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Staffing issues don’t stop when the workday ends

Many pharmacists across the country lie awake at night thinking and worrying about staffing. Pharmacy has been experiencing a workforce shortage for a number of years. Not only is it hard to recruit and retain pharmacists, it has become increasingly difficult to find pharmacy technicians and other support personnel. As we know, a pharmacy must have a staff adequate to provide services to patients. But warm bodies are not enough; we need appropriately trained, competent employees motivated to provide outstanding care.

Finding, keeping employees
Perhaps the most obvious workforce-related issue is adequate staff size. Pharmacists in an institutional practice may work with systems engineers or productivity managers to determine how many employees are necessary. The data used in these analyses are often benchmarks from similar hospitals offering similar services. The key word is “similar.” No two pharmacy departments are identical. Although benchmarks can be helpful, every practice site has different needs. If you’re a staff pharmacist, tell your supervisor if you’re so busy you can’t remember what you did during your shift. If you’re a director or manager, listen to the concerns of your staff. You may need to argue for additional staff even when productivity numbers don’t justify more personnel. If your employees are worried about their workload, you may start losing qualified people.

Of course, even if your administrators approve additional staff, finding qualified pharmacists or technicians can be a challenge. Creative recruitment is often necessary, but you must also take steps to retain your current staff. Some areas have been harder hit by the pharmacist shortage than others; pharmacies and hospitals in rural areas have struggled to find staff. Innovative approaches, such as telepharmacy, after-hours coverage by other facilities, or consultants who provide clinical services, have helped some smaller hospitals find relief. Conversely, some pharmacists in rural settings—such as Kimberly Sasser Croley, the subject of this month’s profile—take on responsibilities beyond the pharmacy.

Right pharmacist, right job
Ensuring an appropriate mix of staff is another challenge. Each person working in a pharmacy has a unique set of skills, and ensuring that staffing reflects these skills can sometimes be a challenge. Cross-trained staff members help to ensure that the many functions of a pharmacy can be completed at all times. Adding new or different pharmacy services requires personnel with skills in those areas. These employees could be existing staff members interested in the area, or you may have to find the right person outside of your workplace. Knowing what interests your staff can help you make decisions regarding new programs.

Last, training new staff appropriately and ensuring the competency of current employees are essential for patient safety. Because of the complexity of pharmacy, it’s not possible to learn on the job. Pharmacists need formalized training for the health care setting as well as hospital- or corporation-specific training, if necessary. A consistent approach for training on new policies and procedures requires innovation and attention to detail. Ensuring that your staff is committed to lifelong learning helps make this process easier.

Although the continuing increases in pharmacy school graduates and pharmacy technician certification programs represent progress in countering the pharmacy workforce shortage, staffing issues will likely continue to keep pharmacists awake. In the coming years, we will have to deal with aging baby boomers and the growing popularity of medication therapy management and other services beyond dispensing medications. With these coming changes, perhaps workforce issues are good reasons for insomnia!

—Melinda C. Joyce, PharmD
Pharmacy Today Health-System Editor

Melinda C. Joyce, PharmD, FAPhA, FACHE, is Corporate Director of Pharmacy at the Medical Center in Bowling Green, KY, with responsibility over two community pharmacies and pharmacies in an acute care hospital, two critical access hospitals, a long-term acute care hospital, and a long-term care facility. She also serves as adjunct faculty for the University of Kentucky College of Pharmacy and Western Kentucky University Department of Nursing. Send your ideas for HSE Insomnia to Dr. Joyce at pt@aphanet.org.
Many hats in rural health care

Kimberly Sasser Croley finds MTM opportunities in a critical access hospital

While many pharmacists find themselves taking on multiple responsibilities as they strive to care for patients, Kimberly Sasser Croley, PharmD, GCP, FASCP, FAPhA, Director of Pharmacy and Ancillary Services at Knox County Hospital in Barbourville, KY, is a jack of all trades even by the profession’s high standards. “Working as a pharmacist in a critical access hospital [CAH] is demanding,” Croley said in a recent interview with Pharmacy Today. Because Croley is the only pharmacist at her institution, she must juggle administration, distributive, and clinical roles—“you must be available and on call 24/7,” she explained.

