THE UNORDERED REFILL
10 more unsolicited tips for new grads 15

NEW MODEL
A resource for the uninsured 28

NEW DRUG REVIEW
DALBAVANCIN
A NEW ANTIBACTERIAL PG. 52

Drug Topics®
VOL. 158 NO. 11
Voice of the Pharmacist
DrugTopics.com
November 2014

PharmD options

Six pharmacy schools offer nontraditional path for RPhs

page 38

CPE CREDIT: 2.0

Earn CE credit for this activity at DrugTopics.com/cpe

MTM essentials for weight management

Page 56

twitter.com/Drug_Topics
facebook.com/DrugTopics

ADVANSTAR
MEDICAL COMMUNICATIONS GROUP

Drug Topics®

EDITORIAL ADVISORY BOARD

Editorial Mission: *Drug Topics*, a monthly news magazine guided by an editorial advisory board of pharmacy experts, reports on all phases of community, retail, and health-system issues and trends. We offer a forum for pharmacists to share practical ideas for better pharmacy management and patient care.

CONTENT

CONTENT CHANNEL DIRECTOR Julia Talsma
440-891-2792 / jtalsma@advanstar.com

CONTENT CHANNEL MANAGER Julianne Stein
440-826-2834 / jstein@advanstar.com

CONTENT EDITOR Mark Lowery
440-891-2705 / mlowery@advanstar.com

GROUP ART DIRECTOR Robert McGarr

ART DIRECTOR Lecia Landis

PUBLISHING AND SALES

EXECUTIVE VICE PRESIDENT Georgiann DeCenzo
440-891-2778 / gdecenzo@advanstar.com

VICE PRESIDENT, GROUP PUBLISHER Ken Sylvia
732-346-3017 / ksylvia@advanstar.com

GROUP PUBLISHER Mike Weiss
732-346-3071 / mweiss@advanstar.com

NATIONAL ACCOUNT MANAGER Mark Hildebrand
732-346-3006 / mhildebrand@advanstar.com

DIRECTOR, OF BUSINESS DEVELOPMENT, HEALTHCARE TECHNOLOGY SALES Margie Jaxel
732-346-3003 / mjaxel@advanstar.com

ACCOUNT MANAGER, DISPLAY/CLASSIFIED & HEALTHCARE TECHNOLOGY Patrick Carmody
440-891-2621 / pcarmody@advanstar.com`

ACCOUNT MANAGER, CLASSIFIED/DISPLAY ADVERTISING Joan Maley
440-891-2722 / jmaley@advanstar.com

ACCOUNT MANAGER, RECRUITMENT ADVERTISING Joanna Shippoli
440-891-2615 / jshippoli@advanstar.com

BUSINESS DIRECTOR, EMEDIA Don Berman
212-951-6745 / dberman@advanstar.com

SPECIAL PROJECTS DIRECTOR Meg Benson
732-346-3039 / mbenson@advanstar.com

DIRECTOR OF MARKETING & RESEARCH SERVICES Gail Kaye
732-346-3042 / gkaye@advanstar.com

SALES SUPPORT Hannah Curis
732-346-3055 / hcuris@advanstar.com

REPRINT SERVICES
877-652-5295, ext. 121 / bkolb@wrightsmedia.com
Outside US, UK, direct dial: 281-419-5725, ext. 121

LIST ACCOUNT EXECUTIVE Tamara Phillips
440-891-2773 / tphillips@advanstar.com

PERMISSIONS Maureen Cannon
440-891-2742 or 800-225-4569, ext. 2742
Fax: 440-891-2650 / mcannon@advanstar.com

PRODUCTION

SENIOR PRODUCTION MANAGER Karen Lenzen
218-740-6371 / klenzen@media.advanstar.com

AUDIENCE DEVELOPMENT

CORPORATE DIRECTOR Joy Puzzo
440-319-9570 / jpuzzo@advanstar.com

DIRECTOR Christine Shappell
201-391-2359 / cshappell@advanstar.com

MANAGER Joe Martin
218-740-6375 / jmartin@advanstar.com

CIRCULATION

SUBSCRIPTION CUSTOMER SERVICE/ADDRESS CHANGES
888-527-7008 / magazines@superfill.com
PO Box 6079, Duluth, MN 55806-6079, USA

CONTACT US

24950 COUNTRY CLUB BLVD., SUITE 200
NORTH OLMSTED, OHIO 44070
MAIN NUMBER: 440-243-8100
MAIN FAX NUMBER: 440-891-2735
CUSTOMER SERVICE: 877-922-2022
EMAIL: DRUGTOPICS@ADVANSTAR.COM

At Amgen, we pour commitment, passion, and a drive for perfection into every biologic medicine we make.

From innovative biotechnology to extensive experience in biologic manufacturing, see how Amgen strives to deliver on its commitment to your patients.

BIOTECHNOLOGY BY AMGEN®
Our Roots Go Deep

Take a deeper look at our reliability and quality
visit **biotechnologybyamgen.com**
Download the LAYAR app on your smartphone and scan this page.

CONTENTS

November 2014

Drug Topics®
Voice of the Pharmacist
DrugTopics.com

Vol. 158 No. 11

COVER STORY

PharmD options

For RPhs who want to return to school but need to keep working, several pharmacy programs offer a nontraditional path. PAGE 38

PRESCRIBED READING

SPECIAL DIABETES SUPPLEMENT

GETTY IMAGES / ISTOCKPHOTO

One prescription from one prescriber for one patient.

FIRST®
UNIT-OF-USE PRESCRIPTION COMPOUNDING KITS

Each FIRST® Kit contains everything you need to compound a single prescription.

FIRST® Unit-of-Use Compounding Kits are the fast, easy way for you to compound individual prescriptions for your customers as they wait. Each Kit:

- has everything needed to compound *one prescription from one prescriber for one patient*
- contains pre-weighed, pre-measured ingredients to support complete accuracy
- saves prep, compounding and cleanup time
- facilitates compliance with USP Chapter <795>
- has a single NDC number that saves time and eliminates waste, also eases third-party reimbursement

In fact, FIRST® Kits make compounding so fast and easy, they're changing the way pharmacists think about compounding.

To learn more, call

1-800-461-7449

www.cutispharma.com

Each Kit contains everything needed for a single prescription

FIRST®
Progesterone Vaginal Suppository USP Compounding Kit

VGS 25	NDC # 65628-060-01
VGS 50	NDC # 65628-061-01
VGS 100	NDC # 65628-062-01
VGS 200	NDC # 65628-063-01
VGS 400	NDC # 65628-064-01

Many more Kits are available. Visit www.CutisPharma.com

facebook.com/CutisPharma twitter/CutisPharma

CUTISPHARMA®

November 2014 Drug Topics Voice of the Pharmacist Vol. 158 No. 11

CPE CONTINUING EDUCATION

MTM essentials for weight management

As providers on the front lines of the obesity epidemic, pharmacists are uniquely qualified to match meds to patients. They can also monitor for adverse effects and help guide and motivate patients seeking to lose weight. PAGE 56

What's happening now at DrugTopics.com

SOCIAL MEDIA

JOIN US ONLINE!
Read the latest breaking news and give us your feedback!

facebook.com/DrugTopics

twitter.com/Drug_Topics

DT BLOG

Pain management and opiate reduction
A pharmacist has developed a 7-step approach to treating pain and reducing opiate use — and providers don't want to hear about it. What's that about? Get the story at *www.drugtopics.com*.

WEB EXCLUSIVES

New combo pill for T2DM
http://drugtopics.com/xigduo

Video: Protecting pharmacy data
http://drugtopics.com/pharmdata

How to boost your MTM reimbursements
http://drugtopics.com/MTMbilling

DIGITAL EDITION

Subscribe to the monthly digital edition of *Drug Topics* and receive the journal electronically with live links. Go to *http://drugtopics.com/digital*.

Drug Topics (ISSN# 0012-6616) is published monthly and Drug Topics Digital Edition (ISSN# 1937-8157) is issued every week by Advanstar Communications, Inc., 131 West First St., Duluth, MN 55806-2065. One-year subscription rates: $61 in the United States & Possessions; $109 in Canada and Mexico; all other countries, $109. Single copies (prepaid only) $10 in the United States; $10 in Canada and Mexico; all other countries, $15. Include $6 per copy for U.S. postage and handling. **Periodicals postage paid** at Duluth, MN 55806 and additional mailing offices. **POSTMASTER:** Please send address changes to Drug Topics, P.O. Box 6079, Duluth, MN 55806-6079. Canadian G.S.T. number: R-124213133RT001. Publications Mail Agreement Number 40612608. Return undeliverable Canadian addresses to: IMEX Global Solutions PO Box 25542 London, ON N6C 6B2 CANADA. Printed in the U.S.A.

GETTY IMAGES / FLICKR RF

Inter@ctive

TRENDING NOW

Surcharges on Rxs filled at pharmacies that sell tobacco

Starting next year, CVS Health may charge additional $15 copays to patients who fill prescriptions at pharmacies that sell tobacco. The tobacco surcharge is an option insurance companies and employers can choose or reject.

http://drugtopics.com/tobaccosurcharge

TWITTER.COM/DRUG_TOPICS

Follow us on Twitter to receive the latest news and participate in the discussion.

A few recent tweets and retweets from and about *Drug Topics*

ali mcbride
@sheik2411
@Drug_Topics: #Pharmacy reimbursement How to make the most of #MTM. bit.ly/1plulxQ" For oncology specialty sites.... This is a must!

ChurchStreetRx
@ChurchStreetRx
Drug Topics @Drug_Topics Hospitals infuriated by Genentech's price hikes of three critical #CancerDrugs. Story @TIME. ti.me/ZY357B

Anny
@annyloves2cook
San Francisco considers drugmaker-funded #DrugTakeBack program. bit.ly/1wDjGdx

Curtis Drees
@cdrees8512
@Drug_Topics: #CVSCaremark to impose surcharges on Rxs filled at #pharmacies selling #tobacco. bit.ly/1pHGq6o"

Drug Topics App

Have all the benefits *Drug Topics* offers at your fingertips. The *Drug Topics* app for iPad and iPhone is now free at the iTunes store.

Available on the App Store

YouTube

SEE AND HEAR PHARMACISTS, INDUSTRY LEADERS, AND PHARMACY ADVOCATES DISCUSS NEWS AND ISSUES OF IMPORTANCE TO PHARMACISTS. EXCLUSIVE VIDEOS ONLY AVAILABLE THROUGH *DRUG TOPICS*.

Protecting your pharmacy against data breaches

Chad Leedy, director of retail compliance for ANXeBusiness Corp., discusses what pharmacies need to do to avoid data breaches such as those experienced by Target and Home Depot.

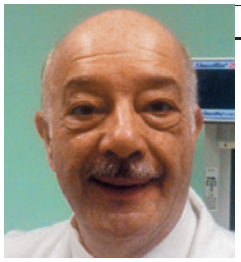
Reducing stress in the pharmacy

Every job has some level of stress. Pharmacy is no different. Joy Baldridge, CPC, CSC, a self-management expert, shares physical and mental exercises that pharmacists can use to reduce stress

IMAGE: GETTY IMAGE/ ISTOCK / 360

LIKE US!

FACEBOOK.COM/DRUGTOPICS



DISPENSED AS WRITTEN Salvatore J. Giorgianni Jr., PharmD, BSc, CMHE

Games insurers play

Compounded medications and refusal to reimburse

Imagine that you are a 70-year-old cancer patient who lives on a fixed income. You are undergoing chemotherapy and dealing with the awful side effects of chemotherapy. Now imagine that you also have debilitating arthritis that is so extensive, you can't stand for more than a few minutes or enjoy a nice outing with your grandchildren.

Because of the effects of the chemo, most nonsteroidal anti-inflammatory drugs and steroids are contraindicated. Your physician works with a local compounding pharmacist to come up with a topical preparation to manage your arthritis. You try a bit of it and find that while the multi-component compound does not eliminate all your pain, you can stand up and cook a Sunday meal. Best of all, you are able to have some quality time with the grandkids.

But there's a fly in the ointment: Your insurance carriers, both Medicare Part D and your private provider, tell you that they just do not cover compounded medications — any compound — for any reason.

Why? Because they do not want to.

Shame on them! And shame on organized pharmacy, medicine, and individual practitioners for not forthrightly addressing this problem and advocating for patient coverage.

Tactics galore

Insurance companies constantly come up with a plethora of reasons, including the non-reason above, for not covering compounded medications. Many just do not make sense. Many fly in the face of reason. Some appear to be strategies designed to put administrative hurdles in the way of patient care.

Ironically, in most cases the components of these compounds would be fully covered if the products were taken orally. If given orally and separately, they usually would cost the system more than if they were delivered in a compound.

When components are not clinically appropriate if given orally, even this does not seem to figure into initial coverage decisions. In some cases, reductions in medication concentration would make a difference. But here again, too many insurers just say No.

In the latest twist, compounds that were covered last month are now being denied coverage, with no rhyme or reason to the reimbursement denials.

Rules? What rules?

As if all this were some type of computerized fantasy game, the rules are often hidden. If you figure them out, the compound is covered; if you don't, it isn't. Unfortunately, for the patients we are talking about, this is not a game; it is poor patient care.

It also frustrates prescribers, compounders, and patients to the point where they just don't want to bother pursuing this course of treatment, and instead acquiesce in the use of commercial products. Hmmm. Perhaps that is the point of all this obfuscation.

What to do?

So, what to do? We must *aggressively* engage in the discussion and engage our patients in it. Wouldn't it be a powerful coalition if pharmacy, medicine, and patient groups came together (including perhaps even AARP, whose mission is to help seniors live healthier lives) and formed a coalition to address this issue?

We also must support broad-based advocacy programs such as "Protect My Compounds," which Professional Compounding Centers of America (PCCA) is championing. All pharmacists and prescribers must support programs that bolster the rights of patients to the same reasonable reimbursement — and hence access to compounded medications — as they have for commercially available medications.

To be sure, there are prescribing, dispensing, and billing abuses attributable to practitioners, and these too must be vigorously addressed. These abuses hurt the image of the professions, encourage reimbursers to rationalize "clamping down" on payments, and ultimately hurt patient access to needed medications. But system abuses are found in every sector of healthcare, and these are managed, not designed to shut down reimbursed access — or to look like some sort of mystifying computer game. DT

Salvatore J. Giorgianni Jr. *is a consultant pharmacist and president of Griffon Consulting Group Inc., an advisory board member for Pharmacist Partners LLC, and Drug Topics, and chair, American Public Health Association Men's Health Caucus.*

Voices

It's not the pharmacists

Re: "Are pharmacists pill-happy?" [Dennis Miller, Sept. 25, *drugtopics.com*]:

Our entire healthcare system revolves around the quick-fix consumer culture that ensures grand profits for corporations, and unfortunately most people buy into it. I enjoy having the conversations with customers who are tired of the pills and want to investigate other options. These conversations, however, are the exception.

Most people I encounter want to be told what to do and aren't interested in the details or thinking for themselves. Better to depend on the Big-Pharma-trained MD to solve their problems with a pile of meds or the many pharmacists whose mantra is "better living through chemistry" ... It is MUCH easier to swallow pills than it is to take responsibility for one's health.

Dr. M. Crown
POSTED AT *WWW.DRUGTOPICS.COM*

Pharmacy in action

In my pharmacy, when someone comes in for an OTC pain reliever, we ask, "Where is your pain?" and then we steer them toward a lifestyle change. (This might mean a paid consult with the pharmacist).

Digestion. If they come in for an antacid, same thing. "How long have you had heartburn? Does it happen at night? Do you get bloated after meals? Gas? Here, let me show you how you can take care of that once and for all, and get healthier, overall, in the process."

Osteoporosis. "Don't like those Fosamax pills? Let us tell you how the bone maintains itself and what you can do to prevent thin bones. It starts with your diet. Here's some vitamin D3 + K2; take one daily with food. Get your level of vitamin D up between 50 and 80 ng/mL. Here's a 7-minute scientific exercise chart [*http://bit.ly/7minchart*]. If you can spare 7 minutes daily and do this, it will keep your bones strong." (Print this out and have copies ready to hand to patients. Tell them the intensity should be 8 out of 10.)

For pharmacists who say they don't have the time for lifestyle counseling, here are three quick questions/responses:

1. Do you have 3BMs/day? If "No," then we need to talk about fiber and/or probiotics/diet change.

2. Do you eat protein for breakfast? Really? Tell me what that is. Oatmeal? Fruit? Peanut butter? Toast? No, I'm sorry but that is not enough protein. You need 30 g in the a.m. Try Greek yogurt, fish, eggs (2 eggs = 15 g protein), chicken breasts, bacon, sausage, etc.

3. What is you HbA1c (or fructosamine) level? Oh! HbA1c of 5.6%? That's too high. Yes, I know, your doctor said it is okay, but it is NOT. Average blood sugars above 95 mg/dL are damaging your arteries and your brain. Alzheimer's disease is type 3 diabetes.

Start walking 30 minutes daily, with a couple of 5-10 lb dumbbells. Eventually, you should be curling the dumbbells repeatedly while walking. This will cure your diabetes.

By "curing" digestive problems you will "cure" or vastly improve 60%-65% of ALL ILLNESS.

By putting on some muscle mass (at the expense of fat mass) you will "cure" metabolic syndrome and type 2 diabetes and hypertension and anxiety and insomnia and arthritis and ... and .... and ...

Mark Burger
POSTED AT *WWW.DRUGTOPICS.COM*

BOP unchained

Re: "Should only pharmacists lead state boards?" [Mark Lowery, Sept. 5, *drugtopics.com*]: Yes! Boards should be made up of pharmacists and a consumer advocate. No board member should be connected to a chain. Ideally, board members would be retired pharmacists current with their registrations and completely familiar with all laws and regulations. This would ensure a fair decision to any pharmacy involved in violation of the law.

Robert Katz, RPh
STAMFORD, CONN.

Clarification: *In "California pharm techs to take on more responsibility under new law," published Sept. 29 at* www.drugtopics.com, *it was reported that the California Society of Health-System Pharmacists (CSHP) and the California Pharmacists Association (CPhA) pushed for passage of S.B. 1039. However, CSHP was the only sponsor of the bill, which was signed into law by Governor Jerry Brown in mid-September.*

We want to hear from you

Printed and e-mailed letters should be brief and include the writer's name, address, daytime phone number, and date of the issue you are referencing: Editor, ***Drug Topics***, 24950 Country Club Blvd., Suite 200, North Olmsted, OH 44070-5351. E-mail address: drugtopics@advanstar.com. Letters may be edited for length, style, content, and clarity at our discretion.

IN MY VIEW Kelly Howard, BS, PharmD, BCPS

The unordered refill: 10 more unsolicited tips for new grads

Back in July, *Drug Topics* published "10 pieces of unsolicited advice for new pharmacy graduates" [DT Blog, July 24; *www.bit.ly/DRTPKelly5*], in which I asked my more seasoned pharmacist brethren for more ideas to share. The response, as they say, was overwhelming. New grads and veteran pharmacists alike wrote in with their own insights, thoughts, and suggestions, and I had some favorites of my own that just didn't fit into the first article. So here are another 10 pieces of unsolicited advice for new pharmacy graduates.

1 Pay it forward. Precept. Volunteer. Be compassionate. Never forget that a slightly altered set of circumstances or coincidences could have landed you in an entirely different career, socioeconomic class, etc.

2 Know that you cannot put a price on job satisfaction. As a floating nuclear pharmacist three years out of school, I earned a paycheck that exceeded the national average for pharmacists. I also worked 90 hours a week, lived out of a suitcase, and oh, yeah — handled radioactivity for a living. I quickly learned that my employers would not have paid me so much if they hadn't had to.

With my next job I took a hefty pay cut, but my quality of life increased dramatically and I certainly didn't miss the stress or the hours.

3 Never stop learning. Our education shouldn't slow down when we graduate; it should merely shift and laser-focus on our particular subspecialty or area of interest.

4 Join a pharmacy organization, if only for the networking opportunities and free CE. Know, though, that your membership fees also go a long way toward funding scholarships, advocating pro-pharmacy legislation, and supporting the future of our profession.

5 Take care of your body. Several veteran community pharmacists spoke from vast experience when they wrote me with this bit of advice.

The word "ergonomics" may not mean anything to you now, but 10 years from now, when you've single-handedly put your chiropractor's children through college, you will understand.

Buy yourself an electric stapler, a Bluetooth headset, and sensible footwear. Wear compression stockings and take a joint supplement–every single day.

One very wise pharmacist suggested that every pharmacist obtain disability insurance and keep it throughout the career years, because you never know when all that standing and repetitive movement will get the best of you.

6 Take care of your brain. I often joke that the reason I won't ride my bicycle without a helmet is that I still have student loans, so technically my brain isn't paid off yet.

Even when I no longer owe money on my gray matter, I won't be taking unnecessary risks with it, and neither should you. For the same reasons that NFL players shouldn't be playing pickup basketball in the off season, pharmacists shouldn't indulge their inner adrenaline junkie, have bilateral eye surgeries, or take up mixed martial arts fighting as a hobby.

7 The buck stops with you. Don't dispense guesswork, and don't assume that your boss will have your back.

8 Look like you care about your patients and your job. If your attire gives the message that you take yourself seriously, your patients and colleagues will do the same.

