

Palliative Care





Compounding can support and improve quality of life

by Nat Jones, RPh, FIACP

If you think about it, we're all dying. Most of us prefer later rather than sooner and to enjoy life as much as possible between now and then, but as the end draws near everyone appreciates gentle care when the going gets tough. That's when pharmacists can play a special role in delivering relief to those who need palliative care.

Confusion exists about the meaning of palliative care. Many organizations have defined it, including the American Cancer Society, Center to Advance Palliative Care, and the Joint Commission, to name several, but there is no consensus. Like many medical terms, it has a Latin root; in this case, *palliatus*, meaning to cloak or conceal pain and other suffering. Palliative care is frequently confused with hospice, and when most people hear hospice they think of death and dying. Palliative care

can begin years before hospice is needed, dealing with a myriad of problems faced by the patient and the family.

In the United States, hospice is a Medicare benefit defining a special way of caring for people in the late stage of terminal illness, where curative therapies are no longer used. In contrast, palliative care is an approach that improves the quality of life for patients and their families facing serious illness that can be life-threatening, though *not necessarily* terminal. Palliative care is most effective through the prevention and relief of suffering by means of early treatment of pain and other physical, psychosocial, and spiritual problems. It may be delivered in conjunction with disease state management and life-prolonging and often curative therapies. It can also be a transition toward hospice.

Because of the confusion between the terms 'palliative care' and 'hospice care,' patients often experience late referrals and late acceptance of palliative care for themselves and/or their families, thus depriving them of the numerous benefits of palliative care because serious illness can affect everyone in the family in various ways. Many providers of palliative care prefer the term "supportive care" to take away the "end of life" connotations associated with hospice, so that patients will potentially seek help sooner. The current components of palliative care service are supportive care and hospice care.

SUPPORTIVE CARE

Supportive care includes treatment of many medical conditions, including almost every aspect of adult medicine. Compounded medications can be

helpful for many of these conditions, potentially encompassing thousands of formulations. Compounding pharmacists can offer knowledge and expertise in preparing medications that are not commercially available, yet needed. By educating practitioners about the myriad of compounded medication options, compounders can provide drug therapies from which patients can benefit. Quite often, compounds can improve compliance and outcomes by utilizing drug combinations and/or unique formulations to individualize treatment.

Supportive care compounds include a wide variety of dosage forms for potential treatments that may be of benefit in a large number of disease states and for symptomatic relief. (See Table 1.)

Cancer patients undergoing chemotherapy and/or radiation commonly develop mucositis or suffer radiation damage to the oral cavity. Many of the familiar compounded formulations (such as Miracle Mouthwash and Stanford Mouth Rinse) can now be reformulated following the development of a mucoadhesive suspension (MucoLox™) base that potentially prolongs contact time of the active ingredients with the oral mucosa, which could lead to decreasing dosage volume (less than half that of traditional rinse formulas) and frequency, yet still improve outcomes. Formulas for oral use even include popsicles for a cryotherapy component. (See formulation examples in Table 2.) Treating mucositis, radiation damage, and mouth pain will make it easier for the patient to maintain intake of nutritious food. Poor nutrition and wasting are detrimental to the survival of seriously ill patients.

Xerostomia is another common problem that palliative care patients face. Compounding formulas treating xerostomia are in demand because

Table 1: Supportive Care Compounding Dosage Forms

Oral	- Capsule: prompt and slow release - Mucoadhesive rinses, paste, and gels - Ready dissolve tablets and tablet triturates - Solutions or suspensions - Popsicles and lollipops
Rectal	Suppositories, enemas, and Rectal Rockets (including mucoadhesive formulas)
Vaginal	Suppositories, inserts, gels, and creams (including mucoadhesive formulas)
Topical	Creams, ointments, gels, solutions, and foams (including otic and nasal dosage forms)
Transdermal	Creams and gels
Sterile	Injectables, ophthalmics, and irrigations (bladder, wound, and nasal)

