Migraine-preventive medications: Ensuring their appropriate use

Richard G. Wenzel

Abstract

**Objectives:** To emphasize the magnitude and burden of migraine, the need for greater use of migraine-preventive medications in patients who could most benefit from them, and the role that pharmacists can play in migraine prevention.

**Data sources:** PubMed and Medline-based literature searches were conducted to determine the need for migraine-preventive medications, the treatment of migraine, and how pharmacists can assist patients in preventing and treating migraines. The literature search included articles from the previous 6 years, as well as earlier articles for historical perspective.

**Data synthesis:** Migraine is a prevalent, chronic, neurologic condition that imposes substantial disability on affected patients, leading to a poor quality of life. However, migraine remains underrecognized, underdiagnosed, and under- or suboptimally treated. In particular, migraine-preventive medications are greatly underused, which contributes to avoidable disability. Community pharmacists can play important roles in identifying these and other patients with headache who are in need of medical care, referring appropriate patients to a health care provider, and educating and counseling patients with respect to abortive and preventive medications.

**Conclusion:** Pharmacists are in a unique position to assist in migraine management, particularly with regard to migraine-preventive medications, because many patients may not be familiar with the benefits and use of these agents. Pharmacist involvement can have a measurable effect on patient care and improve the lives of migraine patients.

**Keywords:** Migraines, pharmacists, preventive medicine, headaches, quality of life, neurology, beta blockers, antidepressant medications.


Richard G. Wenzel, PharmD, is Pharmacist, Diamond Headache Clinic Inpatient Unit, Saint Joseph Hospital, Chicago.

Continuing education credits: See learning objectives below and assessment questions at the end of this article, which is ACPE universal program number 202-000-08-152-H01-P in APhA’s educational programs. The CE examination form is located at the end of this article. To take the CE test for this article online, go to www.pharmacist.com/education and follow the links to the APhA CE center.

Correspondence: Richard G. Wenzel, PharmD, Diamond Headache Clinic Inpatient Unit, Saint Joseph Hospital, 2900 North Lake Shore Dr., Chicago, IL 60657. Fax: 773-975-7856. E-mail: rwenz@hotmail.com

Disclosure: The author declares no conflicts of interest or financial interests in any product or service mentioned in this article, including grants, employment, gifts, stock holdings, or honoraria.

Acknowledgments: To Chris Conner, PharmD, Phase Five Communications, Inc., for editorial support.

Funding: Ortho-McNeil Neurologics.

Published concurrently in Pharmacy Today and the Journal of the American Pharmacists Association (available online at www.japha.org).

Learning objectives

- State migraine’s prevalence and the percentage of sufferers prescribed migraine-preventive agents.
- Discuss migraine’s impact on individuals in terms of decreased quality of life and reduced work productivity.
- List at least three barriers that prevent patients from recognizing migraine.
- Describe at least three opportunities for pharmacists to improve the diagnosis and treatment of migraine.
- State the goals of migraine-preventive therapy.
- Describe at least three key counseling points for patients prescribed migraine-preventive therapy.
Headache is a common medical condition that causes patients to seek the assistance of a pharmacist. Community pharmacists can, therefore, assume an important role, especially with respect to migraine medications. They are in a unique position to help patients in need of acute or preventive therapy and to counsel patients on their expectations and the appropriate use of medications. Recent studies also support the value of pharmacist-related consultation regarding headache, and agreement exists regarding pharmacists contributing to migraine management. Similarly, evidence suggests a need to further educate pharmacists in the area of migraine.

Migraine is a chronic, recurrent, and often debilitating neurologic condition that exacts a substantial toll on a patient’s quality of life. In addition to the pain of an actual migraine attack, many patients with migraine worry about the next attack and how it may disrupt their life. Knowing that a migraine could occur at any moment can be as disruptive as the acute attack itself. The clinical literature on the impact of migraine suggests that this “cycle of migraine” is often underemphasized or unappreciated by health care providers.

The worry between attacks (the interictal period) is evident in the recent nationwide Harris Survey of migraine patients, in which 68% of patients polled indicated that they were concerned about their next migraine attack, even when not actively experiencing one. One-half of patients indicated constant concern about another migraine attack, and one-third of patients were always anxious, never knowing when or if another attack would disable them.

Although most migraine patients are currently taking some form of medication for acute attacks, few are receiving specific preventive therapy. Studies evaluating patterns of migraine prevention have concluded that migraine-preventive medications are greatly underused. The role of preventive therapy needs to be reassessed because many patients who could benefit from preventive medications are not receiving them; this is particularly true for patients whose disability impacts their daily life considerably.

**Objectives**

The goal of this review is to highlight the need for greater recognition and use of migraine-preventive medications, to refresh the pharmacist’s knowledge of migraine, and to illustrate the important role that pharmacists can play in migraine prevention.

**Data sources**

Literature searches were conducted in PubMed and Medline. Subject areas researched included migraine epidemiology and treatment, the role of preventive therapy, the role of the pharmacist in determining the need for migraine-preventive medications, and how pharmacists can assist patients in preventing and treating migraines. The literature search included articles from the previous 6 years, as well as earlier articles for historical perspective. Search terms included, but were not limited to, migraine and pharmacist(s); epidemiology: counseling patients; prevention: pharmacist(s) identifying; recognizing migraine; and patient communication.

**Magnitude and burden of migraine**

**Steady numbers**

In 1999, the prevalence of migraine in the United States was reported in the American Migraine Study (AMS) II as approximately 18% in women and 6% in men, with an overall prevalence rate of 13%. An earlier AMS conducted in 1989 showed almost identical results, suggesting that the prevalence of migraine has remained constant. Additional data showed that at least one person with migraine resides in nearly one in four U.S. households and that the peak prevalence of migraine occurs in individuals...
Aged 25 to 55 years.  

Disability: Substantial and pervasive  
Migraine has been identified as 1 of the top 20 causes of disability worldwide. 18 Migraine-related functional impairment can extend into every aspect of day-to-day living, disrupting work, family activities, and social relationships and activities. 9,17–22 This has a substantial negative impact on health-related quality of life (HRQoL). 7,13,20,23  

Considerable disability in patients with migraine was reported in AMS II, with 91% of patients reporting functional impairment in association with headaches. 9 Despite the greater preponderance of migraine in women, the frequency of severe disability was similar in men and women: 49% of men and 53% of women reported severe impairment in activities or needed bed rest because of their headaches. During the 3-month period before the survey was taken, 31% of all patients reported missing at least 1 day of school or work as a result of a migraine and 51% reported that their productivity at school or work was reduced by at least 50%; in addition, more than one-half indicated that they had missed family activities or social activities and were either unable to do household work or were less productive at household work. Work or school activities were disrupted less often than family/social activities or household work.  

This level of disability was mirrored in the Migraine and Zolmitriptan Evaluation (MAZE) surveys, which evaluated the impact of migraine on a global level (United States, Canada, Europe, and other countries). 19,24 These survey results also revealed a considerable negative impact on the home and family life of about one-half of the individuals who lived with or were related to a patient with migraine. This latter finding is important because it highlights that migraine also places a burden on household partners and close family members of the individual with migraine. This has been shown in other studies in which patients with migraine and their partners were adversely affected. 17,18 Less time was spent together, communication difficulties arose, and more arguments occurred. An additional component of emotional stress or even inadequacy was evident in individuals with migraine, with about 50% agreeing with the assertion, “If I didn’t have a headache, I would be a better spouse.”  

Methods to measure disability and functional status in migraine include the Migraine Disability Assessment Scale (MIDAS) questionnaire and the Headache Impact Test (HIT). These instruments are being used more frequently in conjunction with migraine management strategies to improve communication between patients and health care providers. They can be used to assess the severity of migraine and its impact on daily life, assist in determining the most appropriate initial treatment, and assess response to treatment. 7,25–27 MIDAS consists of five questions to determine headache impact during the previous 3 months, while HIT consists of six questions designed to assess the effects of headache on normal life and ability to function. HIT-6 is available online and in a brief paper version at www.headachetest.com/HIT6translations.html.  

Most experience to date has been with MIDAS, which categorizes scores into four grades of severity: I, minimal or no disability; II, mild or infrequent disability; III, moderate disability; and IV, severe disability. 2–7 The MIDAS questionnaire is also available online at www.achenet.org/tools/migraine/index.asp.  

