The effect of Restore® colloidal oatmeal-coated exam gloves on hands

Clinical Evidence Summary

Colloidal oatmeal-coated exam gloves: Possible alternative for hand dryness

Background

• Hand hygiene is very important in health care environment as it contributes to the decrease of nosocomial infections.

• Healthcare workers who provide direct patient care are encouraged to wash their hands frequently. Hospitals provide both soap and water (SW) and alcohol-based cleansers (ABCs) for hand hygiene.

• Healthcare workers are required to wear gloves during all patient-care activities to prevent transmission of pathogens from patient-to-healthcare professional and vice versa.

The Problem

• Frequent hand washing and gloving may have a detrimental effect on the skin of the hands leading to dryness, cracking, and sensitivity to handwashing products.

• Resulting lesions on damaged hands may increase risk of colonization with different types pathogenic microorganisms.

These factors may become a deterrent to hand washing, having an affect on hand hygiene and safety of patients and their caregivers.

A Proposed Solution

• Use of colloidal oatmeal in skin care products.

• Oats (Avena sativa) have been known to contain various phytochemicals such as carbohydrates, proteins, lipids, avenanthramides, alkaloids, sterols, saponins, flavonoids, and tocols.

• They have a high concentration of starches and beta-glucans, which provide protective and water-holding properties.

• The cleansing activity of oats is attributed to the presence of saponins, and antioxidant and anti-inflammatory effects of colloidal oatmeal are due to the presence of avenanthramides, vitamin E, ferulic acid and various other antioxidants.

• Colloidal oatmeal properties enable their use in providing relief from itching and hand dryness, either when applied directly to the skin or by using an oatmeal product that has received the National Eczema Association (NEA) Seal of Acceptance.

Medline Industries, Inc. developed exam gloves coated with colloidal oatmeal and evaluated compliance to hand hygiene in healthcare workers (HCWs) upon use of these gloves.

This clinical evidence summary compiles clinical studies discussing the problem of hand skin damage due to dryness, irritation, and hand sanitization, and includes studies carried out with these colloidal oatmeal-coated exam gloves on HCWs at various healthcare facilities.

The Problem: Hand skin damage due to dryness, irritation, and hand sanitization in healthcare workers

Prevalence and correlation to skin damage on the hands of healthcare professionals

Objective

The investigators sought to determine the prevalence and severity of damage to skin of hands of healthcare professionals working in acute care settings, and to identify the correlation to various skin conditions.
Methods

- A total of 410 nurses, who worked for more than 30 hours per week in an acute care setting in four hospitals in the mid-Atlantic region and Michigan, were selected for this study.
- A prevalence survey using a self-reported questionnaire on hand care, gloving practices, hand condition, and demographics was conducted.
- A visual examination of the hands at 30x magnification was carried out to evaluate degree of skin scaling, ranging from 0 to 5.
- Participants were asked to fill a hand skin assessment form to assess the condition of their own hands.

Results

- Approximately 25% (106/410) of participants had damaged hands, and 85.6% (351/410) reported having skin problems at some point.

<table>
<thead>
<tr>
<th>Factors not correlated with skin damage</th>
<th>Factors significantly correlated with skin damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, gender, skin type, type of soap used at home, reported duration of handwashing, and glove brand.</td>
<td>Type of soap used at work, number of hand washes per shift, and number of times gloves were worn.</td>
</tr>
</tbody>
</table>

Conclusion

Damage to skin of the hands was found to be associated with gloving and handwashing practices; therefore, emphasis on improving hand care products and identifying any interactive effects between hand care products and glove materials could improve skin condition.7

Medline’s proposed alternative: Restore® powder-free nitrile exam gloves with oatmeal

- Nitrile exam gloves are coated with a layer of MaxOat+, a proprietary blend of colloidal oatmeal.
- Help to relieve conditions associated with dry skin by forming a layer of colloidal oatmeal between the skin and the glove, helping to maintain moisture and keep the skin softer.
- Have the Seal of Acceptance, awarded by the National Eczema Association.
- Have been chemo-tested, and meet USP 800 guidelines per the standard practice for assessment of resistance of medical gloves to permeation by chemotherapy drugs (ASTM D6978 – 05).
- Have SmartGuard® film that helps keep gloves in the box.

Use of colloidal oatmeal exam gloves showed improved skin assessments in healthcare workers

Study summary

- An open-label single-arm evaluation of colloidal oatmeal (COAT) exam gloves on health care workers (HCW) in a dental office, pediatric hospital, and residential facility, was carried out. The evaluation was for a continuous period of five days.
- Skin assessments including a three-point categorical skin irritation score for redness, rash, swelling, and dryness-cracking was carried out, and a self-assessment of hand skin conditions (moisturized, supple, softness, protected, repaired, comfortable, and nourished) was also conducted.
- Trans-epidermal water loss (TEWL) of the dorsum and palm of the hands was evaluated.
- Statistical significance was evaluated using Student’s T-test with p<0.05 considered significant.

