REMEDY™
Advanced Skin Care Products to Help Nourish the Skin

C
Cleanse

M
Moisturize

P
Protect

T
Treat

N
Nourish
Human integument (skin) provides a physicochemical barrier to our environment. It is able to resist penetration of most molecules except for small molecules with a molecular weight of less than 500 Daltons that surpass transcutaneously. The 500 Dalton Rule is used to determine topical pharmacological agents for trans-dermal drug delivery. Topical agents such as cyclosporine, tacrolimus and ascomycins are all molecules under 500 Daltons and pass transcutaneously. All 211 allergens and non-allergens found in the Local Lymph Node Assay (LLNA) database are under 500 Daltons.

The ability of cells to function properly changes with age and disease. Free radicals are implicated in aging and may disease states due to their effects on lipids, proteins, and nucleic acids. A better understanding of skin anatomy and physiology and the role of topical trophic nutrition to the skin, which we call corneotrophic care; provide a pathway to reduce skin diseases and wounding based upon the utilization of molecules with a weight under 500 Daltons.

### Layers of the Skin

Structurally, the skin consists of an outer, thin epidermis of stratified squamous epithelium attached to an inner, thicker connective tissue called the dermis. The epidermis is avascular and depends on the well-vascularized dermis to supply nutrients and dispose of waste products. Beneath the dermis is a subcutaneous layer, which consists of areolar and adipose tissue.

**Epidermis**

The epidermis contains four main cell types – one resident and three immigrant ones. Keratinocytes make up about 90% of the epidermal cells and help “waterproof” and protect the skin and underlying tissue.

**Stratum Corneum**

This outermost layer of the skin consists of 10-30 rows of cells that have been conceptualized as bricks and mortar. The dead corneocytes serve as the bricks and metabolically active intercellular lipids as the mortar.

**Dermis**

The second principal part of the skin, the dermis, is composed of connective tissue containing collagen and elastic fibers. The few cells in the dermis include fibroblasts, macrophages and adipocytes. Blood vessels, nerves, glands, and hair follicles are found embedded in the dermis.

**Skin Cell Respiration**

Oxygen is consumed in all layers of the epidermis except the stratum corneum. The oxygen demand is partially satisfied by the blood supply from the dermis. However, the majority of the oxygen supply to the epidermis comes from the environment and human skin takes up oxygen from the atmosphere to a depth of 0.25-0.4mm.
Caring for the Skin
There are four distinct categories for skin care and when employed together they protect the skin from breakdown. This “system” of care is fundamental to the Medline Remedy products. The four categories are:

**Cleanse**
The first step in the Medline Remedy skin care plan is cleansing. The products do this without disrupting the delicate stratum corneum. An advanced phospholipid system combines with specialized nutrients and Olivamine to gently cleanse without harmful detergents. All products are pH balanced to the skin.

**Moisturize**
Critical to the process is moisturizing. Cells require moisture to migrate and when skin is damaged it is essential to maintain a good moisture balance. All Medline Remedy moisturizers are nutrient-rich and include; Olivamine, essential fatty acids and vitamins.

**Protect**
Damaged skin loses its ability to protect itself. Not only can unwanted contaminates come in and increase the inflammatory response, vital moisture and nutrients can escape. Providing a protective barrier for the skin until it can normalize is a vital part of the Medline Remedy skin care plan.

**Treat**
When selecting a product that treats a specific skin disorder it is important to choose a product that is effective in the “cure” of the problem. It is also of value the product offer other advantages. The Medline Remedy antifungal products also nourish with Olivamine. These two aspects combined with effective delivery systems make the Remedy antifungal products a ‘safe and effective choice.”

**Nourish**
The two pages that follow discuss in detail the small molecule nutrients found in Olivamine. Olivamine is found only in the Medline Remedy products and as can be seen in the case studies that follow provide excellent skin care results.

Product Categories
This brochure is divided into the five categories outlined above and an icon signifies each category. This allows you to clearly understand the function and use of each of the products. All Medline Remedy products contain Olivamine and therefore have a skin nourishment – “trophic” – component.

The System
The Medline Remedy products provide a synergistic approach to skin care. There is compatibility of ingredients designed into the products. Working together, the products offer a true system of care; each product building upon the foundation set by the proceeding product. The products work together to offer the best opportunity for skin recovery.
Olivamine is based upon the use of small molecules, delivered transcutaneously to the skin or “trophically.” Trophic is from the Greek (trophikos) pertaining to nutritive processes. Corneotrophism pertains to the delivery of nutrients through the skin’s epidermis for the purpose of treating skin and providing amino acids, vitamins, and antioxidants necessary for cellular homeostasis.

