

SAVING MONEY USING AN ABSORBENT HYDROGEL DRESSING IN THE SKILLED NURSING FACILITY

Glenda J. Motta, BSN, MPH ET
Kathi Thimsen-Whitaker, RN, CETN, BSN
Deb Schmellpfling, RN, BSN

SUBMITTED FOR PUBLICATION
May, 1992

INTRODUCTION

Numerous wound dressings that support moist wound healing have been introduced in recent years. New categories of products are constantly evolving. One recent addition is the dressing category known as absorbent hydrogels. The first of these introduced to the market in 1988 was Elasto-Gel™ from Southwest Technologies, Inc.

Elasto-Gel is unique in the gel itself. The gel is a crosslinked polymer with a glycerine base and a polymer matrix which holds the chemicals together. The gel has a high glycerine content, unlike other hydrogels that are predominantly water, this one will not dry out. Glycerine, unlike water, does not macerate or soak an open wound or the surrounding tissue.

The Elasto-Gel wafer is approximately 1/8 inches thick and is covered with a backing of stretch cloth. Due to the chemical matrix of the product, it absorbs like a hydrocolloid (Up to three times its own water weight). Elasto-Gel does not liquify when it comes in contact with fluid or exudate. Unlike hydrocolloids the dressing has no adhesives, resulting in fast, easy, painless dressing changes. The glycerine allows the self-adherent dressing to be removed in one piece without damaging new fragile tissue or the surrounding skin.

This last feature allows examination of the wound between dressing changes because Elasto-Gel can be peeled back wiped with normal saline, and then reapplied.* Elasto-Gel is bacteriostatic and fungistatic, reducing the possibility of problems from infection. Laboratory tests show that Elasto-Gel kills vegetative cells but does not destroy spores. It does not support growth of microbes and kills bacteria which are able to survive on inert surfaces.

One hospital has replaced conventional heel protectors with Elasto-Gel because it is cost-effective, reduces pain, and relieves friction and pressure.¹ The gel sheet is removed every day and the heels examined. The dressing is then resecured with a gauze wrap or stockinette. It is also removed during bathing if necessary, cleaned with normal saline and reapplied. No bacterial problems have been noted after multiple observation and long-term product use.

Elasto-Gel may also be used in combination with a variety of solutions and ointments, such as polysporin and silver sulfadiazine, as well as wound gels. In one case study, Chlorestium^R solution washes and Panafil^R ointment were used daily to debride a pressure ulcer on the ischeal tuberosity and an Elasto-Gel dressing was then placed on top. The dressing was removed each day, the wound examined and treated, and then the same dressing was reapplied. Because the Elasto-Gel was replaced only once each week, this was a very cost-effective treatment that is not possible with most other moist occlusive dressings.²

In another case, a patient was treated at home with Silvadene™ cream in conjunction with Elasto-Gel for debridement of infected herpes zoster lesions. This permitted BID application of Silvadene while the same Elasto-Gel wafer was repositioned over the lesions. Pain intensity was significantly lowered and lesions were healed within three weeks of initiating this therapy.³

Cost is often cited as a reason for not using dressings such as Elasto-Gel in place of more well known topical treatments, such as wet-to-damp saline gauze and hydrocolloid wafers. In reality, Elasto-Gel is extremely cost-effective. It has the potential to 1) promote faster healing, i.e., supports moist wound healing; 2) remain on the wound for long periods of time; 3) reduce the number of dressings used; and 4) minimize the amount of time spent by nursing personnel on dressing changes.

BACKGROUND FOR THIS EVALUATION

Nurses in long-term care are often faced with cost constraints

that limit the selection of wound care products available for patient care. Payment is often a per diem rate that is all-inclusive of services and supplies. Restrictive reimbursement policies often require daily dressing changes. Consequently, the least expensive product is often the only one approved by administrators and recommendations of ET nurse consultants to use newer wound dressings are often rejected.

On one such consultation in a 175 bed skilled nursing facility (SNF), a switch from a hydrocolloid wafer to Elasto-Gel was suggested for one resident. The ET nurse and Director of Nursing obtained administrative consent to evaluate the potential cost-effectiveness of Elasto-Gel. Because Elasto-Gel can be removed daily, the wound observed, and the dressing reapplied, it meets the requirement for daily dressing changes and observation of the wound. However, because the ET nurse anticipated that a new dressing would only be required once weekly, considerable cost savings would be possible. While the cost analysis is limited to only one dressing change on one resident, we planned to use the preliminary data to convince administration and the attending physician to allow continued use of Elasto-Gel.