But no matter how many hats she has to wear on a daily basis, Croley desires “to help people and make a difference in the world” that inspired her to introduce MTM services at Knox County. “I’m always on the go and constantly being pulled in many directions,” she said, “but I really enjoy what I do and I feel lucky to have the opportunity to touch the lives of so many people.”

What’s a critical access hospital?
Croley is not only the Director of Pharmacy at Knox County Hospital, she is the clinical pharmacist, staff pharmacist, ambulatory care pharmacist, intensive care pharmacist, emergency department pharmacist, day shift pharmacist, evening shift pharmacist, night shift pharmacist, and other responsibilities. Why does one person serve so many roles? Croley told Today, “We’re different from your average big city hospital. We are one of the 1,294 federally designated CAHs in the United States.” She explained that CAHs “are located in underserved areas—meaning that no other...
As the only pharmacist on staff, Kim Croley juggles administration, distributive, and clinical roles.

As the only pharmacist on staff, Kim Croley juggles administration, distributive, and clinical roles. The hospital exists within 35 miles—and focus more on urgent care than inpatient care, with the primary goal being to improve rural health care.”

The federal government mandates that CAHs have 25 or fewer inpatient beds, not including rehabilitation and long-term care beds. CAHs must also maintain an annual average length of stay of 96 hours or fewer for inpatient admissions. “In other words, we have 4 days to fix our patients,” Croley laughed. As in most other CAHs, the majority of patients served by Knox County Hospital are covered by Medicaid and/or Medicare insurance. “One of the major benefits of critical access status is that we are eligible to be reimbursed at cost plus 1%. This is a huge incentive for our institution. Without this level of reimbursement, we would not be able to keep our doors open,” Croley explained.

Patient care in a critical access hospital
Croley spends much of her day on the hospital floor counseling patients. She devotes most of her time to the cardipulmonary rehab unit, because the patients in this unit can benefit most from her interventions. Croley spends about an hour with each patient admitted to the cardipulmonary rehab program providing MTM services. During these encounters, she performs a medication therapy review and reconciles inpatient and outpatient medications. When appropriate, she suggests better or more cost-effective therapies to the medical staff. Croley continues to follow cardipulmonary rehab patients throughout their stay. She also spends 30 minutes with these patients before their discharge; during this time, she provides them with a medication action plan and reviews all discharge medications.

In addition to her MTM services in the cardipulmonary rehab unit, Croley handles all pharmacokinetics and renal dosing; monitors culture and sensitivity data; teaches many patients about medications, especially anticoagulants; and answers drug information questions for staff and patients. She also attends all codes that occur when she is at the hospital. “Fortunately, we do not have that many codes. When we do, they primarily occur in the emergency department, and I think the emergency room physicians appreciate the fact that a pharmacist attends codes,” explained Croley. She noted that providing these clinical services would not be possible without the support of her two “amazing” pharmacy technicians. “I could not accomplish the clinical activities and provide the level of MTM services that I do if they were not taking care of the day-to-day activities in the pharmacy,” she said.

A wide range of responsibilities
Croley also serves as a preceptor for the University of Kentucky College of Pharmacy, University of Cincinnati College of Phar-
many faces of MTM

macy. Samford University McWhorter School of Pharmacy, Mercer University Southern School of Pharmacy, and University of Appalachia College of Pharmacy, providing clinical rotations for students during the 4th year of pharmacy school. During these rotations, Croley uses the student pharmacists’ help to provide even more clinical services to patients, as students spend time in the emergency department and round with the physicians. “In a perfect world, I would be able to see every patient admitted in the emergency department and round with the physicians, but right now I just do not have the time. It’s wonderful having student pharmacists on clerkship because they’re able to spend so much additional time with the patients. This time benefits both the students and the patients,” explained Croley.