9 Follow through. Return every call, tie up every loose end, and never leave a patient or physician hanging.

10 Maintain the friendships that you developed with your classmates in pharmacy school. You and these folks were together in the trenches for four years, and at some point in your career, you are likely to need the emotional or professional support of a comrade. DT

Kelly Howard *is a freelance pharmacist in Southeastern North Carolina. She would love to read any unsolicited advice you have given or received. Contact her at* kelly@gottsman.org *or* www.thefreelancepharmacist.com.

IN MY VIEW James "Goose" Rawlings, RPh

How is the ACA like Grandpa's WC?

Anyone who thinks that our government cannot do good work needs to come to my home, where there is an example of government bureaucracy that has stood the test of time for almost 80 years.

It was built in the 1930s by the Works Progress Administration, commonly known as the WPA, a program totally funded by the federal government, one that provided employment to millions of people at a time when more people were out of work than at any other time in U.S. history.

Although our local example of government at work has been moved a couple of times, it is still standing in the back yard and still serving a purpose, although not the original one.

I'm talking about my grandfather's outhouse, or privy, if you prefer. A vintage Port-o-let, for you younger folks.

Back in the day

I grew up around outhouses and used one on a regular basis right into high school. My parents owned a general store in a small town in the '50s and '60s. While the store had hot and cold water, it had no sanitary facilities inside other than a sink, so there was an outhouse in back of the store. It was the town's unofficial public restroom, and it got a lot of use. It was my job to keep it clean and stocked with toilet paper.

Some of the best memories I have of my childhood had to do with the times I'd be pumping gas for people who were nicely dressed and obviously well-off, who had driven up in a nice car — and who would ask about the restroom. I'd just say, "It's in the back of the store."

Most of the time, folks would smile when they saw the privy and reminisce about their own early years. But some people refused to use it and chose instead to wait till they found something more to their liking. They just didn't need it bad enough, I always thought. The people who did need it used it, even if it wasn't up to their standards.

They may not have liked it, but it was better than nothing.

Then and now

There's a similarity here to the Affordable Care Act — or "Obamacare," if you will. The ACA could be called the "outhouse" of insurance programs. It provides both basic coverage and coverage for preventative care. Through tax breaks and subsidies, it is affordable for many people who don't have insurance. It serves a basic need. It forces insurance companies to standardize their rates and provide the same coverage for all.

It is also one of the most controversial government programs in history, and everyone has an opinion. Even though most countries consider basic healthcare a right, many in our government look upon it as a privilege. Public opinion is mostly against the ACA, largely fueled by rumors and outright falsehoods.

Consider this: Most countries in Europe, North and South America, and Asia have universal healthcare for their citizens. Even those bastions of personal freedom, the countries of China, Syria, and Iran, have universal healthcare. However, in the good old "Land of the Free and Home of the Brave," we don't. That is not only amazing, it is also disturbing. Compared to our healthcare system in America, nobody in the world delivers less for more.

Even those bastions of personal freedom, China, Syria, and Iran, have universal healthcare.

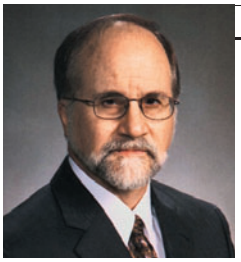
A basic need

The ACA is not perfect, but it addresses a basic need. It's a good first step toward universal healthcare. It also has positive implications for pharmacy. You may not like it, but for the uninsured, it's better than nothing.

It's like the outhouse behind my parent's store. There may be something better down the road, but you just don't know for sure.

Maybe you should use what's available and not wait for something better. The ACA is just that, until something better comes along. DT

Jim "Goose" Rawlings *is a senior pharmacist in central Indiana. E-mail him at redgoose54@gmail.com.*



IN MY VIEW W. Steven Pray, DPh, PhD

Homeopathic products have no place in the pharmacy

Last month's column ["Fraud in the pharmacy?" September 2014] explored the legal definition of "health fraud." To date, no homeopathic product has ever been proven safe or effective for any medical condition whatsoever. If medical claims are made for any homeopathic product, such claims fall solidly within the legal definition of health fraud.

Case in point

A year ago, on September 25, 2013, FDA sent Standard Homeopathic Company a warning letter. You can see it at this government website: *http://bit.ly/SHCwarning.*

The letter reveals that after examining Standard's website, the district director of FDA's compliance branch found numerous Hyland's homeopathic products to be misbranded, in violation of the Federal Food, Drug, and Cosmetic Act.

Some examples: "Arnicaid" was said by Standard to be useful for nerve injury due to blows. "Hyland's Teething Tablets" were said to be useful for reducing redness and inflammation of the gums. The purported uses of "Hyland's Vaginitis" and "Hyland's Restless Legs" are self-explanatory, as are "Hyland's Infant Earache Drops" and "Earache Tablets." The letter cites dozens of other such examples.

FDA also took note of customer reviews found at the Standard website and stated that "your firm is responsible for ensuring that statements made by customers and included on your websites do not cause your product to be misbranded under sections 502 and 503 of the FD&C Act [21 U.S.C. 353(b)(1)]."

The issues

The FDA letter went on to indicate that these products raise several legal issues.

First, the conditions for which these products were marketed required diagnosis and treatment by a practitioner licensed to prescribe drugs. The labeling of these products made them prescription drugs, but they were all sold as nonprescription, over-the-counter products. Therefore, because the products did not bear the "Rx Only" symbol restricting them to prescription status, they were all misbranded.

The labeling was also found to be false or misleading because it represented the products as suitable for use by consumers to treat conditions not appropriate for treatment with OTC drugs.

Company response

FDA warned the company that uncorrected violations could result in legal action without further notice, including seizure and injunction without limitation.

In the face of such clearly delineated violations of the law and such strict penalties, did the company take immediate action to avert further trouble? Did it eliminate the language in question or restrict sales of the products to prescription-only?

To see whether the company complied, one need look at only one example cited by FDA, Standard's claims for "Hyland's Vaginitis," as found at *http://www.hylands.ca/products/vaginitis.php*, on August 19, 2014, almost a year after FDA issued its letter. The wording on the website remains identical to the wording questioned by the FDA almost a year earlier.

It appears that to date, Standard Homeopathic has failed to rename the product, move it to prescription status, or modify the labeling to address misbranding charges while the company and FDA remain, apparently, in dialogue. It is likely that its stalling actions have allowed it to reap additional profit.

Best defense

The best line of defense is an informed pharmacist. When patients ask about homeopathic products, it is our professional, legal, and moral obligation to disclose the lack of evidence of their safety and efficacy, and their illegal marketing. We should then recommend products of proven safety and efficacy, and refer patients to their prescribers when appropriate.

Selling misbranded homeopathic products is a dishonest act on the part of the individual pharmacist, and making claims for the safety and efficacy of any homeopathic product is fraudulent. In a larger sense, homeopathic products make a mockery of the concept of pharmaceutical care and cast a cloud over all of us who value our patients' health over profit.

Other healthcare professionals have every right to regard community pharmacists who peddle homeopathic products as little better than snake-oil salesmen. We must strive to be better than that. DT

Steven Pray *is Bernhardt Professor at the College of Pharmacy at Southwestern Oklahoma State University. Contact him at steve.pray@swosu.edu.*

VIEW FROM THE ZOO David Stanley, RPh

What I learned from my friend, the drug addict

It may be a sign that I'm getting older, but I find myself looking back on my pharmacy career more and more of late, reflecting on lessons of the past in an effort to learn for the future, not to mention entertaining myself with what seems more than my quota of wacky behind-the-counter stories, the lion's share of which come from my time as a graveyard pharmacist.

Zombies on parade

What I remember most about those years was the group we called the "Tone People," the folks who, more nights than not, would gather in the pharmacy seating area and wait, perfectly silent and still, until midnight. Having been told that their prescriptions, almost exclusively for narcotics or other controlled medications, would not be fillable until a certain day, these people gathered and waited for the very second that day would arrive.

The amazing thing was how they knew. At the time, the store where I worked would change the format of its in-store radio programming at midnight to something a little peppier. The switchover was signified by a tone that indicated the shift from one format to the other. If you listened closely, you could pick it up. When that tone came, the people waiting to collect their meds would slowly start to walk to the pharmacy pickup area, almost like a group of zombies, I thought.

Here's the clincher, though. *No one ever explained the tone to them.* Completely on their own, the Tone People figured out what that tone meant and how it related to them. To this day, that amazes me.

At the time, the words and terms and attitudes that most of the pharmacy staff displayed in referring to the Tone People were ones I would say were prevalent throughout most of the pharmacy world. I wasn't any different. I found the Tone People an annoyance — at best a threat to my license, and at worst a threat to society. And my attitude reflected it.

Attitude meets reality

Then I met "Brenda" (not her real name). When forced to share a table at a busy lunch spot one day, we struck up a conversation, immediately clicked, and soon became fast friends. One of the things that drew me to Brenda was that she reminded me a lot of me. We shared an almost identical outlook on life, not to mention a lot of individual likes and dislikes, which ensured that our time together was always entertaining. I liked Brenda, and I considered her a good friend.

About six months after I met her, Brenda revealed that she had a history of narcotic addiction. She had been clean for years when we met, but she considered herself in recovery for the rest of her life. I knew she was telling the truth, because she knew all the tricks, tactics, and stories we're all familiar with.

Sometimes I wondered whether she would have been able to get an early refill past me if I had known her back then. When she told me about the time she scheduled an elective surgery just so she could get more painkillers, I decided she probably could have.

Brenda had a quote above her desk from the writer Eric Detzer that ended, "If I ever get off narcotics I'm never going to speak to a pharmacist as long as I live." We both got a kick out of it, the day she took it down.

Moment of truth

What I'll never forget about Brenda, though, was the look on her face when she told me how she volunteered to be a caregiver to her grandmother, who was dying of cancer, so that she could get access to her morphine. That memory would haunt her for the rest of her life, she said. It still caused her to wake up in the middle of the night in tears.

If she ever got close to relapse, she said, all she had to do was think of her grandmother and the shame of what she had done to her. She could never be forgiven, she said. She could only live a good and productive life from now on, in memory of her grandmother.

Brenda taught me about the possibility and the value of redemption.

Later, when I heard an immature fool say that we "should just poison the drugs from police raids and put them back on the street," it was like sandpaper on my nerves.

It may be a sign that I'm getting older, but when I look back on them now, I think differently about the Tone People. DT

David Stanley *is a pharmacy owner, blogger, and professional writer in northern California. Contact him at drugmonkeyrph@gmail.com.*

During this flu season, you have an opportunity to help protect more of your adult patients against herpes zoster

Actor portrayal.

The CDC suggests vaccinating patients against zoster when they're in for their flu vaccine visits[1]

ZOSTAVAX is recommended for patients aged ≥60 years at the first available clinical encounter.

About ZOSTAVAX

ZOSTAVAX is a live attenuated virus vaccine indicated for prevention of herpes zoster (shingles) in individuals 50 years of age and older. ZOSTAVAX is not indicated for the treatment of zoster or postherpetic neuralgia. ZOSTAVAX should not be used for prevention of primary varicella infection (Chickenpox).

Select Safety Information

Vaccination with ZOSTAVAX does not result in protection of all vaccine recipients.

ZOSTAVAX is contraindicated in: persons with a history of anaphylactic or anaphylactoid reaction to gelatin, neomycin, or any other component of the vaccine; persons with a history of primary or acquired immunodeficiencies; persons on immunosuppressive therapy; pregnant women or women of childbearing age.

A reduced immune response to ZOSTAVAX was observed in individuals who received concurrent administration of PNEUMOVAX®23 (Pneumococcal Vaccine Polyvalent) and ZOSTAVAX compared with individuals who received these vaccines 4 weeks apart. Consider administration of the two vaccines separated by at least 4 weeks.

Serious vaccine-related adverse reactions that have occurred following vaccination with ZOSTAVAX include asthma exacerbation and polymyalgia rheumatica. Other serious adverse events reported following vaccination with ZOSTAVAX include cardiovascular events (congestive heart failure, pulmonary edema). Common adverse reactions occurring in ≥1% of vaccinated individuals during clinical trials include injection-site reactions (erythema, pain/tenderness, swelling, hematoma, pruritus, warmth) and headache.

Transmission of vaccine virus may occur between vaccinees and susceptible contacts.

Deferral should be considered in acute illness (for example, in the presence of fever) or in patients with active untreated tuberculosis.

Please see the adjacent Brief Summary of the Prescribing Information.

CDC=Centers for Disease Control and Prevention.

Reference: 1. Centers for Disease Control and Prevention (CDC). Prevention of herpes zoster: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR Recomm Rep.* 2008;57(RR-5):1–30.

ZOSTAVAX®
Zoster Vaccine Live

ZOSTER PREVENTION MADE POSSIBLE

Optimize your pharmacy processes to administer 2 vaccines in 1 visit

MERCK

VACC-1123879-0003 07/14

ZOSTAVAX® (Zoster Vaccine Live)

BRIEF SUMMARY OF PRESCRIBING INFORMATION

INDICATIONS AND USAGE

ZOSTAVAX is a live attenuated virus vaccine indicated for prevention of herpes zoster (shingles) in individuals 50 years of age and older.

Limitations of Use of ZOSTAVAX:

- ZOSTAVAX is not indicated for the treatment of zoster or postherpetic neuralgia (PHN).
- ZOSTAVAX is not indicated for prevention of primary varicella infection (Chickenpox).

CONTRAINDICATIONS

Hypersensitivity: Do not administer ZOSTAVAX to individuals with a history of anaphylactic/anaphylactoid reaction to gelatin, neomycin or any other component of the vaccine. Neomycin allergy manifested as contact dermatitis is not a contraindication to receiving this vaccine.

Immunosuppression: ZOSTAVAX is a live, attenuated varicella-zoster vaccine and administration may result in disseminated disease in individuals who are immunosuppressed or immunodeficient. Do not administer ZOSTAVAX to immunosuppressed or immunodeficient individuals including those with a history of primary or acquired immunodeficiency states, leukemia, lymphoma or other malignant neoplasms affecting the bone marrow or lymphatic system, AIDS or other clinical manifestations of infection with human immunodeficiency viruses, and those on immunosuppressive therapy.

Pregnancy: Do not administer ZOSTAVAX to pregnant women. It is not known whether ZOSTAVAX can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. However, naturally occurring varicella-zoster virus (VZV) infection is known to sometimes cause fetal harm. Therefore, ZOSTAVAX should not be administered to pregnant women, and pregnancy should be avoided for 3 months following administration of ZOSTAVAX.

WARNINGS AND PRECAUTIONS

Hypersensitivity Reactions: Serious adverse reactions, including anaphylaxis, have occurred with ZOSTAVAX. Adequate treatment provisions, including epinephrine injection (1:1,000), should be available for immediate use should an anaphylactic/anaphylactoid reaction occur.

Transmission of Vaccine Virus: Transmission of vaccine virus may occur between vaccinees and susceptible contacts.

Concurrent Illness: Deferral should be considered in acute illness (for example, in the presence of fever) or in patients with active untreated tuberculosis.

Limitations of Vaccine Effectiveness: Vaccination with ZOSTAVAX does not result in protection of all vaccine recipients.

The duration of protection beyond 4 years after vaccination with ZOSTAVAX is unknown. The need for revaccination has not been defined.

ADVERSE REACTIONS

The most frequent adverse reactions, reported in ≥1% of subjects vaccinated with ZOSTAVAX, were headache and injection-site reactions.

Clinical Trials Experience: Because clinical trials are conducted under widely varying conditions, rates of adverse reactions observed in the clinical trials of a vaccine cannot be directly compared to rates in the clinical trials of another vaccine and may not reflect the rates observed in practice.

ZOSTAVAX Efficacy and Safety Trial (ZEST) in Subjects 50 to 59 Years of Age: In the ZEST study, subjects received a single dose of either ZOSTAVAX (N=11,184) or placebo (N=11,212). The racial distribution across both vaccination groups was similar: White (94.4%); Black (4.2%); Hispanic (3.3%) and Other (1.4%) in both vaccination groups. The gender distribution was 38% male and 62% female in both vaccination groups. The age distribution of subjects enrolled, 50 to 59 years, was similar in both vaccination groups. All subjects received a vaccination report card (VRC) to record adverse events occurring from Days 1 to 42 postvaccination.

In the ZEST study, serious adverse events occurred at a similar rate in subjects vaccinated with ZOSTAVAX (0.6%) or placebo (0.5%) from Days 1 to 42 postvaccination.

In the ZEST study, all subjects were monitored for adverse reactions. An anaphylactic reaction was reported for one subject vaccinated with ZOSTAVAX.

Most Common Adverse Reactions and Experiences in the ZEST Study: The overall incidence of vaccine-related injection-site adverse reactions within 5 days post-vaccination was greater for subjects vaccinated with ZOSTAVAX as compared to subjects who received placebo (63.6% for ZOSTAVAX and 14.0% for placebo). Injection-site adverse reactions occurring at an incidence ≥1% within 5 days post-vaccination are shown in Table 1.

Table 1
Injection-Site Adverse Reactions Reported in ≥1% of Adults Who Received ZOSTAVAX or Placebo Within 5 Days Post-Vaccination in the ZOSTAVAX Efficacy and Safety Trial

Injection-Site Adverse Reaction	ZOSTAVAX (N = 11094) %	Placebo (N = 11116) %
*Solicited**		
Pain	53.9	9.0
Erythema	48.1	4.3
Swelling	40.4	2.8
Unsolicited		
Pruritis	11.3	0.7
Warmth	3.7	0.2
Hematoma	1.6	1.6
Induration	1.1	0.0

*Solicited on the Vaccination Report Card

Systemic adverse reactions and experiences reported during Days 1-42 at an incidence of ≥1% in either vaccination group were headache (ZOSTAVAX 9.4%, placebo 8.2%) and pain in the extremity (ZOSTAVAX 1.3%, placebo 0.8%), respectively.

The overall incidence of systemic adverse experiences reported during Days 1-42 was higher for ZOSTAVAX (35.4%) than for placebo (33.5%).

Shingles Prevention Study (SPS) in Subjects 60 Years of Age and Older: In the SPS, the largest clinical trial of ZOSTAVAX, subjects received a single dose of either ZOSTAVAX (n=19,270) or placebo (n=19,276). The racial distribution across both vaccination groups was similar: White (95%); Black (2.0%); Hispanic (1.0%) and Other (1.0%) in both vaccination groups. The gender distribution was 59% male and 41% female in both vaccination groups. The age distribution of subjects enrolled, 59-99 years, was similar in both vaccination groups.

The Adverse Event Monitoring Substudy of the SPS, designed to provide detailed data on the safety profile of the zoster vaccine (n=3,345 received ZOSTAVAX and n=3,271 received placebo) used vaccination report cards (VRC) to record adverse events occurring from Days 0 to 42 postvaccination (97% of subjects completed VRC in both vaccination groups). In addition, monthly surveillance for hospitalization was conducted through the end of the study, 2 to 5 years postvaccination.

The remainder of subjects in the SPS (n=15,925 received ZOSTAVAX and n=16,005 received placebo) were actively followed for safety outcomes through Day 42 postvaccination and passively followed for safety after Day 42.

Serious Adverse Events Occurring 0-42 Days Postvaccination: In the overall SPS study population, serious adverse events occurred at a similar rate (1.4%) in subjects vaccinated with ZOSTAVAX or placebo.

In the AE Monitoring Substudy, the rate of SAEs was increased in the group of subjects who received ZOSTAVAX as compared to the group of subjects who received placebo (Table 2).

Table 2
Number of Subjects with ≥1 Serious Adverse Events (0-42 Days Postvaccination) in the Shingles Prevention Study

Cohort	ZOSTAVAX n/N %	Placebo n/N %	Relative Risk (95% CI)
Overall Study Cohort (60 years of age and older)	255/18671 1.4%	254/18717 1.4%	1.01 (0.85, 1.20)
60-69 years old	113/10100 1.1%	101/10095 1.0%	1.12 (0.86, 1.46)
70-79 years old	115/7351 1.6%	132/7333 1.8%	0.87 (0.68, 1.11)
≥80 years old	27/1220 2.2%	21/1289 1.6%	1.36 (0.78, 2.37)
AE Monitoring Substudy Cohort (60 years of age and older)	64/3326 1.9%	41/3249 1.3%	1.53 (1.04, 2.25)
60-69 years old	22/1726 1.3%	18/1709 1.1%	1.21 (0.66, 2.23)
70-79 years old	31/1383 2.2%	19/1367 1.4%	1.61 (0.92, 2.82)
≥80 years old	11/217 5.1%	4/173 2.3%	2.19 (0.75, 6.45)

N=number of subjects in cohort with safety follow-up
n=number of subjects reporting an SAE 0-42 Days postvaccination

Among reported serious adverse events in the SPS (Days 0 to 42 postvaccination), serious cardiovascular events occurred more frequently in subjects who received ZOSTAVAX (20 [0.6%]) than in subjects who received placebo (12 [0.4%]) in the AE Monitoring Substudy. The frequencies of serious cardiovascular events were similar in subjects who received ZOSTAVAX (81 [0.4%]) and in subjects who received placebo (72 [0.4%]) in the entire study cohort (Days 0 to 42 postvaccination).