**Vitamins: B6 (Pyridoxine) and B3 (Niacinamide)**
Olivamine is a combination of small molecules that are involved in cellular processes and necessary for the maintenance of healthy skin. Olivamine contains two B vitamins added for their special physiological effects. The term vitamin B₆ is used to describe all biologically inter-convertible forms of pyridoxine. Vitamin B₆ is an essential co-factor in numerous enzymatic reactions involved primarily in amino acid metabolism.¹ In addition; vitamin B₆ functions as an antioxidant by interacting with singlet molecular oxygen during oxidative stress.

**Niacinamide (Vitamin B₃)**
is a precursor of the coenzyme nicotinamide adenine dinucleotide (NAD+) used to generate ATP in the mitochondrial electron transport chain. Niacinamide is involved in DNA integrity and maintains phosphatidylserine membrane asymmetry to prevent cellular inflammation and phagocytosis. Current research demonstrates that niacinamide prevents the induction of caspase-8, caspase-1, and caspase-2 activities during cellular injury.² The cytoprotectant effects of niacinamide are involved in the maintenance and preservation of cellular membranes.

**Amino Acids: Glycine, L-Taurine, N-Acetyl L-Cysteine and L-Proline**
There are four amino acids found in Olivamine. Glycine protects ATP-depleted cells by low affinity interactions with multimeric channel proteins. Glycine provided during ATP depletion blocked the development of membranous pores completely.³ The relationship between necrosis and an extra-cellular depletion of ATP makes its protection and restoration imperative during the pre-lethal stages of necrosis (non-programmed cell death) or early necrosis.

L-Taurine can act as a direct antioxidant that scavenges or quenches oxygen free radicals intracellularly to block ROS mediated cell death. The beneficial effects of the ROS-scavenging capacity of L-taurine include attenuation of lipid peroxidation, reduction of membrane permeability, and inhibition of intracellular oxidation in different cells.⁴

In studies done in vivo and in vitro, L-proline was found to be the only amino acid that was involved in the stimulation of DNA synthesis.⁶ Further, epidermal growth factor (EGF) elicited no response without the addition of L-proline. L-Proline deficient media such as Leibovitz’s L-15, Eagle’s minimal essential, and Dulebecco’s modified minimal essential did not induce DNA synthesis. However, using media such as Williams E, McCoy’s 5A and Ham’s F-12, which are rich in L-proline, there was DNA synthesis and marked proliferation.⁷

**N-Acetyl L-Cysteine (NAC)**
is an antioxidant particularly against hydrogen peroxide. The hypothesis that NAC-induced free radical-signaling delays Gₒ/G₁ cells progression to S phase by regulating the cell cycle regulatory protein cyclin D1 and the free radical-scavenging enzyme manganese superoxide dismutase (MnSOD) has been investigated. Treatment with NAC resulted in increased cellular glutathione levels indicating a shift to a more reducing environment. These results support the hypothesis that cellular redox environment regulates cellular proliferation via regulating cell cycle regulatory protein levels.⁵
The ability of a material to effectively reduce oxidative stress is determined by a method called oxygen radical absorbance capacity (ORAC) assay. Olivamine has been tested to determine its ORAC value as compared to fruits and vegetables known for their antioxidant activity. Brunswick Laboratories conducted the testing, Norton MA utilizing the COBAS Fara II centrifugal analyzer.

**HYDROXYTYROSOL**

Hydroxytyrosol is the major component of the phenolic fraction of olives, which is known for its antioxidant properties. Hydroxytyrosol is a water and lipid-soluble molecule that is an efficient scavenger of peroxyl radicals. Experiments demonstrate that hydroxytyrosol effectively counteracts the cytotoxic effects of reactive oxygen species (ROS) in various human cellular systems. In studies using hydroxytyrosol pre-incubated cells, it was found that damage due to oxidative stress, such as lipid peroxidation and alterations of cell permeability, could be prevented and that hydroxytyrosol exerted a protective effect against H$_2$O$_2$ induced oxidative hemolysis.

**METHYLSULFONYLMETHANE (MSM)**

Olivamine also contains methylsulfonylmethane (MSM), a naturally occurring compound containing 34% elemental sulfur. MSM provides a bio-available form of sulfur and supports the body’s ability to produce the sulfur-containing amino acids (SAA) N-acetyl-L-cysteine, methionine, cystine, and taurine.

The ability of a material to effectively reduce oxidative stress is determined by a method called oxygen radical absorbance capacity (ORAC) assay. Olivamine has been tested to determine its ORAC value as compared to fruits and vegetables known for their antioxidant activity. Brunswick Laboratories conducted the testing, Norton MA utilizing the COBAS Fara II centrifugal analyzer.
Cleansing is not only the first step in the skin care process, it is vitally important. The key to effective cleansing is gentleness. When working with skin that is damaged or at risk, the preservation of the stratum corneum is essential in the healing process.