Like many directors of pharmacy, Croley handles all pharmacy administrative duties. She negotiates contracts with vendors and oversees management of the formulary. Whenever possible, Croley encourages physicians to use these formulary medications, a measure of control that gives her and her pharmacy colleagues at the hospital great pride. “It hasn’t always been this way,” she explained, “The pharmacy stocked every product imaginable and every strength imaginable.” As an active member of the hospital’s Pharmacy and Therapeutics Committee, Croley has been able to enlist the support of the medical staff for formulary management.

Croley’s responsibilities stretch beyond pharmacy; she also serves as the hospital’s Director of Ancillary Services. In this role, she oversees laboratory, radiology, respiratory therapy, physical therapy, and cardiopulmonary services. Croley described herself as a “troubleshooter, advocate, and team builder” for these ancillary departments, adding, “It’s a beautiful thing when we work as a team in health care.”

On call 24/7/365
The pharmacy at Knox County Hospital is open from 8:00 am to 4:00 pm, Monday through Friday. Once the pharmacy closes, no one has access. “Most of the medications used at our facility are stocked in Pyxis somewhere in the hospital. This makes it easy for patients to get what they need when the pharmacy is closed,” Croley said. However, when the pharmacy is closed and a patient needs a medication not stocked in the Pyxis system, Croley drives back to the pharmacy to fill the order. “I don’t mind going back to the pharmacy after hours because I know that I am helping our patients,” she said.

Croley also provides drug information when the pharmacy is closed. “My cell phone and my home phone are posted everywhere in the hospital,” she explained. Croley noted that her colleagues at Knox County Hospital more often call her with drug information questions after hours than ask her to come back to the hospital to fill a medication order. “Last weekend alone, I was called about eight drug information questions but I didn’t have to go back to the hospital once,” she said.

With these around-the-clock responsibilities, the occasional day off is a welcome respite for Croley. She employs two as-needed pharmacists to cover her days off and vacation time. Fortunately for Croley, her husband Robert is a community pharmacist who can cover for her when these two pharmacists are not available.

Taking pride in her profession
Since pharmacy school, Croley has been active in both APhA and the Kentucky Pharmacists Association (KPhA). She credits both organizations with “shaping her career.” Croley has served for more than 20 years on the KPhA Board, and at the national level, she has served as the Chair of the Hospital Institutional Section of the APhA Academy of Pharmacy Practice and Management. Croley noted that in both of these capacities, “my favorite experiences, and the ones I learned the most from, involved the House of Delegates and policy making.”

Croley has spoken at KPHA meetings several times and has served APHA on two Policy Committees and two New Business Review Committees. She has also been a member of the KPhA House of Delegates for 25 years and the APHA House of Delegates for more than a decade. Croley takes pride in the fact that she has never missed a KPhA annual meeting and has missed only a few APHA Annual Meetings. “I believe in my heart that being an active member of your local, state, and national professional associations is the best way to positively influence your profession,” she told Today.

Croley was “born and raised” in Corbin, KY—a small, rural community located in the southeastern part of the state, home to the original Kentucky Fried Chicken. She knew that she wanted to study “something medical” since elementary school, originally planning to study medicine and become a physician. Her change of heart came during her undergraduate studies at Eastern Kentucky University, where she was active in the school’s Caduceus Club. At one particular club meeting, student pharmacists from the University of Kentucky College of Pharmacy came and discussed their profession, opening Croley’s eyes to the field of pharmacy. She knew immediately after hearing these students talk that she wanted to become a pharmacist. After graduating from Eastern Kentucky University with a biology degree, Croley immediately enrolled in the University of Kentucky College of Pharmacy. She received her bachelor of science in pharmacy degree in 1986 and her doctorate in pharmacy in 1999.