Serious Adverse Events Occurring Over the Entire Course of the Study: Rates of hospitalization were similar among subjects who received ZOSTAVAX and subjects who received placebo in the AE Monitoring Substudy, throughout the entire study.

Fifty-one individuals (1.5%) receiving ZOSTAVAX were reported to have congestive heart failure (CHF) or pulmonary edema compared to 39 individuals (1.2%) receiving placebo in the AE Monitoring Substudy; 58 individuals (0.3%) receiving ZOSTAVAX were reported to have congestive heart failure (CHF) or pulmonary edema compared to 45 (0.2%) individuals receiving placebo in the overall study.

In the SPS, all subjects were monitored for vaccine-related SAEs. Investigator-determined, vaccine-related serious adverse experiences were reported for 2 subjects vaccinated with ZOSTAVAX (asthma exacerbation and polymyalgia rheumatica) and 3 subjects who received placebo (Goodpasture's syndrome, anaphylactic reaction, and polymyalgia rheumatica).

Deaths: The incidence of death was similar in the groups receiving ZOSTAVAX or placebo during the Days 0-42 postvaccination period; 14 deaths occurred in the group of subjects who received ZOSTAVAX and 16 deaths occurred in the group of subjects who received placebo. The most common reported cause of death was cardiovascular disease (10 in the group of subjects who received ZOSTAVAX, 8 in the group of subjects who received placebo). The overall incidence of death occurring at any time during the study was similar between vaccination groups: 793

ZOSTAVAX® (Zoster Vaccine Live)

BRIEF SUMMARY OF PRESCRIBING INFORMATION (*continued*)

deaths (4.1%) occurred in subjects who received ZOSTAVAX and 795 deaths (4.1%) in subjects who received placebo.

Most Common Adverse Reactions and Experiences in the AE Monitoring Substudy of the SPS: Injection-site adverse reactions reported at an incidence ≥1% are shown in Table 3. Most of these adverse reactions were reported as mild in intensity. The overall incidence of vaccine-related injection-site adverse reactions was significantly greater for subjects vaccinated with ZOSTAVAX versus subjects who received placebo (48% for ZOSTAVAX and 17% for placebo).

Table 3
Injection-Site Adverse Reactions* in ≥1% of Adults Who Received ZOSTAVAX or Placebo Within 5 Days Postvaccination from the AE Monitoring Substudy of the Shingles Prevention Study

Adverse Reaction	ZOSTAVAX (N = 3345) %	Placebo (N = 3271) %
Solicited†		
Erythema	35.6	6.9
Pain/Tenderness	34.3	8.3
Swelling	26.1	4.5
Unsolicited		
Hematoma	1.6	1.4
Pruritis	6.9	1.0
Warmth	1.6	0.3

*Patients instructed to report adverse experiences on a Vaccination Report Card
†Solicited on the Vaccination Report Card

Headache was the only systemic adverse reaction reported on the vaccine report card between Days 0-42 by ≥1% of subjects in the AE Monitoring Substudy in either vaccination group (ZOSTAVAX 1.4%, placebo 0.8%).

The numbers of subjects with elevated temperature (≥38.3ºC [≥101.0ºF]) within 42 days postvaccination were similar in the ZOSTAVAX and the placebo vaccination groups [27 (0.8%) vs. 27 (0.9%), respectively].

The following adverse experiences in the AE Monitoring Substudy of the SPS (Days 0 to 42 postvaccination) were reported at an incidence ≥1% and greater in subjects who received ZOSTAVAX than in subjects who received placebo, respectively: respiratory infection (65 [1.9%] vs. 55 [1.7%]), fever (59 [1.8%] vs. 53 [1.6%]), flu syndrome (57 [1.7%] vs. 52 [1.6%]), diarrhea (51 [1.5%] vs. 41 [1.3%]), rhinitis (46 [1.4%] vs. 36 [1.1%]), skin disorder (35 [1.1%] vs. 31 [1.0%]), respiratory disorder (35 [1.1%] vs. 27 [0.8%]), asthenia (32 [1.0%] vs. 14 [0.4%]).

VZV Rashes Following Vaccination: Within the 42-day postvaccination reporting period in the ZEST, noninjection-site zoster-like rashes were reported by 34 subjects (19 for ZOSTAVAX and 15 for placebo). Of 24 specimens that were adequate for Polymerase Chain Reaction (PCR) testing, wild-type VZV was detected in 10 (3 for ZOSTAVAX, 7 for placebo) of these specimens. The Oka/Merck strain of VZV was not detected from any of these specimens. Of reported varicella-like rashes (n=124, 69 for ZOSTAVAX and 55 for placebo), 23 had specimens that were available and adequate for PCR testing. VZV was detected in one of these specimens in the ZOSTAVAX group; however, the virus strain (wild-type or Oka/Merck strain) could not be determined.

Within the 42-day postvaccination reporting period in the SPS, noninjection-site zoster-like rashes were reported by 53 subjects (17 for ZOSTAVAX and 36 for placebo). Of 41 specimens that were adequate for Polymerase Chain Reaction (PCR) testing, wild-type VZV was detected in 25 (5 for ZOSTAVAX, 20 for placebo) of these specimens. The Oka/Merck strain of VZV was not detected from any of these specimens.

Of reported varicella-like rashes (n=59), 10 had specimens that were available and adequate for PCR testing. VZV was not detected in any of these specimens.

In clinical trials in support of the initial licensure of the frozen formulation of ZOSTAVAX, the reported rates of noninjection-site zoster-like and varicella-like rashes within 42 days postvaccination were also low in both zoster vaccine and placebo recipients. Of 17 reported varicella-like rashes and non-injection site zoster-like rashes, 10 specimens were available and adequate for PCR testing, and 2 subjects had varicella (onset Day 8 and 17) confirmed to be Oka/Merck strain.

Postmarketing Experience

The following additional adverse reactions have been identified during postmarketing use of ZOSTAVAX. Because these reactions are reported voluntarily from a population of uncertain size, it is generally not possible to reliably estimate their frequency or establish a causal relationship to the vaccine.

Gastrointestinal disorders: nausea
Infections and infestations: herpes zoster (vaccine strain)
Skin and subcutaneous tissue disorders: rash
Musculoskeletal and connective tissue disorders: arthralgia; myalgia
General disorders and administration site conditions: injection-site rash; pyrexia; injection-site urticaria; transient injection-site lymphadenopathy
Immune system disorders: hypersensitivity reactions including anaphylactic reactions

Reporting Adverse Events: The U.S. Department of Health and Human Services has established a Vaccine Adverse Event Reporting System (VAERS) to accept all reports of suspected adverse events after the administration of any vaccine. For information or a copy of the vaccine reporting form, call the VAERS toll-free number at 1-800-822-7967 or report online to **www.vaers.hhs.gov**.

DRUG INTERACTIONS

Concomitant Administration with Other Vaccines: In a randomized clinical study, a reduced immune response to ZOSTAVAX as measured by gpELISA was observed in individuals who received concurrent administration of PNEUMOVAX® 23 (Pneumococcal Vaccine Polyvalent) and ZOSTAVAX compared with individuals who received these vaccines 4 weeks apart. Consider administration of the two vaccines separated by at least 4 weeks *[see Clinical Studies (14.3)]*.

For concomitant administration of ZOSTAVAX with trivalent inactivated influenza vaccine, *[see Clinical Studies (14.3)]*.

Antiviral Medications: Concurrent administration of ZOSTAVAX and antiviral medications known to be effective against VZV has not been evaluated.

USE IN SPECIFIC POPULATIONS

Pregnancy: Pregnancy Category: Contraindication *[see Contraindications (4.3)]*.

ZOSTAVAX should not be administered to pregnant females since wild-type varicella can sometimes cause congenital varicella infection. Pregnancy should be avoided for three months following vaccination with ZOSTAVAX *[see Contraindications (4.3) and Patient Counseling Information (17)]*.

Pregnancy Registry

From 1995 to 2013, Merck Sharp & Dohme Corp., a subsidiary of Merck & Co., Inc., maintained a Pregnancy Registry to monitor fetal outcomes following inadvertent administration of VARIVAX® during pregnancy or within three months prior to conception. In 2006, reports of exposure to two other varicella (Oka/Merck)-containing vaccines, ProQuad® (Measles, Mumps, Rubella and Varicella Virus Vaccine Live) and ZOSTAVAX, were added to the Registry. The Pregnancy Registry has been discontinued. As of March 2011, 811 women with pregnancy outcome information available for analysis were prospectively enrolled following vaccination with VARIVAX, within three months prior to conception or any time during pregnancy. Of these women, 170 were seronegative at the time of exposure and 627 women had an unknown serostatus. The remaining women were seropositive. Nine exposures to either ProQuad or ZOSTAVAX have been reported that met criteria for inclusion into the Registry.

None of the 820 women who received a varicella-containing vaccine delivered infants with abnormalities consistent with congenital varicella syndrome.

All exposures to VARIVAX, ProQuad, or ZOSTAVAX during pregnancy or within three months prior to conception should be reported as suspected adverse reactions by contacting Merck Sharp & Dohme Corp., a subsidiary of Merck & Co., Inc., at 1-877-888-4231 or VAERS at 1-800-822-7967 or www.vaers.hhs.gov.

Nursing Mothers: ZOSTAVAX is not indicated in women who are nursing. It is not known whether VZV is secreted in human milk. Therefore, because some viruses are secreted in human milk, caution should be exercised if ZOSTAVAX is administered to a nursing woman.

Pediatric Use: ZOSTAVAX is not indicated for prevention of primary varicella infection (Chickenpox) and should not be used in children and adolescents.

Geriatric Use: The median age of subjects enrolled in the largest (N=38,546) clinical study of ZOSTAVAX was 69 years (range 59-99 years). Of the 19,270 subjects who received ZOSTAVAX, 10,378 were 60-69 years of age, 7,629 were 70-79 years of age, and 1,263 were 80 years of age or older.

CLINICAL STUDIES

Concomitant Use Studies: In a double-blind, controlled substudy, 374 adults in the US, 60 years of age and older (median age = 66 years), were randomized to receive trivalent inactivated influenza vaccine (TIV) and ZOSTAVAX concurrently (N=188), or TIV alone followed 4 weeks later by ZOSTAVAX alone (N=186). The antibody responses to both vaccines at 4 weeks postvaccination were similar in both groups.

In a double-blind, controlled clinical trial, 473 adults, 60 years of age or older, were randomized to receive ZOSTAVAX and PNEUMOVAX 23 concomitantly (N=237), or PNEUMOVAX 23 alone followed 4 weeks later by ZOSTAVAX alone (N=236). At four weeks postvaccination, the VZV antibody levels following concomitant use were significantly lower than the VZV antibody levels following nonconcomitant administration (GMTs of 338 vs. 484 gpELISA units/mL, respectively; GMT ratio = 0.70 [95% CI: 0.61, 0.80]).

PATIENT COUNSELING INFORMATION

Advise the patient to read the FDA-approved patient labeling (Patient Information).

- Question the patient about reactions to previous vaccines.
- Provide a copy of the patient information (PPI) and discuss any questions or concerns.
- Inform patient of the benefits and risks of ZOSTAVAX, including the potential risk of transmitting the vaccine virus to susceptible individuals, such as immunosuppressed or immunodeficient individuals or pregnant women who have not had chickenpox.
- Instruct patient to report any adverse reactions or any symptoms of concern to their healthcare professional.

For more detailed information, please read the Prescribing Information.

uspi-v211-i-fro-1402r018

MERCK

Survey: Med synchronization programs improve adherence

A new national survey found that nearly 75% of patients enrolled in medication synchronization programs said the programs helped them improve their overall medication adherence.

The survey, announced by the National Community Pharmacists Association (NCPA), also found that eight out of 10 patients enrolled in such programs found them helpful in managing their refills.

"NCPA has made med-sync programs such as Simplify My Meds a priority because they are truly a win-win-win situation for patients, payers, and pharmacists alike," said NCPA CEO B. Douglas Hoey, RPh, MBA. "These survey results and marketing tools will help put community pharmacists in a better position to sign up more patients for med-sync programs for better health and less stress."

Findings

Conducted in July 2014 by Langer Research Associates, the survey comprised random-sample telephone interviews with more than 1,000 ongoing medication users 40 years of age and older. The margin of error was 3.5.

The survey found:

- Among patients participating in medication synchronization programs, 83% find them "extremely or very" helpful in managing their medication refills.
- Of patients enrolled in synchronization programs, 74% said the programs help them improve their overall medication adherence.
- Medication synchronization enrollees were 10% more likely to be "highly satisfied" with their pharmacy.
- Among those survey respondents who were not enrolled in medication-synchronization programs, 50% said they were "very" or "somewhat" interested in the programs.

Star Ratings

"Three out of the five quality measures used by the Centers for Medicare and Medicaid Services as part of a health plan's Star Ratings are about adherence," Hoey said. "To put it simply, community pharmacies that do a good job helping patients take their medications will be more likely to be included by health plans in their pharmacy networks."

NCPA offers a promotional toolkit to help pharmacies recruit patients for medication-synchronization programs. It includes a sample news release, a customizable letter to the editor, sample social media posts, telephone scripts to be used by pharmacy staff, and a Power Point presentation that can be used in community outreach.

— Mark Lowery, Content Editor

NCPA's toolkit includes a sample news release, social media posts, phone scripts, and a Power Point presentation.

CONTINUING EDUCATION

Pharm tech certification: PTCB announces 2015 changes

The Pharmacy Technician Certification Board (PTCB) is following through on changes announced in 2013 concerning recertification requirements for Certified Pharmacy Technicians (CPhTs). A recent announcement presented two program modifications that will be implemented in 2015.

CE objectives

Pharm techs interested in recertifying should be aware that any continuing education (CE) hours they earn will need to pertain specifically to CPhTs if they want to apply those units to their recertification. That means that each CE should have objectives written specifically for pharmacy technicians, in addition to any written for pharmacists. According to PTCB, many CE providers already do this, and others are planning to develop such units.

In-service hours

Pharmacy technicians should also be aware that the number of in-service hours that PTCB will accept is dropping from 10 to five, and will be phased out altogether in 2018. PTCB defines "in-service" as "certain projects or training earned at a CPhT's workplace under a pharmacist's supervision."

The 2013 plan noted that the acceptable limit for CE hours derived from college or university coursework will drop from 15 to 10 in 2016, and it emphasized that any pharm tech wishing to recertify would have to complete an hour of CE focused on medication safety by 2014 and 20 hours of CE specific to pharmacy technicians by 2015.

PTCB's recent statement noted that "[t]he revised CE requirements are meant to ensure that CPhTs are continually educated through programs specific to the knowledge required in today's pharmacy settings," reflecting the changes that will be seen in pharmacy technicians' roles as the healthcare system evolves.

— Julianne Stein, Content Channel Manager

DEVICE DRAWBACKS

Hospital-system study shows that insulin pen problems may persist, despite best practices

Despite diligent efforts by a multihospital system to reduce errors associated with insulin pens, says a new report, many errors continue to dog their use.

In 2013, when the Institute for Safe Medication Practices (ISMP) suggested that hospitals consider transitioning away from insulin pens, a multihospital system convened an interdisciplinary team to evaluate the issue. In the areas of greatest risk, the health system identified safety measures and best practices that would allow for proper use of insulin pens and, at the time, recommended continued use of pens.

Discouraging data

However, after a three-month test of the best practices, the health system reported discouraging data to ISMP.

"The frequency of 'wrong patient's pen' alerts at the bedside that were detected, and administration avoided, with patient- and order-specific barcode scanning gives us great pause when we think about what this means for thousands of U.S. hospitals that are ill-equipped to implement the same best practices and monitor their effectiveness," ISMP wrote in the October 23 edition of its *Acute Care ISMP Medication Safety Alert!* newsletter.

Best practices implemented by the health system to prevent sharing of insulin pens between patients included one-on-one staff education regarding the safe use of insulin pens; scanning of both the patient barcode and the patient- and order-specific barcode on the insulin pen; an electronic medication administration record (eMAR) at the bedside; an effective monitoring system; and a highly visible alert that notified the nurse when the scan revealed an invalid order for the patient.

Serious errors

In one of the most serious errors, a nurse who misunderstood the alert administered a dose of insulin to her patient using the scanned pen and then manually documented administration, according to ISMP. Because she was carrying two insulin pens in her pocket, she inadvertently used the wrong patient's pen to deliver the dose. "Unfortunately, the patient whose pen was used in error tested positive for active hepatitis C," ISMP wrote.

Because of the occurrence of a few different "shared insulin pen" errors, the multihospital system decided to replace use of insulin pens with use of 3-mL vials of rapid-acting insulin.

"For now, the hospital system is not convinced that the benefits of using insulin pens in hospitals (e.g., accurate dosing) outweigh the risks — even if every nurse knows that pens should not be shared, and best practices are implemented," ISMP wrote.

— *Christine Blank, Contributing Editor*

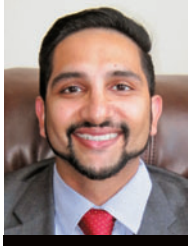
Up front
In Depth

Julia Talsma, Content Channel Director

A pharmacy resource for uninsured patients

Nonprofit pharmacy partners with safety-net clinics in northern Virginia

NOVA ScriptsCentral (NSC), a nonprofit pharmacy serving 26 safety-net clinics throughout northern Virginia, provides more than free or low-cost prescriptions for uninsured children and adults. According to Interim Executive Director Donney John, PharmD, the nonprofit pharmacy partners with each clinic to provide patient-centered care.


Donney John

Since 2007, NSC has been able to provide $30 million worth of medications to the most vulnerable residents of Alexandria, Arlington, Fairfax/Falls Church, Loudoun, and Prince William, Va. The need for these prescriptions and care continues.

"There is a big demand for medication access. The only way the majority of [uninsured] patients get medications is through NOVA Scripts," said John, a practicing pharmacist, healthcare consultant, and entrepreneur. "Without us, patients would have no access to life-saving medications such as prescription inhalers, insulin, or other chronic disease meds."

New model

This program, in which multiple safety-net clinics share one pharmacy, is unique to Virginia and the metropolitan area at this time, but it could serve as a national model for prescription access for the uninsured.

"We want to share best practices and some of the struggles that we have had and overcome to help others who want to start a charitable nonprofit pharmacy [such as NSC]," John said.

For the past seven years, NSC has grown from a full-time staff of four employees assisted by volunteers to a staff of eight, including one full-time and one part-time pharmacist and two pharmacy technicians. NSC staff work directly with medical staff at the partner clinics, filling prescriptions for brand-name and generic medications indicated for most chronic diseases, including mental health conditions and HIV. NSC also offers patient counseling by telephone and supplies clinic staff with talking points to relay to patients about new drugs.


The staff of Nova ScriptsCentral serves the patients of 26 safety-net clinics throughout northern Virginia.

Partnerships

NSC's community health centers and free clinic members have partnered with Northwestern, Harvard, Louisiana State, and Emory Universities in a study testing a simplified English-language prescription label for low-literacy populations. The bottom of the simplified Rx label displays the pharmacy name, creating enough space to make the important information prominent: the patient's name, the disease to be treated, and directions on how and when to take the medication.

"The new labels take the guesswork out of pill-taking by placing the number of pills for morning, noon, evening, or bedtime in a graphic representation or universal medicine schedule," John said.

NSC also is working with approximately 300 patients from two partner safety-net clinics who are taking part in a two-year medication adherence study, funded through Kaiser Permanente.

The ALL/PHASE study is a program focusing on reduction of cardiovascular disease that Kaiser initiated in 2003. The A-L-L regimen employs aspirin, lisinopril, and lipid-lowering therapy; P-H-A-S-E represents "Preventing Heart Attacks and Strokes Everyday," through exercise, lifestyle changes for weight reduction, and smoking cessation.

Kaiser found that patients who adhered for one year to the ALL/PHASE program, including to standard-dose ACE inhibitors and statins, had a 60% reduction in myocardial infarction and stroke. Kaiser extended its program with funding to safety-net clinics in the mid-Atlantic region to help improve clinical outcomes.