Cleansing with products that are non-irritating, non-sensitizing and pH balanced provides the best opportunity to achieve the objective of cleansing the skin without disrupting the delicate balance of lipids that remain metabolically active in the skin’s most outer layer.

The 4-IN-1 Cleansing Lotion is a multi-task product. While providing all of the safety features outlined above, it still cleanses, moisturizes and provides a protective barrier in a one-step process. On patients with just minimal skin breakdown this may be enough to complete the process.

For Patients with more serious skin breakdown as shown in the study, it may take a combination of products. Each product in the line has the key product advantage over any other product; Olivamine is a proprietary blend of vitamins, amino acids, hydroxytyrol and MSM that in combination nourish the skin and provide cells with protective nutrients.

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<td>MSC0943320</td>
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</table>
Direct Contact Cell Cytotoxicity Report 
Product: 4-IN-1 Cleansing Lotion 
Lot #: 6G0713 
Accession #: 571355 
BTS Method#: M242.R02 

Grade Scale 0-4 
Grade Reactivity Description of Reactivity Zone 
0 None No detectable zone under or around specimen 
1 Slight Some malformed or degenerated cells under specimen 
2 Mild Zone limited to area under specimen 
3 Moderate Zone extends 0.5 to 1 cm beyond specimen 
4 Severe Zone extends greater than 1.0 cm beyond specimen but does not involve the entire dish

Score Results for 4-In-1 Cleansing Lotion
Malformation 0,0
Degeneration 0,0
Sloughing 0,0
Lysis 0,0
Reduction in Cell Layer Density 0,0

Conclusion: From the test results, and in accordance with the above-cited documents, the above described sample was found to be non-cytotoxic.

Wendy Chang, M.S. 
Microbiology Manager 
(Complete study data on file)
This detergent-free product is non-irritating and non-sensitizing. Its organic phospholipid complex is designed to be a biomimetic, or in other words to mimic nature. The phospholipid is composed predominantly of diester phosphatides with multiple long chain groups that provide high substantively and effective conditioning. Since it is derived from pure natural safflower oil contain a high level (80%) of linoleic acid, it provides a topical source of one of the principal essential fatty acids that is needed to maintain healthy skin.

The dispensing system delivers a thick, creamy foam that allow for maximum efficiency and flexibility. The product cleanses the patient from head-to-toe without leaving a film or harming the most delicate tissue. The addition of Olivamine assures that during the cleansing process the skin receives vital nutrients that help in the healing process.
**Methodology**

Caregivers, including licensed nurses, nursing assistants as well as the patient's family were instructed in the use of Medline Remedy products. Instructions were given to cleanse the area with 4-IN-1 Body Cleanser as a replacement for soap. The use of selected Remedy products were chosen on the basis of their ability to deliver nutrient and antioxidants to the skin.

**Results**

The 4-IN-1 Body Cleanser was used in all areas. The Remedy skin creams were applied BID and throughout the day whenever the patient experienced itching. Just two weeks after the patient was admitted to our program and the skin care regime begun, there was a marked improvement. The patient continued to use the skin care regime and on August 30, 2007 his skin was completely intact and he was experiencing no pruritus. Both he and his wife were very happy that he could now rest because the pruritus was gone and his skin problem had resolved.

**Case Study – ROF**

ROF is a 66-year-old Caucasian male with a terminal diagnosis of end stage Cardiomyopathy. His hospice related are CHF; arterial fibrillation, ejection fraction of 20%, COPD, and LE edema. His non-hospice diagnoses include ETOH dependency, cirrhosis, and kidney disease, PVD, DM and HTN. He suffered an MI in 1992 with bypass grafting and a subsequent myocardial infarct in 1999. He has had severe pruritus for two years. Treatment with topical and oral steroids by his primary physician and dermatologist lead to a fluid weight gain of 40 pounds. The cause of his pruritus was never determined.
Antimicrobial cleansing is an important step when the skin’s microbial burden exceeds homeostasis. Many cleansers are harsh and damage delicate skin. This is not the case with Medline Remedy 4-IN-1 Antimicrobial Cleanser. This unique cleanser is effective against pathogens yet gentle enough to be rated as non-irritating and non-sensitizing. The Remedy Cleanser is both safe (gentle) and effective.

The spray dispensing system makes patient care a simple one-hand process. Using either the finger or trigger pump the caregiver can direct that exact amount of product necessary without dripping, spilling or creating a mess. The product leaves a clean surface without tack. The Olivamine enriched formula adds valuable nutrition to the damaged skin adding to the product’s overall treatment value.