Table 2: Oral Supportive Care Compound Formulations

Tetracycline Hydrochloride USP 1.25% /Nystatin USP 12,000u/ml/ Hydrocortisone USP Micronized 0.046% / Diphenhydramine Hydrochloride USP 0.125%/Preserved Water/ MucoLox Mouthwash
Lidocaine HCl 1%/Beta Glucan 0.5%/Dexpanthenol 1%/ Vitamin E Acetate 2%/ Glutamine 2% Popsicle (MucoLox)
Xylitol 7%/Betaine 4%/Olive Oil 2%/Calcium Pantothenate 0.1% Oral Rinse (MucoLox)
Doxepin HCl 0.5% Mouthwash (MucoLox)

there is a lack of efficacious products commercially available. Data suggest that the daily use of topical dry mouth products containing olive oil, betaine, and xylitol is safe and effective in relieving symptoms of dry mouth in a population with polypharmacy-induced xerostomia. Additionally, mouth pain is a widely seen symptom in head and neck cancer patients and is often difficult to treat. Doxepin rinse has shown to be beneficial in treating mouth pain in these patients. (See formulation examples in Table 2.)

Complications from radiation therapy can be dermatitis or burns. Radiation damage is in part mediated by oxidative free radicals. Melatonin is a unique potent anti-oxidant. A melatonin emulsion significantly reduced

skin toxicity from radiation therapy for breast cancer, according to results of a small randomized trial. One example of a topical formulation is melatonin 2.5%/beta glucan 0.5% topical cream (XemaTop™). XemaTop is a ceramide-containing barrier cream base, designed for compounding pharmacists to incorporate additional ingredients when needed. Ceramide containing barrier creams have shown to help reduce transepidermal water loss.

Wound care is also needed for many palliative care patients. Choosing the proper therapy for the type of wound is a key to successful treatment. Wound care compounding bases have evolved in recent years. The choice of active pharmaceutical ingredients (APIs) and

an appropriate compounding base for the wound are essential for a positive outcome. Older formulas used simple emollient cream bases that proved difficult to debride with bandage changes. Polyox 301 bandage is a dry powder useful in exudative wounds (such as venous stasis ulcers) when cream or gel bases may simply run off. Spira-Wash™ is a soft, opaque polyethylene glycol (PEG) water-washable ointment base, thus making it an ideal vehicle choice for a variety of wound conditions such as decubitus ulcers (including debridement), pressure ulcers, burns, sores, and cuts. Topical phenytoin, misoprostol, and nifedipine have been studied and shown to improve wound healing. Innovative formulations such as phenytoin 5%/misoprostol 0.0024%/nifedipine 2%

Spira-Wash Gel are being prescribed by physicians for wound care.