Croley now hopes that she can use her wide-ranging experience to help other pharmacists. Describing herself as a “teacher at heart” and an “avid learner,” she told Today that she would love to teach at a pharmacy school—“I have had the opportunity to gain a lot of practical clinical knowledge and would welcome the chance to share what I have learned in a didactic environment.”

—Ellen Whipple Guthrie, PharmD
Contributing writer

Frankie Hammons from the University of Kentucky College of Pharmacy on rotation with Kim Croley.
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Fospropofol: A water-soluble sedative–hypnotic

F ospropofol (Lusedra—Eisai), a water-soluble prodrug of propofol, has been approved by FDA for monitored anesthesia care sedation in adults undergoing diagnostic or therapeutic procedures. After an I.V. bolus injection, fospropofol is converted in the body by alkaline phosphatase enzymes to propofol. FDA recommended that fospropofol be classified as a controlled substance; Eisai is awaiting a scheduling decision by DEA.

Fospropofol vs. propofol
Propofol has long been used as a sedative–hypnotic because of its acceptable safety profile, fast onset, and rapid recovery. The primary problem with propofol is that it is formulated as a lipid emulsion, which causes pain upon injection, high lipid intake during long-term administration, and increased risk of infection. These concerns led to the development of fospropofol.

A key pharmacokinetic difference between propofol and fospropofol is time to peak propofol concentration after bolus administration of fospropofol. It is noticeably longer compared with a bolus dose of propofol lipid emulsion because of the delay in conversion of the prodrug. A bolus dose of fospropofol produces a smooth and gradual rise and fall in therapeutic plasma propofol concentration that is mirrored by a moderate increase in the depth of sedation. In contrast, a bolus or rapid infusion of propofol produces a spike in plasma propofol concentration and a rapid increase in the depth of sedation. This pharmacokinetic difference is important to understand because the slower onset of fospropofol compared with the lipid formulation could lead some clinicians to redose before the peak effect occurs, resulting in successive second peaks and delayed emergence at the end of short procedures.

Clinical data
Fospropofol has been evaluated in two Phase III, randomized, double-blind, controlled studies for sedation in patients undergoing colonoscopy or flexible bronchoscopy; median procedure durations were 10 to 11 minutes. All patients received fentanyl 50 mcg I.V. 5 minutes before the initial dose of fospropofol. In both trials, sedation success rates with fospropofol were high (87% colonoscopy, 89% bronchoscopy). Mean number of supplemental fospropofol doses was 2.3 and 1.7 in the colonoscopy and bronchoscopy trials, respectively.

The most common adverse events reported in clinical trials were paresthesia and pruritus, occurring in more than 20% of patients. These reactions usually manifested in the perineal region, were mild to moderate in intensity, and occurred within 5 minutes after the initial dose. Patients must be continuously monitored with pulse oximetry and electrocardiogram and have frequent blood pressure measurements because fospropofol can cause respiratory depression, hypoxemia, and hypotension.

—Maria G. Tanzi, PharmD

Fospropofol (Lusedra)
Manufacturer: Eisai
Drug class: A sedative–hypnotic agent
Indication: Monitored anesthesia care sedation in adults undergoing diagnostic or therapeutic procedures
Dosage: An initial I.V. bolus of 6.5 mg/kg is recommended for adults aged 18 to <65 years who are healthy or have mild systemic disease as categorized by the American Society of Anesthesiology (ASA P1 or P2); supplemental I.V. doses of 1.6 mg/kg should be given as needed to achieve the desired level of sedation.

- The maximum initial dose is 577.5 mg (16.5 mL) and the maximum supplemental dose is 140 mg (4 mL).
- Patients who are 65 years of age or older or those who have severe systemic disease (ASA P3 or P4) should be given 75% of the standard dosing regimen.
- Supplemental doses should be given no more frequently than every 4 minutes and only when patients can demonstrate purposeful movement in response to verbal or light tactile stimulation.
- The dosage of fospropofol is limited by lower and upper weight bounds of 60 kg and 90 kg; patients who weigh less than 60 kg should be dosed as if they weigh 60 kg and patients weighing more than 90 kg should be dosed as if they weigh 90 kg.

