



Secundum Artem

*Current & Practical Compounding
Information for the Pharmacist.*

COMPOUNDING FOR HOSPICE PATIENTS

GOALS AND OBJECTIVES

Goal: To provide compounding pharmacists supportive information on compounding for the hospice patient along with specific formulas for the treatment of patient symptoms.

Objectives: After reading and studying the article, the reader will be able to:

1. discuss the purpose of hospice care.
2. describe the rationale for hospice care and the focus of treatment.
3. list the primary symptoms experienced by the terminally ill hospice patient.
4. recommend specific formulations that might be of benefit in treating the symptoms experienced by hospice patients.

INTRODUCTION

In recent years, there has been a growing interest in the subject of the care of individuals at the end of their lives. The aging population is growing at an increasing rate owing to postwar demographic trends and advances in medical treatment. Individuals want to live as long as possible, but also want to be free from the indignities of advanced age and to continue to live as a young person. It appears there must be a certain quality of life in old age or else a quick death.

BACKGROUND

In the past century, the experience of dying has been transformed from a part of daily life to a highly technological event. Before the use of antibiotics and modern medicine, people died at a younger age and with less forewarning. Healthcare practitioners could do little but visit and attend to the dying by helping to relieve some of their suffering. Today however, with all the great advances in modern medicine, many diseases are diagnosed early; with new technology and pharmaceutical agents, patients may live for an extended period of time before dying. Post WWII individuals were often sent to hospitals or institutions to die. Today, we know that many prefer to spend their last days at home with family.

The hospice movement was actually established in the 11th century by the Crusaders. They established places where travelers going to and returning from the Holy Land were cared for and refreshed, the sick and dying were also admitted and cared for. The Knights Hospitallers of St. John of Jerusalem, founded a "way station" in Jerusalem for sick and weary pilgrims that was extended to Tyre, Acre and eventually to Cyprus. The Hos-

pitallers were recognized by the Pope as a military order in 1113 and they can be traced throughout history. The Irish Sisters of Charity founded Our Lady's Hospice for care of the dying in Dublin prior to 1900. Hospice came to North America in 1971 where it began in New Haven, Connecticut, and a home care service began there in 1973. The hospice movement began to spread throughout the US in the mid-1970s. It is estimated that there are now approximately 2,900 hospices in the US serving about 450,000 patients; there has also been considerable growth in European hospices since the fall of Soviet Communism.

DEFINITIONS

"Hospice" is a term that is not very clear and has different meanings to different people. Some believe hospice is a place to die, some associate it with the word "death" and some think of it as a place of providing both competent and compassionate care; care provided to people facing death by people unafraid to face death.

Hospice can be an ambiguous word, which offers some advantages. It often allows us the opportunity of explaining what we mean. It can be said that it is a metaphorical term, alluding to death indirectly through the comparison of a "way station" on life's last journey. Hospice patients include mostly the elderly, but also encompasses individuals of all ages; there are now hospices that specialize in the care of the dying child. Hospice comes from the Latin word *Hospitium*, meaning hospitality, and from the old French word *Hospes*, or host. In dictionaries, one may read of a definition of hospice as a shelter or lodging for travelers, children, or the destitute, often maintained by a monastic order. Today, the word hospice is used to describe a program of care for individuals and their families facing a terminal illness. The National Hospice Organization (NHO) defines hospice as: "a coordinated program providing palliative care to terminally ill patients and supportive services to patients, their

families, and significant others 24 hours a day, seven days a week. Comprehensive/case managed services based on physical, social, spiritual, and emotional needs are provided during the last stages of illness, during the dying process, and during bereavement by a medically directed interdisciplinary team consisting of patients/families, health care professionals and volunteers. Professional management and continuity of care is maintained across multiple settings including homes, hospitals, long term care and residential settings.”(NHO, 1993).

NATIONAL HOSPICE ORGANIZATION

The NHO was founded in 1978 during which 1,200 hospices were listed in the directory. The U.S. hospice movement was distinctly oriented toward home care, as most Americans surveyed showed a preference for dying in their homes.

