

## **Procuring Free State-of-the-Art Health Care**

### **Supplies for Veterinary Use**

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**Abstract:** Animal treatment can benefit from the advances made in human health care yet the technology can be cost prohibitive. This article discusses a sampling of high-tech wound dressings that can be used in veterinary practices. It also presents the simple and effective methodology for obtaining free medical supplies from acute care facilities.

**Key Words:** veterinary, wound care, dressings, medical supplies, free supplies, outdated supplies, expired supplies, animal sanctuary, humane society

#### **Biographies:**

Ana Apostol volunteers as an Apprentice Elephant Keeper at the Oakland Zoo and works as a Veterinary Technician at a hospital in Marin, CA. She has a Master's in Philosophy from Cornell University and plans to attend veterinary school next year to study zoo and wildlife medicine.

Allison Marie Cleymaet is majoring in Integrative Biology at the University of California, Berkeley. She is interested in small animal and avian medicine and plans to attend Veterinary School within a year.

Michelle Hagopian holds a Bachelor's in Biological Sciences from the University of Southern California. She plans to attend veterinary school in the near future.

Ann Goody RN PhD is the Curator of the TAOS accredited Three Ring Ranch Exotic Animal Sanctuary in Kailua Kona HI. She cares for the hundred or so residents of the Sanctuary

along with her husband, Norm Goody MD. Information regarding the Sanctuary can be found at [www.threeringranch.org](http://www.threeringranch.org) Prior to her Curator position she was an emergency room nurse and Administrator of a home healthcare agency

**Article:**

Veterinary wound care management can benefit immensely from state-of-the-art interactive dressings available on the human wound care market, yet the cost of these high-tech supplies is often prohibitive especially when dealing with injured wildlife, unclaimed animals and strays. Policies in human wound care management, however, are such that hundreds of thousands of dollars worth of unopened supplies are discarded yearly. The Three Ring Ranch Exotic Animal Sanctuary has found a simple and effective way to obtain cutting edge wound care technology at no cost. Animal sanctuaries, humane societies, zoos and private veterinary practices can easily replicate this method.

A variety of published articles document the use of state-of-the-art human wound dressings in treating reptiles, mammals and birds. In many cases, without these expensive dressings, successful treatment of the presenting problems would not have been possible. In avian medicine, beak, head, and tail injuries have been effectively treated with hydrocolloid dressings such as DuoDERM® Extra Thin, hydrating gels such as Intrasite™ and Orabase® and transparent semi-permeable films such as Opsite™ (Cousqueer [I] 2007). These dressings decrease wound healing time, lessen the frequency of bandage changing and conform well to a variety of avian anatomy, all important features of wound dressings when rapid rehabilitation and release is the primary objective.

There are many documented cases in which interactive dressings have been used to repair cracked shells in Chelonians. Older methods of shell repair include epoxy, fiberglass and hoof or dental acrylic. While these techniques are still the best option in some cases, newer methods include artificial skin products such as Tegaderm™ or Opsite™ to promote and speed healing (Lewbart 2007). These transparent semi-permeable films have also been used extensively to facilitate non-surgical healing in a variety of other cases involving reptiles including tumor excisions, bite wounds and burn wounds (Fry 2007; LaBonde 2007; (Cousquer [II] 2007).

Human wound dressings have broad use in mammalian applications. A study published in the American Journal of Veterinary Research found that silicone dressings increase the rate and improve the quality of limb wound healing in horses as compared with more conventional dressings. The dressings inhibited the formation of exuberant granulation tissue while improving the quality of repairing tissue (Ducharme-Desjarlais et al. 2007). In a case involving severe fly strike on a giant lop rabbit, intensive lavage of the affected area was followed by the application of the hydrogel Intrasite™ to encourage debridement of necrotic tissue. The wound was then covered with Opsite™, a transparent semi-permeable dressing. This treatment protocol was repeated daily for the first few days, after which a more permanent dressing of Aquacel® and the hydrocolloid DuoDERM® Extra Thin was applied and left in place for eight days. These interactive dressings assisted in the formation of granulative tissue and allowed the bandages to be changed less frequently, which would not be possible with conventional dressings (Cousquer [III] 2007).

At the Three Ring Ranch Exotic Animal Sanctuary human wound dressings have been successfully used to treat a variety of animal wounds. Three case studies involving treatment of a reptile, avian, and mammal are discussed below.