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<td>4-IN-1 Antimicrobial Cleanser 8 oz</td>
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<tr>
<td>MSC094208H</td>
<td>4-IN-1 Antimicrobial Cleanser 8 oz each</td>
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Microbial Log Reduction Study

Product: 4-IN-1 Antimicrobial Cleanser
Accession #: 588808/580322 (MRSA study)
Lot #: 7L2269/8C1392 (MRSA study)
BTS Method #: M213.R04

Discussion
The minimum bactericidal concentration is defined as a 3-log reduction in 3 minutes from the initial inoculum, as defined in Disinfection, Sterilization, and Preservation, Fourth Edition, Seymour S. Block, page 1035. The product achieved this reduction in the time indicated in the charts below. Only the testing of the MRSA failed to achieve the 3-log reduction in 3 minutes and achieved its 3-log reduction at 15 minutes.

Conclusion
The results indicate that 4-IN-1 Antimicrobial Cleanser does have antibacterial activity against the tested pathogens.

Wendy Chang, MS
Microbiology Manager
(Complete study data on file)

Effectiveness Standard
3-Log reduction in 3 minutes

4-IN-1 Antimicrobial Cleanser achieved a 4.1 Log reduction in 30 seconds

50 Human Subject Repeat Insult Patch Test
Skin Irritation/Sensitization Evaluation
Product: 4-IN-1 Antimicrobial Cleanser
Accession #: 527778
BCS Study #: BCS 07-010

Observations:
No adverse reactions of any kind were reported during the course of this study.

Conclusions:
Under conditions of the study, there were no identifiable signs or symptoms of sensitization (contact allergy) noted.

Hemali B. Gunt, Ph.D. Mary Fredenberg, M.D.
Clinical Scientist Consulting Dermatologist
(Complete study data on file)
H_2O. The chemical symbol for water is such a simple equation and yet so very powerful. Without water life does not exist. When treating the skin and nourishing it back to health it is important to get moisture to the skin and its cells and through specialized ingredients that bind water to the skin it makes it available upon cellular demand.

Skin Repair Cream is masterful in its ability to nourish skin back to health. The product uses water with its molecular weight of just 18 Daltons to deliver other small molecules such as vitamins, amino acids, antioxidants and other nutrients directly to cells. Based upon the 500 Dalton Rule, we know that molecules under 500 Daltons can freely cross the stratum corneum. Now how do we keep the nutrients in place?

Olive oil and canola oils bind moisture and nourish the skin with the delivery of their essential fatty acids. The word "essential" is key; it means that the cells need the nutrient to survive but do not produce it so it is "essential." Oils derived from plants and seeds are nutrient rich and provide the skin with the lipid portion of the healing process.

No discussion of Skin Repair Cream would be complete without a discussion of its dependence upon Olivamine. Olivamine is a proprietary blend of vitamins B_3, B_6, glycine, N-Acetyl-L-Cysteine, L-taurine, L-proline, hydroxytyrosol and methylsulfonylmethane. The Medline Remedy line and most assuredly Skin Repair Cream are dependent on Olivamine’s small molecule technology.
Fifty-Patient Study of Diabetic Patients Finds Medline Remedy Products With Olivamine Provide a Nearly 100% Reduction in Key Dry Skin Indicators
Dawn R. Fortna, RN, BSPA, CDE, CWOCN, Ephrata Community Hospital, Ephrata, PA

**Methodology**

Fifty patients were selected to participate in a skin care product trial. Criteria for inclusion was a diagnosis of diabetes, high risk for skin breakdown and characteristics of xerosis defined as abnormally dry skin with fine lines, scaling and fissures. Untreated xerosis may lead to itching, scratching, pain and cellulitis. Excluded were confused or non-verbal patients. Skin Repair Cream was applied daily to the patients’ legs and feet after cleansing for a period of 4 weeks. Skin was evaluated weekly for integrity. Patients were queried regarding itchiness.

**Results**

All participants in the study exhibited improvement of the initial xerosis, fine lines and scaling of the skin. Eighty four percent of those who identified initial itching experienced decreased itching following daily application of the product. The participants stated they noticed immediate results and stated how good the skin felt upon application. Upon assessment, the skin integrity appeared to be much improved and no patient in the study had further skin breakdown or infection. These results demonstrate that a program of cleansing, moisturizing and protecting with Medline Remedy products improved skin outcomes including skin integrity, prevention of breakdown of fragile and itching for patients.