HRQoL: Important to patients  
Improving HRQoL has become an important goal of treating chronic conditions. HRQoL questionnaires incorporating personal impact variables, such as functional status (e.g., ability to carry out daily activities), social functioning, and general well-being, as well as clinical symptoms, are now routinely used in clinical trials and daily practice. HRQoL questionnaires used in clinical studies involving migraine patients have been shown to be reliable and valid. 20 However, these questionnaires do not specifically measure the interictal burden in patients with migraine.  

Using the Short Form 36 questionnaire, which measures eight aspects of HRQoL, Osterhaus et al. 28 showed that the restriction of daily activities and pain were significantly greater in those with migraine compared with those of patients with depression, osteoarthritis, diabetes, and hypertension. Mental health and social functioning were also significantly poorer in the migraine group relative to all of these other groups, except for patients with depression.  

Deficiencies in migraine care  
Despite its high prevalence and associated disability, migraine remains underrecognized and its management suboptimal. 7,24–29 About one-half of patients with migraine remain undiagnosed or misdiagnosed and consequently remain undertreated. 9,30 However, specific guidelines for diagnosis and treatment and effective acute and preventive treatment modalities are readily available. Most patients with migraine use only over-the-counter (OTC) medications for their headaches, 30 and most are unsatisfied with their current treatment. 24 At least one-half of patients stop taking their prescribed medications or stop seeking medical care. 12,24 Many migraine patients do not seek care at all (see “Patient perceptions: Barriers to care” section below).  

A major deficiency is that only a handful of patients with migraine who could benefit from preventive therapy are receiving it (12%–13%), suggesting that migraine-preventive medications have been underemphasized in the medical community and among the public at large. 10,12–14,31,32 Greater recognition of the value of preventive medications and ensuring their appropriate use are in themselves unmet goals.  

Patterns of preventive treatment in the United States were analyzed by the American Migraine Prevalence and Prevention study. 13 Individuals with migraine were identified from a questionnaire sent to 120,000 households representative of the U.S. population. Most people with migraine were using acute...
treatments for their headache (OTC or prescription), but only 13% were using migraine-preventive medications; an additional 25% had discontinued preventive therapy. Among those in most need of preventive agents (e.g., three or more migraine days per month with severe impairment or needing bed rest), only 23% were receiving them. When this group of individuals was combined with those for whom migraine-preventive therapy should be considered (e.g., 2 migraine days per month with some or severe impairment), only one in five (19.6%) were currently receiving a preventive medication. Among those who had never used preventive agents, approximately one-third were considered candidates for them. This study strongly suggests that identifying candidates for migraine-preventive medications can improve headache outcomes.

**What is needed**

Greater understanding of migraine and preventive therapy by the patient and the health care provider could alleviate its under-diagnosis and -treatment. Educating patients on migraines would raise awareness, dispel misconceptions, and teach ways of recognizing migraines. Informing patients of the availability of effective treatments may result in more patients seeking effective care and adhering to prescribed regimens. Raising the awareness of health care providers about migraine symptoms and diagnostic and treatment guidelines could also help improve patient outcomes. A charge to health care practitioners is to reach patients who are unaware that they have migraine or who have lapsed from care.

**Pathophysiology and clinical picture**

Understanding that migraine is primarily a disorder of the brain, and not solely a vascular process, is important. Today, migraine is viewed as a heritable neurologic disorder involving the trigeminovascular system and the modulation of pain-producing structures of the brain. Central neuronal hyper-excitability is considered an important predisposing factor for migraine, which may be related to calcium channel abnormalities. Environmental triggers can initiate neurochemical changes that progress to a critical threshold, and this threshold is lower in individuals with migraine. Once the threshold is reached, cortical spreading depression (CSD)—a slowly propagating wave of neuronal depolarization—occurs. CSD ultimately results in activation of the trigeminovascular system, release of vasoactive peptides from trigeminal afferents, and a sterile neurogenic inflammation, which is the likely cause of headache pain.

Alteration of the midbrain serotonergic system is also evident in migraine, and impaired serotonin (5HT) release may serve as an important precursor. Vascular changes such as dilation or constriction of intracranial arteries are an epiphenomenon to underlying neurologic processes and not a primary cause of headache.

Patients sense this complex, spreading inflammatory process as it builds over hours or days. At the onset of this sensation, patients report that acute therapy has shown most benefit if taken “to catch it right away.” Preventive medications offer hope of taking this one step further by eliminating onset altogether.

**Clinical course**

**Acute attacks.** Migraine can be subdivided into three phases: an initial prodrome, the headache attack, and a postdrome. The prodromal period may last several hours or even 1 to 2 days, with typical symptoms of mood changes, irritability, yawning, fatigue, photophobia (light aversion), phonophobia (noise aversion), thirst, polyuria, and/or hunger. The ensuing headache itself may vary in duration from 4 to 72 hours, with most patients describing pulsatile or throbbing pain, which is frequently unilateral and exacerbated by activity.

Phonophobia, photophobia, nausea with or without vomiting, numbness, and skin pallor may also accompany headaches. Aura, a visual phenomenon, occurs in 15% to 20% of patients with migraine and can either precede and/or accompany the headache. Generally lasting less than 20 minutes, visual symptoms (e.g., bright or sparkling light, tunnel vision) may also be accompanied by paresthesias, vertigo, speech disturbances, confusion, and/or weakness. After the headache, patients experience a postdrome, or recovery, phase that typically lasts about 25 hours and is accompanied by symptoms of tiredness and low-grade headache.

The frequency of headaches may range from once in a lifetime to several each month; the median is 1.5 per month, and 10% of patients experience weekly attacks. Of participants in AMS II, 62% indicated that they experienced a severe migraine headache at least once per month, 37% reported the occurrence of 1 to 3 severe headaches per month, and 11% suffered a severe headache once weekly. Surprisingly, migraine may be more likely to occur in some patients during periods of relaxation, such as on weekends or during vacations.

**Interictal phase and cycle of migraine.** Pain and suffering for the migraine patient does not end when the acute attack subsides. For many patients, emotional disability persists in the period between headaches—the interictal phase. This disability is separable from migraine-related functional impairment but is linked directly to it. A population survey revealed that 40% of patients with migraine were worried about the occurrence of a headache at a future social or other event, and almost one-half were worried about driving. In further studies evaluating interictal well-being, considerably greater emotional distress was reported by patients with migraine compared with those without migraine; they exhibited a lower level of activity and disturbances in sleep, vitality, and contentment. A migraine cycle, consisting of headaches followed by an interictal period, is then formed.

Anticipation of disruption is at the core of the migraine cycle (Figure 1). In addition to fear of the pain of the next attack, patients worry about where they will be when the next attack occurs and what could happen when it does. They worry about
how the next one will affect others who are close to them, such as family, friends, and particularly children, and how it will impact their own work and social obligations. These patients thus enter into a constant cycle of suffering, treating acute attacks and worrying about the consequences of the next attack. This is an important aspect of assessing migraine impairment that may often go unrecognized.

**Patient perceptions: Barriers to care**

Patient perceptions of migraine and its treatment are important because they further highlight deficiencies and clarify areas in which education efforts should be directed. The MAZE I and II studies and a large Canadian population survey highlight important aspects of patients’ perceptions of migraine. Most patients

- Did not believe they had migraine (“It’s only a headache”; suggests inability to recognize migraine).
- Felt OTC medications worked just fine for them (unaware of more effective treatments).
- Believed a health care provider and prescriptions would not be able to do anything for them (low expectations).
- Had an unsatisfactory experience with or disliked a previous health care provider.
- Thought their headaches were not severe enough to seek help.

Many patients considered themselves self-medicators and felt that they could treat their headaches with OTC products, or they stopped prescribed medications because of adverse events, lack of efficacy, lack of trust, cost, or rumors about dangers of medications. Most patients (90%) felt migraine was a more serious disorder than others realized and hoped for more public awareness. Only 22% of patients felt migraine did not significantly affect their lives. However, only 27% felt their medication consistently helped them through a headache attack and only 36% were very satisfied with current treatment, which is suggestive of undertreatment. The majority surveyed (65%) perceived that not enough was being done for them. No survey to date has measured patient perceptions about the potential usefulness or efficacy of migraine-preventive medications or their need.