Some characteristics of U.S. hospice care are evident and include the following:

- ◆ The patient and family are the unit of care.
- ◆ Care is provided either in the home or in inpatient facilities.
- ◆ Services are available on a 24 hours a day, 7 days a week basis.
- ◆ Hospice care is interdisciplinary.
- ◆ Hospice treats the whole person.
- ◆ Symptom management is the focus of treatment.
- ◆ Pharmacists play a major role in hospice care as relief of symptoms generally requires pharmaceuticals.

Hospice care focuses on the physical comfort of its patients. Control of symptoms is paramount and includes control of pain, nausea/vomiting and bowel function, maintaining an alert mind, intact skin and the relief of breathlessness.

WORKING WITH HOSPICE PATIENTS

Dying generally involves the loss of being a healthy person, of being able to work, of being with friends, of being able to care for oneself, of a future, etc. Each individual handles these aspects of life in their own way.

In working with hospice patients, one must always remember that the patient sets the agenda. Hospice workers cannot impose their ideas and wishes or force the person to respond. Working with the dying demands great tolerance and patience.

Hospice patients usually fear the dying process more than death itself. Dying is often equated with suffering; to face death often means one must face interminable suffering. Hospice care assists in minimizing suffering during dying. Today, nearly all hospice patients are free of physical pain in the time leading up to their deaths. There is a point in the care of a hospice patient where the focus of care shifts to the goal of comfort, and no longer healing. That focus is not to fight for a cure but to simply live as fully as possible for as long as possible; to do this, the patient must be relieved of distress.

SYMPTOM MANAGEMENT

Care of the hospice patient generally centers around symptom management and helping the patient to be more comfortable. The following questions can be considered in evaluating the nature and severity of symptoms experienced by the patient.

1. How do the symptoms affect the patient's life?
2. How do the symptoms affect the patient's physical function and mobility?
3. What makes the symptoms better (i.e.; position, activity, medicine, food)?
4. What makes the symptoms worse?
5. Are the symptoms worse at any particular time of day or night?

The most common symptoms experienced by patients include pain, nausea/vomiting, dyspnea, constipation, diarrhea, hiccups,

anorexia, cachexia, anxiety, confusion, asthenia, oral hygiene problems, decubitus ulcers and symptoms associated with impending death.

Pain

Generally, the first symptom to relieve distress is associated with pain. Pain is what the patient says is pain. It is subjective, multidimensional and can include psychological, social and spiritual aspects. Pain can be either chronic or acute; generally the pain becomes chronic in nature.

Proper control of pain requires an assessment of the type of pain that the patient experiences. There are many different pharmacological agents that can be used to treat different types of pain; somatic, visceral and deafferentiation pain.

Pain medication must generally be given around the clock. It is generally given in anticipation of pain, not necessarily in response to pain. The patient must have flexibility in dosing so that a baseline level of pain relief is obtained with the opportunity of immediately addressing “breakthrough” pain. In many cases, long-acting products are used where the proper dosage is determined by titrating the patient and allowing the patient to use immediate acting products for “breakthrough” pain. If the use of the immediate release products becomes more frequent, the dose of the long acting products is usually increased. Also, one must learn that there is usually no such thing as an “over-dose”. The dose of the analgesics used should relieve the pain and not cause sedation and side effects.

Generally, the patient is asked to rate their pain on a scale of 0 through 10, where 0 is being free of pain and 10 is the worst imaginable pain. Although most patients would prefer to be free of pain, many are quite content with maintaining the pain at about 3 or below on this scale.

Nausea/Vomiting

Nausea and vomiting occur in a reported 60% of terminal cancer patients, but these symptoms tend to be intermittent. Nausea can be due to drug side effects, oral thrush, brain metastases, anxiety, gastric irritation, intestinal obstruction, constipation, small stomach syndrome, hypercalcemia, uremia and a low-grade urinary tract or pulmonary infection. It usually has more than one cause. Appropriate routes of administration of anti-nauseants include parenteral, rectal and transdermal.