METHOD USED TO DETERMINE COST OF DRESSING CHANGES

Adhesive-type dressings, such as hydrocolloid wafers, are often difficult to remove without traumatizing fragile, soft tissue surrounding a wound. In addition, dressing changes often take longer and may be painful. While a hydrocolloid may remain in place for several days, additional supplies may be needed to remove the dressing residue and cleanse the wound.

Prior to the ET nurse consultation, a hydrocolloid dressing was used and changed daily on a partial thickness wound located on the interior aspect of the left lower leg of a SNF resident. This was not only extremely costly but also required a considerable amount of nursing time. The dressing was prone to curling at the edges, so a kling wrap was needed to prevent the wafer from adhering to the hairs on the resident's right leg. On removal, the periwound skin became torn and the wound became increasingly weepy after using the hydrocolloid.

It was recommended that the dressing be changed to Elasto-Gel because 1) the resident experienced pain and a throbbing sensation when the hydrocolloid was in place; 2) the radiated tissue was prone to denuding and desquamation; and 3) the Elasto-Gel could be reused, which decreased the cost of dressing changes.

We timed dressings changes, using both Elasto-Gel and a Duoderm™ hydrocolloid wafer. The time recorded did not include patient positioning or gathering of equipment and supplies. We recorded the time required to remove the old dressing, cleanse the wound, reapply a dressing, and secure it in place. Normal saline was used to cleanse the wound after each dressing was removed. The time to complete either dressing change was approximately nine minutes.

The cost of supplies and labor were totaled (Figure 1). With equal time for dressing change, the supply cost for the initial dressing change was \$3.26 less using Elasto-Gel versus the hydrocolloid. Because the Elasto-Gel was reused, the saving each week totaled \$71.06. In addition, if the integrity of the peri-wound skin is compromised, the nursing time required to change a hydrocolloid wafer will be increased. This is because the wafer must be removed cautiously and slowly to avoid trauma to fragile skin.

POTENTIAL FOR ADDITIONAL COST SAVINGS

Unlike hydrocolloids, Elasto-Gel does not melt down when it comes in contact with fluid or exudate. Even though it absorbs like a hydrocolloid, it remains in one piece. It also insulates the wound, provides an environment that promotes moist wound healing, and

* Highly exuding wounds will require new dressings.

provides soft protective padding. Unlike wounds treated with hydrocolloids, those treated with Elasto-Gel do not need to be cleaned of the debris from the dressing itself, which results in less traumatic dressing changes.

In a previous study, the nursing time required to change transparent film and hydrocolloid dressings was reported to average 16 minutes per day.⁴ While this represented a decrease of 75 minutes per day in nursing time from what was previously spent on conventional treatments such as wet to dry saline dressings, even greater time reduction is possible using Elasto-Gel.

Figure 2 compares the various nursing times reported in that study to change a hydrocolloid wafer, a transparent film dressing, and wet-to-damp saline dressings versus the time we recorded to change Elasto-Gel. Figure 3 translates this time into LPN labor costs in a SNF. Using a dressing that required less nursing time to change means that nurses are freed from complex dressing changes to simple ones, allowing as much as 20 additional minutes for other duties.

Figure 4 shows the cost of gauze wet-to-damp dressings and the nursing time involved in this procedure. The supplies and labor costs of this treatment regimen, commonly used in SNF's, are \$10.76 per dressing change. However, in order to keep the wound bed moist, dressing changes are necessary every shift. The daily total for supplies is \$32.28. The weekly cost for supplies alone is \$122.01, a difference of \$88.84 more than treatment with Elasto-Gel. The difference in total treatment cost (supplies plus labor) was \$182.01 per week. In our case, using Elasto-Gel instead of a hydrocolloid wafer saved \$71.06 in supplies per week.

For each month, using Elasto-Gel saved \$306.84 in supply costs, versus using a hydrocolloid wafer. Using saline gauze wet to damp

dressings would cost \$383.04 more than Elasto-Gel.