**Pharmacists and migraine: Overall roles**

Pharmacists can offer great assistance to both patients and clinicians by educating, counseling, and referring patients with headache. The role of the pharmacist is largely dependent on the diagnostic status of the patient (Table 1). Another way of considering the roles of pharmacists is to assess how the pharmacist may affect the underrecognition and -diagnosis of migraine.

**Affecting underrecognition and -diagnosis**

Upon screening the patient with the MIDAS or HIT, the pharmacist should refer the patient to a health care practitioner for diagnosis and treatment when appropriate. The pharmacist should educate

**Figure 1.** The cycle of migraine creates enormous emotional distress.
Go to www.pharmacist.com and take your test online for instant credit.

Table 1. Overall roles of the pharmacist in migraine management

<table>
<thead>
<tr>
<th>Patient type</th>
<th>Role</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>All patients with migraine</td>
<td>Education</td>
<td>Dispel myths and misconceptions about migraine, increase patient knowledge about migraine headache.</td>
</tr>
<tr>
<td>Patients with undiagnosed headache</td>
<td>Identification and referral</td>
<td>Recognizing and referring patients with suspected migraine to a physician. Referral indicated when (1) obvious signs of migraine on questioning (aura; pulsating, throbbing symptoms) are present; (2) headache is recurrent, episodic, and debilitating; (3) MIDAS grade III or IV. Chronic headache or no headache relief despite adequate OTC therapy.</td>
</tr>
<tr>
<td>Patients with self-considered, undiagnosed migraine</td>
<td>Education</td>
<td>Benefits of referral and efficacy of acute and preventive migraine treatments.</td>
</tr>
<tr>
<td>Patients with self-considered, undiagnosed migraine</td>
<td>Counseling</td>
<td>Selection and proper use of OTC medications in patients not in need of referral (e.g., MIDAS grade I or II).</td>
</tr>
<tr>
<td>Diagnosed patients</td>
<td>Identification and referral</td>
<td>Confirm migrainous nature via questioning (obvious signs; recurrent, debilitating headache); once self-considered status realized, referral to physician for accurate diagnosis and treatment.</td>
</tr>
<tr>
<td>Diagnosed patients</td>
<td>Identification and referral</td>
<td>Benefits of referral and accurate diagnosis; efficacy of acute and preventive treatments; hazards of overuse of OTC agents such as exacerbation of headache.</td>
</tr>
<tr>
<td>Diagnosed patients</td>
<td>Counseling</td>
<td>Proper and safe use of acute or preventive medications after they are prescribed.</td>
</tr>
</tbody>
</table>

Abbreviations used: HIT, Headache Impact Test; MIDAS, Migraine Disability Assessment Scale; OTC, over the counter.

The patient about the appropriate use of OTC medications and their associated risks and benefits. At this time, the pharmacist can reassure the patient that if he or she has migraine headache, medications can be taken to prevent and treat them and that both types of medications can be taken concomitantly.

The undiagnosed headache patient who may have migraine can be identified in the following ways:

- Discussing patient’s headache characteristics and making appropriate referrals (Table 1).
- Using questionnaires such as MIDAS or HIT that are amenable to use in pharmacies. In particular, MIDAS has been suggested for use as a quick screening vehicle to distinguish patients who are in need of health care practitioner referral and diagnosis. A MIDAS score of I or II suggests that nonspecific (OTC) headache therapy would be acceptable; a score of III or IV strongly suggests the need for health care practitioner referral and specific prescription headache therapy.

Similarly, pharmacists can refer the undiagnosed, self-considered migraine patient who is in need of health care practitioner diagnosis and treatment. Migraine usually can be confirmed with a simple question such as, “Why do you think you have migraine?” Pharmacists should educate these patients about the need for an accurate diagnosis to either confirm or rule out migraine (e.g., they may have tension headaches), as well as the short- and long-term benefits (and risks) of acute and preventive therapies.

For patients already diagnosed with migraine who are receiving acute treatment medications, pharmacists can identify those who would likely benefit from preventive therapy.

**Affecting undertreatment and suboptimal treatment**

Appropriate referral of undiagnosed patients to a primary health care practitioner will hopefully lead to effective acute or preventive treatment regimens. Identifying the diagnosed patient in need of preventive therapy may help detect those patients who would benefit from preventive therapy.

The role of the community pharmacist after diagnosis and instituting treatment with medications also includes further education and counseling of patients on the most appropriate
and safest use of those medications.

**Pharmacists and acute migraine treatment**

Pharmacists are well positioned to educate and counsel patients on acute migraine therapies. Although the emphasis of this review is the pharmacist’s role in ensuring appropriate referral of patients in need of underused migraine-preventive medications and ensuring the appropriate use of these medications, Table 1 also reflects involvement of the pharmacist in acute treatment of headache, which is equally as important.

In addition to identifying patients who appear to be candidates for prescription-abortive therapy, the pharmacist should counsel patients on the proper use of acute treatments. This might include administration technique, maximal doses, expected benefit, onset and duration of action, potential adverse events and how to deal with them, and precautions or contraindications. In general, if patients confirm that one-half or more of their headaches result in some sort of disability (e.g., need to rest, absence from work), they are unsuitable candidates for acute-treatment OTC medications. The occurrence of vomiting during headaches or headache occurring more than 15 days per month also disfavors use of OTC products, as these patients are likely already overusing OTC products. These particular patients may be in need of prescription medication for acute attacks or possibly preventive medications.

**Pharmacists and migraine prevention**

Pharmacist-assisted referral of undiagnosed headache patients and self-considered migraine patients to a health care provider (Table 1) can help to identify patients who could benefit from preventive therapy and make them aware of medications that were previously unknown or unavailable to them. The community pharmacist can ensure the optimal use of such medications by counseling patients on the use of preventive medications once they are prescribed and offering reinsurance to these patients about what to expect in terms of efficacy and adverse events and how to manage such events if they occur. The pharmacist could have a great impact in these areas. In particular, prevention of a migraine attack is of immense importance to the migraine patient, and unrealistic expectations can lead to nonadherence and treatment failure. Discussing realistic expectations with the patient is paramount.

Before engaging in these activities, pharmacists may initially require some reeducation about preventive medications.

**Current concepts in migraine prevention**

**Goals and benefits of prevention.** The goals of preventive therapy include the following:

- Reduced frequency (50% from baseline is the goal) and duration of headaches.
- Reduced severity of headaches.
- Improved response to acute treatment.
- Reduced disability, functional impairment, and absence from usual activities (e.g., reduced MIDAS score).
- Improved HRQoL.
- Decreased use and cost of acute treatments.
- Reduced likelihood of progression to chronic daily headache.
- Decreased use of the health care system.

**When should preventive therapy be used?** The timing of migraine-preventive therapy has been a controversial issue. Recommendations range from “when headaches are severe, frequent, and incapacitating” to “patient preference.” Ultimately, the patient should decide whether preventive therapy is prescribed after health care provider consultation and consideration of benefits and risks, potential sequelae of prolonged high frequency of headaches, and factors other than headache frequency. Some of the recommended indications for preventive medications advanced by authoritative sources are shown in Table 2.

As a general rule, preventive therapy should be considered for patients whose disability affects their lives considerably. Patients experiencing interictal worry and substantial disruption of their lives certainly represent patients who should be considered for preventive medication.

**Is earlier preventive action better?** The practice of withholding migraine-preventive medications until the disease and its disability become severe or incapacitating has also come under scrutiny; several lines of evidence now suggest that earlier, more aggressive preventive measures could benefit many patients and that it might be detrimental if such measures are not implemented. The reasons for this include the following: (1) clinical experience suggests that prolonged psychosocial impairment in patients with migraine may be less likely with preventive intervention; (2) reducing migraine frequency and severity with earlier preventive therapy may reduce the chance of escalation (transformation) to a more chronic and refractory form of migraine, although this remains controversial; (3) some evidence suggests that repeated episodes of migraine may lead to permanent central nervous system structural changes and neuronal injury that may be attenuated by early use of preventive medications; and (4) the longer migraine is left untreated, the more difficult it may be to inhibit attacks with preventive medications.

**Identifying and referring diagnosed patients**

**Caveat.** Referring patients with migraine for consideration of preventive therapy should be limited to those who are diagnosed and are receiving medications (OTC or prescription) and/or no pharmacologic therapy for acute migraine treatment. Referring undiagnosed patients for preventive medications, even though they might clearly benefit from them, could be viewed as interference with the health care provider–patient relationship. For the undiagnosed headache patient, referral is primarily to ensure health system access, accurate diagnosis, and treatment.