Drug therapy has included neuroleptics (haloperidol, prochlorperazine), antihistamines (cyclizine, hydroxyzine, dimenhydrinate), anticholinergics (hyoscine), prokinetics (metoclopramide, domperidone, cisapride), 5HT3 antagonists (ondansetron, granisetron), corticosteroids (dexamethasone) and benzodiazepines.

Dyspnea

The incidence of dyspnea in advanced malignancies can range from 48-79% in patients. It is a frequent part of the dying process and can be due to multiple causes, including anemia, ascites, bronchospasm, cardiac failure, lung collapse, lung infection, pericardial effusion, pleural effusion, pneumothorax, pulmonary emboli and superior vena cava obstruction. The treatment varies depending upon the etiology and the condition of the patient, but can include bronchodilators, corticosteroids, sedatives and oxygen.

Constipation

Constipation is a frequent complaint and may be related to the use of narcotics for pain management. In addition to drug use (narcotics, diuretics, anticholinergics, aluminum-containing antacids), other causes of constipation include a low-fiber diet, failure to heed the urge (due to lack of privacy or incorrect positioning) or reduced defecation (possibly due to anal fissure or hemorrhoids), dehydration, depression and hypercalcemia. Generally, patients should go no more than three days without a bowel movement. Laxative treatment should include both a

fecal softener and a stimulant laxative. Generally, bulk-type laxatives should not be used as they may lead to impaction.

Diarrhea

Causes of diarrhea may include steatorrhea (due to malabsorption of fat), malignant intestinal obstruction, laxative imbalance, rectal tumor, fecal incontinence due to lack of sphincter control and a carcinoid tumor.

Hiccups

Hiccups are a reflex that results from irritation of the vagus nerve or by stimuli from other parts of the central nervous system. The reflex is processed in the brain stem and is inhibited by increased carbon dioxide in the blood and by stimuli from the pharynx. It can be caused by irritation of the vagus nerve, irritation of the phrenic nerve and by the central nervous system. Drug therapy can be implemented with an antacid preparation with dimethicone; every 4-6 hours. If not effective, metoclopramide (10-20 mg every 4-6 hours) or cisapride (20 mg every 12 hours) can be added. If it persists, baclofen (5-10 mg every 6-12 hours) can be substituted for the metoclopramide. The rationale is that the antiflatulent drugs facilitate belching, reducing gastric distension; metoclopramide hastens gastric emptying, and baclofen relaxes the diaphragm. Other drugs that have been used include chlorpromazine, haloperidol, phenytoin, sodium valproate, carbamazepine and nifedipine.

Anorexia

The majority of hospice patients experience a loss of appetite (anorexia) as their illness progresses. Taste abnormalities are relatively common in seriously ill patients and the body needs less intake when it is inactive. Some causes are reversible, but progressive anorexia is a natural part of dying. Other factors that may contribute include chemotherapy, radiation therapy, oral thrush, constipation, nausea, hyponatremia, hypercalcemia, chemotherapy and depression. Corticosteroids have been used to increase appetite.

Cachexia

The extent of muscle wasting and weight loss during cachexia is much greater than would be expected simply from reduced food intake alone. Also, cachexia is not reversed by increased food intake. Causes of cachexia include vomiting, diarrhea, malabsorption, reduced food intake, hemorrhage, ulceration, increased metabolic rate, abnormal metabolism, surgery, chemotherapy, radiation therapy, starvation and diabetes mellitus. Therapy has included corticosteroids, progestogens, prokinetic drugs (metoclopramide) and parenteral and enteral nutrition.

Anxiety

Anxiety is a normal reaction in most patients; however, some patients have a severe and prolonged reaction to the physical effects of the illness and its potential implications for the future. The realization that death is approaching may cause feelings of regret, missed opportunities and guilt and fear of suffering of what happens after death. Causes can be fear of the illness/treatment, thoughts about the past/future, worries about family/finances, incomplete or conflicting information from health-care workers/family, loss of independence, pain, dyspnea, nausea, weakness, drugs (neuroleptics, stimulants, corticosteroids), drug withdrawal (alcohol, benzodiazepines), depression, delirium and paranoia. Drug therapy has included antidepressants, benzodiazepines, antipsychotics and propranolol.