<table>
<thead>
<tr>
<th>Assessed Criteria</th>
<th>Patients Meeting Criteria</th>
<th>4 week Improvement</th>
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</thead>
<tbody>
<tr>
<td>Xerosis</td>
<td>47</td>
<td>47 (100%)</td>
</tr>
<tr>
<td>Fine Lines</td>
<td>50</td>
<td>50 (100%)</td>
</tr>
<tr>
<td>Scaling of Skin</td>
<td>40</td>
<td>40 (100%)</td>
</tr>
<tr>
<td>Itching</td>
<td>26</td>
<td>22 (84.6%)</td>
</tr>
</tbody>
</table>

**Case Study CM**

A 91-year-old female with type 2 diabetes for over 20 years. She presents with xerosis, fine lines, scaling and pain in her legs that is increased at night. With daily application of Skin Repair Cream she has no xerosis or fine lines. There is decreased scaling and her skin appears much healthier. She some symptoms resolve completely for several hours after product application. (complete study on file)
Skin Repair Cream & Nutrisheild Score Highly On Hyperbaric Acceptabiliies Indices
Darlene E. McCord, Ph.D., FAPWCA, Barry E. Newton, B.S.M.E., P.E., Jane Fore, M.D., FAPWCA Gwenael Chiffoleau, Ph.D.

Background
Current protocols call for a cessation of ajunctive skin care treatments during hyperbaric care. The elevation of the oxygen fraction along with the increased pressure in the hyperbaric chamber dramatically increases the flammability potential of the materials in the hyperbaric atmosphere, leading to the need for rigorous standards to prevent the possibility of flame ignition. A scientific method of evaluating the flammability risks associated with the use of skin care products in the hyperbaric setting would be a clinically helpful tool.

Results

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>AIT (°C)</th>
<th>HoC (CALORIES/GRAM)</th>
<th>OI (%)</th>
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<tbody>
<tr>
<td>Aloe Vera 2+1 Protective Ointment</td>
<td>196</td>
<td>7735</td>
<td>30</td>
</tr>
<tr>
<td>Aquaphor Healing Ointment</td>
<td>186</td>
<td>10859</td>
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<tr>
<td>Calamine Protective Paste</td>
<td>178</td>
<td>5915</td>
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<tr>
<td>Citric Acid Clear Moisture</td>
<td>193</td>
<td>8679</td>
<td>21</td>
</tr>
<tr>
<td>Nutrisheild Cream</td>
<td>224</td>
<td>2111</td>
<td>55</td>
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<td>Secura Protective Ointment</td>
<td>205</td>
<td>10973</td>
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<tr>
<td>Skin Repair Cream</td>
<td>179</td>
<td>1949</td>
<td>30</td>
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Table I. AIT indicates a material's propensity for ignition; HoC is an absolute value of a material's energy release upon burning; OI indicates a material’s flammability. Oxygen compatible materials maintain high AITs and OIs, and low HoC values.

Conclusions
The results displayed a wide range of AIT, HoC, and OI values, corresponding to significantly different Acceptability Indices. In particular, the HoC and OI values varied greatly among the seven skin care products tested. It seems that maintaining high OI values while preserving low HoC values is the characteristic most required for oxygen compatibility. During testing, a sustained fire was not achieved for Skin Repair Cream. Although Skin Repair Cream achieved momentary flash-point behavior, the material would self-extinguish soon after the promoter flame was removed. The water and silicone base of Skin Repair Cream is most likely responsible for the product's self-extinguishing behavior. In contrast, the petrolatum, paraffin and/or mineral oil base of certain other products tested is likely to be responsible for the corresponding decrease in oxygen compatibility.

(complete study on file)
There is more than one way to moisturize skin. Moisturization takes place with the addition of water found in the Medline Remedy Dimethicone Skin Protectant and with the product’s ability to provide a protective silicone barrier that blocks excessive transepidermal loss (e-TEWL).

This unique product delivers Olivamine through its proprietary system and then binds the moisture and nutrients to the skin with a medical (NF) grade of dimethicone. Every aspect of this formula provides high quality skin care. The product delivers healing essential fatty acids, vitamins, amino acids and antioxidants in a pH balanced system.
According to Albert Kligman, M.D., Ph.D., “Whenever you see inflamed skin, regardless of cause, the stratum corneum is leaky and permeable.” Transepidermal Water Loss (TEWL) and excessive Transepidermal Water Loss (e-TEWL) play a role in skin health. TEWL is controlled by the stratum corneum and is a normal part of cellular activity. e-TEWL is not part of “normal” cellular function and can be attributed to breaches in the integrity of the skin’s barrier.

Nutrashield is a semipermeable, non-occlusive barrier to e-TEWL. It allows for the normal exchange of oxygen, carbon dioxide and cellular waste through the skin. This is an important distinction in skin health protocols. A fully occlusive therapy, like petrolatum, prevents normal TEWL and blocks the ingress of oxygen necessary epidermal skin cells. Further, occlusion of the skin increases the risks of infection and decreases the protection of the skin’s normal pH mantle (data on file). The Nutrashield protectant cream is formulated with a unique blend of silicones that resist wash off up to 5 cleansings. The extended performance of Nutrashield is most likely due to the addition of divinyldimethicone/dimethicone copolymer, which has an internal phase viscosity that is greater than 100,000,000 cst in viscosity (data on file). Like all Medline Remedy products, Nutrashield delivers the Olivamine nutrients to provide a healing system.