**Factors to remember.** Most patients have difficulty discuss-
ing medications with their health care providers. Traditionally, pharmacists have been the custodians of this information. Many patients may have been doing well on acute therapy when they last saw their regular health care provider but are no longer doing well, missing follow-up appointments, or lapsing from care for various reasons. Thus, their health care providers may not know that they are now in need of a preventive agent, and patients may be reluctant to return for various reasons. Knowledge gained from the pharmacist that preventive therapy might help considerably could persuade patients to return to their health care providers. These examples alone tend to support the need for identification and referral for preventive therapies.

Some patients with migraine will initiate the discussion of preventive medications with the pharmacist and ask if they may be candidates. Conversely, the pharmacist may

- Observe certain elements such as acute medication overuse (frequent refills of triptans or purchase of OTC products with the acute treatment prescription) (Table 3).
- Sense a potential need for preventive medications through tell-tale comments by the patient, such as, “These drugs just aren’t doing any good.”
- Ask a question to reveal patient satisfaction: “How are these medications working for you?” This is perhaps the most effective initiative.

Work in a pharmacy that has notified local health care providers of its identification service and routinely ask patients if they feel they might benefit from a preventive medication.

Evidence of potential need from these scenarios would prompt the pharmacist to suggest a quick verbal or written interview to determine whether the patient may in fact be a candidate for preventive medications, adding that it may result in referral for that purpose. Methods for this interview include assessing disability through a series of specific questions asked by the pharmacist or use of MIDAS or HIT questionnaires.

### Specific questions pharmacists should ask

The following questions can quickly reveal the effects of migraine and its level of disruption for the patient already receiving prescribed acute treatment, with responses either favoring or not favoring the use of preventive medications:

- How frequently do you experience headache?
- How does migraine affect your daily life, including your work, family, and social life?
- How do your migraines affect your life in between attacks?
- How do you feel when having a migraine, and how do you feel between attacks?
- Has your headache pattern changed in the past 6 months?
- How often do you use medications to treat acute headache, and are they effective?

Patients responding to these questions with even one criterion outlined in Table 2 are not doing well with acute therapies alone and should be considered for referral. Pharmacies are encouraged to prepare the above questions on a sheet of paper (e.g., a pharmacy headache questionnaire), whereby the questions may be asked orally, with pharmacist notations, or the patient may respond with written answers. Additionally, the MIDAS and HIT questionnaires are easy to use, and the patient could fill out one of the questionnaires while waiting for a prescription. If a referral is suggested, the pharmacist should explain the benefits of the referral and offer to provide follow-up counseling regarding proper use of the preventive agent.

The final and most important step before referral is the patient’s willingness or desire for it. In most instances, the referral itself would be passive, in that patients would present the pharmacy headache questionnaire to their health care provider, suggesting they would like to discuss the possible use of a preventive medication. On rare occasions, the pharmacist could contact the health care provider to indicate the patient’s desire for preventive medications and to inform the health care provider that the patient may be a candidate based on headache questionnaire responses. The patient could then present the questionnaire at the time of the referral appointment.

Alternatively, patients unwilling or unable to return to their health care providers could contact the National Headache Foundation online (www.headaches.org) or via phone (888-NHF-5552) for a state-by-state listing of headache specialists, one of whom

---

### Table 2. When migraine-preventive medications are indicated

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurrent migraine headaches that, in the opinion of the patient, interfere with daily routines considerably, despite optimal use of acute treatments.</td>
<td><strong>Indication</strong></td>
</tr>
<tr>
<td>Two or more headaches per month that produce disability lasting longer than 3 days</td>
<td><strong>Indication</strong></td>
</tr>
<tr>
<td>Use of acute (abortive) treatments more than two days per week</td>
<td><strong>Indication</strong></td>
</tr>
<tr>
<td>Acute attacks that produce profound disability or prolonged aura</td>
<td><strong>Indication</strong></td>
</tr>
<tr>
<td>Headache-related disability that occurs 3 or more days per month</td>
<td><strong>Indication</strong></td>
</tr>
<tr>
<td>Frequent headaches (e.g., more than twice weekly) or a pattern of increasing attacks over time (e.g., over a period of 3–6 months)</td>
<td><strong>Indication</strong></td>
</tr>
<tr>
<td>Duration of migraine greater than 48 hours</td>
<td><strong>Indication</strong></td>
</tr>
<tr>
<td>Overuse or likely overuse of acute therapies</td>
<td><strong>Indication</strong></td>
</tr>
<tr>
<td>Failure of acute therapies</td>
<td><strong>Indication</strong></td>
</tr>
<tr>
<td>Adverse effects with or contraindications to acute therapies</td>
<td><strong>Indication</strong></td>
</tr>
<tr>
<td>Patient preference for preventive therapy</td>
<td><strong>Indication</strong></td>
</tr>
<tr>
<td>Uncommon migraine conditions such as hemiplegic migraine or migraine with prolonged aura</td>
<td><strong>Indication</strong></td>
</tr>
</tbody>
</table>

---

Go to www.pharmacist.com and take your test online for instant credit.
would serve as the referral target. A similar service is provided by the American Headache Society (www.achenet.org).

**Counseling patients on the use of preventive medications**

To provide meaningful patient counseling on using preventive medications, pharmacists must remain up to date on preventive modalities and become familiar with practice guidelines.

**Migraine-preventive medications.** Preventive agents currently approved by the U.S. Food and Drug Administration (FDA) are divalproex sodium (Depakote, Depakote ER—Abbott), topiramate (Topamax—Ortho-McNeil-Janssen), and the beta-blockers timolol and propranolol. Although divalproex and topiramate are anticonvulsants, they are more properly termed neurostabilizers when used for migraine prophylaxis. Analysis of clinical studies reveals that the efficacy of these drugs is generally similar, and any one can be considered first-line therapy for migraine prophylaxis. Topiramate has been the most widely studied among these agents. Although not FDA approved, amitriptyline has also shown consistent efficacy as a migraine-preventive medication; some also recommend this agent in the category of first-line therapy.

A capsulized, literature-based, quick-reference look at these five agents, which are considered the most effective migraine-preventive medications, is presented in Table 4.

Many other preventive medications from various pharmacologic classes have shown variable efficacy. Some of these are butropion, cyproheptadine, fluoxetine, gabapentin, ibuprofen, magnesium, methylergonovine, methysergide, naproxen, nortriptyline, phenelzine, riboflavin, sertraline, verapamil, and venlafaxine. The angiotensin II receptor blocker candesartan and the angiotensin-converting enzyme inhibitor lisinopril demonstrated prophylactic benefits in randomized studies. Previously approved by FDA as a preventive medication, the 5HT receptor blocker methysergide lost this status in 2003 because of the risk of retroperitoneal fibrosis.

Botulinum toxin type A (Botox—Allergan) is emerging as a candidate for migraine prophylaxis. Several recent studies have demonstrated the efficacy of this agent, with minimal or no toxicity. Some aspects of commonly used preventive medications that may also be useful during counseling are summarized in Table 5.

**Counseling guidelines.** Studies have shown that patients with chronic conditions have problems when starting new medication; many quickly become nonadherent for various reasons, have concerns and worries, and are in need of information. The pharmacist should serve as a conduit for counseling and educating patients with migraine in these areas; education alone may improve HRQoL.

Pharmacists should have rapid access to drug information to counsel patients. Some useful sources to have at hand are current editions of *USP DI: Drug Information for the Health Professional* and *Drug Facts and Comparisons*. Patients have also indicated that information leaflets on the medications, if available, are useful.