CONCLUSIONS

As the residents of SNF's grow older and more seriously ill, the potential for the development of pressure ulcers and other alterations in skin integrity increases. Reimbursement restrictions mandate that nurses in SNF's become knowledgeable about the variety of dressings available and their potential cost-effectiveness and efficacy over conventional treatments such as wet-to-damp saline gauze. Quality-of-life regulations require evidence that assessments are ongoing and positive outcomes are achieved. Elasto-Gel is one wound dressing with the potential to solve reimbursement dilemmas and achieve positive outcomes.

Wet to dry saline soaked gauze dressings require frequent changes, cause pain and become stuck on wounds. Upon removal, fragile new granulation tissue is destroyed. A continuous moist environment is necessary for wound healing. Excess exudate, if present, must be absorbed to prevent destruction of surrounding skin.

When wounds and pressure ulcers do occur, Elasto-Gel should be considered. As an absorbent hydrogel, it has the capacity to absorb exudate, support moist wound healing, and prevent maceration of surrounding tissue. In addition, the potential to conserve valuable nursing time and allow for reallocation of nursing resources, especially if a facility uses an acuity system for determining staffing should be considered. This treatment regimen can save money spent on supplies and equipment required for dressing changes.

Figure 1: COST OF DRESSING CHANGES¹
HYDROCOLLOID WAFER

| SUPPLIES | COST/CHANGE | COST/ WEEK ² | COST/ MONTH ³ |
|---|----------------|-------------------------|--------------------------|
| Duoderm wafer (4X4) | \$ 8.78 | \$ 61.46 | \$263.40 |
| Gloves (2 pair) @ \$0.60/pair | 1.20 | 8.40 | 36.00 |
| 4 x 4's (12) @ \$0.21/each | 2.52 | 17.64 | 75.60 |
| Saline solution (100 ml) @ \$11.90/liter | 1.19 | 8.33 | 35.70 |
| Kling (1/2 roll) @ \$2.40/roll | 1.20 | 8.40 | 36.00 |
| Total | \$14.89 | \$104.23 | \$446.70 |
| LABOR | | | |
| 9 minutes @ \$10.25/hr (average LPN salary in SNF) | \$ 1.54 | \$ 10.78 | \$ 46.20 |
| Total | \$16.43 | \$115.01 | \$492.90 |