Ordering Information

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<th>Description</th>
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Background
Ichthyosis is a genetic mutation affecting more than a million Americans. It can cause devastating disfiguration, in addition to physical, social and emotional problems. There is no cure for the disease and it must be managed with medical care. “Ichthy” is taken from the Greek root for “fish”; so ichthyosis literally means “fish” disease. It is characterized by scales and plaques formed by an abnormal turnover of the epidermis.

The patient in the study had been unsuccessfully treated for 43 years with rock salt, scrubbing with a wire brush, motor oil soaks, clear plastic wraps, bleach soaks, topical salicylates, poly hydroxy acid lotions as well as oral retinoids.

Methodology
This study involved one patient that was followed closely for a 4-week period. Due to the chronicity of the disease it was anticipated that the treatment plan would be ongoing based upon favorable outcomes. The patient was instructed to apply Skin Repair Cream over the area followed by Nutrashield to form a protective barrier. In areas of odor, fungal infection and other high-risk areas the treatment plan was expanded to include cleansing with Medline Remedy Antimicrobial Cleanser and Antifungal Cream as indicated.

Results
During the first week of treatment the test area began to exfoliate and the patient reported an immediate decrease in itching and discomfort. By week-2 partial areas of “normal” appearing skin on the left arm were visible. By week 3 the entire test area was clearing and by week-4 the area presented with “visibly normal” skin. After the completion of the 4-week trial the patient said, “I feel like a new man.” He continues with the products in the management of his ichthyosis.

Case Study – JM
JM is a 44-year-old African American male diagnosed at age 10 months with ichthyosis. He had a history of hypertension and is status post myocardial infarction. He intentionally, recently lost 70 pounds. He describes periods of intense itching, raw bleeding skin, pain and constant irritation. He suffered with frequent episodes of tinea pedis in the interdigital web spaces and reported skin odor, possibly form superficial increased microbial bioburden. He became depressed and isolated himself from the public.
(Peer reviewed article on file)
Protection of the skin from further breakdown may at times require the use of an occlusive skin care product. Special consideration should be used when an occlusive dressing is selected and one of the key reasons is to deliver zinc oxide to the treatment site. Zinc oxide is an excellent choice for treating skin that has dermatitis or has an odor. It protects skin from episodes of incontinence.

Calazime benefits from its ability to be used of delicate skin. Unlike many zinc products, Calazime uses highly refined, micronized zinc. For this reason, the abrasion associate with other products is not inherent in Calazime.

The product is non-irritating, non-sensitizing and provides the best opportunity to achieve the objective of treating the skin without disrupting the delicate skin cells in the skin's most outer layer.

Calazime contains Olivamine; proprietary blend of vitamins, amino acids, hydroxytyrol and MSM that in combination nourish the skin and provide cells with protective nutrients.
**Methodology**

Dermatitis can linger after treatment with multi-layer compression bandages. Patients frequently complain about skin tenderness. In order to determine if Medline Remedy Calazime would be effective in treating dermatitis, the nursing staff decided to select a patient with lingering dermatitis that was recalcitrant to several commonly used topical ointment and barriers.

**Results**

Within 1-week a dramatic improvement in the appearance of the patient’s skin took place. There was a noticeable decrease in the degree of erythema to the lower extremities. The patient expressed relief from his itching. The dermatitis was 100% resolved and the skin was clear within 3-weeks. The patient continues to manage his skin care with Medline Remedy products that have successfully kept his skin intact, protected and moisturized.

**Case Study**

The patient was an elderly male with a 10-year history of venous hypertension, open ulcerations and venous dermatitis. His wound had healed after treatment that included multi-layer compression bandages. The venous dermatitis continued after the wound care treatment course had concluded. The patient was selected for the study using Medline Remedy products. The patient’s symptoms were resolved within the treatment period. *(complete study on file)*
Fungal infections can cause skin breakdown along with pain, itching and odor. Topical treatments of these conditions are important and serve as an adjunctive to systemic drugs. If infections are not treated early they can spread and cause wounding.

Both products are non-irritating and non-sensitizing. In addition, each product in the line has the key product advantage over any other product; Olivamine is a proprietary blend of vitamins, amino acids, hydroxytyrosol and MSM that in combination nourish the skin and provide cells with protective nutrients.

Fungal infections are common with a frequency of 4.7% in insulin dependent diabetics and 1.5% in age and sex-matched subjects. These infections are notoriously difficult to treat as evidenced by their high rate of recurrence. Moisture is implicated in the pathogenesis since these infections occur in warm, moist areas of the body. Absorbability of seven powders was evaluated. Each product was accurately weighed and either distilled water, 1% NaCl or 35% KOH added. The tests were performed in triplicate.