Some areas to address during patient consultation that will have a positive impact are as follows:

- **Goals and benefits of migraine-preventive therapy:** Confidence in the medication is bolstered when the patients are aware of the goals of preventive therapy.
- **How the medication works:** Many patients with migraine want to know how migraines occur and how medications work.
- **Expectations:** Unrealistic expectations of preventive therapy can lead to frustration, nonadherence, perceived treatment failure, and lapse from medical care. Although the benchmark goal of treatment is a 50% reduction in headache frequency, patients should be informed that their response may range from 20% to 50% and that 10% or less of patients are actually free of headache episodes while receiving preventive medications. Patients should not expect an immediate response to preventive medications. Achieving full preventive effects may take 2 to 3 months.
- **Appropriate dose and need for dose titration:** The patient should be informed that incorrect dosage may lead to treatment failure or more adverse events and that self-adjustment of dose in an attempt to increase effectiveness must be avoided. The patient must be made aware that (1) target or optimal doses for preventive medications (Table 5) may vary depending on response; (2) dose titration is important; too

---

**Table 3. Medication-overuse headache versus rebound headache**

<table>
<thead>
<tr>
<th>Medication-overuse headache versus rebound headache</th>
<th>48</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequent use of acute treatments can result in increased headache frequency and possibly daily headaches.</td>
<td></td>
</tr>
<tr>
<td>Migraine-preventive medications should be considered in patients with suspected drug overdose or at risk for overuse.</td>
<td></td>
</tr>
<tr>
<td>Rebound headache</td>
<td></td>
</tr>
<tr>
<td>Associated with withdrawal of analgesics or abortive migraine medication.</td>
<td></td>
</tr>
<tr>
<td>No clear consensus exists regarding which agents cause rebound headache. Generally, evidence points to triptans, opioids, ergotamine (not dihydroergotamine), and analgesics containing butalbital, caffeine, or isometheptene. The causal role of other antimigraine agents is even less clear.</td>
<td></td>
</tr>
</tbody>
</table>

---

Go to www.pharmacist.com and take your test online for instant credit.
rapid an increase can lead to poor tolerability and too slow an increase may result in a poor clinical response, which can lead to nonadherence; (3) the normal titration schedule may also be altered by the health care provider to accommodate the best response; and (4) target doses are usually reached in 4 to 6 weeks, but again, this may vary.

- **Take-home message:** Adhere to the prescribed dose and dose-titration schedule. Unless in a prearranged setting with clinician approval and preestablished guidelines, the pharmacist should not recommend doses different than those prescribed, even if the dose prescribed seems incorrect. If concern exists, the pharmacist should contact the health care provider directly.

- **Proper administration:** Migraine-preventive medications are taken differently than medications for acute treatment. Patients should understand that preventive drugs are most effective when taken on a regular basis.

- **Duration of trial therapy:** The patient must be aware of the duration of treatment required before efficacy or maximal benefit is apparent. For most preventive medications, a trial period of 8 to 12 weeks is considered necessary to assess efficacy.

- **Importance of adherence:** Some key ways to enhance adherence include counseling about realistic expectations, adverse effects, and the duration of treatment required before improvement is seen.

- **Need for acute therapy:** Patients should be told that they could still need their acute therapy should breakthrough attacks occur.

- **Adverse events, cautions, and drug–drug interactions:** Concerns about adverse events have been shown to affect medication adherence considerably in patients with migraine. (1) Adverse events, cautions, and interactions should be discussed, emphasizing the most common complications

---

**Table 4. Most effective migraine-preventive medications: Clinical data capsulized**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Clinical Efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Topiramate</strong></td>
<td>This anticonvulsant demonstrated significant efficacy in randomized controlled studies, with preventive effects often evident in the first month of treatment.(^{10,37,55,56}) The optimal maintenance dose is 100 mg/day. Collective data from several studies suggest a reduction in headache frequency by at least 50% in about one-half of patients receiving 100 mg/day.(^{10}) More evidence supports the efficacy of amitriptyline compared with any other antidepressant.(^{12,37,46}) However, nor-triptylne, doxepin, and protriptyline have also been proven effective. Cross-comparison of clinical studies indicates that the efficacy of topiramate is similar to that of other preventive medications; however, studies with topiramate have involved larger numbers of patients with superior study design. This suggests use of topiramate as an agent of choice for migraine prophylaxis.(^{56})</td>
</tr>
<tr>
<td><strong>Amitriptyline</strong></td>
<td>Several randomized studies have reported a significant reduction in headache frequency or headache index (a combination of headache frequency plus intensity and/or duration) with amitriptyline 30–150 mg/day versus placebo.(^{12,48}) Compared with propranolol, amitriptyline has been less effective in patients with migraine alone but has been significantly superior to propranolol in patients with mixed migraine and tension-type headache.(^{12}) Amitriptyline has particular usefulness in patients with comorbid major depression.</td>
</tr>
<tr>
<td><strong>Propranolol and timolol</strong></td>
<td>Beta blockers are the most frequently used preventive medications. Propranolol and timolol particularly are consistently effective in reducing headache frequency.(^{12,57}) The efficacy of propranolol has been similar to that of divalproex in patients without aura.(^{12}) These two beta blockers have particular usefulness in migraine patients with comorbid hypertension, anxiety, or panic attacks.(^{37}) In contrast with these agents, beta blockers with intrinsic sympathomimetic activity such as acebutolol have no activity as migraine-preventive medications.(^{10,48})</td>
</tr>
<tr>
<td><strong>Divalproex</strong></td>
<td>Divalproex has shown consistent efficacy in reducing the frequency of headache in clinical studies; migraine frequency has been reduced by up to 27% relative to baseline.(^{10,12,58,59}) A dose–response relationship is seen with divalproex over the range of 500–1,500 mg/day.(^{49}) Sodium valproate has also shown efficacy for migraine prophylaxis.(^{37}) Both divalproex and valproate are logical choices for patients with comorbid seizure disorder, mania, and anxiety.</td>
</tr>
</tbody>
</table>
to be expected. (2) Methods to avoid these complications should be provided, if known. (3) Dose titration can minimize many adverse events and should be emphasized. (4) Specific preventive medications can be given to minimize adverse events of particular concern to patients. (5) A quick check for relative or absolute contraindications is also in order because these may have been overlooked in a busy health care provider’s office.

- **Migraine triggers:** The importance of the patient’s headache diary for identifying specific triggers for each patient should be emphasized.
- **Patient questions:** Patients want to know that they can confide in someone for information on medications. The ability to ask questions freely can remove some burden from the concerned patient. This will build patient confidence and is a deterrent to nonadherence. A simple statement such as, “Please feel free to ask me anything further about the medication or your migraine,” from the pharmacist is encouraged.

**Reassurance.** Offering reassurance to the patient receiving a migraine-preventive medication is perhaps one of the most important roles of the pharmacist. Many patients need reassurance; they want to know what is wrong with them and how it can be fixed. In particular, shifting out of a clinical discussion and into a discussion of the daily worries of the patient can contribute greatly to improving adherence and a better preventive outcome.

---

**Table 5. Counseling sheet for some commonly used migraine-preventive medications**

<table>
<thead>
<tr>
<th>Preventive Medication</th>
<th>Mechanism*</th>
<th>Target dose and titration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amitriptyline</td>
<td>Antinociceptive restoration, downregulates 5HT_2 receptors, other mechanisms hypothesized</td>
<td>50 mg/day (begin with 10 mg at bedtime, increase by 10 mg/week)</td>
</tr>
<tr>
<td>Divalproex</td>
<td>Modulates neural/cortical excitability, increases GABA activity, reduces sensitization of trigeminal nerve</td>
<td>1,000 mg/day (begin with 250 mg twice daily, titrate by 250 mg/week; for ER form, start at 500 mg/day, increase to 1,000 mg/day after 1 week)</td>
</tr>
<tr>
<td>Magnesium gluconate</td>
<td>May restore a deficiency in brain magnesium in migraine; many other putative mechanisms</td>
<td>800 mg/day (begin with 400 mg/day, increase to 800 mg/day within 1 week)</td>
</tr>
<tr>
<td>Naproxen sodium</td>
<td>Antinociceptive activity; inhibits prostaglandin synthesis</td>
<td>550 mg twice daily (dose titration guidelines lacking)</td>
</tr>
<tr>
<td>Nortriptyline</td>
<td>Antinociceptive activity, downregulates 5HT_2 receptors; other mechanisms hypothesized</td>
<td>50 mg/day (begin with 10 mg at bedtime, titrate by 10 mg/week)</td>
</tr>
<tr>
<td>Propranolol</td>
<td>Reduces central excitability; antagonism of 5HT_1B, 5HT_2B receptors; inhibits NE release</td>
<td>120–160 mg/day (begin with 40 mg/day divided doses, increase by 40 mg/week)</td>
</tr>
<tr>
<td>Riboflavin</td>
<td>Unclear; may affect mitochondrial function (electron transport chain)</td>
<td>400 mg (begin at target dose, 200 mg at bedtime)</td>
</tr>
<tr>
<td>Topiramate</td>
<td>Modulates neural/cortical excitability, blocks voltage-dependent sodium channels, potentiates GABA</td>
<td>100 mg/day (begin with 25 mg/day, titrate by 25 mg/week in divided doses)</td>
</tr>
<tr>
<td>Venlafaxine (ER)</td>
<td>Unclear</td>
<td>ER 75–150 mg/day (begin with 37.5 mg/day, increase to 75 mg/day after 1 week, then increase by 75 mg/week based on response)</td>
</tr>
<tr>
<td>Verapamil</td>
<td>Inhibits neuronal NO synthase, blocks hyperalgesia, calcium-blocking effects reduce sensitization of central pain pathways</td>
<td>240–480 mg/day (begin with 40 mg twice daily, titrate up by 40 mg/week; for ER form, begin with 160 mg/day, increase to 240 mg/day in 1 week)</td>
</tr>
</tbody>
</table>

*Mechanisms of most migraine-preventive medications are unknown; entries here are speculations based on what is currently known about migraine pathophysiology.