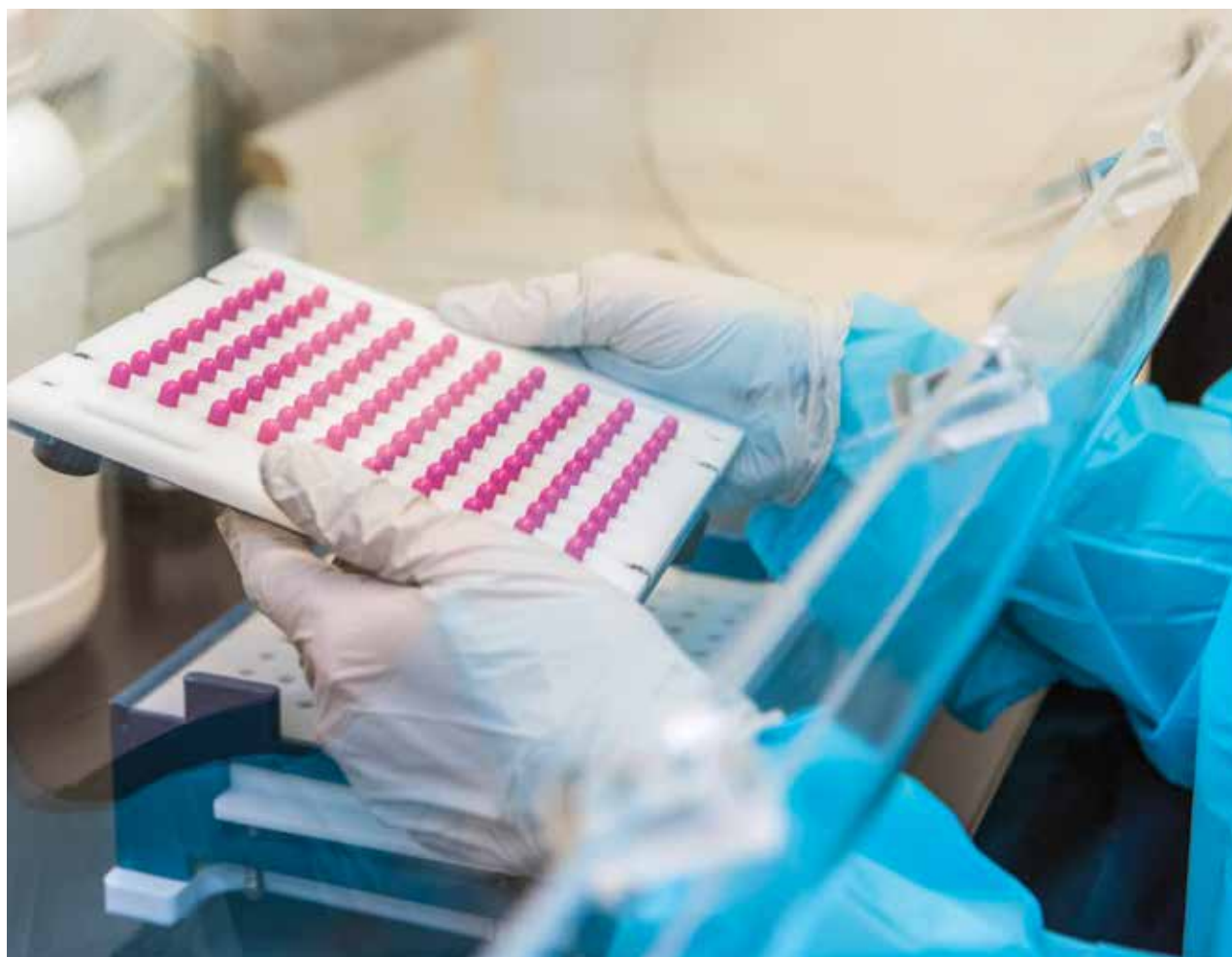
TREATING POST-SURGICAL SCARS

A lot of patients survive cancer and are left with scars inside and out. While compounders can't do much for the psychological scars, they can help improve the appearance of many of those on the outside. A unique compounding base called PracaSil-Plus™, made with a proprietary blend of ingredients, including silicones in a semipermeable polymer network and Pracaxi oil (which is rich in skin-friendly fatty acids and lipids), has been helping to make a huge difference for patients with scars, including post-surgical cancer scars. Silicone gel has been studied for years and has

shown to be an adjunct for various scar treatments. PracaSil-Plus is ideal for the incorporation of appropriate APIs to treat various aspects of scars. Proper selection of APIs depends on the type and location of scar and is essential for a good outcome.

SCAR TREATMENT CASE STUDY

In 2015, *PCCA Science* published a case study of the management of a post-surgical scar using PracaSil-Plus in a 41-year-old white male patient with basal cell carcinoma as a solitary patch at the tip of his nose. Basal cell carcinoma is a type of skin cancer that often leads to surgical excision of the affected area, which results in destruction of the tissues and skin scarring. Graft skin was taken from the patient's forehead to patch the





Compound medications helped in treating scars from a patient with skin cancer on his nose. Skin was taken from his forehead to cover the tip of his nose. He is shown (clockwise from below) immediately following his surgical procedure, 60 days post-op, 11 months post-op, and at present.

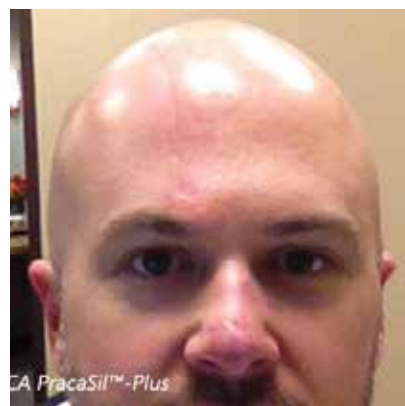




Table 3: Hospice Care Compound Formulations

Ketamine 10%/Gabapentin 6%/Clonidine 0.2%/Ketoprofen 10% Topical Lipoderm—commonly prescribed for pain

Lorazepam 1 mg/mL/Diphenhydramine HCl 12.5 mg/mL/Haloperidol 2 mg/ mL/ Metoclopramide 20 mg/mL Topical Lipoderm—commonly prescribed for agitation, nausea and vomiting

