of 601 educational booklets to the 93 hospital infection control personnel and 508 representatives from other health care facilities in Washington, including hospices, nursing homes, rehabilitation centers, and home health care agencies. We developed the mailing list for hospital personnel using the addresses provided directly by the individuals participating in the 2000 hand care survey. The Health Systems Quality Assurance Facilities and Licensing Division of the Washington State Department of Health provided the mailing list for all other health care facilities. For hospital personnel, the booklet was personally addressed to the respondents of the 2000 hand care survey followed by the line, "or current infection control officer". For the other health care agencies, the booklets were generically addressed to the "Nursing Supervisor".

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<sup>1</sup> Marino C and Cohen M. Washington State Hospital Survey 2000: Gloves, Handwashing Agents, and Moisturizers. *Am J Infect Control*. 2001;29:422-424.

<sup>2</sup> Marino C and Cohen M. Prevention of Hand Dermatitis in the Health Care Setting. Technical Report Number 66-6-2001. Safety & Health Assessment & Research for Prevention Program. Washington State Department of Labor and Industries. Olympia, Washington. 2001.

## **Purpose and Objectives of the Evaluation**

SHARP developed a one-page feedback survey that was disseminated using the mailing lists generated for the *Prevention of Hand Dermatitis in the Health Care Setting* educational booklet. The aims of the evaluation were to determine whether the booklet was a valuable tool for health care personnel and to assess the opinion of this population on the optimal length and method of dissemination for future information materials on workplace safety and health. A secondary purpose of the evaluation was to assess the quality of the mailing lists used to disseminate the educational booklet and the survey.

As stated above, the overall goal of the educational booklet was to assist employers and employees to prevent hand dermatitis in the health care setting. In an effort to evaluate whether the booklet helped to achieve that goal, six objectives were developed. The survey was designed to assess whether those objectives were satisfied. The objectives are listed below:

1. Eighty percent of individuals who read the report will respond positively that it was clearly written and easily understood.
2. Seventy percent of individuals who read the report will respond positively that it provided practical tips for preventing hand dermatitis in the health care setting.
3. Seventy percent of individuals who read the report will respond positively that they are aware of the recommendation to avoid using some petroleum-based moisturizers with latex gloves.
4. Among the individuals who responded to the 2000 hand care survey, the percentage aware of the OSHA recommendation will increase 25% from the baseline level.
5. Seventy percent of individuals who read the report will respond positively that they are aware of the problem of using chlorhexidine gluconate (CHG) hand washing agents followed by the use of anionic moisturizers, which may inactivate the residual antibacterial effect of CHG.
6. Among the individuals who responded to the 2000 hand care survey, the percentage aware of moisturizer/CHG compatibility issues will increase 25% from the baseline level.

## **Survey Development and Administration**

We sent a one-page mail survey consisting of 9 questions (see Appendix A for a copy of the survey) with an accompanying cover letter to the 601 recipients of the educational booklet (the same mailing list was used). The survey was mailed on October 18, 2001 with a reminder postcard mailed to non-respondents on November 5, 2001. The survey collected the name and contact information of the respondent. The first question asked if the respondents received the *Prevention of Hand Dermatitis in the Health Care Setting* document, and if not, they were asked to indicate whether or not they wanted SHARP to send them a copy.

Two questions regarding awareness of moisturizer, glove, and hand washing agent compatibility issues were taken verbatim from the 2000 hand care survey. Thus, the responses from the 93 hospital infection control personnel to these two questions can be compared before and after receipt of the educational booklet.