Abbreviations used: 5HT, serotonin; CHF, congestive heart failure; ER, extended release; GABA, gamma-aminobutyric acid; GI, gastrointestinal; ISA, intrinsic sympathomimetic activity; NE, norepinephrine; NO, nitric oxide.
An overwhelming concern to the patient may be resolved by a simple comment from the pharmacist. For example, those experiencing the migraine cycle who see no hope of improving this constant disruption should be reassured that preventive medications will in all likelihood have some benefit by reducing the frequency and severity of attacks, disability, and absence from usual activities. Reassurance, however, must still be tempered by realistic expectations.

Sensitivity is important to the patient, not only when a diagnosis is given but also during counseling. Similar to the benefits derived from patient education, the concern and sensitivity of the pharmacist in understanding the impact of migraine on a patient’s life may alone lend itself to improving perceived HRQoL.

The pharmacist should also reassure the patient that he/she will be available for further questions that the patient may have about migraine prevention.

**Communication techniques.** Migraine is not diagnosed via objective data but by patient-reported symptoms. Thus, good communication is paramount. Yet patients are often unable to express concerns and fears about their headaches. This may lead to misunderstandings that can compromise the quality of care, including inappropriate treatment or even misdiagnosis.

Effective communication between the pharmacist and patient is also essential. Giving patients an opportunity to respond to questions without restriction, in order to gain a clear understanding of a patient’s level of disability, is impera-
tive. This also helps the patient who wants to be understood. Pharmacists must also be clear when providing counseling to avoid misinterpretations or lack of understanding on the part of patients that could compromise the success and safety of preventive therapy. An effort should be made to choose words that patients might recognize easily (e.g., effectiveness instead of efficacy). Clarification should also be sought (e.g., “How well have I explained your instructions?”).

Results derived from the American Migraine Communication Study (AMCS) suggested that health care providers were often unaware of the degree of impairment in their patients with migraine, which is critical to appropriate prescribing of preventive medications. This was related to a lack of communication techniques that were known to improve patient care outcomes. To facilitate improved communication, AMCS recommended the following:

- Using open-ended questions to ascertain migraine disability during and between attacks. Several open-ended questions are used in the pharmacy headache questionnaire described earlier.
- Using ask/tell/ask strategies. An example is asking patients what they know about migraine, then telling patients what they need to know (tailoring this to what patients have said), and then asking patients if they have further questions or foresee any problems adhering to what was recommended.
- Medications should be explained beyond referral to a drug class. For example, explain that diveralproex and topiramate are migraine-preventive medications and antiepileptics and that amitriptyline is a preventive agent and an antidepressant drug. In the context of migraine-preventive medications, patients find drug–class descriptions confusing and misleading.

**Conclusion**

Migraine is a common disorder that imposes considerable pain and disability on patients; however, it remains underrecognized, -diagnosed, and -treated. The migraine cycle, which involves both the pain and disruption of the migraine attack and interictal worry, greatly affects patients' daily lives and emotional states. The interictal burden is often overlooked by health care providers, who may not consider the total disruption during and between migraine attacks.

Migraine-preventive medications are underused. Studies show that 40% to 60% of migraine patients should be on preventive medication. Migraine-preventive agents can reduce headache frequency and severity, lessen disability, improve quality of life, and enhance response to acute treatment medications.

The unmet needs in migraine may be at least partially addressed by involving the pharmacist in migraine management. The pharmacist can improve the poor diagnosis rate by referring undiagnosed headache patients with suspected migraine to a health care provider. They can identify diagnosed patients who are in need of preventive therapy, refer appropriate patients for preventive consideration, and educate and counsel patients receiving preventive therapies on their proper and safe use. Pharmacists are encouraged to become involved in migraine management because they can have a great impact on patient care.

**References**

42. Blau JN. Fears aroused in patients by migraine. BMJ. 1984;288:1126.
Assessment Questions

Instructions: You may take the assessment test for this program on paper or online. For each question, circle the letter on the answer sheet corresponding to the answer you select as being the correct one. There is only one correct answer to each question. Please review all your answers to be sure that you have circled the proper letters. To take the CE test for this article online, go to www.pharmacist.com and click Education. Once you are on the Education welcome page, search for this article with the search function, using “CE” and a keyword. Follow the online instructions to take and submit the assessment test. This CE will be available online at www.pharmacist.com after August 31, 2008. You can also find it on www.pharmacytoday.org.

1. Women are approximately how many times more likely to have migraine than men?
   a. 2
   b. 3
   c. 4
   d. 5

2. According to American Migraine Study II, approximately what percent of migraine sufferers report substantial debilitation with their attacks?
   a. 2 of 10
   b. 4 of 10
   c. 7 of 10
   d. 9 of 10

3. Assuming the population of the United States is 300 million people, approximately how many individuals suffer from migraine?
   a. 50,000
   b. 1 million
   c. 15 million
   d. 39 million

4. How many migraine sufferers are undiagnosed or misdiagnosed?
   a. 10%
   b. Approximately 50%
   c. 2 million
   d. 20%

5. Historically, migraine was viewed as a vascular disorder. Current data illustrate that migraine is primarily a
   a. Nephrology disorder.
   b. Peripheral vascular disorder.
   c. Neurologic disorder.
   d. None of the above alternatives are correct.

6. Goals for migraine-preventive drug therapy include
   a. Reducing attack frequency, duration, and severity.
   b. Ensuring patients take a drug daily.
   d. Improving cerebral circulation.

7. A biological marker useful for the diagnosis of migraine is
   a. Magnetic resonance imaging.
   b. Serum serotonin levels.
   c. Currently no biological marker exists for migraine.
   d. Computed tomography scans.

CE Credit:
To obtain 2.0 contact hours of continuing education credit (0.2 CEUs) for “Migraine-preventive medications: Ensuring their appropriate use,” complete the assessment exercise, fill out the CE examination form at the end of this article, and return to APhA. You can also go to www.pharmacist.com and take your test online for instant credit. CE processing is free for APhA members and $15 for nonmembers. A Statement of Credit will be awarded for a passing grade of 70% or better. Pharmacists who complete this exercise successfully before August 1, 2011, can receive credit.

The American Pharmacists Association is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education. The ACPE Universal Program Number assigned to the program by the accredited provider is 202-000-08-152-H01-P.

“Migraine-preventive medications: Ensuring their appropriate use” is a home-study continuing education program for pharmacists developed by the American Pharmacists Association.
Questions 8 to 14 refer to the following case: L.W., a 26-year-old woman with “bad headaches that put me on the couch,” seeks your advice. Upon questioning, she reports, “I get an attack every week or two, I’m always worried when the next one will strike.” She reports that lately she frequently “misses work, much to the dismay of my boss. I’m so busy, don’t exercise anymore, and live off of coffee. Plus, I recently got engaged and my future mother-in-law is driving me crazy about the wedding plans.” L.W. says, “I pop ibuprofen all day long, even though it seems futile, yet I still keep taking more and more of it because I do not know what else to do.”

8. Which of the following is correct?
   a. If L.W. increases her dose of ibuprofen, she may obtain relief.
   b. L.W. should try aspirin because it has proven more effective than ibuprofen.
   c. Given her attack frequency and considerable worry between attacks, L.W. is a candidate for migraine-preventive therapy.
   d. L.W. should be prescribed an antiemetic, as this could improve her response to ibuprofen.

