

Herb Bassett Home

Australian Sheepskin Product Trial



**North Sask Laundry
& Support Services Ltd**

1200 - 24th Street West
Prince Albert, Sask. S6V 5T4
Phone: (306) 764 - 5264
www.northsasklaundry.com

Australian Sheepskin Apparel

526A - 45th Street East
Saskatoon, Sask S7K 0W2
Phone: (306) 934 - 7119



Herb Bassett Home

1220 - 25th Street West
Prince Albert, Sask S6V 7P7
Phone: (306) 765 - 6000

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Executive Summary

With an estimated cost of \$3.6 billion in the USA to treat pressure ulcers and a product that has proven to reduce them by 68% compared to standard practice, health care providers have requested an assessment and evaluation of sheepskin products. Research has shown that 1 in 14 patients are susceptible to pressure ulcers acquired during hospital stays. Occupational Therapists are acutely aware of these health issues that occur and are supportive of a product or process that helps these individuals.

This trial's objective was to measure the impact on and cost of, treating pre-existing wounds.

As with any new product, there was some resistance to the sheepskin in the Herb Bassett Home trial. Three residents were initially selected for the trial with a fourth resident being included a couple of weeks into the trial. Various items were utilized such as bed pads, boots and coccyx pads. Due to the size and location of the one resident's coccyx wound, North Sask Laundry's seamstress created a larger 8" x 8" pad which was better suited to the care needs of this resident.

It was decided at the onset of this trial period that the sheepskin would not be dried in the dryers but rather laid out on drying racks to dry naturally. Although this created a small problem with space issues, overall the process worked very well. The sheepskin maintained its original finish and texture very well being dried by this method.

Due to the fact that this was the second trial that North Sask Laundry has conducted with the sheepskin, there was no initial investment cost as most of the necessary items were already in inventory. It was agreed that the standard poundage rate pricing used for basic linens would be used for the length of the trial period. If it were decided to continue the use of the sheepskin, the costs would be revisited.

It is recommended that this product can be provided at a reasonable cost to health care providers with an optimistic expectation to improve conditions for patients suffering from pressure ulcers and those that are at risk to developing them.

Introduction

Skin care programs need to be tailored to individual need. General practices of repositioning residents, regular skin inspection and assessing skin damage is important. There is a need for simple cost effective devices and even more expensive devices for high-risk residents. Pressure ulcers continually challenge the health care professional. It is estimated to cost \$3.6 billion per year to treat these ulcers in the American healthcare system (see NSL Product Trial – Australian Sheepskin Products).

Leslie Sommerfeld with Nordon Enterprises Ltd. reported to the Saskatchewan Para Program that chronic care patients may use dressings costing between \$1,800 and \$2,000 per month for wound care. Silver dressings, which require a cover dressing, can cost \$200 per pack of ten and foam dressings \$45 per pack of five. These prices do not cover the cost of the cover dressing or nursing time.

The Australian medical sheepskin products have been acclaimed in a number of studies as a medical device that prevents bedsores and improves healing time. The Laundry received a number of individual testimonies to this and undertook a trial at the Battleford District Care Centre in 2003. The Linen Standardization/Quality Assurance Committee received a request from a group of Occupational Therapists to provide these products as a regular service.

The initial product cost and special handling requirements were deterrents. The central laundry process develops efficiencies and cost-effectiveness by bulk purchasing and processing large volumes of common items. Annual linen replacement costs are offset in the charge rate. With developing technologies in fabrics and health care demands, the Laundry is challenged to stay current while at the same time remaining cost effective.

In recent years, a linen control system was installed to track items such as the sheepskin by way of a barcode on each item. With these resources in place, North Sask Laundry is able to report on such areas as product usage per unit and processing costs.

The Product

Prior to 1997, sheepskin standards in Australia for health care products were unsatisfactory to users and promoters of quality products. Due to poor test procedures, counterfeit products and loss market position, a new measurable standard had to be developed. The standard had to include a long product life and perform well in use and processing.



Label stamped
on authentic
Australian
medical
sheepskin

In 1997, the Commonwealth Scientific and Industrial Research Organization (CSIRO), Division of Wool Technology, the Meat Research Corporation partnered with Australian tanners to develop a reliable health care product that could meet these demands. The product had to be urine resistant, able to withstand being processed at 80°C on a regular basis where the wool type, length and finish were vital factors to maximize pressure relief and provide comfort in a health care environment.

The Australian Standard 4480.1-1998 was established based on this research and development.

Sores result from tissue break down due to pressure on the tissue that reduces the capillary blood flow between the body's surface and skeletal parts. Friction and shear forces at these points and moisture buildup contribute to the condition. High-density wool creates a cushion for the body and allows the distribution of pressure with low friction. Wool fiber also dissipates the moisture and is able to absorb 34% of its dry weight. The Australian Standard identifies the optimum wool pile properties and wool type.

Research trials revealed:

- a) comfort and support increased with increased pile length (30mm)
- b) increased comfort after ten washings even with decreased fiber diameter
- c) sheepskins were more comfortable than lambskins
- d) laundering enables the wool and leather to relax
- e) laundering does not significantly affect the appearance or characteristics (50 washes)

Basic bedsore prevention products consist of bed pads of various sizes and wheelchair covers. Other products to help the healing process are heel, palm and elbow protectors and a variety of footwear products (boots, slippers and inner soles). The product line also includes coccyx pads for inside incontinence garments.