Confusion

About 30% of cancer patients will experience confusion at some point during their illness which may be a result of drugs, full bladder, pain, impaction, brain metastases, infection, metabolic imbalance, anxiety, withdrawal from alcohol or benzodiazepines and delirium. Many drugs, including psychoactive drugs, diuretics, beta blockers, anti-Parkinsonism drugs and sulfonamides can also cause confusion.

Asthenia

The loss of energy, generalized weakness and rapid tiring during exercise are common symptoms of terminal illness and may be a part of the anorexia-cachexia syndrome. It may result from illness (anorexia, inactivity, anemia, hyponatremia, hypoadrenalism, renal/liver failure), be cancer-related, treatment related (surgery, chemotherapy, radiation therapy, drugs-diuretics, antihypertensives or oral hypoglycemics), or result from infection, dehydration, malnutrition and starvation. Drug therapy for asthenia is limited but has included corticosteroids and progestogens.

Oral Hygiene

Routine oral hygiene can prevent discomfort, facilitate eating/drinking, prevent halitosis, minimize social isolation and psychological distress; ensure that the oral mucosa and lips are moist, clean and healthy, and remove debris and plaque from the teeth/gums.

Toothbrushes and dental floss (if practical) should be used at least twice daily. A mouthwash can be used every two to four hours. Petroleum jelly will help prevent dry, cracked lips and should be applied regularly in a thin layer at least twice daily.

Dry mouth can be relieved by drinking fluids, chewing gum, taking pilocarpine, using artificial saliva and using non-alcoholic mouthwashes. Candidiasis can be treated using a nystatin mouthwash or by taking oral ketoconazole or fluconazole.

Aphthous ulcers are painful and can be treated using tetracycline suspension mouthwash (250 mg in 10-20 mL of water in mouth for three minutes then expectorated; repeat every eight hours for three days), chlorhexidine gluconate mouthwash (0.2%; rinse with 10 mL every eight hours) and hydrocortisone lozenges (2.5 mg every eight hours). Local analgesic agents can be provided as needed.

Decubitus Ulcers

Pressure on the skin and tissues in contact with a chair, bed or other surface can result in decubitus ulcers. When healthy, we minimize the pressure by changing position; in the immobile patient however, damage can develop in a matter of a few hours. The earliest sign is redness (blanching erythema), followed by non-blanching erythema, partial-thickness skin loss, and then an established ulcer (a deep crater with full-thickness skin loss and damage to subcutaneous tissue).

A number of different compounded medications are commonly used for treating decubitus ulcers including such drugs as topical protectants, phenytoin and misoprostol.

Impending Death

Symptoms of impending death usually include a lowered body temperature, increased somnolence, confusion, incontinence, congestion in the lungs or throat, restlessness, withdrawal or detachment from others, visionlike experiences, decreased intake of fluid and foods, decreased urine output and changes in breathing.

PHARMACIST INVOLVEMENT IN HOSPICE

Caregivers are usually faced with the following types of procedures or conditions, some of which can be taught or alleviated by the hospice pharmacist: medication administration, catheter care, bleeding management, dressing changes, colostomy care, constipation, approaching death care, dehydration, diarrhea, elevated temperature, infection control, durable medical equipment operation, hospital bed change, body mechanisms to avoid injury, intravenous therapy, mouth care, nausea, oral and nasopharyngeal suction, oxygen safety, relaxation, seizure precautions, skin care, tracheostomy care and pain management. Hospice care is one of the most challenging parts of pharmacy practice. It must function as a noble expression of humanity and sincerity, but yet must be run as a business so care can also be provided to others. News media stories often result when the "business" side of hospice overshadows the "patient" side; to complicate matters more, government is in the picture now and seems intent on addressing primarily the "business" aspects of hospice care. Hospice care has now become managed care; if the providers spend less than they collect, they

make a profit. If they spend more than they collect, they experience a loss. The question of how to balance adequate and sympathetic patient care with the business/government aspects remains a challenge.