Of note:
- Fospropofol may cause respiratory depression and hypoxemia; supplemental oxygen is recommended for all patients receiving the drug.
- Some patients may become minimally responsive or unresponsive to vigorous tactile or painful stimulation for a short period of time (range 2 to 20 minutes).

Patient counseling
Inform patients that they may experience a burning, tingling, or stinging feeling and itching in the area between the genitals and anus. Explain to patients that these reactions are mild to moderate in intensity, primarily occur after injection of the first dose, last for a short period of time, and resolve without treatment. Patients should be advised that performance of activities requiring mental alertness, such as operating a motor vehicle, may be impaired for some time after fospropofol administration.
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Important safety information
Close monitoring of the blood pressure is required during therapy. CARDENE I.V. is contraindicated in patients with known hypersensitivity to the drug and in patients with advanced aortic stenosis. Reduction of diastolic pressure and reduced afterload may worsen rather than improve myocardial oxygen balance. Caution is advised when administering CARDENE I.V. to patients with impaired renal or hepatic function, in combination with a beta-blocker in patients with congestive heart failure, or portal hypertension. Observe caution in patients with significant left ventricular dysfunction due to possible negative inotropic effect. CARDENE I.V. gives no protection against the dangers of abrupt beta-blocker withdrawal; beta-blocker dosage should be gradually reduced. Levels of cyclosporine should be closely monitored during therapy. The most common side effects of CARDENE I.V. are headache (14.6%), hypotension (5.6%), nausea/vomiting (4.9%), and tachycardia (3.5%). Less frequent adverse effects, in each case occurring at 1.4%, include ECG abnormalities, postural hypotension, ventricular extrasystoles, injection-site reaction, dizziness, sweating and polyuria.

Please see next page for brief summary of prescribing information.

References:

For more information, visit: www.cardeneiv.com or e-mail us at cardeneiv@ekrtx.com.
CARDENE I.V. (nicardipine hydrochloride)

Premixed Injection in either 5% Dextrose or 0.83% Sodium Chloride

Brief Summary of Prescribing Information

Cardene I.V. Premixed Injection in 5% Dextrose
40 mg in 200 mL (0.2 mg/mL)

Each mL contains 0.2 mg nicardipine hydrochloride, 50 mg dextrose hydrous, USP and 0.0384 mg citric acid, anhydrous, USP. Hydrochloric acid and sodium hydrosulfite may have been added to adjust pH to 3.1 to 4.7.

Cardene I.V. Premixed Injection in 0.83% Sodium Chloride
40 mg in 200 mL (0.2 mg/mL)

Each mL contains 0.2 mg nicardipine hydrochloride, 8.3 mg sodium chloride, USP 0.0384 mg citric acid, anhydrous USP and 3.3 mg ascorbic acid, NF. Hydrochloric acid and sodium hydrosulfite may have been added to adjust pH to 3.7 to 4.7.

INDICATION AND USAGE: For the short-term treatment of hypertension when oral therapy is not feasible or desirable. For prolongation of control of blood pressure, patients should be transferred to oral medication as soon as their clinical condition permits.

CONTRAINDICATIONS: In patients with known hypertonia, Cardene I.V. is contraindicated in patients receiving monoamine oxidase inhibitors as they may be further increased by concomitant administration of Cardene I.V. (SeeWARNINGS). In patients with CHF, severe renal or hepatic impairment, or severe CHF, Cardene I.V. should be administered with caution. In patients with CHF, severe renal or hepatic impairment, or severe CHF, Cardene I.V. should be administered with caution.