Bed Pad

30"x60"
30"x48"



Heel Protector



Elbow Protector



Long boot



Adjustable Slipper



Palm Protector



Wheelchair Cover

The Facility

The Herb Basset Home is a 144-bed long-term care facility attached to the Victoria Hospital in Prince Albert, Saskatchewan. It is made up of three separate sections joined by a nicely decorated common area. The residents of Lakeland Trail, Golden Hill and Paradise Path are often lead in activities such as crafts and physical exercise by staff and volunteers. Outings are planned regularly including teas, bowling, picnics, shopping, and special events. Family, relatives and friends are always welcome to attend and are encouraged to do so.

Participating Resident Selection

With the recommendations of the two Herb Basset Home Managers, three residents were initially identified as candidates for the sheepskin trial. In week two of the trial the Managers requested that a fourth resident be considered for the trial as well. The situation was assessed and the fourth resident was accepted. The Home Managers talked with the residents and contacted the families as well and explained the purpose of the trial, noting the positive results of previous trials. The residents and families agreed and consented for the trial to proceed.

The Trial

North Sask Laundry & Support Services Ltd., who also compiled the photos and data for the trial and report, provided the Australian Sheepskin products. Steven Playford, President of Australian Sheepskin Apparel in Saskatoon, conducted demonstrations for the Home staff and provided ongoing support throughout the process. Initial pictures and assessments were completed on February 14th, 2006. Assessments were completed utilizing both the Braden Scale and a Pressure Sore Data Collection Questionnaire (see examples of each in Appendix C).

Prior to the Sheepskin trial being conducted, conventional treatment methods had been utilized on the wounds. Once it was established which products would be used for the various wounds, all of the conventional treatment methods were halted and only the Australian Sheepskin was used. The sheepskin products were to be applied directly to the

wounds without using any ointments or salve. The only other product to be used along with the sheepskin would be a saline solution to clean the wounds or to release the sheepskin should it happen to adhere to the wound.

The Process

All of the sheepskin products were processed at the North Sask Laundry plant. The needs of the four residents were assessed and product supplied to ensure continuous uninterrupted service for the trial period. Each piece was labeled with a bar code to track usage, quality inspection and inventory levels.

The most remarkable characteristic is the ability to withstand the 80°C temperature on a regular cycle. At this temperature the product is disinfected and sanitized. Alkalis, hydrogen peroxide, phosphates, bleaches and enzymes are not used. A bacteria stat rinse was used to enhance sanitization. With multi-resistant organisms being identified today, this will become an important practice. The wash formula was:

Operation	Water Level	Temp °C	Time (min)	Chemical
Wash	High	45	3	Non-ionic detergent 5 ml/kilogram
Rinse	High	45	2	
Wash	High	60	4	Non-ionic detergent 5ml/kilogram
Rinse	High	60	2	
Thermal	High	72	8	
Rinse	High	60	2	
Rinse	High	45	2	Bacteria stat 2 ml/kilogram
Extract			8	

As the dryers only had time and temperature controls with no moisture sensors, it was decided that product would be rack dried which took between 24 to 36 hours. Over drying any product is detrimental to the product life. The pre-trial sample tests were dried at 60°C. Some samples showed signs of stiffening but were flexed and the leather softness returned. The softness and appearance was not affected. Two of the test samples were imitation synthetic sheepskin that did not survive the pre-test temperatures.

All the products were provided with the regular deliveries on an as-required basis. Each individual piece was recorded in and out of the laundry facility with an inspection of the quality. Throughout the trial, inventory levels were monitored and processing costs documented.

The Residents (see related photos on page 11)

Resident 1: Resident 1 is mostly bedfast. She is occasionally placed in a wheelchair but has very limited mobility. Resident one presented with a number of sores:

Assessment

	<u>Size</u>	<u>Depth</u>	<u>Stage</u>	<u>Notes</u>
1) Coccyx	4"x4"	½"	4	
2) Right Heel	1" around	Surface	4	light colored eschar
3) Left Heel	4" diameter	Unsure	9	black eschar in place
4) Left Foot – Top	1" diameter	Unsure	3	

Treatment

The left foot of Resident 1 was placed into a long boot with a 5"x5" coccyx pad inside the boot at the heel. In order to provide adequate coverage for the wound on the top of the left foot, it was decided that the long boot would be the best option as it wraps around farther and covers more of the top of the foot than the heel protector. The right foot was placed into a heel protector, which provided very good coverage of the heel sore. Due to the large size of the coccyx sore, a special 8"x8" coccyx pad was made which provided

better coverage than the small pads would have. The resident was then placed on a large bed pad to aid in overall comfort and to assist with extra wound coverage.

Resident 2: Resident 2 is also mostly bedfast but is occasionally assisted into a chair to be moved about. Resident 2 had only one condition related to the trial:

Assessment

	<u>Size</u>	<u>Depth</u>	<u>Stage</u>	<u>Notes</u>
1) Coccyx	1" diameter	¼"	4	

Treatment

Resident 2 was started initially with small coccyx pads and a bed pad. In the second week it was discovered that since the resident was on a catheter that an undergarment was not regularly used. As a result of this and the resident being turned regularly, the sheepskin was not in constant contact with the coccyx sore. It was agreed that the nurses would dress the resident in an Attends undergarment in order to hold the coccyx pad in place.

Resident 3: Resident 3 is slightly more mobile than the first two residents, spending more time in a wheelchair in the common areas. Resident 3 also had only one condition:

Assessment

	<u>Size</u>	<u>Depth</u>	<u>Stage</u>	<u>Notes</u>
1) Right Ankle	1" diameter	Surface	1-2	

Treatment

Resident 3 was put into an ankle protector.