"The study started early this year. We are using text messaging to patients' cell phones and automated messaging to landlines to engage patients and encourage them to take their medications. We also troubleshoot any barriers for why they may not be taking their medicines," John said. "Although we have a small team [at NSC], we can make a profound impact on thousands of people on a yearly basis." DT

IMAGE COURTESY OF NOVA SCRIPTSCENTRAL

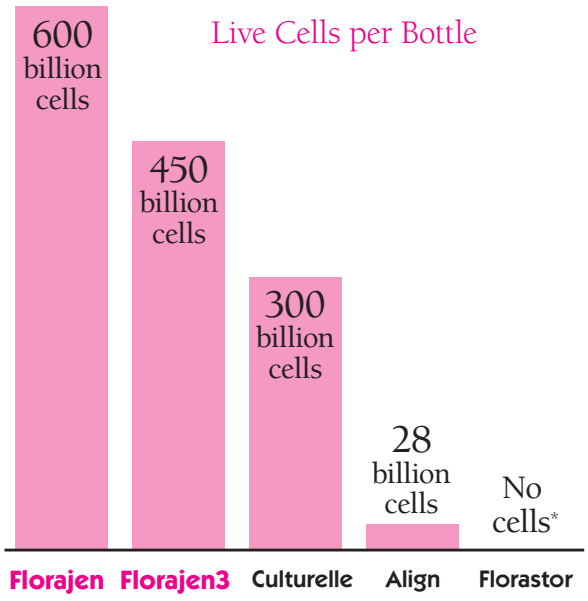
Charting Better Patient Outcomes

SAFE AND EFFECTIVE FOR over 20 years

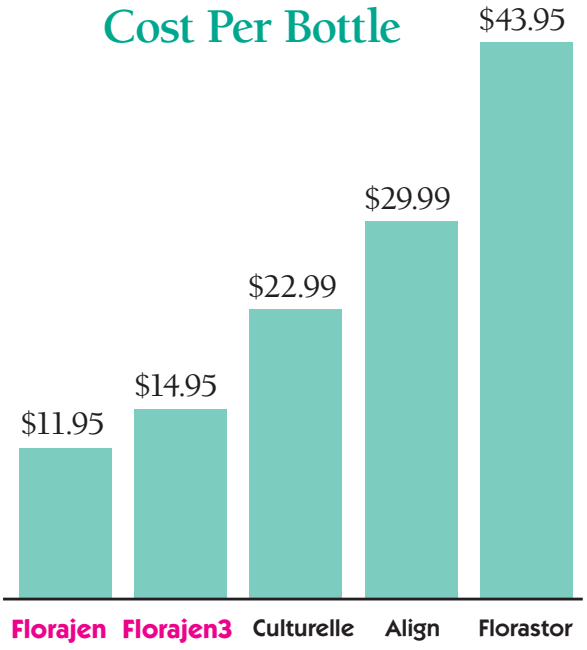
Florajen unites high potency with affordability.

Beneficial Bacteria

Live Cells per Bottle



Cost Per Bottle



* No beneficial bacteria—only *Saccharomyces*, a probiotic yeast

Florajen contains more live probiotic bile-tolerant cells per dollar spent than any competitor.

Florajen is formulated with proven safe and effective strains. Its higher cell count delivers a level of potency impacting real health benefits. Unlike the leading competitors, Florajen is refrigerated for freshness and quality and it is affordable for all your patients.

For more information, call 1-800-257-5433 or visit www.florajen.com!

The Most Effective and Affordable Probiotics Available†

Refrigerated for Freshness & Maximum Potency

Available in pharmacists' refrigerators and store coolers nationwide

Florajen®

High Potency Probiotics

www.florajen.com

ABC 182-642 Cardinal 376-5211 HD Smith 228-8025 McKesson 324-4910

†Florajen contains more live probiotic and bile tolerant cells per dollar spent than any competitor.

Statements have not been evaluated by the Food and Drug Administration.
This product is not medicinal and is not intended to diagnose, treat, cure or prevent any disease.

Up front
In Depth

Julia Talsma, Content Channel Director

Pharmacists can play a crucial role in boosting Medicare Part D Star Ratings

The CMS Star Rating System, created in 2007, rates Medicare health plans annually on a scale of one to five. Plans that receive a rating of three stars are considered average, while those that reach four are above average, with five being excellent.

Starting next year, health plans that have three or more stars will be able to continue to serve Medicare beneficiaries, but those with fewer than three stars will probably be eliminated from the Medicare system.

Five key measures

So where does pharmacy come in?

Pharmacies have a proactive role to play in five performance measures of the Medicare prescription drug plan (Part D), and three are directly linked to patient adherence to specific medications, said Hashim Zaibak, PharmD, of Hayat Pharmacy in Milwaukee, Wisc., speaking at the 2014 National Community Pharmacists Association (NCPA) annual meeting in Austin, Texas.

Watch patients

Medication adherence to statin therapy, oral diabetes medications, and hypertension medications is part of the Star Ratings program and something that pharmacists need to know about.

If a pharmacist sees that a patient has filled a statin prescription twice and then stopped, it is important to find out why.

"If you have a patient who can't afford the drug, then think about what other alternative you can offer them within that same [medication] class, and talk to the doctor about having them change to a [more affordable] statin. Because if the patient stops after two fills, that will negatively affect the Star Ratings," Zaibak said.

Train the pharmacy staff

In terms of the newer oral diabetes medications, do your technicians know which drugs these are?

"If the answer is no, you need to start training them. If you have a weekly or monthly meeting, share the lists of oral diabetes drugs with them," he said.

The third category for medication adherence is the renin-angiotensin system antagonists (RASA) for hypertension control.

"There had been a discussion about eliminating this measure in 2015, but CMS decided against it. So this still is part of the Part D measures for next year," Zaibak said.

The fourth measure requires the addition of an ACE inhibitor or angiotensin-receptor blocker (ARB) for the treatment of hypertension in patients with diabetes.

"You need to make sure that your pharmacists check for that when they verify prescriptions," he said. "If the answer is no, what can you do to change that?"

The fifth performance measure calls for the elimination of high-risk medications in the elderly.

"The list of high-risk medications is a little different from the Beers criteria. Do your pharmacists know what's included in that list?" Zaibak asked.

The best thing to do

By working with prescribers, pharmacists will be able to help ensure that patients have better outcomes and avoid medications that could be risky, Zaibak said.

As they work to improve their pharmacies' performance in these five measures, pharmacists will have to identify patients who need extra help and figure out a system to provide counseling and education, as well as a way to fit it into their workflow, Zaibak said.

Medication adherence solutions include dose simplification and medication therapy management.

Pharmacists will have to identify patients who need extra help and figure out a system to provide counseling and education, as well as a way to fit it into their workflow.

"MTM is the best thing you can do to improve adherence, so that your patients understand why it is important to take their medication every day," he said. "It is the best return on investment, where you spend 20 or 30 minutes with a patient and hopefully you get them to be more adherent to their medication."

MTM combined with medication synchronization has resulted in a win-win for his patients and his pharmacy, Zaibak said.

"We have improved adherence significantly, and combining with MTM was an excellent combination," he said. DT

Up front » In Depth

Joel Claycomb, PharmD

Healthcare technology: The pharmacist as educator

In early September, I had the opportunity to attend the annual Congress of the International Pharmaceutical Federation (FIP), held in steamy Bangkok, Thailand. This year's conference focused on availability of medications, distribution of healthcare workers, and management of large amounts of data and information accessible to both patients and healthcare workers.

One of the sessions I attended was titled "Incorporating innovations: Use of technology in the provision of pharmacy services and pharmaceutical care." During this session, presenter Cody Midlam, PharmD, CGP, discussed the topic of "What does a 21st century, technologically savvy pharmacist look like?"

Programs and apps

During his presentation, Midlam addressed a number of technologies that have been developed over the past few years — their impact on communications between patient and pharmacist; potential areas for costs savings; and use of these tools in therapy and to monitor medication.

There are literally hundreds of programs and apps out there to help patients take their meds. Historically (or over the past 50 years), medication reminder technology consisted of pill boxes and days-of-the-week organizers. As we become more and more wired-in and connected to our smart phones and tablets, the ability of technology to aid in medication management becomes more of a reality.

Many of the apps out there focus on medication refills or adherence. Some will alert patients to request refills on their medications, while others may either remind patients to take their medications or ask whether they have already taken them.

Some older devices, such as glucometers, blood pressure monitors, and scales have seen an upgrade through technological innovation as well. If patients wish to share their information remotely, they can send data from blood pressure readings, blood glucose results, or their recent weight measurements to their healthcare providers in a streamlined, efficient manner.

Outcomes and costs

Healthcare reform is a particularly juicy topic these days, and one of its overarching goals is an increase in quality of care, along with implementation of cost savings.

Use of effective technologies is an essential piece of this puzzle, and when that use is combined with patient engagement, it is certainly a step in the right direction.

In this participatory model of care, patients, professionals, and caregivers are able to access important patient-specific information, a practice that ideally would result in fewer medical errors, improved patient satisfaction, and decreased cost of care.

Changes and improvements

The big take-home message from Midlam's presentation is that over the next decade, numerous changes will affect pharmacy, in connection with both the technology we will be using and the manner in which we will receive reimbursement for services.

Community pharmacy has the potential to be an excellent example of an emerging healthcare model that focuses on improved outcomes and decreased costs, while evolving technologies will aid in improving efficiency.

This is not to say that there will not be growing pains along the way. New technology (particularly within the pharmacy) is not perfect, and we will need to be creative in adapting and using it. There will certainly be a learning curve, but I have no doubt that creative and resourceful pharmacists the world over will maximize the potential gains to be made in patient services in the years to come.

Teachers and advocates

Finally, as gatekeepers of medication and health information, it is our role in the community to participate and learn as much as possible about the emerging healthcare model. By becoming advocates of these new technologies, pharmacists continue to serve as educators for our patients.

Take the time to teach your patients about apps and technologies that can improve medication adherence.

Instruct some of your less technologically savvy patients (or coworkers) how to use some of the myriad options available for monitoring disease states.

Go out there and show people that new technology doesn't have to be intimidating or difficult! DT

A frequent contributor to Drug Topics, **Joel Claycomb** *specializes in reports from far-flung locations. Contact him at jcclaycomb@gmail.com.*

Up front
In Depth

Julia Talsma, Content Channel Director

NCPA continues push for "any willing pharmacy" provision in Medicare Part D plans

The National Community Pharmacists Association (NCPA) continues to advocate for legislation that would allow community pharmacies to participate in all Medicare Part D drug plan networks, including "preferred" networks.

The "Ensuring Seniors Access to Local Pharmacies Act" (H.R. 4577), introduced in May by U.S. Reps. Morgan Griffith (R-Va.) and Peter Welch (D-Vt.), is a top priority for NCPA members with its "any willing pharmacy" provision in Medicare Part D, which would allow pharmacies located in medically underserved areas of the United States to serve all Medicare patients, even those participating in a health plan that involves a "preferred network," said NCPA CEO B. Douglas Hoey, RPh, MBA, during a media call at the 2014 NCPA annual meeting in Austin, Texas.

To date, H.R. 4577 has gained the bipartisan support of 73 co-sponsors from 32 states, including House Judiciary Committee Chair Bob Goodlatte (R-Va.); House Transportation and Infrastructure Chair Bill Shuster (R-Pa.); and House Rules Committee Ranking Member Louise Slaughter (D-N.Y.).

No. 1 priority

"Our members, whom we surveyed in late 2013, told us their No. 1 issue was exclusion from Part D preferred networks. So we ramped up our focus to enable pharmacies to participate … on the same terms and conditions as others," said Hoey. "We have seen some demonstrable progress in allowing independent community pharmacies and regional chains to be able to participate in Part D preferred networks in 2015."

Steve Pfister, NCPA's senior vice president of government affairs, noted that NCPA members continue to reach out to their U.S. representatives for support of H.R. 4577. So far, a companion bill has not been introduced in the Senate.

To date, H.R. 4577 has gained the bipartisan support of 73 co-sponsors from 32 states, including the chairs of two House committees.

"With 14 days before a very pivotal election that will determine the balance of power in the [U.S.] Senate, we don't know if there will be action in the Senate on this legislation in the balance of this year, but it will be a priority moving into the 114th Congress in January," Pfister said during the call.

Generic price spikes

Because of the change in the marketplace, the prices of some generic products have increased 1,000% or more from the previous year, said Pfister, making it difficult for independent pharmacies to stay in business.

NCPA has pushed for congressional oversight hearings on the spike in prices of generic drugs.

Two weeks ago, Sen. Bernie Sanders (I-Vt.) and U.S. Rep. Elijah E. Cummings (D-Md.) launched an investigation into generic drug price increases. In a letter sent to CEOs of 14 pharmaceutical companies, they requested information about these escalating prices and set a deadline of October 23. They also sent a letter to Secretary of Health and Human Services Sylvia M. Burwell, asking the Obama administration to scrutinize the generic price hikes.

"We will continue to monitor this closely and are very hopeful that during the lame-duck session of Congress there will be an oversight hearing conducted on this issue, which has been very problematic for community pharmacy," Pfister said.

PBM transparency

In addition to generic price increases, community pharmacies have had to deal with reimbursements for generic prescriptions below their costs, as some pharmacy benefit managers have not updated their maximum allowable cost (MAC) lists for several weeks.

"We are pleased that the final CMS rule [for 2015 Part D prescription drug benefit programs] did include provisions regarding transparency on MAC pricing for generics and payment updates every seven days. That was a significant provision," he said.

In addition, H.R. 4437, the "Generic Drug Pricing Transparency Act," has been introduced and is another NCPA priority. The legislation would allow a pharmacy to know how its individual MAC rates will be determined and would require reimbursements to keep pace with actual market costs, according to NCPA. So far, the legislation has won the support of 13 co-sponsors. DT

Up front » In Depth

Julia Talsma, Content Channel Director

Innovative pharmacy service aids Lyme disease prevention

Lyme disease prevention strategies to reduce the risk of tick exposure can have a positive impact on the incidence of the tick-borne illness. However, only 40% to 50% of people aware of these tactics employ them. Antibiotic prophylaxis, delivered by a pharmacist working under a collaborative practice agreement, would be an innovative service for pharmacies to consider in regions with endemic Lyme disease, specifically New England, the mid-Atlantic states, and upper Midwest, said Anita Jackson, PharmD, clinical assistant professor, College of Pharmacy, University of Rhode Island, Kingston, R.I.


Anita Jackson

Lyme disease, the most commonly reported vector-borne illness in the United States, is a serious public health issue that affects individuals of all ages. In 2013, the Centers for Disease Control and Prevention reported more than 35,000 probable cases of Lyme disease in the United States, with 95% reported in just 14 states: Connecticut, Delaware, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and Wisconsin.

Treatment

Lyme disease, caused by *Borrelia burgdorferi* and transmitted by the deer tick, *Ixodes scapularis*, can be treated prophylactically with a 200-mg dose of doxycycline administered within 72 hours of a tick bite.

This prophylactic treatment for Lyme disease has a relative risk reduction of 87% to 91%. Doxycycline prophylaxis is especially important to prevent the systemic manifestations of the illness, including dermatologic, rheumatologic, neurologic, and cardiac abnormalities, said Jackson.

"We feel this therapy would be really great to have available in pharmacies, because there is time sensitivity [for this treatment]," Jackson told *Drug Topics*. "If a tick is removed on Friday and it's a holiday weekend, the patient can't wait until Tuesday to get the antibiotic. That is one reason that we thought pharmacists could have a role in initiation of therapy."

The pilot study

In 2012, Jackson and three colleagues initiated a pilot study to evaluate a pharmacy service for adult patients who sought prophylactic treatment following a tick bite. She and her collaborators trained the pharmacy staff of an independent pharmacy in Rhode Island to offer this innovative service as a way to improve patient access to timely treatment. The pharmacists received three hours of continuing education credits. Patients were recruited through local advertisements and announcements posted in the pharmacy and surrounding retail establishments.

Pharmacists worked under a collaborative practice agreement with a physician and followed an approved study protocol for screening patients and dispensing the single dose of doxycycline. They also provided counseling to patients about medication dosing and administration, potential side effects and precautions, and education about Lyme disease symptoms and subsequent tick prevention.

Patient satisfaction with the service was assessed 30 days post-treatment and outcomes were also recorded. Patients reported high satisfaction with the pharmacy service and none developed Lyme disease, Jackson noted.

Expanded study

After successful completion of the pilot study, with results published earlier this year in the *Journal of the American Pharmacists Association*, the investigators obtained additional grant funding through the Community Pharmacy Foundation to expand the study to three Rite Aid pharmacies in 2013.

The study enrolled 18 patients, of whom eight were drawn from the independent pharmacy and 10 from the chain pharmacies. Seventeen patients received the prophylactic doxycycline treatment, two patients reported side effects from the medication, and two sought medical attention within 30 days of treatment. None developed Lyme disease, Jackson said.

The 17 patients who were eligible for treatment completed the patient satisfaction survey from 30 to 60 days post-treatment with an average response range of 8.5 to 9.75 on a 10-point scale.

The small rate of participation in the expanded study was attributed to lack of patient awareness of the new service, the result of a limited advertising budget. Also, the service was limited in scope to only four locations, the investigators noted.

"We believe this service has great potential in an endemic area," Jackson said. "We are trying to pursue this through legislation. We are hoping that Rhode Island may be one of the first states to do this. We need some of the chain pharmacies to get on board and say that pharmacists should be doing this because we have such access to the public." DT

Jill Sederstrom

PharmD options

Six pharmacy schools offer nontraditional path for RPhs

While opportunities for pharmacists are growing in the healthcare arena, those who lack a doctorate of pharmacy degree could face some rough seas ahead.

Many pharmacy leadership positions now require applicants to have the PharmD degree, rather than BS Pharm or an equivalent, and it's now the only track offered for new graduates who enter the field.

At the same time, the number of pharmacy schools that offer a nontraditional option for pharmacists already practicing in the field is on the decline.

Two institutions, Idaho State University and Campbell University, have recently made the decision to discontinue their nontraditional option for PharmD students, leaving fewer than half a dozen programs still available in the United States.

"The applicant pool is dropping," said Vaughn Culbertson, PharmD, director of the nontraditional PharmD program at Idaho State University. "Most of the BS practitioners who wanted to get a PharmD degree I think have done so, so our applicant pool is declining. Plus there's the fact that it's extremely hard for us to offer it across the country, nationally at least, because of the difficulty of finding clerkship sites in the student practitioner's area."

Despite the smaller number of programs, pharmacists with bachelor's degrees who plan to continue practicing in pharmacy in the years ahead may want to at least consider pursuing the higher degree, said Ruth E. Nemire, PharmD, EdD, associate executive vice president and chief academic officer of American Association of Colleges of Pharmacy.


Ruth Nemire

"I think many people have thought that the PharmD was a specialty pharmacy degree, but in 2014 it is not just a specialty pharmacy degree anymore," she said, adding that in the years ahead it will only become more

GETTY IMAGES / ISTOCKPHOTO


Alla Marks

prevalent. "We are going to need the pharmacists out there providing primary care and ambulatory care in places that we haven't been before."

The value of going back

Alla Marks, PharmD, made the decision to go back to school to earn her doctorate after finding that opportunities were closed to her at work. At the time, she was working as a therapeutic specialist at a large pharmaceutical company and wanted to apply for a position as medical science liaison within the organization.

"I was not even able to interview for it, because I didn't have my PharmD," she said. "That gave me the wakeup that said, wait a minute, even by working in a specific institution, without the PharmD, I am not even considered."

So, in her early 40s, she decided to return to school. Ultimately she ended up serving a pharmacy practice residency at a Veterans Affairs medical center while also completing her PharmD degree through a nontraditional program.

"It was just really about managing time. I had to live away from my husband on the weekdays and then come to Northern Virginia on the weekends to spend time with him, but basically it was just managing time," she said.

Marks is now an associate professor and director of professional education at Shenandoah University, where she manages the school's nontraditional PharmD program. For her, she said, it was a decision that ultimately paid off.

"I am glad for it, because I wouldn't have had the experiences I've had in academia if I hadn't done that," she said.

Selecting a program

There are no separate accreditation requirements for nontraditional PharmD programs, according to Greg Boyer, PhD, assistant executive director and director of the professional degree program accreditation for the Accreditation Council for Pharmacy Education. Instead, he said, the ACPE evaluates the Doctor of Pharmacy degree as a whole, regardless of the number of pathways offered to achieve the degree.

"Essentially, if any one pathway falls short of the expectations of the ACPE accreditation standards, then the entire program is impacted and found lacking on the compromised standard or standards," he said.

While a handful of schools across the country have chosen to offer a nontraditional option as part of their PharmD program, each program is structured differently.

"They have some very big differences in how they provide their courses, in their practice experiences, and what the requirements are for those practice experiences," Nemire said.

The following is a breakdown of each school's unique features.

Howard University

Howard University, located in Washington D.C., has one of the more significant credit-hour requirements for nontraditional programs but allows the lowest average time to complete the degree.


Youness Karodeh

Youness R. Karodeh, PharmD, RPh, assistant dean and program director for the Non-traditional Doctor of Pharmacy Program, said the program is distinctive because it is self-paced and somewhat fast-tracked.

"It's not an easy program," he said. "Any professional degree at a doctoral level really requires a lot of hard work, but because our applicants are already licensed pharmacists practicing in the United States, they do have a strong background, they do have strong skills, and the courses that are offered in the didactic portion of the program are new techniques and knowledge that will augment their previous schooling."

The school requires students to complete 65 credit hours, including 35 credit hours of didactic course work and 30 credit hours for the experiential aspect of the program.

The didactic portion of the program is online and can be completed at a student's own pace; however, the school does require that all students participate in two executive weekends held on campus.

Students are responsible for finding their own site to fulfill the experiential component of the program, which can be completed anywhere in the United States.

Idaho State University

For almost a quarter of a century, Idaho State University has offered pharmacists a nontraditional route to obtaining a PharmD, but Culbertson said the school has probably already enrolled its final group of students in the program this fall.

He said the school will reconsider the issue next autumn, but at present it is planning to discontinue its nontraditional program, which launched in 1990.

At present, students enrolled in the program must complete 37 semester credits in didactic education and complete three six-week clerkships.

