Care-Rx HEALTH

DELIVERING PHARMACEUTICAL CARE SINCE 2008

July 2019 Editor: Tiffany Nguyen, Pharm.D.

QUICK UPDATES

NEW HOURS OF OPERATION

Starting August 1st, Home Care-Rx hours:

- Monday thru Friday 6am-2:30am
- Saturday, Sunday, and Holidays 9am-12am
- On-call services available 24/7

Please note that our compounding pharmacy opens Monday thru Friday 9am-6pm and is closed on weekends.

MEDS ON NATIONAL SHORTAGE

Hospice-related drugs currently or recently on backorder:

- Haloperidol tablets (*0.5 mg, 1 mg, 2 mg*)
- Nystatin 100,000 U/mL oral suspension
- Scopolamine 1 mg/3 days transdermal patch

We do compound these drugs in order to provide our hospices with uninterrupted service, and our patients with continued care.

FDA APPROVES FIRST GENERICS OF LYRICA

On July 19, the U.S. FDA approved the following multiple applications for the first Lyrica (pregabalin) generic capsules by InvaGen Pharmaceuticals:

- Management of neuropathic pain associated with diabetic peripheral neuropathy
- Management of postherpetic neuralgia
- As an adjunctive therapy for the treatment of partial onset seizures in patients 17 years of age and older
- Management of fibromyalgia
- Management of neuropathic pain associated with spinal cord injury

Increased seizure frequency or other adverse reactions may occur if the drug is rapidly discontinued. The FDA warns that antiseizure drugs, including pregabalin, increase the risk of suicidal thoughts or behavior.

The most common side effects for Lyrica in adults are dizziness, somnolence and potential impaired ability to drive or operate machinery. Pregabalin may also cause dry mouth, swelling, blurred vision, weight gain and abnormal thinking (primarily difficulty with concentration/attention).

TEAM MEMBER SPOTLIGHT

CAROL ALLEN

Hello, my name is Carol Allen and I am the senior compounding technician for Creative Compounding Pharmacy. I have been doing nonsterile compounding for about ten years now and I have a great passion for the work that I do. It is quite gratifying to be able to help a patient whether it is someone's pet or family member.

In my free time I enjoy cooking, reading and traveling. I am also an avid shotgun enthusiast. I shoot sporting clays, skeet and trap. My favorite gun is a 12-gauge over and under Beretta Silver Pigeon. The top shooter in Olympic history is native Californian Kim Rhode, so if someone says I shoot like a girl, I say thank you.

HOANG NGUYEN

Hi! My name is Hoang. I have been a pharmacy technician at Creative Compounding for over a year now, and will soon be leaving for Chapman University School of Pharmacy. I started as a volunteer at Home Care-Rx,

which is when I discovered that I wanted to pursue pharmacy as a career. I originally did not want to become a pharmacist when first admitted into UCI undergrad—assuming that pharmacy was all about following and filling doctors' prescriptions. However, after volunteering at Home Care-Rx, my perception of pharmacy completely changed as I observed the pharmacists provide patients consultations as well as physicians and nurses with therapeutic recommendations, while working alongside with technicians and drivers to ensure patients can receive their medications on time. Turns out, pharmacy is definitely not a dull and unnecessary field!

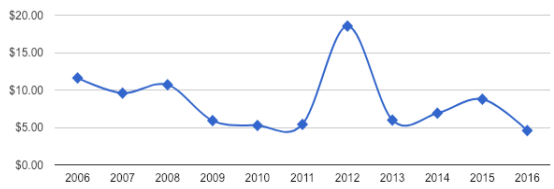
After a couple of months, I was offered the opportunity to work at Creative Compounding, a partnering pharmacy next to Home Care-Rx. Working here has taught me about the wonders of compounding, and how this field of the profession is able to create a medication that is specific to each patient; and our patients range from adults to kids to pets also! Interacting with our customers and resolving any of their questions and concerns always make my day.

I would also like to take this opportunity to thank all my coworkers at Home Care-Rx and Creative for helping me out at work and in life, and for giving me chocolates and chicken nuggets during tough times. I definitely would not be where I am without you all!

THE RISE OF DEXAMETHASONE USE IN HOSPICE CARE

Dexamethasone has carved out its role in hospice care and has been growing in prescription numbers in the recent years. Within the United States alone, dexamethasone was prescribed 1,753,091 times in 2016.