Resident 4: Resident 4 has the use of a motorized scooter and moves about quite frequently. As was mentioned above, Resident 4 joined the study after it had already commenced and presented with four sores:

Assessment

	<u>Size</u>	<u>Depth</u>	<u>Stage</u>	<u>Notes</u>
1) Upper Left Calf	15 mm x 8 mm	5 mm	3	
2) Lower Left Calf	20 mm x 20 mm	2 mm	3	
3) Left Heel	20 mm x 10 mm	5 mm	3	
4) Left Middle Toe	5 mm x 3 mm	1 mm	3	

Treatment

Resident 4's left foot was placed into a long boot to cover the three lowest wounds. A coccyx pad was then placed on the upper calf wound and held in place with a section of nylon surgical stocking.

Photo History

The photographs on the following pages have been taken in cooperation with the residents, their families and the management and staff of the Herb Bassett Home. Don Wood, representing North Sask Laundry, began taking the photographs on February 14th, 2006. The initial photographs show the pre-existing wounds as they appeared at the onset. The followup photographs extend beyond the trial period to monitor the progression of the wounds and to document the impact of the Sheepskin treatment.

Resident 1 – Coccyx Photos



Initial Photo – Feb. 14/06



Week 2 – Mar. 1/06



Week 5 – Mar. 21/06



Week 7 – Apr. 6/06



Week 14 – May 25/06



Week 25 – Aug. 10/06

Resident 1 – Right Heel Photos



Initial Photo – Feb. 14/06



Week 2 – Mar. 1/06



Week 5 – Mar. 21/06



Week 7 – Apr. 6/06



Week 14 – May. 25/06



Week 25 – Aug. 10/06

Resident 1 – Left Foot Photos



Initial Photo – Feb. 14/06



Week 2 – Mar. 1/06



Week 4 – Mar. 15/06



Week 5 – Mar. 21/06



Week 6 – Mar. 30/06



Week 25 – Aug. 10/06

Resident 1 – Left Heel Photos



Initial Photo – Feb. 14/06



Week 2 – Mar. 1/06



Week 5 – Mar. 21/06



Week 7 – Apr. 6/06



Week 14 – May 25/06



Week 25 – Aug. 10/06

Resident 2 – Coccyx Photos



Initial Photo – Feb. 14/06



Week 2 – Mar. 1/06



Week 5 – Mar. 21/06



Week 7 – Apr. 6/06



Week 9 – Apr. 20/06



Week 14 – May 25/06

Resident 3 – Right Ankle Photos



Initial Photo – Feb. 14/06



Week 2 – Mar. 1/06



Week 5 – Mar. 21/06



Week 6 – Mar. 30/06



Week 7 – Apr. 6/06



Week 9 – Apr. 20/06

Resident 4 – Left Leg Photos



Initial Photo – Mar. 1/06



Week 2 – Mar. 15/06



Week 4 – Mar. 30/06



Week 7 – Apr. 6/06



Week 8 – Apr. 13/06



Week 14 – May 25/06

A few interesting photos from the trial



← Entrance into the centre “courtyard” which branches out into the three units: Lakeland Trail, Golden Hill and Paradise Path

Just a few of the trial participants. From left to right:
Steve Playford – President of Australian Sheepskin Apparel
Cheryl Prediger – Herb Bassett Home Manager
Don Wood - North Sask Laundry Representative →



← A sample of some of the beautiful pictures that are displayed on the walls throughout the Herb Bassett Home

Entrance to Herb Bassett Home



Victoria Hospital



Current Status as of July 24th, 2006

Resident 1 - In cooperation with the resident and the management and staff of the Herb Bassett Home, we are continuing to photograph the progress of Resident 1. Because of the extreme nature of her wounds, the progress is more easily seen through the ongoing photo sessions.

Resident 2 - Progress of the wound of Resident 2 was slow partially due to the placement of the wound as can be seen in the above photos. Constant contact with the wound was difficult as the resident had reactions to anything that was used to hold the coccyx pad in place. It was decided to remove Resident 2 from the trial.

Resident 3 - Sadly, in early May, Resident 3 passed away.

Resident 4 - At the beginning of June a request was made by the staff and the family of Resident 4 that she be removed from the trial when it was discovered that she had blockages which restricted the blood flow to her legs. The progress in two of her leg wounds (small top and bottom wounds) is quite noticeable in the above pictures. The middle wound, however, did not progress as expected. The cause of this, once it was discovered, was assumed to be the lack of blood flow to the area.

Even though Residents 2 and 4 were taken off of the trial, Herb Bassett staff continues to use the Australian Sheepskin for their wound care.

Financial Information

The Laundry Perspective

Assumptions and Cost Factors

The standard guarantee for the sheepskin product is 50 washes, however other laundries are reporting 100 washes and better in use. If these same results are achieved, there will be significant reductions in the cost-per-use. All construction work was guaranteed at 100% by the manufacturer of the product.

At no time during the trial was a washer capacity achieved due to the small volume of the trial. Chemical concentration and water levels are important in achieving cost effectiveness. With increased volumes, the Laundry could expect a decrease in the cost-per-use.

Labor costs were measured based on the portions of wash, shipping and delivery that are experienced with the processing of personal linens on a per pound basis. The average hourly rate is \$15.15 with an 18% benefit cost.

To improve turn around time at the Laundry, a moisture sensing processor would need to be installed in the dryers to ensure that product would not be over dried. Utility costs would increase marginally (\$.08/pound).

The Herb Bassett Home Perspective

Sharon Chesley, Herb Bassett Home Manager, compiled financial data covering a three-month period. The following report outlines, in her estimation, what would be the required care had the Australian Sheepskin not been in use.