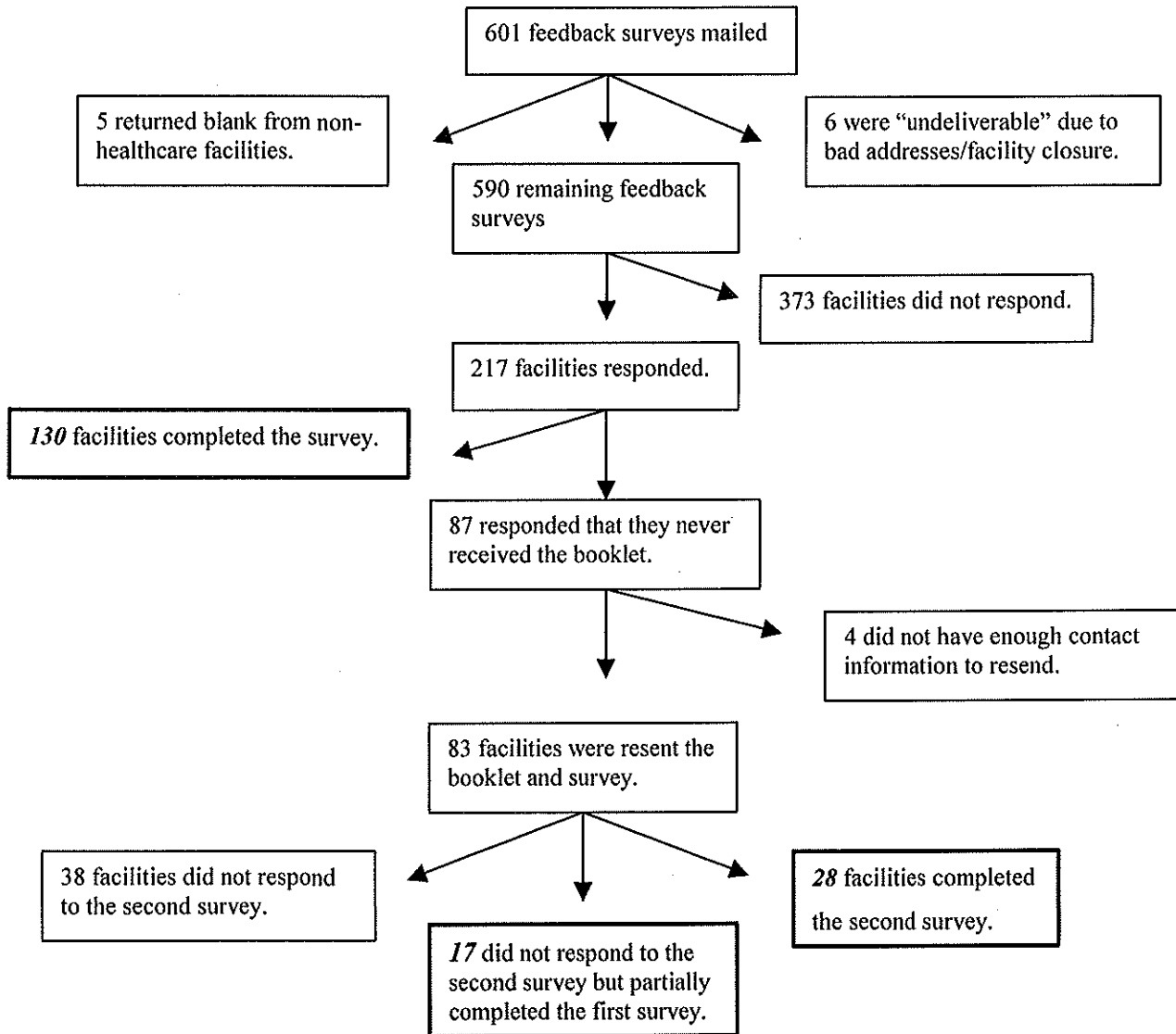
## Evaluation Results

Of the 601 surveys that were mailed, 5 were returned blank from facilities indicating that they do not perform health care activities, while an additional 6 were returned because either the address was incorrect or the facility had closed down. Therefore, of the 590 remaining, 217 (37%) were returned. Of the 217 returned surveys, 130 were returned completed, while 87 (40%) were returned by respondents who claimed that they never received the booklet. We mailed the booklet and another copy of the feedback survey to 83 of these individuals – the other 4 individuals did not provide adequate contact information for us to resend. Of the 83 surveys that were resent, 28 were completed and returned. Additionally, 17 respondents partially completed the survey – these individuals indicated that they didn't receive the booklet, yet filled out the questions regarding preferred length and methods of future educational materials. Therefore, of the 590 surveys, 158 were returned completed for a response rate of 27%. The response rate among the hospital infection control personnel was higher 30/93 (32%) than the response rate for the additional health care facilities, 128/497 (26%). For the two questions asking about preferences for future educational materials the overall response rate was slightly higher – 175/590, or 30%. Figure 1 provides a flow chart diagramming the response to the feedback survey.

Overall, there were 175 surveys returned at least partially completed. Of these, 174 responded to the question regarding their job descriptions – available choices were infection control, employee health nurse, or other. Many respondents identified themselves as having multiple job descriptions. A total of 103 respondents identified themselves as Infection Control Personnel, many of who also held other duties. Thirty-six respondents indicated that they filled the role of Employee Health Nurse, most of who indicated that they were Infection Control Personnel as well. Thirty-two respondents identified themselves as the Director of Nursing Services. Other job descriptions included home health agency employees, staff development, clinical manager, nursing supervisor, and administrators.