Results

<table>
<thead>
<tr>
<th>Survey on skin condition of HCWs</th>
<th>Before wearing COAT exam gloves</th>
<th>After wearing COAT exam gloves</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin irritation score</td>
<td>2.39/12</td>
<td>1.36/12</td>
<td>&lt;0.05</td>
</tr>
</tbody>
</table>

- Self-assessment of hand skin conditions before and after wearing COAT exam gloves was not found to be statistically different.
- No difference in TEWL measurement was found between before and after wearing COAT exam gloves.

The COAT exam gloves supported hand skin health, thereby promoting compliance with current hygiene programs and directly impacting the safety of the healthcare professionals and patients.8

Colloidal oatmeal-coated gloves had a positive impact on hand hygiene practiced by nurses

Study summary

- Frequent hand washing, use of gloves, cold weather, and constant use of soaps and alcohol-based sanitizers were the most important reasons cited by nurses for problems associated with the skin condition of their hands.
- Colloidal oatmeal-coated gloves were worn by 230 registered nurses for 10 days at their place of work.
- They were asked to take a survey before and after the glove trial, regarding skin condition, morale, and hand hygiene practices.
Results

<table>
<thead>
<tr>
<th>Survey on skin condition of nurses</th>
<th>Before wearing colloidal oatmeal-coated gloves</th>
<th>After wearing colloidal oatmeal-coated gloves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin irritation</td>
<td>94%</td>
<td>10%</td>
</tr>
<tr>
<td>Softer feel of hands at work</td>
<td>5%</td>
<td>92%</td>
</tr>
<tr>
<td>Contentment of hand conditions at work</td>
<td>11%</td>
<td>96%</td>
</tr>
</tbody>
</table>

Impact of colloidal oatmeal-coated gloves on morale and hand hygiene of nurses

<table>
<thead>
<tr>
<th>Impact of colloidal oatmeal-coated gloves on morale and hand hygiene of nurses</th>
<th>After wearing colloidal oatmeal-coated gloves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive impact on job satisfaction</td>
<td>84%</td>
</tr>
<tr>
<td>Easier work day</td>
<td>77%</td>
</tr>
<tr>
<td>Desire to go back to work upon use of these gloves</td>
<td>56%</td>
</tr>
<tr>
<td>Regular use of hand-wash or hand sanitizer due to reduced hand irritation</td>
<td>48%</td>
</tr>
</tbody>
</table>

Survey revealed that nurses felt reduced skin irritation on their hands and improved hand conditions upon use of colloidal oatmeal-coated gloves, thereby enhancing job satisfaction.³

Nurses’ survey yielded favorable outcome for colloidal oatmeal-coated gloves

Study summary

- Colloidal oatmeal-coated gloves were trialed by 822 nurses across the country for 10 days.
- They were asked to take a survey before and after the trial, regarding hand skin irritation and hydration.

Results

<table>
<thead>
<tr>
<th>Survey on skin condition of nurses</th>
<th>Before wearing colloidal oatmeal-coated gloves</th>
<th>After wearing colloidal oatmeal-coated gloves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin irritation</td>
<td>91%</td>
<td>2%</td>
</tr>
<tr>
<td>Skin hydration (hands)</td>
<td>4%</td>
<td>92%</td>
</tr>
<tr>
<td>Contentment of hand conditions at work</td>
<td>5%</td>
<td>91%</td>
</tr>
</tbody>
</table>

About 95% of nurses would recommend colloidal oatmeal-coated gloves to their colleagues.⁴

Use of colloidal oatmeal gloves improved hand hygiene compliance in nurses

Study summary

- Colloidal oatmeal-coated gloves were trialed by nurses in an integrated healthcare delivery system.
- They were asked to take a survey before and after the trial, regarding hand hygiene compliance and morale as related to their skin condition.

Results

<table>
<thead>
<tr>
<th>Survey on skin condition of nurses</th>
<th>Before wearing colloidal oatmeal-coated gloves</th>
<th>After wearing colloidal oatmeal-coated gloves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contentment of hand conditions at work</td>
<td>43%</td>
<td>89%</td>
</tr>
<tr>
<td>Skin hydration (hands)</td>
<td>35%</td>
<td>88%</td>
</tr>
<tr>
<td>Increased use of hand wash or hand sanitizer at work</td>
<td>n/a</td>
<td>55%</td>
</tr>
<tr>
<td>Positive impact on job satisfaction</td>
<td>n/a</td>
<td>78%</td>
</tr>
</tbody>
</table>

Survey revealed that upon use of colloidal oatmeal-coated gloves, nurses felt that these gloves could help in maintaining a nourished and hydrated skin, thereby improving job satisfaction and compliance to hand hygiene.⁵

Conclusion

Surveys revealed that colloidal oatmeal-coated exam gloves had a positive impact on nurses’ morale and hand hygiene compliance.
References