Australian Sheepskin Trial Cost Analysis/Savings for Herb Bassett Home

Following is a breakdown of costs for the trial of the Australian Sheepskin products for a 90-day timeframe at Herb Bassett Home in Prince Albert, Saskatchewan.

The timeframe is from March 1 to June 1, 2006.

Not included in the analysis are the prices for sterile gloves, Cleans Shur, Skin Prep, 2 x 2's, sterile dressing trays, any tape if required, as these items were used even with the trial of the Australian Sheepskin products.

Overall, besides the enormous reduction of staff resources caring for the residents requiring the dressing changes, we noticed (with the exception of 2 residents – one we

trialed only for 45 days due to an issue with pain management due to a circulation problem, and one where little changes were found due to the longevity of a crack in the coccyx area) that the Australian Sheepskin was very beneficial and provided assistance in the healing process to the residents included. After a leery start by staff, everyone has been simply amazed at the results we have witnessed on the other 3 residents. Unfortunately one of the 3 remaining residents expired before the completion of the trial, but we did see improvements on her leg prior to her death.

Following is a breakdown of the costs associated with each resident included in the trial. For the nurses, I used a 50% ratio between RN/RPN wages and LPN wages so average cost will be used. On the units the shifts are covered by one of the 3 professions.

LPN average \$25/hr.

RN/RPN \$32/hr.

Average per hour = \$28.50

SCA hourly wage average of \$17.00/hr.

Resident 1 (DS)

Dressing to coccyx changed 2– 4 times per day and prn (as required) - for the purpose of this study I used an average of 3 changes per 24 hour time period.

Dressing to heels changed 2-3 times per 24 hour and prn. For the purposes of this study I used 2 changes per 24 hour period.

Dressing Coccyx:

Aquacel Ag	\$ 1.00 x 3 x 3 changes	= \$ 9.00
Kaldistat	\$ 5.23 x 3 x 3	= \$ 47.07
ABD's	\$.19 x 4 x 3	= \$.76
Total per day for coccyx dressing supplies		= \$ 56.83

Dressing to heels (both)

Kling	\$.51 x 2 x 2 changes per day	= \$ 2.04
ABD's	\$.19 x 3 x 2	= \$ 1.14
Telfa	\$.20 x 4 x 2	= \$ 1.60
Allevyn	\$ 2.52 x 4 x 2	= \$ 20.16
Duoderm gel	\$ 4.35 x 1 x 2	= \$ 8.70
Total per day for heel dressing supplies		= \$ 33.64
Total for 2 heels per day		= \$ 67.28
Nursing time 90 minutes per change		= \$ 128.25
SCA time for 90 minutes per change		= \$ 76.50
Total costs per day		= \$ 328.86
Total cost for 90 day trial		= \$29,597.40

Resident 2 (MC)

Dressing changed bid and prn prior to trial.

Aquacel Ag	\$1.00 x 1 pkg. x 2 changes/day	= \$ 2.00
Primapore	\$.43 x 1 x 2	= \$.86
20 minutes nursing time	$\$28.50/3=\9.50	= \$ 9.50
20 minutes SCA assistance		= \$ 5.67
Total cost per dressing change		= \$ 18.03
Total daily costs for 2 changes		= \$36.06
Total cost savings projected for 90 day trial		= \$3245.40

Resident 3 (RB)

Dressing changed od to heel (Expired on May 11/06)

Aquacel AG	\$1.00 x 1 x 1	= \$ 1.00
Primapore	\$.43 x 1 x 1	= \$.43
Nursing time 15 min/change		= \$ 7.13
SCA time per change		= \$ 4.25
Total per change per day		= \$ 12.81
Total cost savings projected for 71 days trail		=\$909.51

Resident 4 (TS)

Dressing changed od to lower leg (Only involved in trial for 45 days)

Aquacel AG	\$1.00 x 3 x 1	= \$ 3.00
4 x 4's	\$.05 x 5 x 1	= \$.25
Kling	\$.51 x 1 x 1	= \$.51
Duoderm gel	\$ 4.35 x 1 x 1	= \$ 4.51
Nursing time for 20 min. per change per day		= \$ 9.50
SCA time		= \$ 5.67
Total per day per change		= \$ 23.44
Total cost savings projected for the 45 days trialed		=\$1054.80

SUMMARY of COSTS of PROJECTED SAVINGS

DS	\$29,597.40
RB	\$ 3,245.40
MC	\$ 909.51
TS	\$ 1,054.80
TOTAL	\$34,807.11

Note – pain management due to circulatory impairment was an issue for this resident.

These dressing supplies and nursing time are part of the HBH budget (MS Supplies) – no billing to residents.

Respectfully submitted on July 24/06

Sharon Chesley, RN, BSN, GNC (c)

Nursing Unit Manager

Herb Bassett Home

Conclusion

The cost savings projected for wound dressings and nursing time is offset by the laundry service costs. The laundry costs break down into processing costs and return-on-investment for purchasing.