Graph 1. Number of prescriptions for dexamethasone over 10-year period (2006-2016)



Dexamethasone, or known by its brand name Decadron, is a glucocorticoid steroid that is usually prescribed to treat inflammation. Commonly prescribed glucocorticoids include hydrocortisone, prednisone and dexamethasone. Glucocorticoids are anti-inflammatory drugs that can inhibit the inflammation response and are used for a variety of issues at different doses in hospice care. Dexamethasone is a popular choice due to many factors including 1) its long duration of action compared to other corticosteroids and 2) its lack of mineralocorticoid activity, which causes fluid retention that may be undesirable in certain patient populations. Dexamethasone comes in many forms including tablets, injectables, and oral liquids.

Table 1. Approximate equivalencies of corticosteroids

NAME	DOSE (mg)	DURATION OF ACTION (hrs)
Hydrocortisone	20mg	8-12
Prednisolone	5mg	12-36
Dexamethasone	0.75mg	36-54

Dexamethasone is a great choice for soft tissue/bone pain for cancer patients as well as for alleviating headaches caused by intracranial pressure. In the hospice setting, dexamethasone has a few temporary effects that make it appealing:

- Its ability to stimulate a patient's appetite and/or suppress nausea may be a desirable effect in hospice patients for its possibility of weight gain
- Its beneficial effect of increasing a patient's state of mind and alleviating fatigue

These effects are temporary and are not usually the sole purpose of prescribing dexamethasone. The dosage strength and frequency for dexamethasone is determined by its clinical indication (see Table 2).

Table 2. Recommended corticosteroid doses for common indications in cancer patients

Clinical indication	Recommended dose, *mg*
Specific	
Raised intracranial pressure	8–16 mg dexamethasone daily
Spinal cord compression	16–32 mg dexamethasone daily (8–16 mg b.i.d.)
Superior vena cava obstruction	16–24 mg dexamethasone daily (8 mg b.i.d or t.i.d.)
Bowel obstruction	8–16 mg dexamethasone daily
Nonspecific	
Anorexia	4 mg dexamethasone; 10–20 mg prednisolone
Nausea and vomiting	4–8 mg dexamethasone
Bone and neuropathic pain	4–8 mg dexamethasone

While the benefits for dexamethasone can have great effects, it also causes adverse effects that healthcare professionals should be aware of. Luckily there are monitoring parameters and administration techniques that

can allow healthcare professionals to provide dexamethasone safely (see Table 3).

Table 3. Common adverse effects of glucocorticoid steroids and their management

Insomnia	Administer before midday to minimize the risk of sleep disturbances
Gastrointestinal distress	Administer with food
Myopathy	Switch to prednisone, a non-fluorinated corticosteroid
Immunosuppression	Monitor for s/sxs of infection and/or blood count
Hyperglycemia	Monitor blood glucose levels—especially in diabetic patients

It is important to reevaluate and monitor corticoid steroid use as its duration should be restricted and discontinued if no benefit is seen after a week of its use. For doses greater than 6 to 8 mg, or after a period of longer than 3 weeks of continuous use, a tapering method should be used to ensure adrenal glands have time to resume normal function. Abruptly stopping dexamethasone can lead to adrenal insufficiency causing fatigue, confusion and weight loss. Decrease dose by 25-50% every 4-8 days while monitoring for signs and symptoms of reduced adrenal function.

Dexamethasone use has been rising in recent years for its lack of mineralocorticoid activity and extended duration of action compared to other options within its drug class. Its combination of anti-inflammatory and metabolic effects on the body makes it an opportune drug in treating intracranial pressure to bone and soft tissue pain. Even though some of its effects are temporary, it has still been seen to be beneficial in the hospice setting. Dexamethasone also has a very unique side effect profile that can be managed through proper administration technique and monitoring parameters. Overall, with the growing prescriptions for dexamethasone, it is important for healthcare professionals to be aware of its benefits and how to properly administer it.

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TRUE VS. PSEUDO OPIOID ALLERGY & CROSS-SENSITIVITY

A *true* opioid allergy is rare but often causes a delay in treatment or even avoidance of the entire drug class for the treatment of pain in hospice care. Oftentimes, a *pseudo*-allergy and/or an adverse reaction can be misdiagnosed as a true allergy due to similar, overlapping signs or symptoms. However, these three types of reactions involve different mechanisms with a variable causality.