WARNINGS: BETA-BLOCKER INTERACTION: Nicardipine is not a beta-blocker and provides no protection against the dangers of abrupt beta-blocker withdrawal. In such withdrawal situations, beta-blocker use may be gradually increased in the patient and Cardene I.V. may be preferred. RAPID DECREASES IN BLOOD PRESSURE: No clinical events have been reported suggestive of a too rapid decrease in blood pressure in Cardene I.V. However, as with any antihypertensive agent, blood pressure lowering should be accomplished over a long time as it is compatible with patient's clinical status.

USE IN PATIENTS WITH CONGESTIVE HEART FAILURE: Cardene I.V. reduced athero-thrombotic mortality in preliminary hemodynamic studies of OAP patients. However, in vitro and in some patients, a negative inotropic effect has been observed. Exercise caution when using Cardene I.V., particularly in combination with a beta-blocker, in patients with significant left ventricular dysfunction.

USE IN PATIENTS WITH NEUROLOGICAL/NEUROMUSCULAR TOXICITY: Limited clinical experience exists in these patients; therefore, exercise caution when administering Cardene I.V.

PERIPHERAL VESSEL INFUSION SITE: To minimize the risk of peripheral venous irritation, it is recommended that the site of infusion of Cardene I.V. be changed every 12 hours.

PRECAUTIONS: GENERAL: Blood pressure: Because Cardene I.V. decreases peripheral resistance, monitoring of blood pressure during administration is required. Cardene I.V., like other calcium channel blockers, may occasionality produce symptomatic hypotension. Caution is advised to avoid symptomatic hypotension when administering the drug to patients who have sustained an acute cerebrovascular or hemorrhagic stroke. Use in Patients with impaired Hepatic Function: Nicardipine is metabolized in the liver; exercise caution in patients with impaired liver function or reduced hepatic blood flow; consideration of liver function tests is recommended. Use in Patients with impaired Kidney Function: Renal excretion has been reported to be minimal; the dose of Cardene I.V. must be reduced in patients with severe renal impairment.

Drug Interactions: Since Cardene I.V. can be administered to patients already being treated with other medications, including other antihypertensive agents, careful monitoring of these patients is necessary to detect and promptly treat any untoward effects from concomitant administration.

BETA-BLOCKER: In most patients Cardene I.V. can be safely used with beta-blockers. However, exercise caution when using beta-blockers with Cardene I.V. Use in Pregnancy: Cardene I.V. is not recommended for use in patients with peripheral vascular disease. Use in Labor: The safety of Cardene I.V. in pregnancy is not established. Use in Children: Cardene I.V. is not recommended for use in children. Use in Elderly: The safety and efficacy of Cardene I.V. in elderly patients have not been established. Use in Renal and Hepatic Impairment: Cardene I.V. is not recommended for use in patients with severe renal or hepatic impairment.

ADVERSE EXPERIENCES: 244 patients participated in two multicenter double-blind, placebo-controlled trials of Cardene I.V. Adverse experiences were generally not serious and most were expected effects of vasodilators. Some adverse effects required dosage adjustments. Therapy was discontinued in approximately 15% of patients due to hypotension, headache and tachycardia. In the two double-blind trials of Cardene I.V. (n=144) versus Placebo (n=100), respectively.

Percent of Patients with Adverse Experiences During the Double-Blind Portion of Controlled Trials

<table>
<thead>
<tr>
<th>Adverse Experience</th>
<th>Cardene (n=144)</th>
<th>Placebo (n=100)</th>
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<tbody>
<tr>
<td>Body as a Whole</td>
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<tr>
<td>Headache</td>
<td>14.6</td>
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<tr>
<td>Asthenia</td>
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<tr>
<td>Abdominal pain</td>
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<tr>
<td>Chest pain</td>
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<td>0.0</td>
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<tr>
<td>Cardiovascular</td>
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<td></td>
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<tr>
<td>Hypotension</td>
<td>5.6</td>
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<tr>
<td>Tachycardia</td>
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<tr>
<td>ECG abnormality</td>
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<tr>
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<td>Ventricular extrasystoles</td>
<td>1.4</td>
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<tr>
<td>Hypotension</td>
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</tr>
<tr>
<td>Supraventricular tachycardia</td>
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<td>Syncope</td>
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<td>Vasodilation</td>
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<td>Ventricular extrasystoles</td>
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<td>Nausea/vomiting</td>
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<td>Injection site reaction</td>
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<td>Injection site pain</td>
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<tr>
<td>Metabolic and Nutritional</td>
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<td>Dizziness</td>
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<tr>
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<td>Skin and Appendages</td>
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<td>Hamaturia</td>
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</table>