Built into the basic charge is 15¢ per pound for linen replacement to cover normal wear and tear of processing. The Laundry would charge out the services on a per piece basis, due to the potential for high losses, investment recovery, and a processing cost of 92¢ per pound. Using current costs, the pricing per use would be:

STYLE CODE	DESCRIPTION	WGT/PCE	COST	CHARGE
-----	-----	-----	-----	-----
NLAA-0001-00	Heel Protector, RIGHT	0.35	55.89	1.92
NLAA-0002-00	Heel Protector ,LEFT	0.35	55.89	1.92
NLAA-0004-00	Palm Protector, RIGHT	0.10	38.18	1.18
NLAA-0005-00	Palm Protector, LEFT	0.10	38.18	1.18
NLAA-0006-00	Elbow Protector	0.29	45.38	1.56
NLAA-0008-00	Coccyx Pads 5"x5"	0.08	16.78	0.55
NLAA-0008-04	Coccyx Pads 8x8	0.27	42.96	1.48
NLAA-0009-00	Wheel Chair Pad with Side Protectors	0.90	310.95	9.71
NLAA-0010-03	Bed Pad, 30" x 48"	4.06	507.78	18.24
NLAA-0010-04	Bed Pad, 30" x 60"	4.75	603.07	21.60
NLAA-0011-00	Wheelchair Arm Rest Covers	0.29	77.62	2.48
NLAA-0012-00	Wheelchair Calf Pads	0.26	72.07	2.30
NLAA-0013-00	Wheelchair Sole Rest Pads	0.19	53.59	1.71
NLAA-0014-00	Collar, 3"	0.25	76.36	2.41
NLAA-0015-02	Short Boot, Small SZ 5-7, Left	0.75	87.94	3.20
NLAA-0015-03	Short Boot, Medium SZ 8-10, Left	1.00	97.26	3.70
NLAA-0015-04	Short Boot, Large, SZ 11-12, Left	1.00	106.58	3.97
NLAA-0016-02	Short Boot, Small SZ 5-7, Right	0.75	87.94	3.20
NLAA-0016-03	Short Boot, Medium SZ 8-10, Right	1.00	97.26	3.70
NLAA-0016-04	Short Boot, Large SZ 11-12, Right	1.00	106.58	5.93
NLAA-0017-02	Long Boot, Small SZ 5-7, Left	0.80	155.79	5.19
NLAA-0017-03	Long Boot, Medium SZ 8-10, Left	0.80	170.54	5.61
NLAA-0017-04	Long Boot, Large SZ 11-12, Left	0.92	185.30	6.14
NLAA-0018-02	Long Boot, Small SZ 5-7, Right	0.80	155.79	5.19
NLAA-0018-03	Long Boot, Medium SZ 8-10, Right	0.80	170.54	5.61
NLAA-0018-04	Long Boot, Large SZ 11-12, Right	0.92	185.30	6.14
NLAA-0019-02	Adjustable Slipper, Sm SZ 4-8, Left	0.59	170.54	5.42
NLAA-0019-04	Adjustable Slipper, Lar SZ 9-12, Left	0.69	185.30	5.93
NLAA-0020-02	Adjustable Slipper, Sm SZ 4-8, Right	0.59	170.54	5.42
NLAA-0020-04	Adjustable Slipper, Lar SZ 9-12, Right	0.69	185.30	5.93

The cost savings projections were based on the period each resident was a participant in the trial. The quantities of each item used were billed monthly at the current basic rate.

To take into account the initial investment and processing, the billing is reviewed to report the true costs of the service:

<i>Sheepskin Usage for March - May 2006</i>			Qty	Weight	Trial Period Charge	NSL Recovery Charge (per piece)	Total Cost (Supply & Process)
Mar	NLAA-0001-00	Heel Protector, RIGHT	7	7.13	\$7.54	\$1.92	\$13.43
Apr	NLAA-0001-00	Heel Protector, RIGHT	6	6.00	\$6.42	\$1.92	\$11.51
May	NLAA-0001-00	Heel Protector, RIGHT	6	6.00	\$6.42	\$1.92	\$11.51
Mar	NLAA-0002-00	Heel Protector, LEFT	7	5.95	\$6.27	\$1.92	\$13.43
Apr	NLAA-0002-00	Heel Protector, LEFT	5	4.25	\$4.55	\$1.92	\$9.59
May	NLAA-0002-00	Heel Protector, LEFT	1	0.85	\$0.91	\$1.92	\$1.92
Mar	NLAA-0008-00	Coccyx Pads 5x5" "	54	4.07	\$4.29	\$0.55	\$29.87
Apr	NLAA-0008-00	Coccyx Pads 5x5" "	16	1.20	\$1.28	\$0.55	\$8.85
May	NLAA-0008-00	Coccyx Pads 5x5" "	56	4.29	\$4.61	\$0.55	\$30.97
Mar	NLAA-0008-04	Coccyx Pads 8x8	26	24.76	\$26.12	\$1.48	\$38.37
Apr	NLAA-0008-04	Coccyx Pads 8x8	33	32.99	\$35.30	\$1.48	\$48.70
May	NLAA-0008-04	Coccyx Pads 8x8	63	34.00	\$36.38	\$1.48	\$92.97
Mar	NLAA-0010-03	Bed Pad, 30 x 48"	20	78.29	\$82.60	\$18.24	\$364.86
Apr	NLAA-0010-03	Bed Pad, 30 x 48"	18	70.91	\$75.87	\$18.24	\$328.38
May	NLAA-0010-03	Bed Pad, 30 x 48"	22	89.64	\$95.92	\$18.24	\$401.35
Mar	NLAA-0010-04	Bed Pad, 30 x 60"	2	8.01	\$8.44	\$21.60	\$43.20
May	NLAA-0010-04	Bed Pad, 30 x 60"	1	4.68	\$5.01	\$21.60	\$21.60
Mar	NLAA-0017-02	Long Boot, Small SZ 5-7, LEFT	5	3.68	\$3.88	\$5.19	\$25.94
Mar	NLAA-0017-03	Long Boot, Medium SZ 8-10, LEFT	10	9.97	\$10.51	\$5.61	\$56.08
Apr	NLAA-0017-03	Long Boot, Medium SZ 8-10, LEFT	4	3.99	\$4.27	\$5.61	\$22.43
May	NLAA-0017-03	Long Boot, Medium SZ 8-10, LEFT	5	5.00	\$5.35	\$5.61	\$28.04
Mar	NLAA-0017-04	Long Boot, Large SZ 11-12, LEFT	3	3.00	\$3.17	\$6.14	\$18.42
Apr	NLAA-0017-04	Long Boot, Large SZ 11-12, LEFT	0	0.00	\$0.00	\$6.14	\$0.00
May	NLAA-0017-04	Long Boot, Large SZ 11-12, LEFT	6	6.28	\$6.72	\$6.14	\$36.84
Mar	NLAA-0018-03	Long Boot, Medium SZ 8-10, RIGHT	5	4.95	\$5.23	\$5.61	\$28.04
Apr	NLAA-0018-03	Long Boot, Medium SZ 8-10, RIGHT	4	4.00	\$4.28	\$5.61	\$22.43
Apr	NLAA-0018-04	Long Boot, Large SZ 11-12, RIGHT	2	2.00	\$2.14	\$6.14	\$12.28
Total			387		\$453.48		\$1,721.06