## Reptile

An adult box turtle (*Terrapene Ornata*) presented with a large wound to the carapace due to a canine attack. The full thickness wound measured 6 X 4 cm and was accompanied by a number of bleeding chew marks around the edge of the shell. The puncture wound was irrigated with normal saline, cleaned with diluted Betadine® and rinsed again. It was then packed with Intrasite™, covered with a calcium alginate dressing and topped with Transpore™. Every seventy-two hours the wound was checked and the dressing was changed. After two weeks, the dressing was switched to DuoDERM®. Subsequent dressing changes occurred at Day 17, Day 31 and Day 61. Dressing changes with DuoDERM® were done every thirty days for eighteen months, at which time the wound had granulated to form smooth tissue. The turtle, Jamie Bondo, was fitted with a fiberglass shell patch. The patch is checked regularly and no problems have arisen. Jamie is now a resident at Three Ring Ranch.

## Avian

An adult male racing pigeon (*Columba livia*) presented approximately an hour after experiencing an anatomic skinning injury affecting both dorsal and ventral sides from crop to vent after having flown into a power line. The wound ranged from surface injury to full thickness, with muscle and crop exposure. The bird also suffered bilateral tibia-fibula fractures. The wound was prepared by removing peripheral feathers and irrigating with normal saline. The

surrounding skin was prepped with benzoin and the wound was covered with the silver sulfadiazine ointment Silvadene® and the hydrocolloid dressing Comfeel®. The dressing was changed once a week for approximately three months. During this time, the wound became progressively smaller as tissue granulation occurred. The avian, Kussasi, experienced total recovery and was returned to his owner.

## Mammal

An adult male sheep (*Ovis aries*) was presented forty-eight hours after a canine attack with multiple deep wounds to his ventral neck. Due to the delay in treatment, the sheep's wound was infected and the animal was suffering from myiasis. The area surrounding the wound was shaved and the wound was irrigated copiously with normal saline. It was then lavaged with a solution of diluted hydrogen peroxide and Betadine®, followed by a secondary rinsing with normal saline. The wound was filled with Intrasite™ gel, packed with calcium alginate gauze, and covered with Tegaderm™. Baza® ointment was applied as a moisture barrier to the surrounding skin and the entire dressing was held in place with Vetrap™ and changed daily. As the wound healed, treatment was switched to Silvadene® ointment and covered with Vetrap™. Approximately one month following injury, the sheep, Conan the Barbarian, experienced complete recovery.

A wide variety of advanced health care products are readily available to veterinary practitioners, however most do not fully utilize them due to the expense. Staff at Three Ring Ranch have found that expensive supplies are easily obtainable for free. Acquisition methods are simple, self-sustaining and cost effective.

In her twenty years as an emergency room Registered Nurse, the Curator of Three Ring Ranch witnessed outdated yet viable medical materials being discarded in the acute care setting. As Curator she developed a need for a regular supply of medical products to care for injured wildlife at the Sanctuary. Remembering the volume of discarded medical supplies, she contacted nurses, physicians and acute care facilities resulting in generous donations of outdated materials.

Efficacy studies show that outdated medical supplies are still usable. Wound dressings remain effective long past their expiration dates, thus medical supplies obtained at no cost, while often outdated or expired, are still suitable for veterinary use. Accrediting bodies in human medicine, such as the Joint Commission on Accreditation of Healthcare Organizations, require the removal of outdated materials from active stock, however expiration dates are in reality sell by dates. One study showed that sterilized medical equipment is sterile and thus usable five to ten years past the sterility expiration date (Rutala et al. 2006). The Shelf Life Extension Program (SLEP) conducted by the United States Department of Defense and the FDA investigated medication integrity and found that 88% of compounds retain potency for at least a year past expiration with the average extension time being 66 months. "The SLEP data supports the assertion that many drug products, if properly stored, can be extended past the expiration date" (Lyon et al. 2006). Human medical treatment policies require expiration dates but these do not speak to the efficacy of the materials.