NOTES RECEIVED BY HOSPICE COMPOUNDING PHARMACISTS

Pharmacists routinely receive accolades from family and friends of hospice patients; this is what makes this type of practice so meaningful. The following are a few comments received by hospice compounding pharmacists:

- ◆ “Mom could never have experienced the peace of dying comfortably at home with the family without the medications, care and concern you provided”
- ◆ “I don’t know how we could have done it without the effort and work you put into making Dad more comfortable during his last week with us. Thank you, we will never forget what you did for us”.
- ◆ “We thank you and all at your pharmacy with all our hearts for taking care of Granddad. It seems like you are a part of our family”.

SUMMARY

Being a compounding pharmacist working with hospice patients is often difficult, requiring a creative approach to medication administration and broadening the boundaries of treatment guidelines. Also, one must be willing to try new methods and approaches as there may not be any documentation of “safety and effectiveness” for what needs to be done for the hospice patient.

In summary, it has been said that when we complete a race, we don’t just automatically stop right at the finish line. Generally, we tend to go just a little further and listen to the kind voices of family and friends; then we say to ourself, “it is finished, my work is done”. Compounding pharmacists help hospice patients cross the finish line in a more dignified and near symptom-free manner.

USEFUL FORMULATIONS FOR TREATING PAIN

Rx Morphine Sulfate Slow-Release Suppositories

Morphine sulfate	25 to 50 mg
Alginic acid	25%
Witepsol H-15	qs
M. ft. Supp. No. 1	

Pass the alginic acid through a #200 mesh sieve. Melt the Witepsol H-15 suppository base in a glass beaker. Sprinkle the alginic acid on the Witepsol H-15 base and mix. Sprinkle the morphine sulfate on the mixture and stir until mixed. Place the mixture on an ultrasonic bath for 10 minutes for thorough and complete mixing. Cool slightly, then pour continuously into molds held at room temperature. Cool, trim and package.

Rx Fentanyl 100 µg/0.1 mL and Promethazine HCl 12.5 mg/0.1 mL in PLO

Fentanyl citrate	157 mg (equiv to 100 mg of fentanyl)
Promethazine HCl	12.5 g
Ethoxy diglycol	10 mL
Lecithin/Isopropyl palmitate	22 mL
Pluronic F127 30% gel	qs 100 mL

Combine the fentanyl citrate and promethazine hydrochloride with the ethoxy diglycol. Incorporate this mixture into about 60 mL of the Pluronic F127 30% gel. Incorporate the lecithin/isopropyl palmitate mixture and mix well. Add sufficient pluronic F127 30% gel to volume and mix well. Package and label.

Rx Fentanyl 35 µg/mL, Bupivacaine 1 mg/mL and Clonidine 9 µg/mL Intrathecal Solution

Fentanyl	3.5 mg*
Bupivacaine hydrochloride	100 mg

Clonidine	900 µg
0.9% Sodium chloride injection	qs 100 mL

*commercial preservative-free injectable Fentanyl labeled as Fentanyl base/mL.

If the ingredients are commercially available as preservative-free injectable products, then accurately measure the volume of each and fill into the sterile reservoir or container. An air bubble can be injected and used to thoroughly mix the solution. Remove the air from the reservoir and tightly seal/close the outlet. Package and label.

Rx Morphine Sulfate and Clonidine Hydrochloride Epidural Injection

Morphine sulfate	2 g
Clonidine hydrochloride	1 mg
0.9% sodium chloride injection	69 mL
Sterile water for injection	qs 100 mL

If the ingredients are commercially available as preservative-free injectable products, then accurately measure the volume of each and fill into the sterile reservoir or container. An air bubble can be injected and used to thoroughly mix the solution. Remove the air from the reservoir and tightly seal/close the outlet. Package and label.