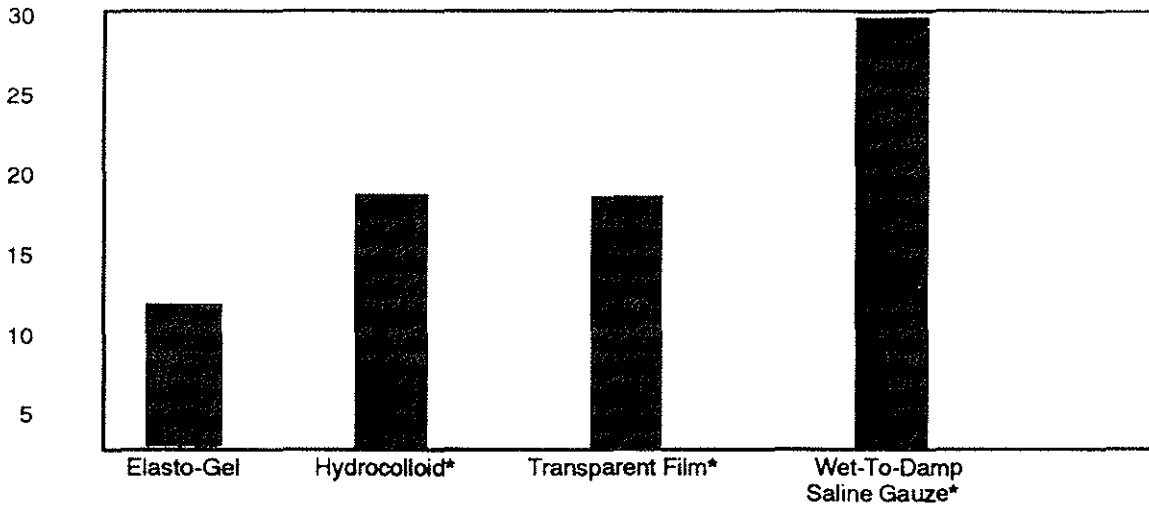
ELASTO-GEL SHEET

| SUPPLIES | COST/CHANGE | COST/WEEK ² | COST/MONTH ³ |
|---|----------------|------------------------|-------------------------|
| Elasto-Gel wafer (4x4) | \$ 8.04 | \$ 8.04 | \$ 32.16 |
| Gloves (2 pair) @ \$0.60/pair | 1.20 | 8.40 | 36.00 |
| 4 x 4's (4) @ \$0.21 each | 0.84 | 5.88 | 25.20 |
| Saline solution (30 ml) @ \$11.90 liter | 0.35 | 2.45 | 10.50 |
| Kling (1/2 roll) @ \$2.40/roll | 1.20 | 8.40 | 36.00 |
| Total | \$11.63 | \$33.17 | \$139.86 |
| Labor | | | |
| 9 minutes @ \$10.25/hr (average LPN salary in SNF) | \$ 1.54 | 10.78 | \$ 46.20 |
| Total | \$13.17 | \$43.95 | \$186.06 |

¹ Based on charges to SNF by a medical product supplier.

^{2, 3} Based on daily changes for hydrocolloid; 1 change/week for Elasto-Gel, daily dressing removal, wound cleansing and wound observation.

Figure 2
NURSING TIME PER PATIENT DRESSING CHANGE



*Brady SM. Management of pressure sores with occlusive dressings in a select population. *Nurs. Management*, Aug 1987.