Medline Remedy Antifungal Power was more absorbance than other powders tested making it more attractive alternative since moisture leading to maceration is an important first step in the pathogenesis of fungal infections and that recurrence is related to moisture. Furthermore, wicking away of the moisture may provide a mechanism for disposal of the offending organisms before they can invade the skin.

References:

Medline Remedy Antifungal Power

Ordering Information

<table>
<thead>
<tr>
<th>MSC Code</th>
<th>Product</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSC094603</td>
<td>Antifungal Powder 3 oz</td>
<td>12/cs</td>
</tr>
<tr>
<td>MSC094603H</td>
<td>Antifungal Powder 3 oz</td>
<td>each</td>
</tr>
<tr>
<td>MSC094604</td>
<td>Antifungal Cream 4 oz</td>
<td>12/cs</td>
</tr>
<tr>
<td>MSC094604H</td>
<td>Antifungal Cream 4 oz</td>
<td>each</td>
</tr>
</tbody>
</table>

Drug Facts

Active Ingredient:麦角胺

Purpose:止痒和缓解瘙痒

Uses:用于治疗痒，如湿疹，牛皮癣，玫瑰糠疹等。

Warning:勿使用于破损皮肤上。
Fungal infections often occur in areas where moisture is present. This moisture can become a breeding ground for microorganisms and therefore reducing this risk is important. Medline Remedy Antifungal Powder underwent absorbency testing at the University of Iowa, College of Pharmacy. The principal investigator was Daryl J. Murry, PharmD. The findings of the study are presented below. (complete study on file)
Methodology
This was a prospective, non-randomized, uncontrolled open label pilot study of morbidly obese in-patients that were clinically diagnosed with cutaneous candidiasis. The purpose of the study was to evaluate Medline Remedy Antifungal Cream’s effectiveness against fungal growth, pruritius, erythema, inflammation, and odor.

Results
It was observed that each of the patients studied had complete resolution of the fungal infection over the course of the study. In addition, quality of life indicators studied, such as erythema, pain, and odor control improved for each patient included in this study. No adverse events, related to the use of the product were observed.

Case Study - LH
LH is a 75-year-old male that was admitted to the hospital with new onset CVA and respiratory failure. He developed cutaneous candida to bilateral axillary areas. Treated for 1-week and the candida completely resolved.

Case Study – JM
JM has a PMH of CVA, DM and ESRD. Currently on G-tube feedings and admitted to the hospital with C-diff. On initial assessment, he had severe dermatitis and cutaneous candida to entire buttock extending into groin. After 1-week of treatment his key skin issues were cleared. Dermatitis was still resolving as patient has severe diarrhea. (complete study on file)

Score Key:
0 Absent    1 Mild    2 Moderate    3 Severe

<table>
<thead>
<tr>
<th>Criteria Assessed</th>
<th>Before Treatment</th>
<th>Average</th>
<th>After Treatment</th>
<th>Average</th>
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<tbody>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
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<tr>
<td>Fungal Growth</td>
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<td>0 1 1 1 0</td>
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<td>Pruritus</td>
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<td>1.5</td>
<td>0 1 0 0 0</td>
<td>0.2</td>
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<td>Odor</td>
<td>0 0 2 1 0</td>
<td>0.6</td>
<td>0 0 0 0 0</td>
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</tbody>
</table>
**Methodology**

Nine morbidly obese patients with lymphedema were evaluated over an approximate 6-month period. The lymphedema presented on the lower extremities or abdominal pannus. Seven criteria including: a) dry, flaky, scaly skin, b) erythema, c) fungal infection, d) maceration, e) pain, f) odor, and g) pruritus were evaluated on an initial physician visit. Final physician evaluations were noted for each patient. All patients were treated in the office and then given a skin care protocol to follow. The protocol included the use of Skin Cleansing Lotion, 4-IN-1 Antimicrobial Cleanser, Calazime, Antifungal Cream and Antifungal Powder.

**Results**

Eighty nine percent (89%) of the skin breakdown, odor, pain, and pruritus were reduced or completely resolved and maintained for at least 6-months. In most cases patients had experienced painful, chronic symptoms for numerous years drastically improved in a matter of weeks.