9. Why is L.W. a candidate for migraine-preventive drug therapy?
   b. The significant expense of ibuprofen.
   c. Her migraine attacks are disrupting her life.
   d. Poor response to an over-the-counter (OTC) product.

10. The best way in which you can help L.W. find a physician knowledgeable about headache treatment is
    a. Suggesting an Internet search.
    b. Suggesting the National Headache Foundation (www.headaches.org) or the American Headache Society (www.achenet.org).
    c. Pharmacists should not refer patients to physicians.
    d. Encouraging her to look in a local phone book.

11. Based on your recommendation, L.W. schedules an appointment with a physician, who diagnoses her with migraine without aura and prescribes both acute and preventive medications. Your counseling should include which of the following items:
    a. Educating the patient about the need to consume her preventive drugs daily.
    b. Educating the patient about incorporating healthy lifestyle activities.
    c. Educating her that the preventive medications may require several weeks to reach full effect.
    d. All of the above alternatives are correct.

12. L.W.’s physician calls you to ask which medications are currently approved by the Food and Drug Administration for migraine prevention. Your answer includes the following:
    a. Divalproex sodium, atenolol, nortriptyline
    b. Divalproex sodium, topiramate, propranolol
    c. Propranolol, timolol, zonisamide
    d. Topiramate, amitriptyline, butalbital/acetaminophen/caffeine (Fioricet—Watson)

13. The best mechanism for L.W. (and all patients) to identify factors that may contribute to her migraine attacks is
    a. Consistently completing headache diary information.
    b. Internet search of the term migraine triggers.
    c. Routine pharmacy visits.
    d. Routine appointments at their physician’s office.

14. Counseling L.W. (and all patients) about her preventive medications is best achieved by
    a. Using open-ended questions.
    b. Using tape recordings.
    c. The pharmacist simply telling the patient about their drug.
    d. All of the above alternatives are correct.
15. Withholding migraine-preventive medications until the attacks are severe or incapacitating may not be optimal drug treatment because
   a. Preventive medications may reduce psychosocial impairment.
   b. Reducing migraine frequency/severity may reduce the change of disease escalation.
   c. Repeated migraine attacks may lead to permanent central nervous system changes.
   d. All of the above alternatives are correct.

16. All of the following are opportunities for pharmacists to assist migraine patients except
   a. Identifying people who may benefit from preventive therapy.
   b. Identifying patients overusing acute agents.
   c. Identifying managed care plan patients.
   d. Identifying undiagnosed or misdiagnosed migraine sufferers.

17. According to the World Health Organization, migraine is
   a. One of the top 20 causes of disability worldwide.
   b. A predominantly European illness.
   c. Uncommon in third-world countries.
   d. Most common in Asian cultures.

18. The peak prevalence of migraine is among
   b. Women older than 55 years.
   d. Women 40–45 years of age.

19. Emotional debilitation may persist between migraine attacks, which is known as the
   a. Let-down phase.
   b. Interictal phase.
   c. Resting phase.
   d. Pain-free phase.

20. Reasons patients may not seek help for migraine include all of the following except
   a. They do not believe that they have migraine.
   b. They believe that OTC agents worked just fine.
   c. They do not know what migraine-specific medications are available.
   d. Excess counseling fees charged by pharmacists.
CE ASSESSMENT QUESTIONS—ANSWERS

Please circle your answers (one answer per question).

1. a b c d
2. a b c d
3. a b c d
4. a b c d
5. a b c d
6. a b c d
7. a b c d
8. a b c d
9. a b c d
10. a b c d
11. a b c d
12. a b c d
13. a b c d
14. a b c d
15. a b c d
16. a b c d
17. a b c d
18. a b c d
19. a b c d
20. a b c d

PROGRAM EVALUATION

EXEMPLARY  POOR

PLEASE RATE THE FOLLOWING ITEMS.

1. Overall quality of the program  5 4 3 2 1
2. Relevance to pharmacy practice  5 4 3 2 1
3. Value of the content  5 4 3 2 1

PLEASE ANSWER EACH QUESTION, MARKING WHETHER YOU AGREE OR DISAGREE.

4. The program met the stated learning objectives:
   After reading this CE article, the pharmacist should be able to:
   • State migraine’s prevalence and the percentage of sufferers prescribed migraine-preventive agents.  ✓  ❌
   • Discuss migraine’s impact on individuals in terms of decreased quality of life and reduced work productivity.  ✓  ❌
   • List at least three barriers that prevent patients from recognizing migraine.  ✓  ❌
   • Describe at least three opportunities for pharmacists to improve the diagnosis and treatment of migraine.  ✓  ❌
   • State the goals of migraine-preventive therapy.  ✓  ❌
   • Describe at least three key counseling points for patients prescribed migraine-preventive therapy.  ✓  ❌

5. The program increased my knowledge in the subject area.  ✓  ❌
6. The program did not promote a particular product or company.  ✓  ❌

IMPACT OF THE ACTIVITY

The information presented (check all that apply):
7. ❒ Reinforced my current practice/treatment habits  ❒ Will improve my practice/patient outcomes  ✓  ❌
   ✔ Provided new ideas or information I expect to use  ❒ Adds to my knowledge  ✓  ❌
8. Will the information presented cause you to make any changes in your practice?  ✓ Yes  ❌ No
9. How committed are you to making these changes?  (Very committed)  5 4 3 2 1 (Not at all committed)
10. Do you feel future activities on this subject matter are necessary and/or important to your practice?  ✓ Yes  ❌ No

FOLLOW-UP

As part of our ongoing quality-improvement effort, we would like to be able to contact you in the event we conduct a follow-up survey to assess the impact of our educational interventions on professional practice. Are you willing to participate in such a survey?
 ✓ Yes  ❌ No
CVS Caremark redefines pharmacy by integrating the personalized reach of the nation’s largest retail pharmacy with the innovative delivery technology of the nation’s premier pharmacy benefits management provider. The result is health care that has the ability to enhance the lives of millions of patients in the United States.

We leverage the tremendous resources of CVS Caremark to provide our pharmacists limitless possibilities to grow personally and professionally.

As the leading pharmacy innovator in the nation, we seek the best pharmacists to join us in our constant quest to redefine health care everyday.
Master of Science in Pharmacy
6 Unique Online Majors

The University of Florida online graduate programs offer six distinct areas of study in pharmacy policy, regulation, economics and patient safety. Select the program that can provide you with the knowledge and credentials you need to transition into an interesting and rewarding career path.

- Pharmacy Regulation & Policy: Careers in regulatory compliance and government relations
- Drug Regulatory Affairs: New drug approval and post-marketing surveillance positions
- Applied Pharmacoeconomics: Account management and outcomes research support
- Patient Safety & Risk Management: Responsibility for error prevention & risk reduction
- Clinical Research Regulation & Ethics: Oversee clinical trials & participate in IRB activities
- Forensic Pharmacy: Consult with law enforcement and private attorneys

The University of Florida brings ONLINE graduate education to working professionals. Visit our web site to learn more!

http://pharmreg.dce.ufl.edu
Stop Feeling Trapped

Let Rx relief* help your profession work for you.

Our pharmacists tell us their Rx relief* career works for them because it offers the benefits of a corporate employer, the flexibility of a small pharmacy owner, and the control they’ve wanted to create an independent lifestyle.

So, while employers are advertising everywhere with special offers and incentives, only Rx relief* lets you optimize your return as a pharmacist in a respectful environment while you exercise more control over your work and your working conditions.

---

**Control Your Schedule**
**Change Your Scenery**
**Avoid Workplace Games**
**Control Your Income**

---

For pharmacists who want to excel in their profession and in their lives.

---

CONSIDER YOURSELF A PROFESSIONAL? CONSIDER A CAREER AT HCA.

We hold the pharmacy profession in highest regard. We also hold them accountable. Not just for excellent patient care, but for input on policy and operational issues, including staffing, delivery of care and quality improvement. If you’re a pharmacist who shares our values of safety, quality, collaboration and accountability, consider practicing your profession at HCA.

