# Lakeland Degional Medical Center

The Wound Care Center at Lakeland Regional Medical Center, Lakeland, Florida

The benefit of using a silver antimicrobial negative pressure dressing\* (Argentum Medical, LLC) when used with negative pressure wound therapy device was investigated for improved wound healing, decreased frequency of negative pressure wound therapy device dressing changes, and overall cost savings.

A retrospective case series of twenty patients, ten with ulcers treated with a negative pressure wound therapy device in comparison to ten patients with ulcers treated with negative pressure wound therapy device alone is presented.

Group one had ten patients with ten wounds. This group was treated with wound debridement at dressing changes and application of a KCI negative pressure wound therapy device and the silver anti-microbial negative pressure dressing every five days with four patients and every seven days with six patients. The wounds were located on the foot (7), leg (1), knee (1), and the back (1). Six of the patients were Diabetic with an average A1c of 9.06. The average days the wound was open before initiation of the KCI negative pressure wound therapy device and the silver anti-microbial negative pressure dressing was 70.6 days. The average days to wound closure was 50.5 days or 7.18 weeks. Using the negative pressure therapy cost savings analysis worksheet, located at www.silverlon.com/studies, the average total cost associated the wound care with of a KCI negative pressure wound therapy device and the anti-microbial negative pressure dressing was \$3919.56 and a total nursing time expenditure for dressing changes was 39.56 hours. Of special note patient two had this therapy in conjunction with hyperbaric oxygen therapy (Figure 1). This information is summarized in the chart.

Group two had ten patients with ten wounds. This group was treated with wound debridement at weekly physician visits and application of a KCI negative pressure wound therapy device every two days for all patients in this group. The wounds were located on the foot (7), ankle (1), leg (1), and the knee (1). Eight of the patients were Diabetic with an average A1c of 10.3. The average days the wound was open before initiation of the KCI negative pressure wound therapy device was 75 days. The average days to wound closure was 61.7 days or 8.8 weeks. Using the negative pressure therapy cost savings analysis worksheet, located at www.silverlon.com/studies, the average total cost associated the wound therapy device was \$5181.40 and a total nursing time expenditure for dressing changes of 55.58 hours. This information is summarized in the chart.

VAC	w/ Sil	ver	rlon	NPD									
						Days							
						open			Vac/NPD				
						before			changed	Dressing		Total	Nurse time
				Wound	Ave size	Vac	Days to	Weeks to	every "X"	changes/kits	Total	associated	Expended
Pts	Age	DM	A1c	location	cm sq.	started	closure	closure	days	per week	kits used	cost	minutes
SL1	44	У	11	Foot	9.6	35	46	6.6	5	1.4	9	3645.04	342
SL2	62	y	8.6	Foot	16	67	35	5.0	7	1	5	2680	190
SL3	62	У	9.2	Back	5	75	31	4.4	7	1	4	2372.4	272
SL4	74	Y	5.6	Leg	47	30	74	10.6	7	1	11	5667.6	418
SL5	54	У	10.8	Foot	11.7	105	62	8.6	5	1.4	12	4893.84	456
SL6	57	N	n/a	Foot	24	41	51	7.2	7	1	7	3901.2	266
SL7	57	N	n/a	Foot	40	78	39	5.6	5	1.4	8	3090.64	304
SL8	57	N	n/a	Foot	10.5	134	61	8.7	5	1.4	12	4830.28	456
SL9	76	Y	9.2	Foot	40	44	36	5.1	7	1	5	2754.6	190
SL10	91	N	n/a	Knee	6.9	97	70	10.0	7	1	10	5360	380
Ave	63		9.07		21.07	70.60	50.50	7.18		1.16	8.30	3919.56	327.40
		=											Total Min: 3274
VAL	ALUNI												Total Hrs: 39.56
V1	83	N	N/A	Foot	51	90	67.00	9.6	2	3.5	34	5630.8	364.8
V2		Y	8.8	Foot	10.25	42	31.00	4.4	2	3.5	15	2601.2	167
V3	63	y	10	Foot	81.48	102	74.00	10.6	2	3.5	37	6218.8	403
V4	67	Ý	12.2	Foot	30	75	54.00	7.7	2	3.5	27	4534.6	293
V5	72	Y	9	Foot	56	63	79.00	11.2	2	3.5	39	6627.6	426
V6	54	y	6.8	Foot	10.5	37	42.00	6.0	2	3.5	21	3528	228
V7	49	Ý	14	Foot	3	94	83.00	11.9	2	3.5	42	6976.2	452
V8	70	N	N/A	Ankle	5.4	51	47.00	6.7	2	3.5	23	3946.6	255
V9	60	Y	9.2	Foot	33.3	114	68.00	9.7	2	3.5	34	5710.6	369
V10	59	У	12.4	Leg	68.32	82	72.00	10.2	2	3.5	36	6039.6	388
Ave	64		10.3		34.925	75	61.7	8.8		3.5	30.8	5181.4	334.58
Silverlon N	PD (negative pres	ssure d	ressing)										Total Min: 3345