Veterinarians and other animal care practitioners can easily establish and maintain relationships with materials donors. Initially, cold calling is a simple and effective method for obtaining supplies. Hospice, Wound, and Home Healthcare nurses are excellent sources of dressing, irrigation, and hydration supplies. The nurses themselves can explain the indications

and contra-indications of new products as well as suggest other sources to contact. Physicians often obtain samples from pharmaceutical and wound dressing representatives and may be willing to put together a box of materials. Pediatricians and family practitioners are an excellent source of pediatric dosed drugs such as Zithromax® and Augmentin™ which are easily transferable to animal use; orthopedists can provide dressings and irrigation supplies; optometrists may give out ophthalmic supplies; dermatologists may give out anti-fungals, germicidals, and anti-pyretics; dentists are a good source for oral washes and worn dental tools. Acute care hospitals can be one of your best sources for a wide variety of outdated medical supplies.

Pharmaceutical and wound care companies can be contacted directly for samples. Product sourcebooks, such as "WoundSource™, The Kestrel Wound Product Sourcebook" list contact numbers and websites for companies by region. Conditions and indications are matched to recommended dressings.

While writing this article, calls were placed to two home health agencies, two pharmacies, four private practice physicians, and two hospital purchasing departments (Central Supply). Most were able to give immediate answers as to whether they could or could not provide outdated supplies to an animal care agency; a few had to check with administration for authorization. Of the ten facilities contacted, eight were willing to scan stock for outdates and bag them for pick up. The larger hospitals agreed to begin a regular transfer of all outdated supply materials, including but not limited to: infusion, irrigation, operating room materials (sutures and trays) and dressings. Each source committed to bagging and saving outdates.

Although cold calling is simple and straightforward, it is important to be prepared by knowing what to ask for and being able to provide uses for the supplies requested. Build a rapport with the nurses by mentioning some of the animals that you will be able to treat with the donated supplies. When calling, request outdates and partially used boxes of products, explaining that outdated human supplies can be used to help save animals in humane societies and sanctuaries. If operating a private practice, let sources know that you are obtaining supplies for low income and elderly clients and for geriatric pets and strays. It is ideal to pursue a long-term relationship with physicians and head nurses by asking that a box be designated for outdated supplies. Be prepared to sort through collected supplies to recover those useful to your practice.

Two weeks after calls were made we had received approximately \$15,000 worth of medical supplies. Clearly this volume far exceeds what a small sanctuary or single facility would use. Thus, sharing between multiple agencies in a region makes the most sense. The Three Ring Ranch sorts materials as they are gathered and creates “Goody bags” for private practice veterinary physicians and humane societies. These supplies make veterinarians more able to treat feral animals and pets of low-income clients. By sharing, animal caregivers create and cement a support network in their community.

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## References:

[I] COUSQUER, G., World Wide Wounds, (accessed Aug 2007),

<http://www.worldwidewounds.com/2003/november/Cousquer/Avian-Wound-Management-Part-2.html>.

[II] COUSQUER, G., World Wide Wounds, (accessed Aug 2007),

<http://www.worldwidewounds.com/2007/february/Cousquer/Tortoise-Rat-Bite-Injuries.html>.

[III] COUSQUER, G., World Wide Wounds, (accessed Aug 2007),

<http://www.worldwidewounds.com/2006/february/Cousquer/Veterinary-Lop-Rabbit-Fly-Strike.html>

DUCHARME-DESJARLAIS, M; Céleste, CJ; Lepault, E; Theoret, C., American Journal of Veterinary Research, (accessed Aug 2007),

<http://avmajournals.avma.org/doi/abs/10.2460/ajvr.2005.66.1133?cookieSet=1&journalCode=ajvr>

FRY, TR., AccuVet, (accessed Aug 2007),

[http://www.accuvet.com/pdf/squamous\\_cell\\_carcinoma.pdf](http://www.accuvet.com/pdf/squamous_cell_carcinoma.pdf)LaBONDE, J., Michigan Veterinary Medical Association, (accessed Aug 2007),

<http://72.14.253.104/search?q=cache:IuDoLgkmGYMJ:www.michvma.org/documents/MVC%2520Proceedings/Labonde9.pdf+%2Breptile+%2Bsilvadene&hl=en&ct=clnk&cd=5&gl=us>

LEWBART, G., Atlantic Coast Veterinary Conference, (accessed Aug 2007),

<http://www.vin.com/VINDBPub/SearchPB/Proceedings/PR05000/PR00339.htm>

LYON, RC; Taylor, JS; Porter, DA; Prasanna, HR; Hussain, AS. 2006. 'Stability profiles of drug products extended beyond labeled expiration dates.' Journal of Pharmaceutical Sciences Vol 95 Issue 7:1549-1560.