All respondents indicated that the report was clearly written and easily understood, and 99% believed that the report provided practical tips for preventing hand dermatitis in the health care setting (n = 151 and 150, respectively).

**Figure1: Response to the Feedback Survey**



Respondents were then surveyed regarding their awareness of 2 moisturizer compatibility issues. Eighty-two percent (128/157) were aware of the Occupational Safety and Health Administration (OSHA) recommendation to avoid using some petroleum-based moisturizers with latex gloves; while 61% (95/155) were aware that some anionic moisturizers may inactivate the residual antibacterial effect of chlorhexidine gluconate (CHG) hand washing agents.

A greater proportion of hospital infection control personnel were aware of the OSHA recommendation relative to representatives from non-hospital health care facilities (93% versus 78%), though this difference did not reach statistical significance (chi-square,  $p = 0.058$ ). The awareness that anionic

moisturizers may be incompatible with CHG hand washing agents was statistically significantly greater among hospital personnel than other health care personnel (80% versus 56%, chi-square,  $p = 0.015$ ).

Hospital infection control personnel were also asked about their awareness of the above-mentioned moisturizer compatibility issues during the 2000 hand care survey. The responses for the 30 individuals who responded in the current survey were matched and compared to their responses from the 2000 hand care survey. Post-intervention awareness of both the OSHA recommendation and the incompatibility between anionic moisturizers and CHG-containing hand washing agents increased by 39% and 86%, respectively, relative to pre-intervention awareness levels. The results shown in Table 1 demonstrate that these differences were statistically significant (McNemar test for two related samples).

There were no statistically significant differences in the proportions aware of the OSHA recommendation and the CHG compatibility issue at baseline between the 30 respondents and 63 non-respondents to the current survey (chi-square,  $p = 0.252$  and  $0.501$ , respectively).

**Table 1: Awareness of Moisturizer Issues (n = 30)**

<i>Issue 1: OSHA recommendation to avoid using some petroleum-based moisturizers with latex gloves.</i>				
Number Aware Before (%)	Number Aware After (%)	Difference	95% Confidence Interval	P-value
20 (67%)	28 (93%)	0.267	0.075 – 0.458	0.0078
<i>Issue 2: Some anionic moisturizers may inactivate the antibacterial effect of CHG hand-washing agents.</i>				
Number Aware Before (%)	Number Aware After (%)	Difference	95% Confidence Interval	P-value
13 (43%)	24 (80%)	0.367	0.161 – 0.572	0.0010

Survey respondents were then asked whether they had taken any action as a result of reading the educational booklet. Of the 148 respondents, 79 (53%) indicated that they had either checked the compatibility or considered making changes to the products used in their facilities. Table 2 provides a more detailed summary of the results – note that respondents could choose multiple responses; therefore, percentages do not add up to 100%.

**Table 2: Actions Taken as a Result of the Educational Booklet (n = 148)**

Action Taken	Number (%)
Considered changing the moisturizers, gloves, or hand washing agents used in their health care facility.	33 (22%)
Checked the compatibility of the gloves and moisturizers used in their health care facility.	53 (36%)
Checked the compatibility of the hand washing agents and moisturizers used in their health care facility.	45 (30%)
No changes, they already consider these issues in their moisturizer, glove, and hand washing agent choices.	57 (39%)
Not applicable	21 (14%)

Among the 175 respondents who at least partially completed the survey, 158 and 174 individuals responded to the questions about the preferred length and method of dissemination for future educational materials on occupational health and safety, respectively. Table 3 provides a summary of these results. Respondents could choose multiple answers for the question regarding preferred dissemination methods, thus percentages do not add up to 100%. Several respondents did not answer the question regarding the preferred length, but rather included a note that the optimal length would depend on the information being provided.

**Table 3: Preferences for Informational Materials**

Optimal Length	Number (%), n = 158
< 1 page	32 (20%)
1-2 pages	116 (73%)
3 or more pages	10 (6%)

Preferred Method of Dissemination	Number (%), n = 174
Mail	139 (80%)
Email	38 (22%)
Fax	34 (20%)
Internet	13 (7%)
Telephone	1 (<1%)

The last question on the survey asked for any additional comments. Comments were provided by 50 individuals. The comments were grouped into 6 categories for analysis purposes: (1) overall positive comments, (2) comments indicating the booklet has been or will be used for educational purposes, (3) comments providing further contact information, (4) comments indicating that the respondent was already aware of the information provided, (5) comments indicating that the booklet was not applicable

to their facility, and (6) other comments. Table 4 provides a summary of the types of comments received by the respondents. Several comments fit into multiple categories, so percentages do not add to 100%.