# **Case Series Presentation Of The Benefits Of A Silver Antimicrobial Negative Pressure Dressing When Used With A Negative Pressure Wound Therapy Device for Improved** Wound Healing, Decreased Negative Pressure Wound Therapy Dressing Changes, and Overall Cost Savings Authors: Dr. Jeffrey Karr, Dr. Fernando Loret de Mola, Dr. Tri Pham, Leslie Tooke RN

**Total Hrs: 55.58** 

# **CASE PRESENTATION**

A 91 year-old non-diabetic female (group 1, patient 10) presented with a painful, chronic infected knee prosthesis with two ulcers to deep facial tissue, episodically open for three years duration, now open for ninety-seven days (Figure 2). To date, the patient had had multiple incision and drainages as well debridement procedures. The patient was not a candidate to return to the operating room for revision surgery. Long term osteomyelitis management to date was oral doxycycline, rifampin, and fluconazole . Cultures revealed yeast and Enterococcus faecium. Wound management was initiated with ulcer debridement and KCI vacuum assisted closure (VAC) with silverlon antimicrobial negative pressure dressing was placed in apposition to the wounds covered by the wound vac. The addition of the silverlon antimicrobial negative pressure dressing decreased wound vac changes from three times a week to once a week. This decrease in dressing changes significantly decreased the patient's pain and cost of the wound care.

This patient progressed very well. The two ulcers were healed at 70 days after initiation of debridement and the wound vac with the silverlon antimicrobial negative pressure dressing which was used throughout the wound treatment. This patient has had no recurrence of the osteomyelitis or wounds. (Figure 3). She is functioning well and weight bearing without restrictions.





Figure 2: Initial knee wound with infected knee prosthesis presentation.

## **SUMMARY**

In summary, there was improved healing of the wounds 70.6 vs. 75 days, less negative pressure wound therapy device changes on average 1.16 vs. 3.5 kits per week, overall cost savings \$3919.56 vs. \$5181.4 total associated treatment cost, and less expended nurse 39.56 vs. 55.58 hours total treatment time with a silver antimicrobial negative pressure dressing with a negative pressure wound therapy device in comparison to the patients treated with treated

with the negative pressure wound therapy device alone.



### Reference

Barrows, Christina. Enhancing Patient Outcomes-Reducing the Bottom Line: The Use of Antimicrobial Soft Silicone Foam Dressing in Home Health. Home Health. Home Health. Home Healthcare Nurse: The Journal for the Home Care and Hospice Professional Issue: Volume 27(5), May 2009, p 279–284. Scanlon Elizabeth, et. al. Cost-effective faster wound healing with a sustained silver releasing foam dressing in delayed healing leg ulcers a health-economic analysis. International Wound Journal . Vol 2 No 2 2005. Braakenburg Assa, et. al. The Clinical Efficacy and Cost Effectiveness of the Vacuum-Assisted Closure Technique in the Management of Acute and Chronic Wounds: A Randomized Controlled Trial. Plastic and Reconstructive Surgery Volume 118, Number 2 August 2006



Figure 3: Healed knee wound.

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**Case Series Presentation Of The Benefits Of A Silver Antimicrobial Negative Pressure** Dressing When Used With A Negative Pressure Wound Therapy Device for Improved Wound Healing, Decreased Negative Pressure Wound Therapy Dressing Changes, and Overall Cost Savings

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Figure 1: Treatment with hyperbaric oxygen therapy



infected knee prosthesis presentation.

Figure 3: Healed knee wound.

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SUMMARY

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