The projection is offset by \$1,721.06 for the trial period and the savings would be \$33,086.05.

Three of the four residents conditions improved during the trial period. The third resident did not, due to a lack of blood circulation to the infected area.

APPENDICES

A

Acknowledgements

B

Wound Assessment

C

The Braden Scale
&
Pressure Sore Data Collection Questionnaire

APPENDIX A

APPENDIX B

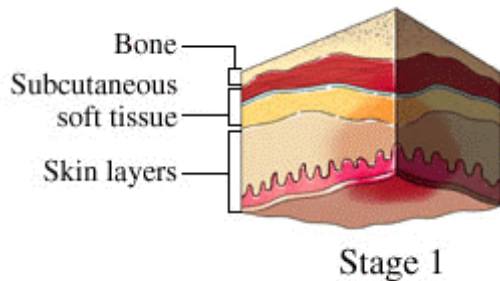
Wound Assessment

Pressure Sore Data Collection Questionnaire

Attached is a tool for documenting the presence of pressure ulcers. Documentation has key benefits

- Elicits information on every bony prominence
- Useful for documentation of outcomes
- Useful for quality assurance studies

Stage I



This stage is characterized by a surface reddening of the skin. The skin is unbroken and the wound is superficial. This would be a light sunburn or a first degree burn as well as a beginning Decubitus ulcer. The burn heals spontaneously or the Decubitus ulcer quickly fades when pressure is relieved on the area.

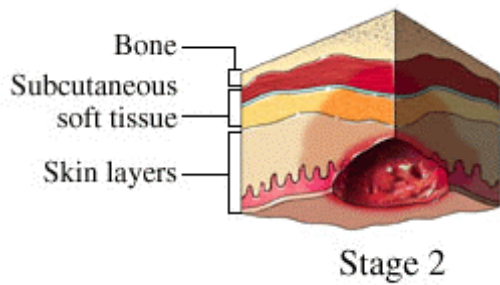


The key factors to consider in a Stage I wound is what was the cause of the wound and how to alleviate pressure on the area to prevent it from worsening. Improved nutritional status of the individual should also be considered early to prevent wound worsening. The presence of a Stage I wound is an indication or early warning of a problem and a signal to take preventive action.



Treatment consists of turning or alleviating pressure in some form or avoiding more exposure to the cause of the injury as well as covering, protecting, and cushioning the area. Soft protective pads and cushions are often used for this purpose. An increase in vitamin C, proteins, and fluids is recommended. Increased nutrition is part of prevention.

Stage II



This stage is characterized by a blister either broken or unbroken. A partial layer of the skin is now injured. Involvement is no longer superficial.

The goal of care is to cover, protect, and clean the area. Coverings designed to insulate and absorb as well as protect are used. There is a wide variety of items for this purpose.

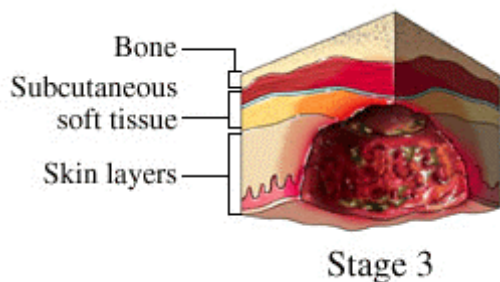


Skin lotions or emollients are used to hydrate surrounding tissues and prevent the wound from worsening. Additional padding and protective substances to decrease the pressure on the area are important. Close attention to prevention, protection, nutrition, and hydration is important also. With quick attention, a stage II wound can heal very rapidly.



A wound can appear to be a Stage I wound upon initial evaluation, and actually be reevaluated as a Stage II wound during the course of care. Quick attention to a Stage I Decubitus ulcer or pressure wound will prevent the development of a Stage III Decubitus ulcer or pressure wound. Generally Decubitus ulcers or pressure wounds developing beyond Stage II is from lack of aggressive intervention when first noted as a Stage I.