RUTALA, WA; Morelli, MT; Weber, DJ. 2006. 'Letter to the Editor: Effects of long-term storage on sterility of medical supplies.' American Journal of Infection Control Vol 34 Issue 4:248

THOMAS, S., World Wide Wounds, (accessed Aug 2007),

<http://www.worldwidewounds.com/1997/july/Thomas-Guide/Dress-Select.html>

DRESSINGS !!!!!. org

## Appendix A: Tables

**Table 1- Examples of Human Dressing Use in Avian, Mammalian, and Reptilian Veterinary Medicine**

<b>Dressing Type</b>	<b>Uses<sup>1</sup></b>	<b>Selected Brands</b>	<b>Retail Cost</b>
Transparent Semi-permeable Films	Impermeable barrier, allows oxygenation, maintains moisture in wound bed. For use in non-infected, shallow wounds.	Opsite™ Flexigrid	Box of 100 - 2 3/8 x 2 - \$59.43
		Tegaderm™	Box of 10 – 8 x 12 – \$48.95
Hydrocolloids	For packing in deep wounds to encourage granulation. Keeps wound bed moist. Negates the need for frequent dressing changes. <sup>2</sup>	DuoDERM® Extra Thin	Box of 10 - 4 x 4 - \$49.00
		Comfeel®	Comfeel® Plus Clear Dressing - 3.5" x 5.5" - \$68.70
		Tegasorb™	Box of 6 - 6 x 8 - \$58.75
Hydrating dressing / gels	Encourages debridement of dry or necrotic tissue. Keeps wounds moist and absorbs mild exudates. Gels assist with application of topical antimicrobials.	Aquacel®	Box of 10 - 4 x 4 - \$70.35
		Intrasite™	Box of 10 – 8 gm per unit - \$88.95
Alginates	Fibrous dressings absorb moderate to heavy exudates. Not to be used on dry or necrotic tissue.	Kaltostat®	Box of 10 - 4 x 8 - \$168.74
		Calcicare™	Box of 10 - 4 x 4 - \$55.62
Wicking dressings	Some varieties are permeable to exudate. Serves as contact layer between absorbent dressing and skin. If kept moist, dressing will not adhere to deep wounds or burns. Other varieties absorb and retain exudate, encouraging granulation and auto-debridement of wound by maintaining a moist environment. May have potential for adherence.	Tegapore™	Box of 25 - 3 x 4 " - \$86.54
		Lyfoam®	Box of 30 – 2 x 2 - \$142.90
		Mesorb®	Pack of 10 – 20 x 25 cm - \$66.54

<sup>1</sup> For more information on the full gamut of human wound care, including indications, contra-indications, and methods of use, see [www.dressings.org](http://www.dressings.org) and [www.worldwidewounds.com/1997/july/Thomas-Guide/Dress-Select.html](http://www.worldwidewounds.com/1997/july/Thomas-Guide/Dress-Select.html)

<sup>2</sup> Whenever a long-term dressing is applied, it is suggested to shave or pluck surrounding tissue to prep and follow with benzoin.

Non Wicking dressings	Aids drainage of exudate from cuts, post operative wounds, and minor burns.	Melolite™	Box of 100 - 5 x 7.5 cm – \$28.49
Permeable tape	Air permeable, prevents skin maceration, and moderately tolerant of exposure to water. For use on non-flexing areas.	Micropore™	3" x 10 yards \$2.95
Other	Helps drain moist or infected wounds. Not to be used in sinuses or deep wounds.	Debrisan Paste™	Box of 6 - 10 g packets – \$8.45
	Topical antibacterial burn or abrasion ointment. Low risk of absorption into body.	Silvadene®	Silver sulfadiazine 1% - 85 gm - \$18.51; 400 gm - \$34.29

**Table 2- Supplies received as a result of cold calling with estimated total market value**

<b>Source</b>	<b>Supplies Received</b>	<b>Estimated Total Market Value (USD)</b>
Ophthalmologists	Ophthalmic Drops and Ointments	452.39
Wound Care Nurse	Dressings, Gels, Ointments, Alginates, Etc.	901.87
Dentist and Hygienists	Scrapers, Probes, Forceps, Misc.	553.62
Hospitals	Sutures, Irrigation, Hydration, Ointments, Dressings, Electrodes	12,875.87
	<b>Total</b>	<b>14,783.75</b>