USEFUL FORMULATIONS FOR TREATING NAUSEA/VOMITING

Rx ABH Hard Troche (24 troches)

Lorazepam	24 mg
Diphenhydramine HCl	600 mg
Haloperidol	96 mg
Hard troche base	24 g (depending upon mold used)

Mix the lorazepam, diphenhydramine HCl and haloperidol powders together. Prepare the hard troche base according to the formula below. After removing the hard troche base from the heat, allow it to cool for a few minutes. Sprinkle the powder on the melt with thorough mixing. Add the flavor and optional color and thoroughly mix. Pour into molds (at room temperature) and allow to cool at room temperature. Note: molds can be prelubricated with a vegetable oil spray if necessary. Package and label.

Rx Troche Base

Powdered sugar	42 g
Light corn syrup	16 mL
Purified water	24 mL
Flavor	qs
Color	Optional

Combine the powdered sugar, corn syrup and purified water in a beaker and stir until well mixed. Cover the mixture and heat on a hot plate at a high setting until the mixture boils and continues to boil for two minutes. Uncover and remove from heat. Allow to set for a few minutes. It is now ready to add the active drug(s) and the flavor/color as described in the formula.

Rx ABH Soft Troche (24 troches)

Lorazepam	24 mg
Diphenhydramine HCl	600 mg
Haloperidol	96 mg
Aspartame	480 mg
Silica gel	240 mg
Acacia powder	400 mg
Flavor	qs
Polyethylene glycol 1450	21 g (depending upon mold used)

Mix the lorazepam, diphenhydramine HCl and the aloperidol powders together. Add the aspartame, silica gel and acacia powder and mix. Melt the polyethylene glycol 1450 at a temperature of about 55°C to 60°C. Sprinkle the powder on the melt with thorough mixing. Remove from heat for a few minutes, then add the flavor and mix. Pour into molds (at room temperature) and allow to cool at room temperature. Package and label.

Rx Scopolamine Hydrobromide 0.25 mg/0.1 mL Topical PLO Gel

Scopolamine hydrobromide	250 mg
Soy lecithin/Isopropyl palmitate solution	24 mL
pH 5.0 buffer solution	2.5 mL
Pluronic F127 20% gel	qs 100 mL

Dissolve the scopolamine hydrobromide in the pH 5.0 buffer solution. Add the soy lecithin/isopropyl palmitate solution and mix well. Add sufficient 20% Pluronic F127 gel to make 100 mL and mix well. Package and label. Note: The pH 5.0 buffer solution can be prepared by mixing 0.1 M citric acid in purified water with 0.2 M disodium phosphate in purified water in a ratio of about 1:1. The ratio can be varied to achieve the pH 5.0 level (0.1 M citric acid contains 19.2 grams of anhydrous citric acid in 100 mL of solution; a solution of 0.2 M disodium phosphate contains 53.61 g Na₂HPO₄·7H₂O, or 28.39 g anhydrous disodium phosphate in 100 mL of solution). The soy lecithin/isopropyl palmitate solution can be prepared by dissolving 83 g of soy lecithin granules in 100 mL of isopropyl palmitate containing 220 mg of sorbic acid and stirring with the aid of heat until dissolved.

Rx Antiemetic Suppositories of the Gralla Type

Ingredient	#1	#2	#3	#4	#5	#6	#7
Metoclopramide HCl	10	-	20	10	40	20	20
Haloperidol	0.5	5	-	-	1	1	-
Diphenhydramine HCl	-	25	25	-	25	25	25
Dexamethasone	-	-	10	-	10	10	5
Lorazepam	0.5	2	-	-	1	-	-
Diazepam	-	-	-	5	-	-	-
Hydroxyzine HCl	25	-	-	-	-	-	-
Promethazine HCl	-	-	-	25	-	-	-
Benzotropine mesylate	-	-	-	-	1	-	-
Silicon dioxide	20	30	20	15	-	-	-
Fatty acid base qs	2 g	2 g	2 g	2 g	2 g	2 g	2 g
Polyethylene glycol base qs		2 g	-	-	-	-	-

Note: Quantities are given in milligrams unless otherwise noted.