OVERDOSE: Several overdoses with orally administered nicardipine have been reported. One patient, aged 55 years, ingested 600 mg of nicardipine standard (immediate release capsules), and another patient, 210 mg of the sustained-release formulation of nicardipine. Symptoms included: marked hypertension, bradycardia, palpitations, flushing, dizziness, nausea, and blurred vision. A systolic blood pressure decreased without a decrease in diastolic blood pressure. A 12-year-old child who ingested half of the powder in a 30 mg nicardipine standard capsule. The child remained asymptomatic. Based on the results obtained in laboratory animals, oral overdose may cause systemic hypotension, bradycardia (following initial tachycardia and progressive atrioventricular block), reversible hepatic function abnormalities, and sporadic focal hepatic necrosis were noted in some animal species receiving very large doses of nicardipine. For treatment of overdose, standard measures including monitoring of cardiac and respiratory functions should be implemented. The patient should be positioned so as to avoid cerebral anoxia. Frequent blood pressure determinations are assumed. Vasopressors are clinically indicated for patients exhibiting profound hypotension. Intravenous calcium gluconate may help reverse the effects of calcium entry blockades.

DOSE AND ADMINISTRATION: DOSE MUST BE INDIVIDUALIZED depending on severity of hypertension and patient response. Monitor blood pressure during and after the infusion; avoid too rapid or excessive reductions in systolic or diastolic blood pressure.

Cardene I.V. premixed injection is available as a single-use, ready-to-use, iso-osmotic solution for intravenous administration in a 200 mL GALIY container with 40 mg (0.2 mg/mL) nicardipine hydrochloride in either dextrose or sodium chloride. No further dilution is required. Cardene I.V. premixed injection should not be combined with any product in the same intravenous line or premixed container. Protect from light until ready to use.

See package insert for full prescribing information.

To report an adverse event or for questions of a medical nature, please call 1-877-207-5802

Cardene® I.V. is a registered trademark of EKR Therapeutics, Inc.

Manufactured by:
Johnston-Mathews Corporation
Derryfield, N.H. 03031
Marketed by: SGR Therapeutics, Inc.
Bedminster, NJ 07921

Issued December 2008
C06-118
The American Pharmacists Association (APhA) and the National Association of Chain Drug Stores (NACDS) are pleased to continue to offer a webinar series presenting cutting-edge topics related to pharmacy-based immunization programs. The webinar series will highlight innovations in pharmacy-based immunization related to practice, advocacy, and science.

Visit [www.nacds.org/immunization](http://www.nacds.org/immunization) for more detailed program information and to register.

**Thursday, February 19, 2009, 1:00 p.m. EST**
**Challenges of Pharmacy-Based Immunization Services: Key Operational Issues**

**Tuesday, March 17, 2009, 1:00 p.m. EST**
**Emergency Preparedness and the Role of Immunizing Pharmacists**

**Wednesday, April 15, 2009, 1:00 p.m. EST**
**Innovations in Vaccine Science**

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When mucus causes chest congestion and coughing, it can keep you up no matter how many sheep you count. But Mucinex DM breaks up mucus and quiets coughing so you can get to sleep. And Mucinex DM is the only dual-release tablet that gets rid of mucus and helps quiet your cough for a full 12 hours. So when congestion and coughing keep you up at night, get rid of them with Mucinex DM.