"We videotape all of our classes taught to the traditional students here on campus, so that they have an opportunity to go back and review lectures and so forth. So what we've done is taken content from the video files we have and restructured it into coursework that is appropriate for practicing pharmacists," he said.

Pharmacists enrolled in the program receive a DVD with lectures they can work through on their own, and students take exams where they live by reporting to a proctor who administers the tests. The school makes every effort to secure clerkships near the student's home base, but the difficulty of finding clerkship locations is one reason the school plans to discontinue the program, Culbertson said.

"There are so many schools now that it is difficult finding clerkship sites that aren't already saturated with traditional student enrollments and experiential programs and so forth," he said, adding that legal requirements and a declining applicant pool also factored into the decision.

To date, 319 graduates have completed the program, which typically takes an average of three-and-a-half or four years to finish.

Shenandoah University

Twice a year, Shenandoah University admits a new cohort of about 30 students into its Non-traditional Doctor of Pharmacy Pathway program.

The program begins with six terms of online didactic learning courses, which run consecutively, and moves on to the experiential portion of the program, which includes acute care, ambulatory care, and medication information rotations.

While the lecture material, exams, assignments, and quizzes are exactly the same as those given to traditional students, participants in the nontraditional program are able to work through the course material at their own pace during the semester.

"Everything is activated on the first day of the term, so that they can study at their pace, but we give them a guided calendar of how to take exams every two weeks," she said.

A central aspect of Shenandoah University's program is its cohort-based design, under which students who enroll at the same time work consecutively through the six didactic courses together.

"We find that it's much more successful in terms of graduation rate, because they have each other as support and they do group projects together, so they have the active learning," Marks said.

Students who received their bachelor's degrees in the United States can seek sites close to home for fulfillment of their three experiential rotations, of which each accounts for five credits. International students in the program may have to take an additional rotation to gain more experience working in a retail or hospital pharmacy setting in the United States.

According to Marks, completion of the program takes an average of about two-and-a-half years. All students must complete it within seven years.

University of Colorado

The iPharmD program at the University of Colorado offers two separate tracks: one for licensed pharmacists working either in the United States or Canada, titled the North American-Trained Doctor of Pharmacy program, and another new track specifically for pharmacists licensed outside North America, titled the International-Trained Doctor of Pharmacy program.


Kari Franson

The North American track, which started in 1999, is a hybrid of distance-based learning and local experiential education. According to Kari Franson, PharmD, PhD, associate dean for professional education at the University of Colorado, the program requires a total of 65 credits, 30 of which are experiential.

"We've increased the amount of experiential learning over time, because we recognized that's what people want," she said.

The program, which typically enrolls between 30 and 60 students a year, enables students to complete most of the didactic requirements online at their own pace. The experiential requirements include six advanced pharmacy practice experiences that can be performed either within the student's home state or in Colorado. The school permits completion of one elective rotation outside of the United States.

"We ask our students to complete several clinical rotations and really demonstrate their clinical abilities while they are in the program," she said.

It takes students just under four years, on average, to complete the entire program.

The International track, which launched this year with three students, requires 90 credit hours. More credit hours are required for this track, Franson said, because international students must also be taught U.S. laws.

University of Florida

The nontraditional PharmD program at the University of Florida differs from some of the other programs in that it offers students a blended learning experience that includes attendance at monthly live day-long sessions as well completion of online coursework.


Sven Normann

Sven A. Normann, PharmD, DABAT, assistant dean of pharmacist education and international affairs, said that during each of the program's nine semesters, students are required to attend three live sessions in which they give case presentations, take exams, receive their assignments, and present on pharmacy topics. For completion of the live component of the program, the school has 18 regional sites

Continued on pg. 47

Nontraditional PharmD path for RPhs

Continued from pg. 40

TABLE 1

Characteristics of nontraditional PharmD programs

Institution	Location	Year program began	Total number of pharmacists graduated from the progam	Number of pharmacists currently enrolled	Average number of calendar years to complete the program	Total credit hours required	Didactic credit hours required	Experiential credit hours Required
Colorado	Colo.	1999*	410	251	3.8	65	35	30
Florida	Fla.	1994	2,383	320	3.2	63	54	9
Howard	D.C.	2003	147	70	2	65	35	30
Idaho State	Idaho	1990	319	91	4.5	55	37	18
Shenandoah	Va.	1998	685	176	2.5	53	38	15
Western	Calif.	2003	200	60	3	180	104	76

**The North-American Trained Doctor of Pharmacy Program*

across the country as well as three remote sites. The remote sites are structured slightly differently for students who are not within driving distance of a regional site, but they require the same overall number of hours.

Each semester also includes about 20 hours of online lectures that students watch on their own.

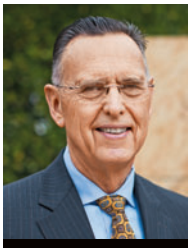
Instead of requiring a clerkship, the school uses clinical practice assessments, which at present are performed in-house in a clinical setting at the University. The assessments, which take a minimum of four weeks, cover experience in both inpatient and ambulatory care settings, along with a fourth week of experience that is more flexible.

The school decided to perform assessments rather than require a clerkship, Normann said, in acknowledgment of the skill levels to which some pharmacists have attained through previous experience in the field.

"We said okay, what are the outcomes, what are the competency outcomes that are required in our curriculum? We looked at those and we developed a method in which the students could demonstrate their competency," he said.

While the program's enrollment numbers peaked at 700 at one point, Normann said, the program currently includes about 320 students.

"We still have a pretty healthy enrollment," he said.



Daniel Robinson

Western University of Health Sciences

The nontraditional program at Western University of Health Sciences focuses primarily on pharmacists who earned their pharmacy degrees internationally and are interested in obtaining a PharmD degree in the United States.

The University of Florida decided to perform assessments rather than require a clerkship in acknowledgment of the skill levels to which some pharmacists have attained through field experience.

Daniel Robinson, PharmD, FASHP, dean of the College of Pharmacy, said the school accepts up to 20 students each year in the International Post-Baccalaureate PharmD program. After completing a campus interview and some testing to establish that they possess the knowledge that would typically be covered during the first year of the school's traditional program, students are admitted into the second year of the university's traditional PharmD program. Students who are part of the nontraditional program then attend classes on campus along with the students enrolled in the traditional program.

"Once they enter into the second year, they are completely integrated from then on, so there is really no distinguishing our international students from our direct-entry students," he said.

The students are required to complete 76 experiential credits before receiving their degree.

Since the program began in 2003, 200 students have graduated from the International Post-Baccalaureate PharmD program. Students have come to the school from all over the globe and represent 25 different countries, Robinson said. DT

Jill Sederstrom *is a freelance writer based in Kansas City.*

Oluwole Williams, BS Pharm, 2014 PharmD Candidate

Metronidazole and adverse drug reactions: A review

Metronidazole (1H-imidazole-1-ethanol, 2-methyl-5-nitro-) is an organic compound that is sparingly soluble in water. A crystalline powder, white to pale yellow in color, it darkens on exposure to light. It is available in oral, topical, and parenteral formulations in the United States and Canada under varying brand names, such as Flagyl, Metrogyl, etc.

Dosage forms of metronidazole on the market include tablets: 250 mg, 375 mg, 500 mg, and 750 mg ER; lotions: 0.75%; creams: 1% and 0.75%; and gels: topical gel 0.75% and vaginal gel 0.75%. It is also available as an injection for intravenous infusion only. Of note, the parenteral formulation of metronidazole is typically a ready-to-use 100-mL IV single-dose container of sterile, nonpyrogenic metronidazole hydrochloride equivalent to 500 mg of active principle.

Use

Metronidazole is widely used in medical and dental practices for the eradication of anaerobic bacteria, amoebae, and parasitic infections. In the Asian subcontinent, for example, it has been successfully used in combination with mebendazole in the treatment of Taenia species of tapeworm and for guinea worm eradication. In its spectrum of activity, metronidazole encompasses the following micro-organisms:

- Anaerobic Gram-positive bacilli: *Clostridium* species and strains of *Eubacterium.*
- Anaerobic Gram-negative bacilli: *Bacteroides fragilis*, *B. vulgatus*, *B. ovatus*, *B. distasonis*, *B. thetaiotaomicron*, and *Fusobacterium* species.
- Anaerobic Gram-positive cocci: *Peptococcus* species and *Peptostreptococcus* species. *Gardnerella vaginalis, Entamoeba histolytica, Giardia lamblia, Trichomonas vaginalis, Helicobacter pylori, Blastocystis hominis.*

Adverse events

In alcoholics or patients with compromised liver function, in pregnant women, and in children, metronidazole ingestion may trigger debilitating adverse reactions; therefore it is advisable that its use be limited to when it is clearly needed for the eradication of infections.

All healthcare practitioners, including physicians, need more advanced learning on drug-drug interactions and adverse drug reactions connected with metronidazole. FDA requires a boxed warning that notes the possibility, discovered in data from animal studies, of carcinogenicity. Metronidazole is contraindicated in the first trimester of pregnancy and must be used with caution in patients with end-stage renal disease; dosage reduction is warranted if CrCl is <10mL/min.

One classic adverse reaction from metronidazole ingestion is the disulfiram reaction, first noted by two Danish physicians. Like disulfiram (Antabuse; Wyeth-Ayerst), metronidazole blocks the hepatic oxidation of acetaldehyde, an intermediate step in the metabolism of alcohol, causing an accumulation of acetaldehyde in the blood, with resultant severe nausea and vomiting.[1] Pharmaceutical products containing alcohol, however small the amount, will induce this manner of severe adverse reaction in patients who are on concurrent metronidazole therapy.

Examples of medications that may trigger this reaction include:

- Lopinavir/ritonavir oral solution (Kaletra; AbbVie), which contains 42% alcohol
- Oral cough/cold preparations containing benzyl alcohol as a base/preservative (Edwards et al[1] have described a case in which a patient given clindamycin and metronidazole at different times in the day still developed intractable nausea and vomiting)
- Tipranavir capsules, which contain 7% w/w of alcohol, will cause a disulfiram-like reaction with metronidazole.

Clindamycin

In *The Journal of Midwifery & Women's Health*[2], C.J. Krulewitch described an unusual adverse reaction of severe nausea and vomiting in a 26-year old female (GA P1021 at 40 4/7 weeks), who presented to the labor and delivery ward for induction of labor due to decreased amniotic fluid.

The patient had previously been on a 7-day course of metronidazole for a diagnosis of bacterial vaginosis and had taken her last dose on the day of admission. At 5 a.m. the following morning, the patient was given pitocin and clindamycin 800 mg IV for GBS prophylaxis at 7 a.m., and she had a normal spontaneous vaginal delivery at 9:40 am.

However, she developed an intractable and severe nausea and vomiting postpartum that lasted 20 hours and was unrelieved by courses of metoclopramide, prochlorperazine, and diphenhydramine.

The cause of this patient's adverse reaction was attributed to the benzyl alcohol preservative content of the intravenous clindamycin given to her, which elicited a drug-drug interaction with the metronidazole course she had been on.

Continued on pg. 50

DELIVERING RELIABILITY

For more than 20 years, GREENSTONE has established a strong legacy of delivering more than medicine. With a dedication to providing value and excellence in customer service, we are working to achieve our mission to supply reliable, quality generics to patients who need them so they can lead healthier lives.

GreenstoneLLC.com

GREENSTONE
DELIVERING TRUSTED GENERICS

Metronidazole and adverse drug reactions

Continued from pg. 48

Warfarin

In another case study, Howard-Thompson A, Hurdle AC, Arnold LB, et al,[3] recounted the case of a 78-year-old white woman who had visited a walk-in clinic and received prescriptions for metronidazole (250 mg Q8H for five days) and levofloxacin (500 mg QD for six days). The patient did not inform the physician that she was on 7 mg warfarin therapy daily.

Nine days later, she was admitted for profuse nosebleeds, with an international normalized ratio (INR) value of 8.0.

According to the authors, this adverse event was attributable to a metronidazole-induced elevation in plasma warfarin levels, because it inhibits the in vivo metabolism of S-warfarin, the most active isomer in the warfarin racemic mixture.

Metronidazole is an inhibitor of the CYP2C9 enzyme, an element of the cytochrome P450 enzyme system that is responsible for S-warfarin metabolism.

Organ function

The consistent and very frequent use of metronidazole in gynecological clinics and for the treatment of *B. fragilis* infections of the GI tract presents a number of risks for the occurrence of adverse drug reactions, especially in patients who are social drinkers, in those with undiagnosed hepatic disease, and in those with renal dysfunction. Metronidazole volume of distribution and systemic clearance are reduced by 21% and 66% respectively in liver failure, causing an elimination half-life prolongation of 152%.[4]

If metronidazole is given concurrently with mebendazole, the risks of toxic epidermal necrolysis and Stevens-Johnson syndrome are heightened. Similarly, if it is given with busulphan, there is a 79%–87% elevation of busulphan trough concentrations. Therefore dose adjustments are necessary wherever these drugs are required for treatment of a patient on metronidazole.

The WHO International Agency for Research on Cancer and the U.S. National Toxicology program both list metronidazole as a possible carcinogen, although the relationship of metronidazole exposure to cancer in humans has not been clearly established.

Carcinogenicity

Unlike chloramphenicol, metronidazole does not cause irreversible hematological toxicities, but it has been shown to be carcinogenic in studies of animals, although not of humans.

Studies in experimental animals (rats and mice) have proven metronidazole carcinogenicity.[5,6] The hydroxy metabolite, which is more potent than the parent compound, has been implicated in many lab animals.

The WHO International Agency for Research on Cancer and the U.S. National Toxicology Program both list metronidazole as a possible carcinogen, although the relationship of metronidazole exposure to cancer in humans has not been clearly established.

Side effects

Some more commonly seen side effects of metronidazole include numbness, tingling sensations in hands or feet, irritability, hallucinations, headaches, convulsions, dizziness, drowsiness, sore throat, loss of appetite, cloudy urine, loss of bladder control, joint or muscle pain, skin rash, chills, black or tarry stool, skin redness, blistering, peeling, or loosening of the skin, vaginal irritation, eye pain, fever, continuing diarrhea, Stevens-Johnson syndrome, bladder inflammation, and acute pancreatic inflammation.

Drugs that must be avoided during metronidazole treatments include disulfiram, carbocisteine, BCG vaccine, pimozide, and ethyl alcohol.

Drugs that may be used with extreme caution during metronidazole treatments include mycophenolate, fosphenytoin, systemic fluorouracil, calcineurin inhibitors, aripiprazole, tegafur, dofetilide, phenobarbital, ritonavir, and tipranavir.

Some medications and vaccines that may be used with close monitoring during metronidazole therapy include typhoid vaccine, vitamin K antagonist, lomitapide, mebendazole, busulphan, and sodium picosulfate. DT

References

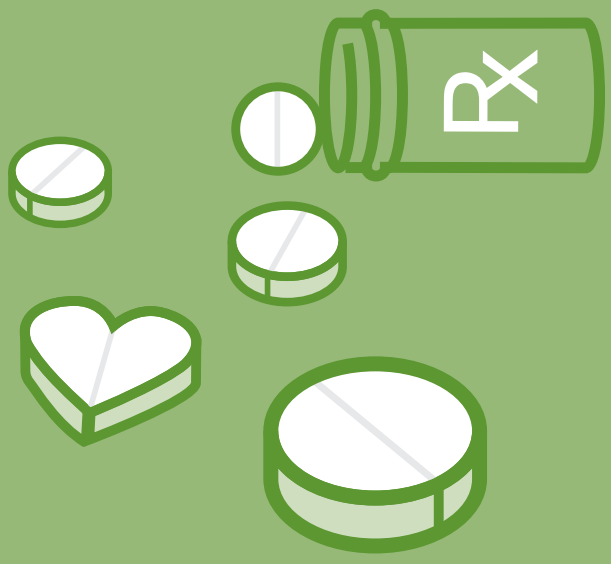
1. Edwards DL, Fink PC, Van Dyke PO. Disulfiram-like reaction associated with intravenous trimethoprim-sulfamethoxazole and metronidazole. *Clin Pharm.* 1986;5(12):999–1000.
2. Krulewitch CJ. An unexpected adverse drug effect. *J Midwifery Womens Health.* 2003;48(1):67-68.
3. Howard-Thompson A, Hurdle AC, Arnold LB, et al. Intracerebral hemorrhage secondary to a warfarin-metronidazole interaction. *Am J Geriatr Pharmacother.* 2008;6(1):33–36.
4. Farrell G, Baird-Lambert J, Cvejic M, et al. Disposition and metabolism of metronidazole in patients with liver failure. *Hepatology.* 1984;4(4):722–726.
5. Bendesky A, Menendez D, Ostrosky-Wegman P. Is metronidazole carcinogenic? *Mutat Res.* 2002; 511(2):133-144.
6. Menendez D, Bendesky A, Rojas E, et al. Role of P53 functionality in the genotoxicity of metronidazole and its hydroxy metabolite. *Mutat Res.* 2002;501(1–2):57–67.

Oluwole Williams *practices pharmacy in the Philadelphia, Penn., area. Contact him at pharmwillie@yahoo.co.uk.*

McKESSON

Pharmacy Systems & Automation

YOU'RE GOING TO **LOVE THE WAY** YOU FILL.



The All New Pharmaserv is now available with more new features to keep your business in good health.

Here's an extra-strength solution that will help you process prescriptions swiftly and easily so you can enhance patient relationships and boost your bottom line. The All New Pharmaserv still delivers on the integration and flexibility users already enjoy and will support a wide array of pharmacy operations and clinical services. New features include an intuitive user-interface, improved reconciliation, easier prior authorization management, new adherence program solutions and automated refill management–which means you really will fill better than ever before.

Visit **betterpharmacytech.com** for more information.

866.682.8942 | www.betterpharmacytech.com

BUSINESS
CARE
CONNECTIVITY

NEW DRUG REVIEW Kinjal Vakil Sidhpura, PharmD

Dalbavancin: A new antibacterial drug for Gram-positive infections

On May 23, 2014, FDA approved dalbavancin (Dalvance; Durata Therapeutics), an intravenous antibacterial agent indicated for acute bacterial skin and skin structure infections (ABSSSI) caused by susceptible strains of Gram-positive organisms. It treats infections caused by *Staphylococcus aureus* (including methicillin-susceptible and methicillin-resistant strains), *Streptococcus pyogenes, Streptococcus agalactiae*, and the *Streptococcus anginosus* group (including *S. anginosus, S. intermedius, S. constellatus)*.

Dalbavancin is the first drug to receive FDA approval as a qualified infectious disease product (QIDP), granted because dalbavancin is intended to treat serious or life-threatening infections.

Efficacy

Dalbavancin is a semisynthetic lipoglycopeptide. It interferes with bacterial cell wall synthesis by binding to the D-alanyl-D-alanine terminus of the stem pentapeptide in nascent cell wall peptidoglycan, thus preventing cross-linking.

Two phase 3, randomized, double-blind, double-dummy (non-inferiority) clinical trials of identical design, titled DISCOVER 1 and DISCOVER 2, enrolled adult patients with ABSSSI. Patients were treated for two weeks with either a two-dose regimen of dalbavancin (1,000 mg followed one week later by 500 mg) or intravenous vancomycin (1,000 mg or 15 mg/kg every 12 hours, with the option to switch to oral linezolid after three days) to complete 10 to 14 days of therapy. Infections treated included cellulitis, major abscess, and wound infection. Besides local signs and symptoms of infection, patients were also required to have at least one systemic sign of disease at baseline. Mean patient age was 50 years.

Early clinical response was the primary end point in both trials, defined as no increase from baseline in lesion area or infection-related erythema, along with the absence of fever at 48 to 72 hours. Analysis showed dalbavancin noninferiority in both trials.

In DISCOVER 1, dalbavancin had clinical response rates of 83.3% vs. 81.8% in the vancomycin/linezolid group (95% confidence interval, -4.6, 7.9). In DISCOVER 2, dalbavancin had clinical response rates of 76.8% vs. 78.3% in the vancomycin/linezolid group (95% CI, -7.4, 4.6). A pooled analysis of DISCOVER 1 and DISCOVER 2 showed that 525 of 659 patients (79.7%) in the dalbavancin group and 521 of 653 (79.8%) in the vancomycin/linezolid group had an early clinical response that indicated treatment success (95% CI, –4.5 to 4.2).

For patients with a *S. aureus* infection, including methicillin-resistant *S. aureus*, treatment success was seen in 90.6% of the patients treated with dalbavancin and 93.8% of those treated with vancomycin/linezolid. The most common adverse events in both groups were nausea, diarrhea, and pruritus.

Safety

The most common adverse reactions in patients treated with dalbavancin were nausea (5.5%), headache (4.7%), and diarrhea (4.4%). Serious hypersensitivity and skin reactions to dalbavancin have been reported. Due to the potential for cross-sensitivity, it should be determined whether patients have had a previous hypersensitivity reaction to glycopeptides. Caution should be exercised in patients who have a history of glycopeptide allergy.

Dalbavancin is administered intravenously, and rapid infusions can cause reactions that resemble "Red-Man Syndrome." Slowing the infusion may resolve these reactions.