---

Explore Your Options

Join VA and advance your career better than anywhere else. As a VA clinical pharmacist, you can be at the bedside as part of a patient care team, obtain prescriptive authority, run a medication management clinic, conduct research, train pharmacy residents, and more. You’ll also earn a competitive salary and a robust benefits package:

- 13 to 26 days annual paid vacation
- 13 sick days and 10 holidays
- Flexible scheduling
- Exceptional education support and student debt reduction programs
- Stable health and retirement benefits
- One license covering all 50 states

VA is committed to hiring veterans

---

Visit www.ACareerAtHCA.com to learn more.
CONTINUING EDUCATION
PHARMACY INSTRUCTORS
Cross Country Education, a national health care continuing education company, is recruiting credentialed and experienced Pharmacy professionals to instruct seminars on a nationwide scale.
CCE handles ALL of the logistics and offers a full time speaker support department. Additional opportunities include on-site training events, eLearning courses and national conferences.
Send resume to:
Cross Country Education
P.O. Box 200 • Brentwood, TN 37024
Attn: Program Development
or visit CrossCountryEducation.com and click Join Our Faculty to apply.

INCENTIVE GRANTS (APhA FOUNDATION)
The APhA Foundation is offering incentive grants in 2009 for the following:

- Community pharmacy residents and their preceptors
- Community/ambulatory practice
- Pharmacists focusing on serving patients with pain management
- Pharmacy-based immunization services
- Military or civil service pharmacists working in the Army, Air Force, Coast Guard, Navy, Department of Veterans Affairs, or the Public Health Service

These grants provide pharmacists with seed money to implement or support an existing patient care service within their pharmacy practice.

Applications are now available. For more information or to access applications, please visit www.aphafoundation.org.
Deadline for federal grants is December 15, 2008.
Deadline for all other grants is October 15, 2008.

For questions, please e-mail the Foundation at info@aphafoundation.org.

Supported by:

Applies for a Grant Today to Help Improve Patient Care Within Your Pharmacy

AcipHex (Eisai) .............................................................. 23–24
Awards Program (APhA) .................................................... 19
Book of the Month (APhA) ................................................. 25
Smoking Cessation (Pfizer) ............................................... C2
Claritin (Schering-Plough) .................................................. 9
Corporate (HPSO Affinity Insurance Services) .......... C4
Corporate (Lexi-Comp) ..................................................... 33
Incentive Grants (APhA Foundation) ......................... 55
Joint Forces Pharmacy Seminar (APhA) ................. C3
LiceMD (Combe) ............................................................. 5
Marketing Merchandise (APhA) ................................. 20
Optive Global Promo (Allergan) ................................. 2
Recruitment (CVS) ......................................................... 52
Recruitment (University of Florida) ......................... 53
Restasis (Allergan) .......................................................... 3–4
Child resistant does not mean childproof

Last year, news media in Minneapolis reported a tragic story about a 15-month-old child who had died after ingesting the contents of a bottle containing a compounded liquid formulation of flecainide (Tambocor—3M Pharmaceuticals). The child had a congenital heart defect that required her parents to administer three doses of the medication each day. Because she occasionally required an extra dose to control acute episodes of tachycardia, her parents carried the medication in the child’s diaper bag. At a friend’s home, the mother sat the child on the floor next to the diaper bag while she ran into the kitchen to get a bottle of milk from the refrigerator. In that short amount of time, her child was able to remove the cap from the bottle and drink the medication. The child was rushed to the hospital but could not be saved.

The parents were shocked at how easily the child was able to remove the child-resistant cap and were surprised that they were never warned of the severe risks of this medication at any time during her treatment. They shared their story with local media after viewing a news investigation that warned parents about how easily a group of children between the ages of 3 and 8 years could open various child-resistant containers from a sampling of area pharmacies. Despite the variation of bottles and vials with accompanying child-resistant caps, all appeared to meet federal standards outlined in the Poison Prevention Packaging Act (PPPA).

Preventing deaths

PPPA was established in the early 1970s in response to the number of unintentional poisoning deaths among young children. This law gives the Consumer Product Safety Commission the authority to require child-resistant packaging on oral prescription medications as well as many household products. A child-resistant package is designed to be sufficiently difficult for children under 5 to open or obtain a harmful amount of its contents within a reasonable time but not difficult for average adults to use properly. To be child resistant, 85% of tested children younger than 5 years must not be able to open the package within 5 minutes—meaning that 15% of children can open the package quickly—and 90% of tested adults must be able to open and properly close the package within 5 minutes.

Although this packaging has decreased considerably the number of unintentional poisoning deaths among children younger than 5 years, poison centers across the nation received more than 1.3 million calls in 2003 about unintentional exposures. More than 40% of these calls were related to ingestions of pharmaceuticals by young children.

Safe practice recommendations

Consider the following steps to help protect children from accidental poisonings:

- Remind patients that all prescription and OTC medications, as well as vitamins, herbal remedies, and household products, are potentially dangerous to children and should be kept out of their reach and sight.
- Warn parents, grandparents, and caregivers that medications stored in non–child-resistant vials, pillboxes, or weekly pill planners must not be accessible to children. More than one-third of all childhood ingestions involve a grandparent’s medication.
- If non–child-resistant caps are requested, explain (or provide a leaflet that explains) the risk of accidental poisoning and what preventive steps should be taken to safeguard medications. Promote the use of child-resistant caps, especially for those who have children living with or visiting them.
- Demonstrate how to properly open and close child-resistant containers to those who find it difficult before resorting to non–child-resistant caps.
- Periodically query patients with blanket requests for non–child-resistant closures to verify that they understand the consequences if children access these medications.
- Ensure that the child-resistant packaging used at your pharmacy meets current standards by requesting child-resistant packaging test data from the prescription vial manufacturer or supplier.
- Do not mix vials and closures from different manufacturers because they may not function properly together.
- Use additional resources that are available at www.poisonprevention.org and www.cpsc.gov.

—Institute for Safe Medication Practices

The reports described in this column were received through the USP-ISMPE Medication Errors Reporting Program (MERP). Errors, close calls, or hazardous conditions may be reported on the Institute for Safe Medication Practices (www.ismp.org) or U.S. Pharmacopeia (www.usp.org) Web sites or communicated directly to ISMP by calling 800-FAIL-SAF (800-324-5723) or e-mailing ismpinfo@ismp.org. The topics in this column are covered in greater detail in Medication Errors, 2nd edition, written by ISMP President Michael R. Cohen, BPharm, MS, ScD. The book may be purchased from APhA at www.pharmacist.com or by calling 800–878–0729.
Join your colleagues at JFPS 2008 and stay lengths ahead in the race to wellness!

When: November 3 – 6, 2008

Where: Kentucky International Convention Center and The Galt House – Louisville, KY

Who should attend: Pharmacist and Pharmacy Technicians from active duty, reserve or retired communities, or civilian pharmacists and pharmacy technicians assigned to an Army, Navy, Air Force or Coast Guard facility.

JFPS is the ONE MEETING with education programs addressing the important issues in armed forces pharmacy practice and the opportunity to earn up to 24 hours of continuing education credit. JFPS also provides numerous networking events, a poster program, a world-class exposition, a 5K Fun Run, service dinners, and more!

Professional Liability Insurance through HPSO.

You’ve insured your car and your home, but have you protected your most valuable asset – your pharmacist license?

One of the primary benefits of having your own individual professional liability policy is that you and your best interests will be protected above all others if you are named in a malpractice lawsuit.

In addition, a good individual policy also provides extended coverage features not typically included in an employer’s policy – such as license protection or deposition representation in the event you are faced with disciplinary action by your state board.

**Apply today for peace of mind!**  [www.hpso.com/apha8](http://www.hpso.com/apha8)

Quick, Easy & Secure On-Line Application!

Sponsored by:


[Healthcare Providers Service Organization](http://www.hpsoservices.com)

Professional Liability Insurance coverage through HPSO will provide the individual protection you will need in your career as a licensed pharmacist.

This program is underwritten by American Casualty Company of Reading, Pennsylvania, a CNA company and is offered through the Healthcare Providers Service Organization Risk Purchasing Group. Coverages, rates and limits may differ in some states. This material is for illustrative purposes only and is not a contract. It is intended to provide a general overview of the products and services offered. Only the policy can provide the actual terms, coverages, amounts, conditions and exclusions. CNA is a service mark and trade name registered with the U.S. Patent and Trademark Office.

Healthcare Providers Service Organization is a division of Affinity Insurance Services, Inc.: in CA (License #0795465), MN & OK, AIS Affinity Insurance Agency, Inc.; and in NY, AIS Affinity Insurance Agency.

© 2008 Affinity Insurance Services, Inc.

Questions? Call 1-800-982-9491

Only $140 a year for a full-time, employed Pharmacist!