Mix the powders uniformly. (Pulverize the tablets if used or empty the contents of commercial capsules). Melt the fatty acid base of the polyethylene glycol base to the suggested temperature, depending upon the specific product used. Slowly add the powders with continued stirring until uniformly mixed. Pour into the molds (maintained at room temperature) slowly and smoothly with intermittent stirring of the melt to ensure the powders remain well mixed. Allow suppositories to solidify. Package and label.

Rx Dexamethasone, Lorazepam, Haloperidol, Diphenhydramine Hydrochloride and Metoclopramide Hydrochloride in PLO Gel

Dexamethasone	1.2 g
Lorazepam	100 mg
Haloperidol	100 mg
Diphenhydramine HCl	2.4 g
Metoclopramide HCl	2.4 g
Ethoxy diglycol	15 mL
Lecithin/Isopropyl palmitate	22 mL
Pluronic F127 30% gel	qs 100 mL

Blend the powders together, reducing particle size if necessary. Incorporate the powders into the ethoxy diglycol to form a slurry. Add the lecithin/isopropyl palmitate and mix well. Add sufficient Pluronic F127 30% gel to volume and mix using a shear mixing technique. Package and label.

Note: The lecithin isopropyl palmitate solution can be prepared by mixing 0.2 g sorbic acid, 50 g of soy lecithin and 50 g of isopropyl palmitate. The Pluronic F127 solution can be prepared by mixing 0.2 g sorbic acid, 30 g of Pluronic F127 and sufficient purified water to make 100 mL.

Rx Ondansetron Hydrochloride 8 mg/ mL in Pluronic/Lecithin Organogel

Ondansetron hydrochloride	800 mg
Purified water	20 mL
Lecithin/Isopropyl palmitate	22 mL
Pluronic F127 30% gel	qs 100 mL

Thoroughly pulverize 100 of the 8 mg ondansetron hydrochloride tablets to a very fine powder. Add the purified water to form a slurry. Incorporate about 50 mL of the Pluronic F127 30% gel and mix well. Add the lecithin/isopropyl palmitate mixture and mix. Add sufficient Pluronic F127 30% gel to volume and mix well using a high shear technique. Package and label.

USEFUL FORMULATIONS FOR TREATING DECUBITUS ULCERS

Rx Decubitus Ulcer Gel

Lidocaine hydrochloride	2 g
Misoprostol 200 µg tablets	#15
Phenytoin	2.5 g
Hydroxyethylcellulose	2 g
Methylparaben	200 mg
Glycerin	10 mL
Purified water	qs 100 mL

Obtain the tablets of misoprostol and pulverize them to a fine powder; blend in the remaining powders. Add the glycerin and make a smooth paste. Slowly incorporate sufficient purified water to volume with mixing. Package and label.

USEFUL FORMULATIONS FOR TREATING ORAL SORES

Rx Misoprostol 0.0024% Mouth Rinse for Oral Ulcerations

Misoprostol 200 µg tablets	#12
Methylparaben	200 mg
Glycerin	10 mL
Cherry flavor, anhydrous	10 µL
Syrup	40 mL
Sodium carboxymethylcellulose 0.25% solution	qs 100 mL

Obtain the misoprostol tablets and pulverize them to a fine powder. Add the glycerin to form a paste and add the methylparaben and the glycerin and the cherry flavor. Add the syrup and sufficient sodium carboxymethylcellulose 0.25% solution to volume and mix well. Package and label.

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SUGGESTED READINGS

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Atenolol	Flecainide Acetate	Mycophenolate Mofetil	Tetracycline HCl
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Baclofen	Gabapentin	Norfloxacin	Tramadol
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Captopril	Granisetron HCl	Procainamide HCl	Valacyclovir HCl
Chloroquine Phos.	Hydralazine HCl	Propylthiouracil	Valganciclovir
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