In phase 2 and phase 3 clinical trials, more dalbavancin-treated subjects than comparator-treated subjects with normal baseline ALT levels had post-treatment ALT increases greater than three times the upper limit of normal (ULN), 12 (0.8%) versus two (0.2%), including three patients with post-treatment ALT elevations of greater than 10 times ULN. No comparator-treated subjects with normal baseline liver enzymes had ALT elevations greater than 10 times ULN.

As with most systemic antibacterial agents, *Clostridium difficile*-associated diarrhea has been reported by users of dalbavancin.

Dalbavancin is classified as a pregnancy category C. No adequate or well-controlled studies of dalbavancin have been conducted with pregnant women. Caution should be exercised when dalbavancin is given to a nursing woman. Pediatric safety and efficacy have not been established.

Dosing

Single-use glass vials supply a sterile powder equivalent to 500 mg of dalbavancin. Recommended dosing for ABSSSI is 1000 mg, followed one week later by 500 mg. Dalbavancin should be administered over 30 minutes by intravenous infusion.

In patients with renal impairment who have a known creatinine clearance less than 30 mL/min and who are not receiving regularly scheduled hemodialysis, the recommended dalbavancin dosing regimen is 750 mg followed by 375 mg administered one week later. DT

Kinjal Vakil Sidhpura *is clinical assistant professor of pharmacy practice, PCOM School of Pharmacy, Suwanee, Ga.*

We can't keep this under wraps anymore.

IT'S NEW. IT'S COMING SOON. IT'S NEXAFED® SINUS PRESSURE + PAIN.

Effective congestion relief was only the beginning. Soon you will be able to offer your patients a new tool in the battle against meth abuse—Nexafed Sinus Pressure + Pain. It's the only pseudoephedrine (PSE) + acetaminophen combination product, so you can recommend a decongestant that really works[1] with a pain reliever you can really trust—all while keeping your business out of the meth business.

- The first and only meth-deterring PSE combination product
- Fast, effective relief of nasal and sinus congestion, pressure, and pain
- Meth-deterring Impede® technology[1]
- Maximum strength, non-drowsy formulation*

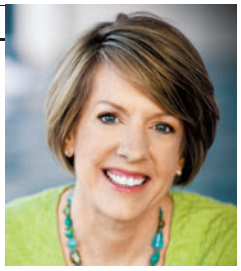
VISIT NEXAFED.COM TO LEARN MORE ABOUT NEXAFED PRODUCTS.

*Per recommended dosing interval.

References: 1. Brzeczko AW, Leech R, Stark JG. The advent of a new pseudoephedrine product to combat methamphetamine abuse. *Am J Drug Alcohol Abuse.* 2013;39(5):284-290.

acura pharmaceuticals, inc.

nexafed®



ANTICOAGULATION THERAPIES Anna D. Garrett, PharmD, BCPS

Treatment regimens for VTE have similar outcomes

Historically, unfractionated heparin (UFH) with a vitamin K antagonist has been the standard treatment for deep venous thrombosis (DVT) or pulmonary embolism. More recently, low-molecular-weight heparin (LMWH) combined with vitamin K antagonists has become the most common choice, but newer target-specific oral anticoagulants have widened the range of treatment options.

In a systematic review, researchers examined the safety and efficacy of these treatment strategies in 45 randomized controlled trials with nearly 45,000 patients. Meta-analysis techniques were used to compare all regimens with the LMWH–vitamin K antagonist combination. All treatment options, except the UFH–vitamin K antagonist combination, were similarly effective. The UFH–vitamin K antagonist combination was associated with about 40% greater relative risk for VTE recurrence (1.8% vs. 1.3%). Incidences of major bleeding were 0.5% and 0.3% with rivaroxaban and apixaban, respectively, compared with 0.9% for the LMWH–vitamin K antagonist combination.

Source: Castellucci LA, Cameron C, Le Gal G, et al. Clinical and safety outcomes associated with treatment of acute venous thromboembolism: A systematic review and meta-analysis. JAMA. *2014 Sep 17;312(11):1122–1135.*

AF pattern predicts stroke risk

The pattern of atrial fibrillation (AF) — paroxysmal, persistent, or permanent — is associated with progressive stages of atrial dysfunction and presumably higher stroke risk. Results of previous studies examining this relationship have been inconsistent, and study designs have been flawed.

In a newly published study, investigators analyzed the rates of stroke and systemic embolism in more than 6,500 aspirin-treated patients with AF from the ACTIVE-A/AVERROES databases. Mean age of patients with paroxysmal, persistent, and permanent AF was 69.0 ± 9.9, 68.6 ± 10.2, and 71.9 ± 9.8 years. The CHA_2DS_2-VASc score was similar in patients with paroxysmal and persistent AF (3.1 ± 1.4), but was higher in patients with permanent AF (3.6 ± 1.5). Yearly ischemic stroke rates were 2.1%, 3.0%, and 4.2% for paroxysmal, persistent, and permanent AF, respectively, with adjusted hazard ratio of 1.83 for permanent vs. paroxysmal and 1.44 for persistent vs. paroxysmal.

Multivariable analysis identified age ≥75 years, sex, history of stroke or TIA, and AF pattern as independent predictors of stroke, with AF pattern being the second-strongest predictor after previous stroke or TIA.

Source: Vanassche T, Lauw MN, Eikelboom JW, et al. Risk of ischaemic stroke according to pattern of atrial fibrillation: Analysis of 6,563 aspirin-treated patients in ACTIVE-A and AVERROES. Eur Heart J. *2014 Sep 3. [Epub ahead of print]*

NSAIDs increase risk of VTE

Nonsteroidal anti-inflammatory drugs (NSAIDs) may almost double venous thromboembolism (VTE) risk, according to an article published online in *Rheumatology*.

This is the first systematic review and meta-analysis of published observational studies to examine the association between NSAID use and VTE. The authors included six studies, representing 21,401 VTE events, in their final analysis. The studies, one cohort study (n= 19,293; 215 events) and five case-control studies (cases, 21,186; controls, 110,824), were conducted in the U.K. and Europe between 2007 and 2013.

The pooled risk ratio among NSAID users was 1.8-fold for VTE (95% confidence interval, 1.28–2.52). Among participants who used selective cyclooxygenase 2 (COX-2) inhibitors, the pooled risk ratio was 1.99 (95% confidence interval, 1.44–2.75). Both measures reached statistical significance.

The mechanism for increased risk of VTE is not clear, however, for the COX-2 inhibitors. The authors suggested that inhibition of the COX-2 enzyme may inhibit synthesis of prostacyclins, which are potent platelet activation inhibitors, while stimulating the release of thromboxane, a potent platelet aggregation facilitator, from the activated platelets. The activation and aggregation of platelets might, in turn, induce a coagulation cascade and clotting.

NSAIDs are widely used, and although this study was small, relative to the number of users of these medications, healthcare providers should be aware of this potential problem and advise patients who use NSAIDs and are at high risk of VTE accordingly.

Source: Ungprasert P, Srivali N, Wijarnpreecha K, et al. Nonsteroidal anti-inflammatory drugs and risk of venous thromboembolism: A systematic review and meta-analysis. Rheumatology 2014. *Published online September 24, 2014.* DT

Anna D. Garrett *is a clinical pharmacist and president of Dr. Anna Garrett (*www.drannagarrett.com*). Her mission is to help women in midlife maximize their mojo! Contact her at* info@drannagarrett.com.

LEGAL COMPLIANCE Ned Milenkovich, PharmD, JD

OIG warns pharmacies about drugmaker coupons used in claims to federal payers

The U.S. Department of Health and Human Services' Office of Inspector General (OIG) recently estimated that more than two million Medicare Part D beneficiaries use copayment coupons to buy drugs through their federal prescription plans. Patients benefit from drug manufacturer coupons because they enable consumers to opt for expensive brand-name drugs for little to no out-of-pocket copayment cost. Manufacturers benefit from copayment coupons because they may help a brand-name drug keep its market share, once a generic version is approved.

In September 2014, the OIG issued a report noting that the use of copayment coupons by beneficiaries of federal healthcare programs can lead to increased healthcare costs for the federal government and greater prescription drug costs for healthcare insurers.

Anti-kickback statute

The OIG determined that coupons were being used for drugs covered by federal healthcare programs. As discussed below, it is a violation of the anti-kickback statute to offer coupons to induce the purchase of drugs paid for by federal healthcare programs. The OIG deemed that current safeguards used by drug manufacturers are unreliable. The OIG found that letters warning pharmacists not to submit claims for federal reimbursement in connection with the coupons and manufacturers' use of pharmacy claims edits did not prevent the processing of coupons for the purchase of drugs paid for by federal healthcare programs.

In an accompanying advisory bulletin, the OIG proclaimed that copayment coupons constitute remuneration under the federal anti-kickback statute. As a result, drug manufacturers who purposefully use coupons to induce purchases of prescriptions payable by a federal healthcare program will violate the anti-kickback statute.

In addition, if the offer of copayment coupons violates the anti-kickback statute, claims for prescriptions resulting from such violations could be construed as fraudulent claims under the False Claims Act.

Pharmacy practices

The OIG report and bulletin also addressed pharmacy practices with regard to coupons.

Pharmacies risk violating federal laws when they accept remuneration for the purchase of drugs for which a federal healthcare program may make a payment. The OIG specifically stated that pharmacies that accept coupons for copayments owed by Medicare, Medicaid, or other federal healthcare program beneficiaries "may be subject to sanctions."

In addition to potential sanctions under the anti-kickback statute and the False Claims Act, pharmacies that offer or accept copayment coupons may face penalties for beneficiary inducement. The government may assess civil monetary penalties for beneficiary inducement when a pharmacy offers or accepts a copayment coupon to induce a federal or state healthcare program beneficiary to use that particular pharmacy.

Immediate action

Pharmacies that accept copayment coupons should take immediate steps to address the issues raised by the OIG concerning copayment coupons.

For example, pharmacies currently accepting coupons might draft and adopt new policies that reflect the OIG's report and special advisory bulletin. In addition, pharmacies that permit copayment coupons should train staff to verify that the person presenting the copayment coupon is not a beneficiary of a federal or state healthcare program.

Pharmacies may receive additional guidance on the use of coupons from the drug manufacturers that produce them, as the OIG recommended that manufacturers take action to prevent the use of copayment coupons for drugs paid for by federal healthcare programs.

The OIG report also recommended that manufacturers and pharmacies provide additional transparency to highlight the use of coupons within pharmacy claims.

In sum, pharmacies should reevaluate their acceptance of drug manufacturer coupons and establish safeguards to prevent the use of copayment coupons by beneficiaries in transactions involving a federal healthcare payer. DT

This article is not intended as legal advice and should not be used as such. When legal questions arise, pharmacists should consult with attorneys familiar with the relevant drug and pharmacy laws.

Ned Milenkovich *is a partner and head of the health, drug, and pharmacy legal practice at Roetzel and Andress LPA. He is also a member of the Illinois State Board of Pharmacy. Contact Ned at 312-582-1676 or at nmilenkovich@ralaw.com.*

CPE CREDIT: 2.0

EARN CE CREDIT FOR THIS ACTIVITY AT WWW.DRUGTOPICS.COM

EDUCATIONAL OBJECTIVES

Goal: To discuss the prevalence, health consequences, and nonpharmacologic and pharmacologic treatment options for obesity, focusing on the recommendations made in the 2013 AHA/ACC/TOS guideline for the management of overweight and obesity in adults.

After participating in this activity, pharmacists will be able to:

- Explain the epidemiological impact and prevalence of overweight and obesity.
- Identify the diagnostic criteria used for classification of excess body weight.
- Identify comorbidities and health risks associated with excess body weight.
- Discuss the role of nonpharmacologic therapy for weight management in adults.
- Describe approved pharmacologic treatment strategies for patients with excess body weight.

The University of Connecticut School of Pharmacy is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing education.

Pharmacists are eligible to participate in the knowledge-based activity, and will receive up to 0.2 CEUs (2 contact hours) for completing the activity, passing the quiz with a grade of 70% or better, and completing an online evaluation. Statements of credit are available via the online system and your participation will be recorded with CPE Monitor within 72 hours of submission.

ACPE# 0009-9999-14-012-H01-P

Grant Funding: There is no grant funding for this activity.

Activity Fee: There is no fee for this activity.

Initial release date: 11/10/2014

Expiration date: 11/10/2016

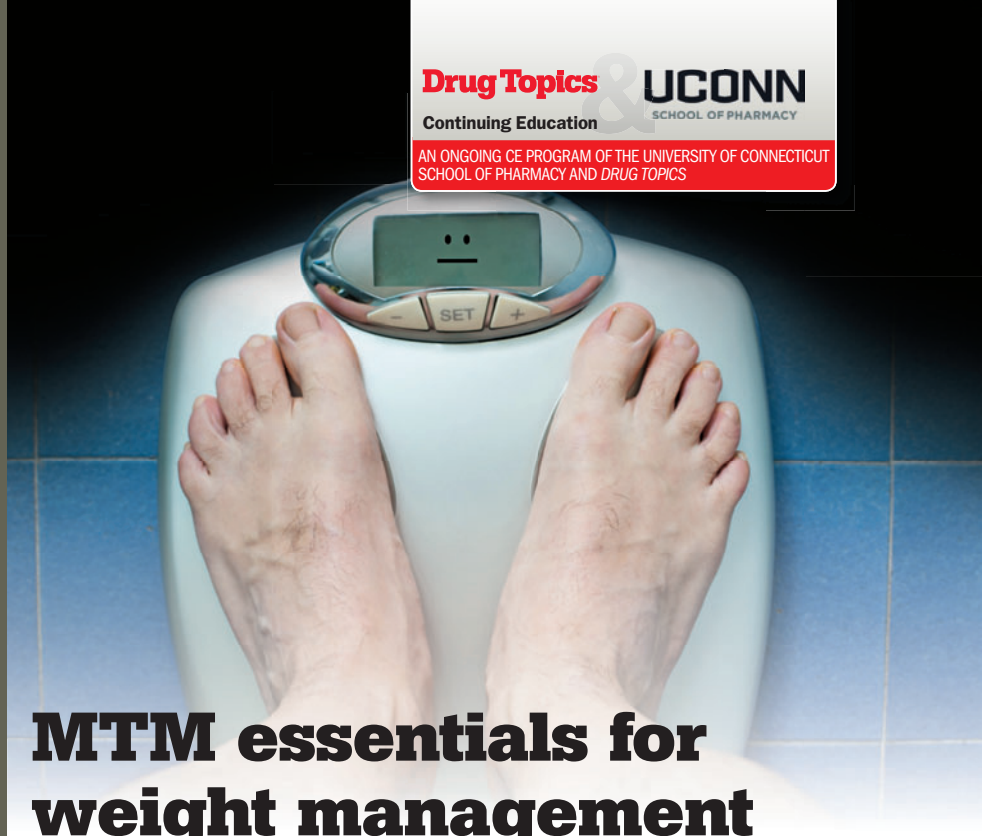
To obtain CPE credit, visit *www.drugtopics.com/cpe* and click on the "Take a Quiz" link. This will direct you to the UConn/*Drug Topics* website, where you will click on the Online CE Center. Use your NABP E-Profile ID and the **session code 14DT12-FKX42** to access the online quiz and evaluation. First-time users must pre-register in the Online CE Center. Test results will be displayed immediately and your participation will be recorded with CPE Monitor within 72 hours of completing the requirements.

For questions concerning the online CPE activities, e-mail: *cpehelp@advanstar.com*.

Drug Topics & UCONN SCHOOL OF PHARMACY

Continuing Education

AN ONGOING CE PROGRAM OF THE UNIVERSITY OF CONNECTICUT SCHOOL OF PHARMACY AND *DRUG TOPICS*



MTM essentials for weight management

Danielle Wojtaszek, PharmD

POSTDOCTORAL FELLOW IN PRIMARY CARE, UNIVERSITY OF CONNECTICUT SCHOOL OF PHARMACY, STORRS, CONN.

Devra Dang, PharmD, BCPS, CDE, FNAP

ASSOCIATE CLINICAL PROFESSOR, UNIVERSITY OF CONNECTICUT SCHOOL OF PHARMACY, STORRS, CONN.

Judy T. Chen, PharmD, BCPS, CDE, FNAP

CLINICAL ASSOCIATE PROFESSOR, PURDUE UNIVERSITY, COLLEGE OF PHARMACY, INDIANAPOLIS, IND.

Abstract

Overweight and obesity are major concerns in the United States, with two-thirds of adults being either overweight or obese. Obesity is associated with various comorbidities and health risks, leading to increases in morbidity and mortality rates and healthcare costs. Approaches to weight loss and management include both pharmacologic and nonpharmacologic therapies, such as lifestyle modifications, FDA-approved medications for weight loss, and bariatric surgery. Weight loss treatment should be tailored to patient-specific factors and oftentimes will require several different methods. Pharmacists are uniquely qualified to select appropriate medications for weight loss based on the patient's comorbidities and potential drug-drug interactions. Pharmacists can also help monitor for adverse effects and weight loss efficacy and can serve as a resource to guide and motivate patients through both pharmacologic and nonpharmacologic aspects of weight loss attempts.

Faculty: Danielle Wojtaszek, PharmD, Devra Dang, PharmD, BCPS, CDE, FNAP, and Judy T. Chen, PharmD, BCPS, CDE, FNAP

Dr. Wojtaszek is a postdoctoral fellow in primary care, University of Connecticut School of Pharmacy, Storrs, Conn. Dr. Dang is associate clinical professor, University of Connecticut School of Pharmacy, Storrs, Conn. Dr. Chen is clinical associate professor, Purdue University, College of Pharmacy, Indianapolis, Ind.

Faculty Disclosure: Dr. Wojtaszek, Dr. Dang, and Dr. Chen have no actual or potential conflict of interest associated with this article.

Disclosure of Discussions of Off-Label and Investigational Uses of Drugs: This activity may contain discussion of unlabeled/unapproved use of drugs in the United States and will be noted if it occurs. The content and views presented in this educational program are those of the faculty and do not necessarily represent those of *Drug Topics* or University of Connecticut School of Pharmacy. Please refer to the official information for each product for discussion of approved indications, contraindications, and warnings.

IMAGE: GETTY IMAGES / FLICKR RF

CPE SERIES: MTM CONSIDERATIONS FOR ADULT PATIENTS WITH CARDIOVASCULAR DISEASE

Welcome to the CPE series: Medication Therapy Management for Adults with Cardiovascular Disease, which was designed for pharmacists who take care of patients with CVD.

Beginning in February 2014 and continuing through January 2015, pharmacists can earn up to 24 hours of CPE credit with 12 monthly knowledge-based activities from the University of Connecticut School of Pharmacy and *Drug Topics*.

This month, pharmacists will learn about medication therapy management essentials for weight management. In December, the activity covers smoking cessation. The knowledge-based part of the series ends in January 2015 with an activity about medication therapy management opportunities in caring for the patient with CVD.

The series also offers application-based and practice-based activities. There will be online case studies in CVD, providing up to 4 CPE credits later this year and next.

Live meetings are scheduled for next year, focusing on communication skills development for health behavior change in CVD management and case discussions.

Obesity continues to be a major health concern in the United States. More than 78 million adults in the United States were obese in 2011 to 2012.[1] Obesity is related to many negative health consequences, including cardiovascular disease (CVD), diabetes, and cancer, and has a significant effect on morbidity and healthcare costs.[2,3] An estimated 300,000 premature deaths are related to obesity in the United States annually.[3] In 2008, it was estimated that the annual medical costs of obesity in the United States were $147 billion, and medical spending for obese patients was approximately 42% higher than for patients of normal weight.[4] The American Medical Association officially recognized obesity as a chronic disease state in June 2013 in hope of changing the way the medical community manages this common medical condition.[2,5]

Epidemiological impact and prevalence

Approximately two out of three adults in the United States are either overweight or obese.[6] The prevalence of obesity in the United States, which had been increasing since the 1960s, appears to have leveled off starting in 2003.[6,7] Although the prevalence of obesity in the United States did not significantly change between 2003 to 2004 and 2011 to 2012 according to the National Health and Nutrition Examination Survey (NHANES), this condition remains a major healthcare concern.[7] In 2011 to 2012, the prevalence of obesity was 34.9% in adults aged 20 years or older and 16.9% in children aged 2 to 19 years.[7] The prevalence of obesity in the United States varies depending on sex, ethnicity, age, and socioeconomic status. Obesity is more prevalent among women (36.1%) than among men (33.5%).[1] Among men, the prevalence of obesity is slightly higher at higher income levels, whereas among women, the prevalence of obesity is higher at lower income levels.[8] Non-Hispanic black adults have the highest prevalence of obesity (47.8%), followed by Hispanic (42.5%), and non-Hispanic white (32.6%) adults; non-Hispanic Asian adults have the lowest prevalence of obesity (10.8%).[1] In 2011 to 2012, the prevalence of obesity was higher among middle-aged adults aged 40 to 59 years than among younger adults aged 20 to 39 years or older adults aged 60 years or older.[1]

Comorbidities and health risks associated with excess body weight

Obesity presents a major public health concern, and a plethora of evidence continues to link excess body fat with numerous health conditions. Obesity and overweight are also associated with an increased risk in all-cause mortality. A chronic condition commonly associated with obesity is type 2 diabetes mellitus. It is estimated that 15% to 25% of obese patients develop insulin resistance and type 2 diabetes.[9] Another well-known complication of obesity involves the cardiovascular system—individuals who are obese have an increased risk of hypertension, coronary heart disease (CHD), and cerebrovascular accident.[10] Overweight and obesity are also associated with gastrointestinal (eg, gastroesophageal reflux disease, cholelithiasis), liver (eg, nonalcoholic fatty liver disease), and musculoskeletal (eg, osteoarthritis) conditions.[9] Furthermore, individuals who are obese have an increased risk of developing dyslipidemia, sleep apnea and other respiratory conditions, increased surgical risks, and certain cancers, such as uterine, kidney, cervical, and thyroid cancers.[10,11] Excess body fat affects virtually all organ systems.