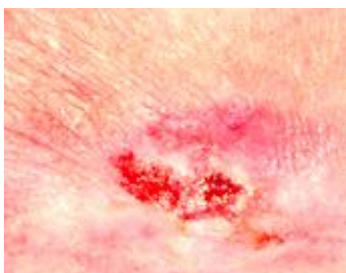
Stage III



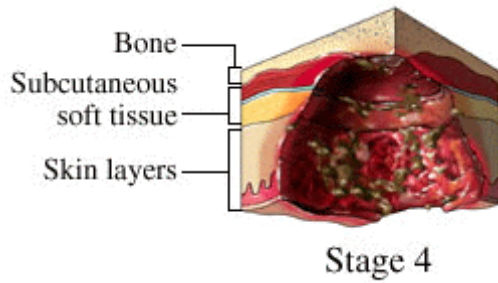
The wound extends through all of the layers of the skin. It is a primary site for a serious infection to occur.

The goals and treatments of alleviating pressure and covering and protecting the wound still apply as well as an increased emphasis on nutrition and hydration.

Medical care is necessary to promote healing and to treat and prevent infection. This type of wound will progress very rapidly if left unattended. Infection is of grave concern.



Stage IV



A Stage IV wound extends through the skin and involves underlying muscle, tendons and bone. The diameter of the wound is not as important as the depth. This is very serious and can produce a life threatening infection, especially if not aggressively treated. All of the goals of protecting, cleaning and alleviation of pressure on the area still apply. Nutrition and hydration is now critical. Without adequate nutrition, this wound will not heal.



Anyone with a Stage IV wound requires medical care by someone skilled in wound care. Surgical removal of the necrotic or decayed tissue is often used on wounds of larger diameter. A skilled wound care physician, physical therapist or nurse can sometimes successfully treat a smaller diameter wound without the necessity of surgery. Surgery is the usual course of treatment. Amputation may be necessary in some situations.

APPENDIX C

The Braden Scale

The Braden Scale is a summated rating scale made up of six subscales scored from 1-3 or 4, for total scores that range from 6-23. The subscales measure functional capabilities of the patient that contribute to either higher intensity and duration of pressure or lower tissue tolerance for pressure. A lower Braden Scale Score indicates lower levels of functioning and, therefore, higher levels of risk for pressure ulcer development.

The Braden Scale for Predicting Pressure Sore Risk© is a clinically validated tool that allows nurses and other health care providers to reliably score a patient/client's level of risk for developing pressure ulcers.

Key Benefits

- Assists nurses with varied experience and judgment to consistently identify patients at risk and to quantify the severity of risk.
- Reminds busy nursing staff to attend to this aspect of patient assessment and care with the consistency necessary to influence outcomes.
- Directs the attention of the nurse to six specific risk factors so that preventive care can be appropriately prescribed.

Institutions that have used the Braden Scale and simple protocols keyed to level of risk in a program of prevention have been able to:

- reduce the incidence of nosocomial pressure ulcers by 40-60%.
- reduce the severity of nosocomial pressure ulcers
- reduce the cost of care by decreasing the inappropriate use of specialty beds
- reduce the cost of care by avoiding the excess hospital days associated with the complication of nosocomial pressure ulcers

Protocols By Level of Risk

AT RISK (15-18)*

TURN, TURN, TURN
MAXIMAL REMOBILIZATION
PROTECT HEELS
MANAGE MOISTURE, NUTRITION AND FRICTION AND SHEAR
PRESSURE REDUCTION SUPPORT SURFACE
IF BED- OR CHAIR-BOUND

* If other major risk factors are present (advanced age, fever, poor dietary intake of protein, diastolic pressure below 60, hemodynamic instability)
advance to next level of risk

MODERATE RISK (13-14)*

TURNING SCHEDULE
WITH 30° RULE
PRESSURE REDUCTION SUPPORT SURFACE
MAXIMAL REMOBILIZATION
PROTECT HEELS
MANAGE MOISTURE, NUTRITION AND FRICTION AND SHEAR
* If other major risk factors present, advance to next level of risk

HIGH RISK (10-12)

PRESSURE REDUCTION SUPPORT SURFACE
INCREASE FREQUENCY OF TURNING
30° WITH FOAM WEDGES
SUPPLEMENT WITH SMALL SHIFTS
MAXIMAL REMOBILIZATION
PROTECT HEELS
MANAGE MOISTURE, NUTRITION AND FRICTION AND SHEAR