Figure 3
LPN LABOR COSTS PER PATIENT DRESSING CHANGE

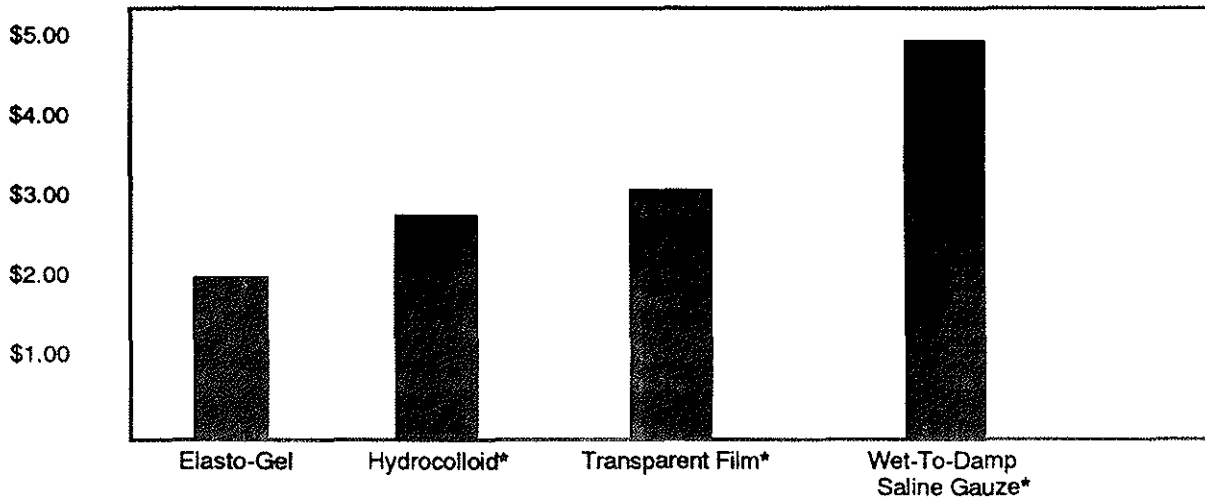


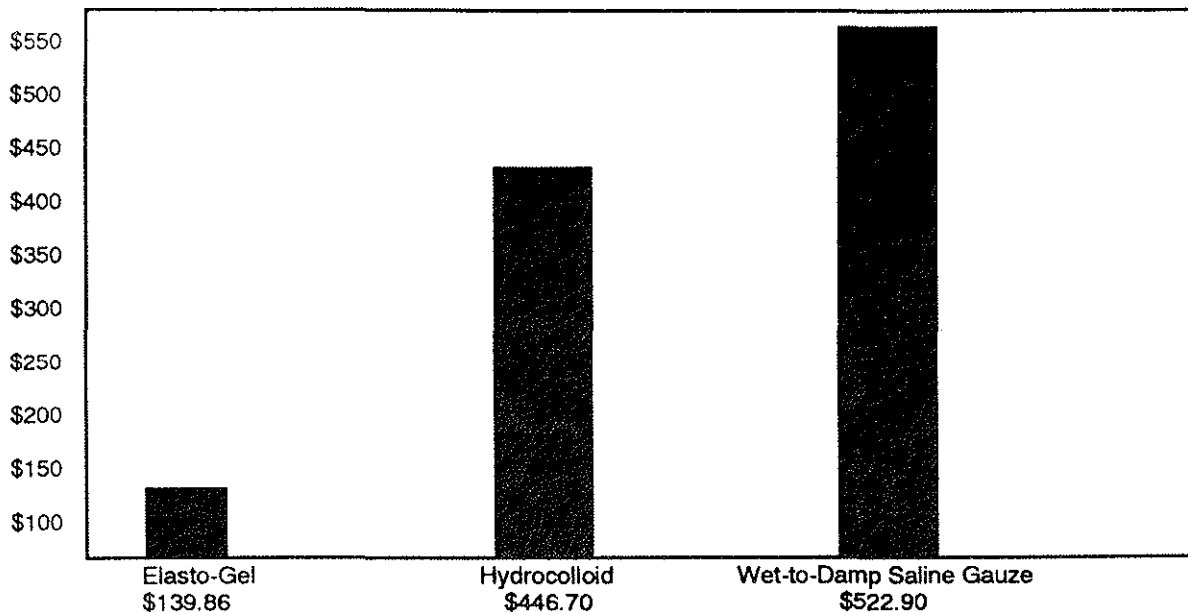
Figure 4: COST OF DRESSING CHANGES¹
GAUZE WET-TO-DAMP DRESSINGS

| Supplies | Cost/Change | Cost/Week ² | Cost/Month ³ |
|--|-----------------|------------------------|-------------------------|
| Gloves (2 pair) @ \$0.60/pair | \$ 1.20 | \$ 25.20 | \$108.00 |
| Sterile 4 x 4 (12) @ \$0.21/each | 2.52 | 52.92 | 226.80 |
| Saline solution (100 ml) @ \$11.90/liter | 1.19 | 24.99 | 107.10 |
| ABD dressing (2) @ \$0.20/each | 0.40 | 8.40 | 36.00 |
| Tape (paper) @ \$1.50/each | 0.50 | 10.50 | 45.00 |
| Total | \$ 5.81 | \$122.01 | \$522.90 |
| Labor | | | |
| 29 minutes @ \$10.25/hr (average LPN salary in SNF) | \$ 4.95 | \$103.95 | \$445.50 |
| Total (3 changes/day) | \$ 32.28 | \$225.96 | \$903.84 |

¹ Based on charges to SNF by a medical product supplier

² Based on 3 changes/day, a total of 21/week; 90/month

Figure 5
 COST COMPARISON OF SUPPLY COSTS FOR DRESSING CHANGES PER MONTH



ELASTO-GEL Hydrogel Wound Dressing

Directions for Use

1. Select the most appropriate size dressing which will allow the dressing to extend 1 to 2 inches beyond the wound or is 25% larger than the wound.
2. Prepare the wound site by cleansing as needed with a safe non-irritating wound cleanser. Apply topical medication as needed.
3. Remove Elasto-Gel from the outer package.
4. If cutting is necessary, leave the clear plastic covering in place.
5. To apply the dressing, remove the clear plastic cover sheet from the gel, but do not remove the white stretch nylon backing cloth.
6. Cover the wound with the dressing by placing the gel directly on the wound.
7. If water-proofing is necessary, cover with a film dressing.
8. To secure the dressing use:
 - a) hypoallergenic tape using a window framing technique or for sacral and other hard to secure areas completely cover the dressing with tape;
 - b) gauze bandage or elastic wrap;
 - c) or elastic sleeve, comparison bandage, support stocking, etc. If tape must be avoided.

REFERENCES

1. Sydnor, K.: "A new dressing for the prevention and treatment of heel ulcerations." Department of Podiatric Surgery, Parkview Hospital, Philadelphia, PA, unpublished.
2. Berger, M.: Poster presentation, Silver Cross Hospital Wound-care Symposium, Sept. 1991.
3. Harvey, M.: "Elasto-Gel as a dressing for infected herpes zoster lesions." Poster presentation, Advanced Wound Care Symposium, New Orleans, April 1992.
4. Brady, S.M.: "Management of pressure sores with occlusive dressings in a select population." *Nursing Management*, August 1987.

Elasto-Gel
Occlusive Wound Dressing

Manufactured by
SOUTHWEST TECHNOLOGIES
1-800-247-9951