Although obesity is commonly recognized by the general public and has been identified as the second most common factor contributing to preventable death in the United States, difficulties in management of this chronic condition remains a universal challenge for healthcare professionals, patients, and the entire healthcare system. The evidence-based guideline for the management of overweight and obesity in adults released in November 2013 reflects a joint effort by the Obesity Society (TOS), American Heart Association (AHA), and American College of Cardiology (ACC) to curb the rising prevalence of obesity. This guideline, which incorporates new quality evidence, is reviewed in this article.[10]

Assessment and diagnostic criteria

Body mass index (BMI), which is commonly used in clinical practice, is a reasonable tool to assess the extent of excess weight in adults by estimating body fat. BMI is calculated from an individual's height and weight. The patient's height and weight should be measured while he or she is wearing light

clothing and no shoes. The following equations are used to calculate BMI:
BMI = weight (lb) / [height (in)]^2 × 703, or
BMI = weight (kg) / [height (m)]^2

Among overweight and obese adults, greater BMI values are correlated with an increased risk for CVD, type 2 diabetes mellitus, and all-cause mortality compared to adults with normal BMI. However, BMI may overestimate body fat in persons who are very muscular, such as body builders and athletes, and may underestimate body fat in persons with low muscle mass, such as the elderly.

The BMI cut points for overweight and obesity identified in the 1998 Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults should continue to be used to identify adults at elevated risk for type 2 diabetes mellitus, CVD, and all-cause mortality.[12] A BMI below 18.5 kg/m^2 is considered underweight. A BMI between 18.5 and 24.9 kg/m^2 is classified as normal weight. A BMI of 25 kg/m^2 or more is considered overweight, and a BMI of 30 kg/m^2 or more is considered obese. Patients with a BMI of 40 kg/m^2 or greater are considered to have extreme obesity.[10]

Waist circumference is another tool used to assess the degree of obesity in adults. Waist circumference is considered to be the most practical anthropometric measurement for evaluating abdominal fat and assessing the risk of comorbidities. The patient's waist circumference should be measured at annual visits or more frequently in overweight and obese adults. Increased waist circumference (>40 inches in men or >35 inches in women) parallels with increased risk of morbidities and mortality. Therefore, the greater the waist circumference, the greater the risks of CVD, type 2 diabetes mellitus, and all-cause mortality even in individuals with normal body weight (BMI 18.5–24.9 kg/m^2).[12]

Assessment of obesity should incorporate BMI, waist circumference, and other clinical considerations such as sex, age, musculature, and comorbid conditions. Patients with sudden weight gain, abnormal fat distribution, or extreme obesity warrant close evaluation from healthcare providers.

Weight management

Primary prevention is the best management strategy to curb the obesity epidemic. Maintaining a healthy diet and obtaining adequate physical activity are the key components of this strategy. In patients who are already overweight or obese, the weight loss strategy should first aim to prevent further weight gain and then aim to achieve gradual and realistic weight reduction, maintain the weight loss, and enable life-long lifestyle changes to prevent weight regain and relapse. A first step in the dialogue with the overweight or obese patient can be to discuss the potential health consequences of excess body fat. If the patient is ready for lifestyle changes, he or she should be encouraged to achieve sustained weight loss between 5% and 10% of baseline body weight within the first six months.[10] According to the 2013 AHA/ACC/TOS obesity guideline, even lifestyle modifications that produce a sustained weight loss of just 3% to 5% can result in health benefits, such as clinically meaningful reductions in triglycerides, blood glucose, hemoglobin A1C, and the risk of developing type 2 diabetes mellitus.[10]

Weight loss benefits

Weight loss has been shown to have benefits on various cardiovascular risk factors. In overweight and obese individuals, an average weight loss of 2.5 to 5.5 kg maintained for two or more years has been shown to reduce the risk of the development of type 2 diabetes by 30% to 60%.[10] Weight loss of 5% to 10% over one year is associated with a reduction in the need for diabetes medications and a 0.6% to 1% reduction in hemoglobin A1C.[10] The 2013 AHA/ACC/TOS obesity guideline notes that in observational case-control studies, individuals with type 2 diabetes who lost 9 to 13 kg had a 25% decrease in mortality compared to those in weight-stable groups.[10] Improvements in lipid profiles and lowered blood pressure are also evident in patients experiencing weight loss. A 5% weight loss achieved over four years with intensive lifestyle interventions in overweight or obese adults with type 2 diabetes is associated with a reduction in the need for lipid-lowering medications and a lower number of patients prescribed antihypertensives.[10]

Lifestyle modifications for weight loss and maintenance

To achieve weight loss, an energy deficit through either reduced caloric intake or increased physical activity is required. The 2013 AHA/ACC/TOS obesity guideline recommends that ideally weight loss attempts should be overseen by a trained interventionist, such as a registered dietitian, psychologist, exercise specialist, health counselor, or individual who has received creditable instruction in weight management.[10]

Although a variety of dietary approaches resulting in a calorie-restricted diet have been described, three dietary interventions have been recommended to achieve a reduction in dietary energy intake in overweight and obese individuals.[10] The first method is adherence to a recommended energy intake target with a reasonable energy deficit for weight loss. This energy intake target is 1200 to 1500 kcal/day in women and 1500 to 1800 kcal/day in men, adjusted based on each patient's body weight and physical activity level. The second method estimates an individual's energy requirements based on expert guidelines and incorporates a prescribed energy deficit of 30%, 500 kcal/day (which equates to approximately one pound of weight loss per week), or 750 kcal/day.[10,13] The third method recommends a lower calorie intake achieved through the restriction of particular food groups, the elimination of particular food groups, or adherence to a prescribed

Pause&Ponder

What are some ways to identify and engage patients who can benefit from weight loss in the community pharmacy setting?

TABLE 1

GUIDE TO SELECTING TREATMENT FOR OBESITY

	BMI category				
Treatment	**25-26.9**	**27-29.9**	**30-34.9**	**35-39.9**	**≥40**
Diet, physical activity, and behavior change	With comorbidities	With comorbidities	+	+	+
Pharmacotherapy		With comorbidities	+	+	+
Surgery				With comorbidities	+

Abbreviations: BMI, body mass index in kg/m^2.
+ represents that treatment is indicated regardless of comorbidities.

Source: Ref 13

food diet. Many different dietary plans using this third method are available, and each can lead to weight loss in overweight and obese adults as long as a reduced energy intake is achieved.[10] The major plans include low-fat diets, low-carbohydrate diets, higher-protein diets, and balanced dietary plans.

Low-fat diets are generally defined as those that provide less than 30% of total calories from fat.[10] Some dietary plans (eg, Pritikin and Ornish diets) are considered very low-fat diets as they allow only 10%-20% of total daily calories to come from fat.[14] Low-carbohydrate diets usually limit the amount of carbohydrate intake (approximately 20 g/day, which equates to approximately one-third of a typical American bagel or one-half of a 12-oz can of soda) while intake of fat is relatively high (approximately 60%).[10,14] Examples of low-carbohydrate diets are the Atkins and South Beach diets.[14] Higher protein diets include approximately 25% of total daily calories from protein. An example is the Zone diet, which recommends 30% of daily calories to come from protein, 40% from carbohydrate, and 30% from fat.[10] Balanced dietary plans are those such as Weight Watchers; these plans include a fairly equal distribution of calories from carbohydrates, fat, and protein.

A randomized clinical trial that compared the weight loss efficacy of four types of diets, including Atkins, Ornish, Weight Watchers, and Zone diets, demonstrated that all four resulted in modest statistically significant weight loss at one year, with no statistically significant difference in weight loss among the diets (P=0.40).[15] The mean weight loss at one year was 2.1 kg in the Atkins group (P=0.009), 3.2 kg in the Zone group (P=0.002), 3 kg in the Weight Watchers group (P<0.001), and 3.3 kg in the Ornish group (P=0.007). In each study group, only approximately 25% of initial participants lost more than 5% of baseline body weight at one year, and only approximately 10% of initial participants lost more than 10% of baseline body weight. Patient adherence gradually declined over time similarly among all the diet groups. Only 53% of participants in the Atkins group, 65% in the Zone group, 65% in the Weight Watchers group, and 50% in the Ornish group completed the study. A strong association between dietary adherence and weight loss was demonstrated in this study, suggesting that sustained adherence to a diet is more important for successful weight management than the type of diet used.[15] The 2013 AHA/ACC/TOS obesity guideline recommends that overweight or obese patients who would benefit from weight loss should choose a calorie-restricted diet based on food preferences and health status (including comorbidities) so that they can adhere to the diet.[10]

Increased physical activity is another important component of weight loss, as it increases energy expenditure and has been shown to help in weight maintenance. Physical activity as monotherapy has demonstrated modest weight loss, but when combined with reduced calorie intake and behavioral modifications, physical activity may enhance weight loss.[16] The current recommendation is that adults should perform at least 30 minutes of moderate-intensity exercise (for example, brisk walking, bicycling, or yoga) on most (five or more) days of the week. The 2013 AHA/ACC/TOS obesity guideline recommends that adults should exercise for 200 to 300 minutes per week to achieve long-term weight loss maintenance for more than one year.[10] Patients should obtain medical clearance before beginning any exercise program and should be counseled to start slowly and gradually increase the intensity and duration of exercise.

Behavioral modification should also be included in the weight loss plan.[10] Behavioral therapy is a structured behavioral change program that uses self-monitoring of diet and exercise habits to increase the patient's awareness of healthy behaviors.[10,17] Behavior is reinforced by various methods such as using social support, setting realistic goals, addressing barriers to change, controlling stimuli, planning meals, managing stress, and using behavioral contracting and reinforcement.[17] The 2013 AHA/ACC/TOS obesity guideline recommends that overweight and obese individuals who would benefit from weight loss should participate in a behavioral modification program for six months or more.[10] Ideally, the overweight or obese patient should engage in a high-intensity (at least 14 sessions in six months) comprehensive weight loss intervention program overseen by a trained interventionist; this program should include a reduced calorie diet, increased aerobic physical activity for at least 150 minutes per week, and behavior therapy that enforces self-monitoring of caloric intake, physical activity, and weight.[10]

Pharmacologic therapy

In the overall weight management treatment plan, pharmacologic therapy is intended to serve only as an adjunct to comprehensive lifestyle interventions. A healthy diet and adequate physical activity continue to be the cornerstones of weight management. Therefore, patients should not relinquish their lifestyle modifications after drug therapy has been initiated. Pharmacotherapy may be considered as an option to reinforce lifestyle modifica-

tions by helping patients better adhere to a lower-calorie diet to achieve weight loss goals and improved health outcomes. Pharmacotherapy for weight loss can be considered in obese patients with a BMI of 30 kg/m^2 or more and in overweight patients with a BMI of 27 kg/m^2 or more with at least one obesity-related comorbid condition such as diabetes, hypertension, or dyslipidemia (**Table 1**).[10,13] Even though there are several prescription medications with weight reduction potential, as well as a plethora of nonprescription and herbal products marketed for obesity, only medications that are approved by the Food and Drug Administration (FDA) for weight management should be recommended.

The major currently available FDA-approved medications for weight management (orlistat, lorcaserin, phentermine, phentermine/topiramate ER, naltrexone/buproprion ER) carry the same indication: patient selection based on the above BMI criteria and only as an adjunct to a reduced-calorie diet and increased physical activity.

The choice of medication is dependent on the side effect profile and potential for drug-drug interactions (**Table 2**). In addition to the aforementioned guidelines for the initiation of pharmacologic therapy as an adjunct to lifestyle interventions, the patient should also be motivated to lose weight. If, after initiation of pharmacotherapy, the patient does not achieve at least 5% weight

Continued on page 61

TABLE **2**

FDA-APPROVED MEDICATIONS FOR WEIGHT MANAGEMENT IN OVERWEIGHT AND OBESE ADULTS

Generic name/ Drug class	Availability	Contraindications	Adverse effects	Major drug-drug interactions	Comments
Indicated for short-term use (≤12 wk)					
Phentermine/ Sympatho-mimetic agent	Rx (C-IV)	During or within 14 days of taking MAOIs, history of CVD including uncontrolled hypertension, hyperthyroidism, glaucoma, agitated states, history of drug abuse, hypersensitivity to sympathomimetic amines, pregnancy, nursing, pulmonary hypertension	Pulmonary hypertension, valvular heart disease, increased BP, tachycardia, GI disturbances, xerostomia, CNS stimulation, psychiatric disturbances, insomnia, increased convulsive episodes in epileptic patients (diethylpropion), risk of abuse and dependence	MAOIs, tricyclic antidepressants, antihypertensive and other CVD drugs, CNS-acting drugs, other anorectic agents	Avoid taking doses close to bedtime to prevent insomnia. If tolerance to the anorectic effect occurs, drug should be discontinued.
Diethylpropion/ Sympatho-mimetic agent	Rx (C-IV)				
Phendimetrazine Sympatho-mimetic agent	Rx (C-III)				
Benzphetamine/ Sympatho-mimetic agent	Rx (C-III)				
Indicated for long-term use (however, very limited data are available for use > 1 year)					
Orlistat/GI lipase inhibitor	Prescription, 120 mg Over-the-counter, 60 mg	Pregnancy, chronic malabsorption syndrome, cholestasis, hypersensitivity to orlistat	GI symptoms (loose oily stools, fecal urgency or incontinence, flatulence, abdominal cramping), reduced absorption of fat-soluble vitamins and beta carotene, increases in urinary oxalate, cholelithiasis, pancreatitis, liver injury (rare)	Cyclosporine, levothyroxine, warfarin, antiepileptic drugs, oral contraceptives	Administered three times daily with fat-containing meals (during or up to one hour after meals). Limit fat intake to ≤30% per day distributed over three main meals to avoid GI adverse effects. Bedtime administration of multivitamin that replaces normal dietary intake of fat-soluble vitamins is recommended.
Lorcaserin/ 5-HT2C receptor agonist	Rx (C-IV)	Pregnancy, nursing	Headache, dizziness, fatigue, nausea, dry mouth, constipation, impaired cognitive function, hypoglycemia in diabetic patients, serotonin syndrome, decreased heart rate, valvular heart disease, psychiatric disturbance, suicidal behavior and ideation, decreased white and red blood cell count, priapism, prolactinemia	Serotonergic drugs (increased risk of serotonin syndrome), CYP 2D6 substrates, MAOIs	Discontinue if 5% weight loss is not achieved by week 12. Avoid in patients with severe renal impairment. Use with caution in patients with severe hepatic impairment.

Continued on page 61

loss of initial body weight after 12 weeks on the maximum dose, the provider may consider discontinuing the medication.[10]

Sympathomimetic agents

Four sympathomimetic agents are approved for the short-term (≤12 weeks) management of obesity: phentermine, diethylpropion, phendimetrazine, and benzphetamine.[18] These drugs work to suppress appetite by increasing the activity of norepinephrine and dopamine in the satiety center of the hypothalamus.[3,18] Phentermine, which is the most widely prescribed medication for the management of obesity in the United States, has demonstrated in a meta-analysis a mean weight loss 3.6 kg greater than the weight loss seen with placebo when patients were treated with 15 to 30 mg of phentermine daily.[18]

Some concerns with the sympathomimetic agents are elevations in heart rate and blood pressure and the potential for addiction.[18,19] The use of sympathomimetic agents is also limited by contraindications in patients with CVD and moderate to severe hypertension, which are common disease states in obese patients.[20-23] Because of a lack of studies lasting six months or longer, the long-term efficacy and safety of the sympathomimetic agents are unknown.[18] Therefore, the cardiovascular risk and abuse potential of these medications cannot be ruled out; for these reasons, these agents must be limited to treatment duration of 12 weeks or less.[18]

Orlistat

Orlistat is a gastrointestinal lipase inhibitor that inhibits gastric and pancreatic lipases that break down dietary triglycerides into absorbable free fatty acids, thereby decreasing systemic fat absorption.[2,24] Orlistat is available in the United States as both prescription (120-mg capsules) and over-the-counter (60-mg capsules) formulations.

In randomized, placebo-controlled tri-

Continued on page 62

CONTINUED FROM PAGE 60

Generic name/ Drug class	Availability	Contraindications	Adverse effects	Major drug-drug interactions	Comments
Phentermine/ topiramate ER Sympatho-mimetic/ anticonvulsant combination agent	Rx (C-IV)	*Pregnancy, hyperthyroidism, glaucoma, hypersensitivity or idiosyncrasy to sympathomimetic amines, during or within 14 days of taking MAOIs	Adverse reactions observed with phentermine as previously described, paresthesia, dizziness, dysgeusia, constipation, suicidal behavior and ideation, mood and sleep disorders, cognitive impairment, angle-closure glaucoma, metabolic acidosis, elevated serum creatinine, kidney stones, hypokalemia, oligohidrosis and hyperthermia	Oral contraceptives, CNS depressants, non-potassium-sparing diuretics	Available under the REMS and dispensed only at certified pharmacies because of fetal toxicity. Women of reproductive potential must obtain negative pregnancy test before treatment and monthly thereafter. Avoid taking doses in evening to prevent insomnia. Discontinue if 5% weight loss is not achieved after 12 weeks on maximum daily dose. Do not exceed 7.5-mg/46-mg dose for patients with moderate or severe renal impairment or moderate hepatic impairment. Discontinue 15-mg/92-mg dose gradually to prevent possible seizures.
Naltrexone/ bupropion ER Opioid antagonist/ antidepressant combination agent	Rx	*Uncontrolled hypertension, seizure disorders, anorexia nervosa or bulimia, use of other bupropion-containing products, chronic opioid use, during or within 14 days of taking MAOIs, allergy to any ingredients in the medication, pregnancy, nursing, undergoing abrupt discontinuation of alcohol, benzodiazepines, barbiturates, or antiepileptic drugs	Nausea, constipation, headache, vomiting, dizziness, insomnia, dry mouth, diarrhea, suicidal ideation, neuropsychiatric symptoms, increased BP and heart rate, hepatotoxicity, angle-closure glaucoma, increased serum creatinine	Opioids, MAOIs, CYP2D6 substrates, CYP2B6 inhibitors and inducers, drugs that lower seizure threshold, dopaminergic drugs (levodopa, amantadine)	When initiating treatment, dose should be gradually escalated. Avoid administration of medication with high-fat meals due to increased systemic concentration of both components. Discontinue if 5% baseline weight loss is not achieved by week 12.

Abbreviations: BP, blood pressure; CNS, central nervous system, CVD, cardiovascular disease; CYP, cytochrome P450; ER, extended release; GI, gastrointestinal; MAOIs, monoamine oxidase inhibitors; REMS, Risk Evaluation and Mitigation Strategy.
*Although not specifically listed in the product labeling, all other contraindications to both components of this drug product should be observed.

Source: Ref 20-24,28,32,42

als studying orlistat 120 mg taken three times daily, the percentage of patients on active treatment who achieved at least 5% weight loss at one year ranged from 35% to 73%, and the percentage who achieved at least 10% weight loss at one year ranged from 14% to 41%.[18] Studies have shown a modest weight loss with orlistat that is significantly greater than with placebo at one year (mean weight loss with orlistat 120-mg capsules was 3.4 kg greater than with placebo).[18] Studies have also demonstrated that one year of treatment with orlistat 120 mg is associated with significant improvements in total and low-density lipoprotein (LDL) cholesterol levels, fasting glucose levels, and systolic and diastolic blood pressure.[18] For the nonprescription formulation, pooled estimates from studies of orlistat 60 mg demonstrated 2.5 kg greater weight loss at 12 months than was seen with placebo.[18]

The Xenical in the Prevention of Diabetes in Obese Subjects (XENDOS) study was a four-year, randomized, double-blind, placebo-controlled trial to study change in body weight and time to onset of type 2 diabetes in participants aged 30 to 60 years with a BMI ≥30 kg/m^2 who were treated with either orlistat 120 mg or placebo three times daily with meals.[25] Mean weight loss was significantly greater in participants treated with orlistat who completed four years of treatment compared with those treated with placebo at one year (11.4 kg vs 7.5 kg; P<0.001) and at four years (6.9 kg vs 4.1 kg; P<0.001). Significantly more participants treated with orlistat achieved at least 5% weight loss after one year (72.8%) compared with those treated with placebo (45.1%; P<0.001). Additionally, significantly more participants achieved at least 10% weight loss after one year of treatment with orlistat (41%) compared with those treated with placebo (20.8%; P<0.001). Orlistat plus lifestyle changes also significantly reduced the incidence of progression to type 2 diabetes after four years of treatment (6.2%) versus the incidence of progression in patients treated with placebo plus lifestyle changes (9%; P=0.0032).