Lorazepam 1 mg/Diphenhydramine HCl 12.5 mg/Haloperidol 2 mg/Metoclopramide 20 mg Base MBK Suppository—commonly prescribed for agitation, nausea and vomiting

Metronidazole Polyox™ Bandage Powder—commonly prescribed for wound odor

Scopolamine Hydrobromide 0.25 mg/0.1 mL Topical Lipoderm—commonly prescribed for nausea/vomiting and/or dizziness

tip of his nose. Following five days of bacitracin ointment application immediately post-op, the patient began applying PracaSil-Plus twice daily starting after wound closure. There were no actives added for this patient. However, several actives can be added depending on the type of scar and the patient's scarring tendencies (such as atrophic, hypertrophic, and keloid).

The patient's evaluation parameter scores all decreased, including pain, itching, color, stiffness, thickness, and irregularity. His overall appearance

demonstrates a successful recovery process and a considerable improvement in the patient's quality of life.

TREATING RADIATION PROCTITIS

Patients undergoing radiation therapy of the cervix, prostate, and colon often experience radiation proctitis (RP). Radiation therapy causes production of matrix metalloproteases (MMPs) and reactive oxygen species (ROS) that cause tissue degradation and damage to the endothelial lining of the rectum, leading to symptoms

that include inflammation, pain, bleeding, and diarrhea. The diarrhea from RP is commonly treated with oral opioid receptor agonists. Loperamide and diphenoxylate are opioid-receptor agonists that interfere with peristalsis by a direct action on the circular and longitudinal muscles of the intestinal wall to slow motility. Both may directly inhibit fluid and electrolyte secretion and/or increase water absorption.

Researchers have found that the recto-anal inhibitory reflex is most pronounced when stimulated in regions close to the anal canal and that distention stimuli are also perceived best in that region. Both effects are counteracted by loperamide, and since stimulation of the inhibitory reflex is a pronounced local phenomenon, then local treatment seems logical. This possibly implies that a formula of loperamide HCl 1 mg/Gm rectal gel (MucoLox/VersaBase®) may be an alternative to oral opioid therapy, potentially providing symptomatic relief without the systemic side effects.

Repairing the damage caused by ROS to the rectal lining will benefit patients with radiation proctitis. Studies have shown that β -(1-3)-D-glucan has the ability to activate macrophages to aid in the removal of cellular debris resulting from oxidative damage, thus allowing for faster tissue recovery. A formula containing lidocaine HCl 1%/beta glucan 0.5%/dexpantenol 1%/glutamine 2% rectal suspension enema in MucoLox contains several ingredients that may potentially help with recovery. Glutamine has been used orally for healing of the GI tract after radiation treatment, and dexpantenol helps improve hydration of epithelial tissue, so both ingredients are included along with lidocaine for pain.

HOSPICE CARE COMPOUNDS

Hospice care compounds are treatments for end of life to ease

suffering in any way needed. Those needs would include treatment of pain, nausea and vomiting, anxiety, agitation, wound odor, and excessive secretions (sialorrhea). (See formulation examples in Table 3.) Because many hospice patients can't swallow medications or receive IV therapies, transdermal or rectal dosage forms for are often needed. Lipoderm®, a transdermal delivery system, was developed to facilitate delivery of single or multiple APIs through the skin.

Another aspect of hospice care, with few commercially available options, is for patients with persistent cough that are struggling with dyspnea. For decades, morphine inhalation

therapy has been used as an option for these patients, as this commonly occurs in end-stage chronic lung, cardiac disease, and cancer patients. Formulations such as sterile preservative-free morphine sulfate 0.25% inhalation solution (or higher concentrations) compounded from bulk Morphine Sulfate USP powder, have been used in cases for titration of symptom control.

If your pharmacy currently compounds and isn't presently involved in palliative care, find the medical providers in your area that are and educate them about the services you offer. Contact the hospitals in your area and become involved with their supportive

and palliative care team. Let them know you are available for their outpatients and home hospice patients with all of these valuable/innovative things that can help bring individualized patient care and improved quality of life.

Pharmacies that don't currently compound and are interested in doing so can find out what it takes to properly perform compounding in their state and start the process of becoming a compounder. Supportive care and hospice care are two of the many rewarding and needed segments of compounding. ■

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