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BRADEN SCALE FOR PREDICTING PRESSURE SORE RISK

Patient's Name _____	Evaluator's Name _____	Date of Assessment _____							
SENSORY PERCEPTION ability to respond meaningfully to pressure-related discomfort	1. Completely Limited Unresponsive (does not moan, flinch, or grasp) to painful stimuli, due to diminished level of consciousness or sedation. OR limited ability to feel pain over most of body	2. Very Limited Responds only to painful stimuli. Cannot communicate discomfort except by moaning or restlessness OR has a sensory impairment which limits the ability to feel pain or discomfort over 1/2 of body.	3. Slightly Limited Responds to verbal commands, but cannot always communicate discomfort or the need to be turned. OR has some sensory impairment which limits ability to feel pain or discomfort in 1 or 2 extremities.	4. No Impairment Responds to verbal commands. Has no sensory deficit which would limit ability to feel or voice pain or discomfort.					
MOISTURE degree to which skin is exposed to moisture	1. Constantly Moist Skin is kept moist almost constantly by perspiration, urine, etc. Dampness is detected every time patient is moved or turned.	2. Very Moist Skin is often, but not always moist. Linen must be changed at least once a shift.	3. Occasionally Moist: Skin is occasionally moist, requiring an extra linen change approximately once a day.	4. Rarely Moist Skin is usually dry, linen only requires changing at routine intervals.					
ACTIVITY degree of physical activity	1. Bedfast Confined to bed.	2. Chairfast Ability to walk severely limited or non-existent. Cannot bear own weight and/or must be assisted into chair or wheelchair.	3. Walks Occasionally Walks occasionally during day, but for very short distances, with or without assistance. Spends majority of each shift in bed or chair	4. Walks Frequently Walks outside room at least twice a day and inside room at least once every two hours during waking hours					
MOBILITY ability to change and control body position	1. Completely Immobile Does not make even slight changes in body or extremity position without assistance	2. Very Limited Makes occasional slight changes in body or extremity position but unable to make frequent or significant changes independently.	3. Slightly Limited Makes frequent though slight changes in body or extremity position independently.	4. No Limitation Makes major and frequent changes in position without assistance.					
NUTRITION <u>usual</u> food intake pattern	1. Very Poor Never eats a complete meal. Rarely eats more than 1/3 of any food offered. Eats 2 servings or less of protein (meat or dairy products) per day. Takes fluids poorly. Does not take a liquid dietary supplement OR is NPO and/or maintained on clear liquids or IV's for more than 5 days.	2. Probably Inadequate Rarely eats a complete meal and generally eats only about 1/2 of any food offered. Protein intake includes only 3 servings of meat or dairy products per day. Occasionally will take a dietary supplement. OR receives less than optimum amount of liquid diet or tube feeding	3. Adequate Eats over half of most meals. Eats a total of 4 servings of protein (meat, dairy products per day. Occasionally will refuse a meal, but will usually take a supplement when offered OR is on a tube feeding or TPN regimen which probably meets most of nutritional needs	4. Excellent Eats most of every meal. Never refuses a meal. Usually eats a total of 4 or more servings of meat and dairy products. Occasionally eats between meals. Does not require supplementation.					
FRICITION & SHEAR	1. Problem Requires moderate to maximum assistance in moving. Complete lifting without sliding against sheets is impossible. Frequently slides down in bed or chair, requiring frequent repositioning with maximum assistance. Spasticity, contractures or agitation leads to almost constant friction	2. Potential Problem Moves feebly or requires minimum assistance. During a move skin probably slides to some extent against sheets, chair, restraints or other devices. Maintains relatively good position in chair or bed most of the time but occasionally slides down.	3. No Apparent Problem Moves in bed and in chair independently and has sufficient muscle strength to lift up completely during move. Maintains good position in bed or chair.						
					Total Score				

PRESSURE SORE DATA COLLECTION QUESTIONNAIRE
SKIN ASSESSMENT TOOL (NURSE II)

Name _____ ID Number _____

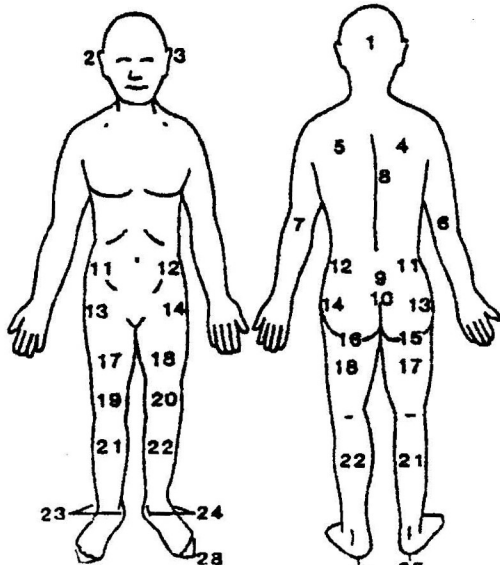
DATE OF OBSERVATION: _____
Month Day Year

ASSESSMENT SITE*

SKIN CONDITION

	<u>Size</u>	<u>Depth</u>	<u>Stage</u>
1) Back of head	_____	_____	_____
2) Right ear	_____	_____	_____
3) Left ear	_____	_____	_____
4) Right scapula	_____	_____	_____
5) Left scapula	_____	_____	_____
6) Right elbow	_____	_____	_____
7) Left elbow	_____	_____	_____
8) Vertebrae (upper-mid)	_____	_____	_____
9) Sacrum	_____	_____	_____
10) Coccyx	_____	_____	_____
11) Right iliac crest	_____	_____	_____
12) Left iliac crest	_____	_____	_____
13) Right trochanter (hip)	_____	_____	_____
14) Left trochanter (hip)	_____	_____	_____
15) Right ischial tuberosity	_____	_____	_____
16) Left ischial tuberosity	_____	_____	_____
17) Right thigh	_____	_____	_____
18) Left thigh	_____	_____	_____
19) Right knee	_____	_____	_____
20) Left knee	_____	_____	_____
21) Right lower leg	_____	_____	_____
22) Left lower leg	_____	_____	_____
23) Right ankle (inner/outer)	_____	_____	_____
24) Left ankle (inner/outer)	_____	_____	_____
25) Right heel	_____	_____	_____
26) Left heel	_____	_____	_____
27) Right toe(s)	_____	_____	_____
28) Left toe(s)	_____	_____	_____
29) Other (specify)	_____	_____	_____

*Assess and record each site each observation time. Mark site(s) on figure below.



Stage Key

- Stage 0 No redness or breakdown
- Stage 1 Erythema only: redness does not disappear for 24 hours after pressure is relieved
- Stage 2 Break in skin such as blisters or abrasions
- Stage 3 Break in skin exposing subcutaneous tissue
- Stage 4 Break in skin extending through tissue and subcutaneous layers, exposing muscle or bone
- Stage 9 Dark necrotic tissue. (Use this rating until tissue sloughs, then continue staging.)

Revised 3/2/89