**Table 4: Additional Comments Provided by Survey Respondents (n = 50)**

Category	Number (%)	Typical Examples
Overall Positive	20 (40%)	“Thank you for sending very informative information” “Overall very informative report!” “Very valuable resource, clear and concise, thank you”
Information Will Be Used	12 (24%)	“I sent the info out immediately to our temp health care workers. Thanks!” “We used the information at our all-staff meeting”
Contact Information	7 (14%)	Some respondents provided email addresses, fax numbers, etc.
Already Aware	4 (8%)	“I passed the report to employee health, we were already working on gloves, soap, etc. and well aware of the compatibility issues”
Not Applicable	2 (4%)	“Hand dermatitis has not been an issue for [us] at this time.”
Other	10 (20%)	“Hard copy is the easiest way and most cost effective way to share with other people” “We don’t use latex gloves, we use vinyl”

As stated previously, one of the purposes of this evaluation was to assess whether the *Prevention of Hand Dermatitis in the Health Care Setting* document assists health care personnel with their efforts to prevent hand dermatitis in their facilities. Table 5 provides a summary of the criteria used for this assessment. Overall, the target was met or exceeded for 5 of the 6 objectives.

**Table 5: Criteria Used to Evaluate the Effectiveness of the Educational Document**

Criteria	Target	Actual
Percentage who responded that the document was clearly written and easily understood.	80%	100%
Percentage who thought the document provided practical tips for preventing hand dermatitis in the health care setting.	70%	99%
Percentage aware of the OSHA recommendation regarding petroleum-based moisturizers and latex gloves.	70%	82%
Increase in the proportion of 2000 hand care survey respondents aware of the OSHA recommendation, relative to the baseline level.	25%	39%
Percentage aware that anionic moisturizers may not be compatible with CHG hand washing agents.	70%	61%
Increase in the proportion of 2000 hand care survey respondents aware of moisturizer/CHG compatibility issues, relative to the baseline level.	25%	86%

## Discussion

Overall, the criteria for 5 of the 6 objectives were exceeded. First, all respondents believed that the document was written in a clear and understandable fashion. Second, 99% of respondents thought that the document provided practical tips for preventing hand dermatitis in the health care setting. This evidence seems to indicate that the recommendations provided for preventing hand dermatitis could be applied in their facilities. Further evidence to support this claim comes from the finding that 24% of the respondents who provided comments indicated that the materials were being disseminated to employees or used (or would be used in the future) during staff meetings and in-services. Additionally, another 40% of respondents provided comments that were highly positive – many of the respondents indicated that they were thankful for the information and that the document was a valuable resource.

Next, 82% of all respondents indicated that they were aware of OSHA's recommendation to avoid using petroleum-based moisturizers with latex gloves and 61% indicated that they were aware that some anionic moisturizers may inactivate the antibacterial effect of hand washing agents containing CHG. It is possible that these percentages could be underestimated, as there is some evidence to suggest that these questions were misinterpreted. Some respondents may have believed that they were supposed to report their level of awareness prior to reading the educational booklet. Among the 29 individuals who claimed they were unaware of the OSHA recommendation, 9 indicated that as a result of reading the educational booklet, they had considered changing the moisturizers, gloves, or hand washing agents used in their health care facility, and 13 had checked the compatibility of the gloves and moisturizers used in their facility. Among the 60 respondents who claimed they were unaware that anionic moisturizers may inactivate the antibacterial effect of CHG, 15 considered making changes to the moisturizers, gloves, or hand washing agents used and 22 checked the compatibility of hand washing agents and moisturizers used in their facility. It is unlikely that these individuals would check the compatibility of the gloves, moisturizers, and hand washing agents used in their facilities if they were unaware of the potential compatibility issues. Furthermore, several respondents who indicated that they were aware of the compatibility issues also wrote in the survey margins, "I am now". This apparent need to clarify that their awareness resulted from reading the document, seems to indicate that this question may have been confusing, and possibly misinterpreted, by some respondents.

The respondents' awareness of the above mentioned compatibility issues may or may not have resulted from reading the educational booklet. Respondents may have had preexisting knowledge of these issues. It is also possible that as a result of reading the survey questions, the respondents sought out more information about these compatibility issues, either from reading the educational booklet or from other sources.