**Patient Statistics**

<table>
<thead>
<tr>
<th>Patient</th>
<th>BB</th>
<th>RK</th>
<th>LK</th>
<th>HM</th>
<th>EM</th>
<th>DM</th>
<th>DV</th>
<th>ERW</th>
<th>EW</th>
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<tbody>
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<tr>
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<td>F</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>F</td>
<td>M</td>
<td>F</td>
<td>M</td>
</tr>
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<td>467</td>
<td>270</td>
<td>453</td>
<td>455</td>
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<td>Height</td>
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<td>5’7”</td>
<td>5’6”</td>
<td>5’11”</td>
<td>5’5”</td>
<td>5’5”</td>
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<td>5’3”</td>
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<tr>
<td>BMI</td>
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<td>&gt;60</td>
<td>&gt;60</td>
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<td>&gt;60</td>
<td>&gt;60</td>
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<td>33</td>
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<tr>
<td>Location</td>
<td>Legs</td>
<td>Pannus</td>
<td>Legs</td>
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<td>Legs</td>
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<tr>
<td>Lymph Score</td>
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<td>3</td>
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<td>3</td>
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</table>

**Skin Quality Score Before/After Treatment**

<table>
<thead>
<tr>
<th></th>
<th>BB</th>
<th>RK</th>
<th>LK</th>
<th>HM</th>
<th>EM</th>
<th>DM</th>
<th>DV</th>
<th>ERW</th>
<th>EW</th>
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</thead>
<tbody>
<tr>
<td>Dry/Flaky/Scaly</td>
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<td>4/0</td>
<td>3/1</td>
<td>3/0</td>
<td>2/0</td>
<td>2/0</td>
<td>1/0</td>
<td>4/0</td>
</tr>
<tr>
<td>Erythema</td>
<td>5/1</td>
<td>4/1</td>
<td>4/0</td>
<td>3/1</td>
<td>5/1</td>
<td>5/1</td>
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<td>4/0</td>
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<tr>
<td>Fungal Overgrowth</td>
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<td>3/0</td>
<td>1/0</td>
<td>4/0</td>
<td>2/0</td>
<td>4/0</td>
<td>3/0</td>
<td>4/0</td>
</tr>
<tr>
<td>Maceration</td>
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<td>4/0</td>
<td>2/0</td>
<td>1/0</td>
<td>5/1</td>
<td>4/0</td>
<td>5/0</td>
<td>4/0</td>
<td>3/0</td>
</tr>
<tr>
<td>Odor</td>
<td>4/0</td>
<td>3/0</td>
<td>1/0</td>
<td>1/0</td>
<td>3/0</td>
<td>2/0</td>
<td>3/0</td>
<td>1/0</td>
<td>2/0</td>
</tr>
<tr>
<td>Pain</td>
<td>4/0</td>
<td>5/0</td>
<td>3/0</td>
<td>1/0</td>
<td>5/0</td>
<td>5/0</td>
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<td>5/0</td>
<td>4/0</td>
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<tr>
<td>Puritus</td>
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<td>5/0</td>
<td>1/0</td>
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<td>2/0</td>
<td>1/0</td>
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<tr>
<td>Average Improvement</td>
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<td>3.71/0.28</td>
<td>3.14/0</td>
<td>1.57/0.28</td>
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<td>3.14/0.14</td>
<td>3.42/0</td>
<td>2.71/0</td>
<td>3.57/0.28</td>
</tr>
</tbody>
</table>

**Case Study - DV**

DV was a 54-year-old male weigh 455 pounds with a body mass index greater than 60. He presents with severe localized lymphedema and multiple scaly lesions to the abdominal pannus. He experienced severe skin manifestations including maceration, pain, edema, erythema, and a bacterial infection. He was placed on system antibiotics. DV experienced a significant reduction in skin symptoms after only 8-days. (peer reviewed article on file)
Remedy™ Product Selection Guide

Prevention

- Dry, cracked, flaky skin
  - 4-in-1 Cleansing Lotion [MSC094308]
- Skin with odor
  - 4-in-1 Body Cleanser [MSC094108]

Early Intervention

- Dry, cracked, flaky skin
  - 4-in-1 Cleansing Lotion [MSC094308]
- Skin with odor
  - 4-in-1 Body Cleanser [MSC094108]
  - 4-in-1 Antimicrobial Cleanser [MSC094204, MSC094208]

Late Intervention

- Dry, cracked, compromised skin
  - 4-in-1 Cleansing Lotion [MSC094308]
- Hi bioburden, compromised skin
  - 4-in-1 Antimicrobial Cleanser [MSC094204, MSC094208]

Antifungal Treatment

- Prone to fungal infection, compromised skin
  - 4-in-1 Antimicrobial Cleanser [MSC094204, MSC094208]

- Thin, torn skin or neuropathy
  - Skin Repair Cream [MSC094424]

- Shear, itchy abraded skin, Stage I
  - Dimethicone Moisture Barrier [MSC094514]

- Cracked, denuded, partial thickness injury
  - Nutrasheild [MSC094534]

- Itchy, macerated partial thickness injury
  - Calazime Protectant Paste [MSC094524]
  - Clear-Aid Skin Protectant [MSC094502]

- Skin layer, feet, perineal area
  - Antifungal Powder [MSC094603]

- Perineal area, other body parts
  - Antifungal Cream [MSC094604]

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