Adverse reactions, or intolerances, are most often misinterpreted as a true allergy. Common adverse reactions of opioids include nausea, vomiting, drowsiness, and constipation, which are all predictable from known pharmacologic properties of drugs. These dose-dependent effects can be resolved by limiting dose increases or by using an alternative.

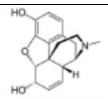
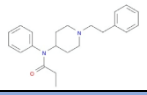
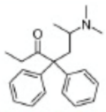
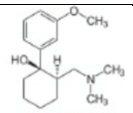
A pseudo-allergy is an unpredictable hypersensitivity reaction of an unknown mechanism, which may be developed within the first dose of opioid. Symptoms of a pseudo-allergy are very similar to those of a true allergy but caused by a different underlying mechanism. Pseudo-allergy is mediated by mast cells releasing histamine, mainly causing flushing, urticarial, or pruritus. Unlike true allergy, pseudo-allergy is rarely severe and its risk can be minimized with concurrent use of antihistamine agents (i.e. Benadryl/diphenhydramine). Among opioids, morphine, codeine, and meperidine are known to release histamine the most while fentanyl and tramadol release the least.

A true allergy, mediated by IgE or T-cell, can be life-threatening. Symptoms of an opioid true allergy include anaphylaxis, urticarial, hive, hypotension, bronchospasm, and laryngeal edema. A true allergy is not observed at the first dose of drug but typically within an hour of the first re-exposure of the drug or structurally similar drug.

Opioids can be classified into four main groups based on its chemical structure: phenanthrenes, phenylpiperidines, diphenyheptanes, and phenylpropylamines (see Table 1). Because morphine is converted into codeine in the body, morphine is contraindicated in patients with a *true* codeine allergy. Semisynthetic opioids (hydromorphone, oxymorphone, hydrocodone, and oxycodone) lack the 6-OH group of morphine, decreasing cross-sensitivity within the phenanthrene groups. However, patients still have a risk of developing allergic reaction if allergic to codeine since semisynthetic opioids are derived from morphine; thus, they need to be monitored closely. Synthetic opioids are least likely to cross-react with phenanthrenes but

healthcare professionals should always consider the risks versus benefits before initiating therapy.

Table 1. Classification of Opioids Based on Chemical Structures

Phenanthrenes	Phenylpiperidines
Natural Codeine Morphine Semisynthetic **(decreased cross-sensitivity)** Hydromorphone Oxymorphone Hydrocodone Oxycodone	Synthetic **(least likely to cross-react)** Fentanyl Meperidine
	
Diphenyheptanes	**Phenylpropylamines**
Synthetic **(least likely to cross-react)** Methadone	Synthetic **(least likely to cross-react)** Tramadol
	

Acetaminophen (APAP) or nonsteroidal anti-inflammatory drugs (NSAIDs) may be considered as alternatives in patients with mild to moderate pain. APAP and NSAIDs do not cross-react with the opioids because they are part of different pharmacological classes, having completely different chemical structures and mechanisms of action. However, they may not be as effective as opioids in patients with severe pain.

The clinical bottom line is it is critical to be able to differentiate symptoms of a *true* allergic reactions to those of a *pseudo*-allergy or adverse reaction in order to maximize a hospice patient's treatment options for pain relief. In patients with a true codeine allergy, use of morphine is contraindicated while the use of other common opioids such as hydrocodone, oxycodone, or hydromorphone should be carefully evaluated.

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LUNCH & LEARN

Home Care-Rx's very own pharmacists travel to present nurses with educational tools such as:

- Home Care-Rx pharmacy operations
- PCA/CADD pump in-services
- Pain management bootcamp (methadone dosing, opioid conversions)
- Management of common hospice symptoms

Please contact our pharmacy for more information

MEDICAL DISCLAIMER

The content is not intended to be a substitute for professional medical advice, diagnosis, or treatment. Always seek the advice of your physician or other qualified health provider with any questions you may have regarding a medical condition. Never disregard professional medical advice or delay in seeking it because of something you have read on this newsletter.

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We are open to any suggestions and feedback that you may have. Please email tnguyen@carerxhealth.com with topics you would like to read or learn about.