Stronger evidence that the educational booklet contributed to an increase in awareness was demonstrated from the results of the before-and-after analysis among respondents who completed the 2000 hand care survey. Statistically significantly greater proportions of these individuals were aware of the two compatibility issues after receiving the booklet than before its receipt. Due to the non-experimental design of this evaluation, we cannot say with certainty that this increase in awareness is solely a result of the educational booklet. It is likely that their awareness was raised during the 2000 hand care survey. Evidence for such a “testing effect” bias is potentially supported by the finding that hospital infection control personnel had greater awareness of the moisturizer compatibility measures than non-hospital health care personnel did.

The survey was also designed to assess the opinions of health care workers on the preferred length and dissemination methods for future educational materials on workplace health and safety. Respondents indicated that they clearly prefer brief written materials. Of course, we are unable to generalize these preferences beyond the population of health care workers.

A limitation to this evaluation is the low response rate. Only 37% of the surveys that were sent out were returned, and moreover, 27% were returned completed. This low response rate hinders our ability to generalize the findings.

Another potential limitation to the evaluation design was the use of a mailing list in which the majority of recipients were not addressed by name, but rather a generic title, “Nursing Supervisor”. The lack of specificity in the mailing list made it difficult to ensure that the same individual who received the educational booklet also received the feedback survey. This issue, however, did not appear to have an affect on the response rate – 84% of the 590 surveys that were sent out were addressed to the “Nursing Supervisor” of various health care facilities; and similarly, 83% of the 217 surveys that were returned, were from those facilities in which the survey was addressed in a generic manner.

The lack of specificity in the mailing list did, however, appear to have an adverse effect on targeting the feedback survey to the same recipient of the educational booklet. Among those whom the document and survey were personally addressed, 31% claimed that they had not received the document. In contrast, 42% of those survey respondents who were sent the document and survey in a generic manner (i.e., addressed to the Nursing Supervisor) claimed they never received the document.

## **Conclusions**

The findings of this evaluation demonstrate that the *Prevention of Hand Dermatitis in the Health Care Setting* booklet has raised awareness and provided practical resources and tips for preventing hand dermatitis. Additionally, it has prompted at least initial steps toward positive change. Many respondents indicated they had checked the compatibility of the products used in their facilities as a result of the booklet. Comments received by the respondents were highly positive and many indicated that the booklet was being used to educate staff.

Future informational materials should be addressed to specific individuals rather than using generic titles, such as “Nursing Supervisor”. We should strive to provide practical information that can be easily applied. Written materials should be as brief as possible – preferably not exceeding 2 pages. While advances in technology have made alternate methods of education available, mailed materials are still appreciated and should remain, at least for the population of health care workers, the primary method of dissemination.

# Appendix A:

## Sample of Prevention of Hand Dermatitis in the Health Care Setting Feedback Survey

Name: \_\_\_\_\_ Hospital/Facility: \_\_\_\_\_

Phone: \_\_\_\_\_ Address: \_\_\_\_\_

1. Did you receive the report, *Prevention of Hand Dermatitis in the Health Care Setting*?  Yes  No  
If "No", Please check this box  if you'd like us to send you a copy and return to SHARP in the postage-paid envelope provided or fax to 360-902-5672. Please include current mailing address above.
2. Which category best describes you?  
 Infection Control  Employee Health Nurse  Other: \_\_\_\_\_
3. Was the report clearly written and easily understood?  Yes  No
4. Did the report provide practical tips for preventing hand dermatitis in the health care setting?  Yes  No
5. Are you aware of the following:
  - (a) OSHA' recommendation regarding avoiding the use of some petroleum-based moisturizers and latex gloves?  Yes  No
  - (b) The problem of using a chlorhexidine gluconate (CHG) hand washing agent followed by the use of an anionic moisturizer that may inactivate the residual antibacterial effect of CHG?  Yes  No
6. As a result of the *Prevention of Hand Dermatitis in the Health Care Setting* report, have you done any of the following:  
(please check all that apply)
  - considered changing the moisturizers, gloves, or hand washing agents used in your health care facility?
  - checked the compatibility of the gloves and moisturizers used in your health care facility?
  - checked the compatibility of the hand washing agents and moisturizers used in your facility?
  - no changes, we already consider these issues in our moisturizer, glove, and hand washing agent choices.
  - not applicable
7. In your opinion, what is the optimal length for informational materials on workplace safety and health?  
 less than 1 page  1-2 pages  3 or more pages
8. Via which method(s) would you prefer to receive informational materials on workplace safety and health?  
(please check all that apply)  
 Mail  Fax  Telephone  Email  Internet  Other: \_\_\_\_\_
9. Please use this space for any additional comments.

Please return in the provided postage-paid envelope, or fax to 360-902-5672.

**THANK YOU!**