**Table 3 – Web resources for supplies**

<b>Supply Source</b>	<b>Website</b>
Hospice	<a href="http://iweb.nhpco.org">http://iweb.nhpco.org</a> <a href="http://www.hospicenet.org/html/find.html">http://www.hospicenet.org/html/find.html</a>
Home Health Care Agency	<a href="http://www.medicare.gov/HHCompare/Home.asp">www.medicare.gov/HHCompare/Home.asp</a>
Ostomy Nurses	<a href="http://www.wocn.org/secure/Source/cDirectory/NurseRefSearch.cfm">http://www.wocn.org/secure/Source/cDirectory/NurseRefSearch.cfm</a>

## Product List

<b>Product</b>	<b>Manufacturer</b>	<b>Generic Name / Category</b>
Augmentin™	Global Community Partnerships GlaxoSmithKline One Franklin Plaza P.O. Box 7929 Philadelphia Pennsylvania 19101 USA	Penicillin
Aquacel®	ConvaTec, a Britsol-Myers Squibb Company ConvaTec Professional Services P.O. Box 5254 Princeton, New Jersey 08543-5254	Hydrating Gel
Baza®	Coloplast A/S Holtedam 1 DK - 3050 Humlebaek, Denmark	Moisture Barrier
Betadine®	Purdue Pharma 575 Granite Court Pickering, ON Canada L1W 3W8	Microbicide
Calcicare™	Hollister Limited Rectory Court 42 Broad Street Wokingham, Berkshire RG40 1AB	Alginate
Comfeel®	Coloplast A/S Holtedam 1 DK - 3050 Humlebaek, Denmark	Hydrocolloids
Debrisan Paste™	Pharmacia & Upjohn Limited Hatton House Hunters Road Weldon North Estate Northants NN17 5JE UK	Necrotic wound draining
DuoDERM® Extra Thin	ConvaTec, a Britsol-Myers Squibb Company ConvaTec	Hydrocolloids



	Professional Services P.O. Box 5254 Princeton, New Jersey 08543-5254	
Intrasite™	Smith & Nephew Pty Limited 315 Ferntree Gully Road PO Box 242 Mount Waverley Victoria 3149 Australia	Hydrating Gel
Kaltostat®	ConvaTec, a Britsol-Myers Squibb Company ConvaTec Professional Services P.O. Box 5254 Princeton, New Jersey 08543-5254	Alginate
Lyof foam®	ConvaTec, a Britsol-Myers Squibb Company ConvaTec Professional Services P.O. Box 5254 Princeton, New Jersey 08543-5254	Wicking dressing
Melolite™	Smith & Nephew Pty Limited 315 Ferntree Gully Road PO Box 242 Mount Waverley Victoria 3149 Australia	Non Wicking dressing
Mesorb®	Mölnlycke Health Care AB Box 130 80 GÖTEBORG SE-402 52	Wicking dressing
Micropore™	3M United Kingdom PLC 3M Centre Cain Road Bracknell RG12 8HT	Permeable tape
Opsite™ Flexigrid	Smith & Nephew Pty Limited 315 Ferntree Gully Road PO Box 242 Mount Waverley	Transparent Semi- permeable Films

	Victoria 3149 Australia	
Orabase®	Colgate-Palmolive Company 300 Park Avenue New York, NY 10022	Soothing and Protecting Paste
Silvadene®	King Pharmaceuticals,® Inc. 501 Fifth Street Bristol, Tennessee 37620	Silver Sulfadiazine
Tegaderm™	3M United Kingdom PLC 3M Centre Cain Road Bracknell RG12 8HT	Transparent Semipermeable Films
Tegapore™	3M United Kingdom PLC 3M Centre Cain Road Bracknell RG12 8HT	Wicking dressing
Tegasorb™	3M United Kingdom PLC 3M Centre Cain Road Bracknell RG12 8HT	Hydrocolloids
Transpore™	3M United Kingdom PLC 3M Centre Cain Road Bracknell RG12 8HT	Surgical Tape
Vetrap™	3M United Kingdom PLC 3M Centre Cain Road Bracknell RG12 8HT	Adhesive Tape
Zithromax®	Pfizer 235 East 42nd Street NY, NY 10017	Macrolide antibiotic