The main side effects of orlistat are related to its mechanism of action. The increase in unabsorbed fats in the intestine caused by orlistat can produce loose oily stools, fecal urgency or incontinence, flatulence, abdominal cramping, and other gastrointestinal side effects.[3,24] Patients should be informed that these gastrointestinal side effects tend to improve when patients reduce the amount of fat intake in their diet to no more than 30% of total daily calories from fat.[24] Orlistat may decrease the absorption of fat-soluble vitamins (vitamins A, D, E, and K, and beta carotene); therefore, patients being treated with orlistat should take a multivitamin that replaces normal dietary intake of fat-soluble vitamins.[24] The multivitamin should be administered at least two hours before or after the administration of orlistat. Given that orlistat is administered with meals, the easiest time to administer the multivitamin would be at bedtime.[24] Orlistat is associated with several important drug-drug interactions. Because of the potential for reduced vitamin K absorption with orlistat use, patients taking concomitant warfarin should be monitored closely for changes in the International Normalized Ratio (INR).[24] Patients taking antiepileptic medications should be monitored for possible changes in the frequency and severity of convulsions, as such changes have been previously reported.[24] Coadministration of orlistat and cyclosporine may reduce plasma levels of cyclosporine; therefore, cyclosporine should be administered three hours before or after orlistat and more frequent monitoring of cyclosporine level be considered.[24] Coadministration of orlistat and levothyroxine may decrease levothyroxine efficacy by binding to and preventing levothyroxine absorption, potentially leading to hypothyroidism, so these two drugs should be administered at least four hours apart.[24,26] Oral contraceptives may be less effective if patients are experiencing diarrhea from orlistat therapy.[27] However, in a study of 20 normal-weight women taking orlistat 120 mg three times daily for 23 days, the ovulation-suppressing action of oral contraceptives did not change.[24] Nevertheless, a backup method of contraception should be used if diarrhea occurs.[27] A noteworthy difference between the two formulations of orlistat for pharmacists to be aware of is that the instructions for the nonprescription formulation are more restrictive than the product labeling of the prescription product. For example, it warns that coadministration with cyclosporine, including cyclosporine eye drops, is not recommended.[27]

In the overall weight management treatment plan, pharmacologic therapy is intended to serve only as an adjunct to comprehensive lifestyle interventions. A healthy diet and adequate physical activity continue to be the cornerstones of weight management.

Lorcaserin

Lorcaserin is a selective serotonin 2C (5-HT2C) receptor agonist. The activation of 5-HT2C receptors in the hypothalamus is believed to promote postprandial satiety and decrease food consumption.[2,3,28]

Three large, randomized, placebo-controlled trials have demonstrated the weight loss effect of lorcaserin. The Behavioral Modification and Lorcaserin for Overweight and Obesity Management (BLOOM) study evaluated the efficacy of lorcaserin for weight loss in conjunction with lifestyle modifications in patients aged 18 to 65 years with a BMI of 30 to 45 kg/m^2 or 27 to 29.9 kg/m^2 with at least one comorbid condition.[29] In the first year, participants randomly received either lorcaserin 10 mg or placebo twice daily. Those who completed the first year of the trial were eligible to continue for a second year, in which patients who had been receiving placebo continued to receive it and those who had been receiving lorcaserin were randomly assigned in a 2:1 ratio to either continue lorcaserin or begin placebo. More participants had lost 5% or more of their baseline body weight at

the end of one year with lorcaserin treatment (47.5%) than with placebo (20.3%; *P*<0.001). Similarly, more participants lost 10% or more of their baseline body weight with lorcaserin (22.6%) than with placebo (7.7%; *P*<0.001). Average weight loss at one year was 5.8 kg in the lorcaserin group and 2.2 kg in the placebo group (*P*<0.001). More participants (67.9%) who continued to receive lorcaserin in the second year of the study maintained their weight loss as compared to those who were switched to placebo (50.3%; *P*<0.001). In addition, fasting glucose, hemoglobin A1C levels, total cholesterol, LDL cholesterol, and triglyceride levels were statistically significantly lower at one year in participants who received lorcaserin than in those who received placebo, although these levels had increased in both groups after two years.

The Behavioral Modification and Lorcaserin Second Study for Obesity Management (BLOSSOM) evaluated the effects of lorcaserin on body weight and cardiovascular risk factors in participants aged 18 to 65 years with a BMI of 30 to 45 kg/m^2 or 27 to 29.9 kg/m^2 with certain comorbid conditions.[30] Participants were randomized to receive either 10 mg lorcaserin twice daily, 10 mg lorcaserin once daily, or placebo for 52 weeks, along with lifestyle modification interventions. Significantly more participants in the lorcaserin groups had lost at least 5% of body weight at one year (47.2% for twice-daily dosing and 40.2% for once-daily dosing) as compared to the placebo group (25%; *P*<0.001). Similarly, significantly more participants in the lorcaserin groups had lost at least 10% of body weight (22.6% for twice-daily dosing and 17.4% for once-daily dosing) as compared to the placebo group (9.7%; *P*<0.001). Mean weight loss was 5.8 kg with lorcaserin twice daily, 4.7 kg with lorcaserin once daily, and 2.9 kg with placebo. An increase in high-density lipoprotein (HDL) cholesterol level and a decrease in triglyceride level were also observed with both lorcaserin groups versus placebo, although these differences were not statistically significant.

The Behavioral Modification and Lorcaserin for Obesity and Overweight Management in Diabetes Mellitus (BLOOM-DM) study evaluated the efficacy of lorcaserin for weight loss in participants aged 18 to 65 years with a BMI of 27 to 45 kg/m^2 and type 2 diabetes.[31] Patients were randomized to receive either lorcaserin 10 mg twice daily, lorcaserin 10 mg once daily, or placebo, along with lifestyle modification interventions. The proportion of participants who achieved at least 5% weight loss after the first year was significantly greater in the lorcaserin groups (37.5% for twice-daily dosing and 44.7% for once-daily dosing) than in the placebo group (16.1%; *P*<0.001). Similarly, a significantly greater proportion of participants in the lorcaserin groups achieved at least 10% weight loss (16.3% for twice-daily dosing and 18.1% for once-daily dosing) as compared to the placebo group (4.4%; *P*<0.001). In patients who completed the study, average weight loss was 5.6 kg with lorcaserin twice daily, 5.9 kg with lorcaserin once daily, and 1.9 kg with placebo. Additionally, mean hemoglobin A1C, fasting plasma glucose levels, and heart rate decreased significantly more in the lorcaserin groups than in the placebo group (*P*<0.001; *P*<0.001; *P*=0.03 for twice-daily lorcaserin; and *P*<0.001; *P*<0.001; *P*=0.01 for daily lorcaserin, respectively). Although there were also decreases in cholesterol and triglyceride levels and blood pressure with lorcaserin groups versus placebo, these differences were not statistically significant.

Although lorcaserin has been shown to be an effective weight loss agent as compared to placebo, it is important to note that less than 50% of patients in the lorcaserin groups in these studies were able to achieve a 5% weight loss and less than 25% were able to achieve a 10% weight loss. Additionally, there was a high dropout rate in the lorcaserin groups in all of these studies, ranging from approximately 21% to 45%.[29-31]

Lorcaserin's selective activation of 5-HT2C receptors over other 5-HT receptor subtypes diminishes the risk of adverse effects such as psychiatric changes due to 5-HT2A activation and valvulopathy due to 5-HT2B activation.[2,3] Although the three major efficacy trials did not show a statistically greater incidence of valvulopathy with lorcaserin than with placebo, the numerical prevalence of valvulopathy was still somewhat greater.[18,29-31] Therefore, the FDA has requested that the manufacturer conduct a postmarketing trial to evaluate the long-term cardiovascular effects of lorcaserin.[3,18]

Lorcaserin moderately inhibits CYP2D6-mediated metabolism; therefore, concomitant administration of this agent with CYP2D6 substrates should be avoided.[28] Because of lorcaserin's serotonergic activity, this medication should also be avoided in combination with other serotonergic or antidopaminergic drugs because of an increased risk of serotonin syndrome and neuroleptic malignant syndrome-like reactions.[28]

The patient's response to lorcaserin should be assessed at 12 weeks of therapy. If a patient has not lost at least 5% of his/her baseline weight by week 12, the drug should be discontinued, as it is unlikely that the patient will achieve and sustain clinically meaningful weight loss with continued treatment.[28]

Pause&Ponder

An obese patient comes to your community pharmacy expressing frustration in her attempts to lose weight with diet and exercise. She requests some information about medications for weight loss, as she would like to stop lifestyle modification therapy. What would you say to this patient to educate her on effective strategies for weight loss and to determine whether she is an appropriate candidate for medication therapy?

Phentermine/topiramate ER

Phentermine/topiramate extended-release (ER) is one of two FDA-approved combination products for the management of overweight and obesity. Phentermine is a sympathomimetic amine anorectic; topiramate is an antiepileptic drug whose exact mechanism of action for weight loss is unknown. The weight loss effect of topiramate may be the result of appetite suppression and increased satiety caused by increased activity of gamma aminobutyrate, modulation

of voltage-gated ion channels, inhibition of alpha-amino-3-hydroxy-5-methyl-4-isoxazole-propionic acid/kainite excitatory glutamate receptors, or inhibition of carbonic anhydrase.[32] An advantage of using a combination of drugs for weight loss is to be able to use the dose of each agent that is efficacious while minimizing adverse effects.[3,33]

The efficacy of phentermine/topiramate ER has been demonstrated in three large randomized, placebo-controlled clinical trials. The EQUIP trial evaluated the efficacy of phentermine/topiramate ER in conjunction with lifestyle modifications for weight loss in adults aged 18 to 70 years with a BMI of 35 kg/m^2 or greater.[33] Participants were randomized to receive either phentermine/topiramate ER 3.75/23 mg, phentermine/topiramate ER 15/92 mg, or placebo. More patients in both phentermine/topiramate ER groups were able to achieve at least 5% weight loss after one year of treatment (83.5% for 15/92 mg and 59.1% for 3.75/23 mg) as compared to the placebo group (25.5%). Similarly, more patients in the phentermine/topiramate ER groups lost at least 10% of body weight (67.7% for 15/92 mg and 27.7% for 3.75/23 mg) as compared to the placebo group (13%). Patients who completed the study lost 14.4% of body weight with the 15/92-mg dose, 6.7% of body weight with the 3.75/23-mg dose, and 2.1% of body weight with placebo.[33] Additionally, participants in the phentermine/topiramate ER groups demonstrated greater improvements in systolic and diastolic blood pressure, fasting glucose level, LDL and HDL cholesterol levels, and triglyceride level than the placebo group (for 15/92-mg group, $P<0.0001$; $P=0.0142$; $P<0.0001$; $P<0.0001$; $P=0.0567$; $P<0.0001$, respectively), although these results were not always statistically significant in the 3.75/23-mg group.

The CONQUER trial evaluated the efficacy of phentermine/topiramate ER in conjunction with lifestyle modifications for weight loss in adults aged 18 to 70 years with a BMI of 27 to 45 kg/m^2 and two or more comorbidities.[34] Participants were randomly assigned to phentermine/topiramate ER 15/92 mg, phentermine/topiramate ER 7.5/46 mg, or placebo. A greater percentage of participants in the phentermine/topiramate ER groups lost at least 5% body weight (70% for 15/92 mg and 62% for 7.5/46 mg) as compared to the placebo group (21%). Similarly, more participants in the phentermine/topiramate ER groups achieved at least 10% weight loss (48% for 15/92 mg and 37% for 7.5/46 mg) as compared to the placebo group (7%). Patients who completed one year of treatment lost 12.9 kg with phentermine/topiramate ER 15/92 mg, 9.9 kg with phentermine/topiramate ER 7.5/46 mg, and 1.8 kg of weight loss with placebo. Improvements in blood pressure, total cholesterol level, LDL and HDL cholesterol levels, triglyceride level, fasting glucose level, and glycated hemoglobin level were also demonstrated in the phentermine/topiramate ER groups, although these differences were not always statistically significant.

All overweight and obese adult patients should be encouraged to participate in a comprehensive lifestyle program that includes a reduced-calorie diet, increased physical activity, and behavioral strategies for at least six months. Patients who have lost weight should be further encouraged to participate in a long-term (at least one year) comprehensive lifestyle maintenance program.

The SEQUEL trial was an extension of the CONQUER trial which aimed to evaluate the long-term efficacy of phentermine/topiramate ER in conjunction with lifestyle modification for weight loss during a second year of treatment.[35] Participants who completed the first year of treatment during the CONQUER trial were able to continue with the original treatment to which they were randomly assigned for an additional year. As in the CONQUER study, a greater percentage of participants in the phentermine/topiramate ER groups achieved at least 5% weight loss (79.3% for 15/92 mg and 75.2% for 7.5/46 mg) as compared to the placebo group (30.0%). A greater percentage of participants in the phentermine/topiramate ER groups also lost at least 10% body weight (53.9% for 15/92 mg and 50.3% for 7.5/46 mg) as compared to the placebo group (11.5%). Patients who completed the study lost 10.7% of body weight with phentermine/topiramate ER 15/92 mg, 9.3% with phentermine/topiramate ER 7.5/46 mg, and 2.2% with placebo. Additionally, patients treated with phentermine/topiramate ER demonstrated lower fasting glucose levels than those treated with placebo. However, unlike the results in CONQUER, the degree of blood pressure reduction was not significantly different between phentermine/topiramate ER and placebo, although participants taking placebo did experience a net increase in the number of antihypertensive medications prescribed, whereas those taking phentermine/topiramate ER experienced a net decrease.

Phentermine/topiramate ER is administered once daily in the morning. The starting dose is 3.75/23 mg daily for 14 days then increased to 7.5/46 mg once daily.[32] Response to treatment should be evaluated after 12 weeks of phentermine/topiramate ER 7.5/46 mg daily. If the patient has not lost at least 3% of his or her baseline body weight after 12 weeks of this dose, treatment should be discontinued or the dose can be increased administering 11.25/69 mg once daily for 14 days, then increasing to the maximum dose of 15/92 mg once daily. After dose escalation, response to treatment should once again be evaluated after 12 weeks of 15/92 mg once daily. If by this time point the patient has not achieved a weight loss of at least 5% of

TABLE 3

PRACTICAL TIPS FOR WEIGHT LOSS AND PATIENT RESOURCES

Practical tips for weight loss	Patient resources
Wear a pedometer and aim for an eventual goal of 10,000 steps daily. Start slow and obtain medical clearance first if there are comorbidities.	**American Diabetes Association** *Food and fitness* http://www.diabetes.org/
Look for everyday opportunities to increase the number of steps (eg, taking the stairs instead of the elevator, parking the car further away from the building entrance in the parking lot, getting off the bus one stop earlier).	**American Heart Association** *Nutrition center, physical activity, weight management resources* http://www.heart.org/HEARTORG/
Pack a healthy lunch instead of eating out or at the cafeteria. Avoid sweet drinks and fast food.	**Centers for Disease Control and Prevention** *Strategies to combat obesity and healthy living resources* http://www.cdc.gov/Obesity/
Limit portions of food at each meal to one-quarter starch, one-quarter protein, and one-half vegetables on a nine-inch plate.	**The National Obesity Society** *Obesity links* http://www.obesity.org/resources-for/consumer.htm
Eat breakfast and do not skip meals; skipping meals will likely increase cravings for foods and lead to overeating at other meals.	**United States Department of Agriculture** *Nutrition information* http://nutrition.gov
When eating at a restaurant where the portions tend to be large, eat only half the entrée and take the other half home as take-out.	*Diet tracker and personalized nutrition and physical activity plan* https://www.supertracker.usda.gov/default.aspx
Think about the opportunity cost of snacking (eg, if a bag of chips is 300 kcal, how many extra minutes of physical activity will need to be performed that day to expend this additional energy intake, and will there be time to do so?).	*Weight management and calories* http://www.choosemyplate.gov/weight-management-calories/weight-management.html
Slow down the rate of eating in order to feel full. Drink a glass of water before starting a meal. Increase fiber intake (gradually).	**National Institute of Diabetes and Digestive and Kidney Diseases** *Weight loss program* http://win.niddk.nih.gov/publications/choosing.htm
Eat low-energy-dense foods, which contain 0 to 1.5 cal/g of food (eg, most fresh fruits and vegetables) instead of high-energy-dense foods, which contain 4 to 9 cal/g of food (eg, cookies, crackers, butter, bacon)	Dietary Guidelines for Americans http://www.health.gov/dietaryguidelines/2010.asp

Abbreviations: cal, calorie; g, gram; kcal, kilocalorie.

baseline body weight, the medication should be discontinued, as it is unlikely that the patient will achieve and sustain clinically meaningful weight loss with continued treatment. Discontinuation of phentermine/topiramate ER 15/92 mg should be done gradually to avoid the possible risk of causing a seizure. This should be achieved by taking a dose every other day for at least one week before discontinuing the medication.[32]

Women of reproductive potential who are treated with phentermine/topiramate ER must be educated on the teratogenic risk of the medication. Topiramate causes an increased risk of fetal oral clefts with exposure in the first trimester of pregnancy.[32] Because of this risk, phentermine/topiramate ER is only to be dispensed by certified pharmacies under the Risk Evaluation and Mitigation Strategy (REMS).[32] Women of reproductive potential must have a negative pregnancy test before phentermine/topiramate ER is initiated and monthly thereafter. Women should also be counseled to use effective contraception while taking the medication. If the patient does become pregnant during therapy, the medication should be discontinued immediately.[32]

Clinical trials of phentermine/topiramate ER demonstrated a small increase in resting heart rate.[18,33-35] In the CONQUER trial, more patients in the phentermine/topiramate ER groups had increases in heart rate of more than 10 beats per minute at two consecutive visits than patients in the placebo group.[34] Because of concern regarding the drug's long-term effect on cardiovascular risk, the FDA has required the manufacturer to conduct a postmarketing trial to evaluate the long-term cardiovascular safety of this drug combination.[2,3,18] In addition, phentermine/topiramate ER is associated with various other potential adverse effects, such as dizziness, constipation, paresthesia, glaucoma, mood disorders, and insomnia.[32]

Naltrexone/bupropion ER

Naltrexone/bupropion ER is a combination medication that was approved by the FDA in September 2014 for chronic weight management as an adjunct to a reduced-calorie diet and physical activity.[36] Naltrexone is an opioid receptor antagonist that has been shown to reduce the subjective euphoric effects of alcohol and opiates, and therefore is thought to assist in weight loss attempts by reducing the subjective reward of food intake.[37] Bupropion is an antidepressant that is a nonselective inhibitor of the dopamine and norepinephrine transporters,

and its use has been reported to result in weight loss.[37]

Four randomized, placebo-controlled trials demonstrated the weight loss efficacy of naltrexone/bupropion ER—Contrave Obesity Research I Study (COR-I), Contrave Obesity Research II Study (COR-II), Contrave Obesity Research Behavior Modification Study (COR-BMOD), and Contrave Obesity Research Diabetes Study (COR-Diabetes).[38-41] In all of these studies, significantly more patients achieved at least 5% or 10% weight loss with naltrexone/bupropion ER than with placebo ($P<0.001$ in all studies, except $P<0.0001$ in COR-I). In patients who completed one year of treatment, 53.1% to 80.4% achieved at least 5% weight loss with naltrexone/bupropion ER as compared to 24% to 60.4% with placebo; 26.3% to 55.2% achieved at least 10% weight loss with naltrexone/bupropion ER as compared to 8% to 30.2% with placebo. Overall, the study results demonstrated that patients who completed one year of therapy with naltrexone/bupropion ER achieved a greater average weight loss than those treated with placebo—5.9% to 11.5% with naltrexone/bupropion ER 32 mg/360 mg versus 1.4% to 7.3% with placebo.

Because of the bupropion component, naltrexone/bupropion ER has a black box warning regarding an increased risk of suicidal thoughts and behaviors associated with the medication. Naltrexone/bupropion ER is contraindicated in patients with seizure disorders, as bupropion has the potential to cause seizures. To avoid the risk of seizures in other patients, the dose of naltrexone/bupropion ER should be gradually escalated over four weeks, the bupropion component should not exceed a dose of 360 mg daily, doses should be divided into a twice-daily regimen, and the medication should not be administered with high-fat meals.[42] Naltrexone/bupropion ER should not be used in patients with uncontrolled hypertension, as bupropion can cause increases in blood pressure and heart rate.[42] The FDA is requiring that the manufacturer conduct a postmarketing cardiovascular outcomes trials to assess the cardiovascular risk associated with using naltrexone/bupropion ER. Because of the naltrexone component, the medication should not be

TEST QUESTIONS

1. Which of the following is (are) comorbidities associated with obesity?
- **a.** Sleep apnea
- **b.** Type 1 diabetes
- **c.** Gallbladder disease
- **d.** A and C

2. Which of the following is a reasonable weight loss goal for an overweight/obese patient?
- **a.** 10% of baseline body weight in three months
- **b.** 5% to 10% of baseline body weight in six months
- **c.** 10% to 15% of baseline body weight in six months
- **d.** 20% of baseline body weight in six months

3. It is appropriate to consider pharmacotherapy as part of a weight management program for which of the following patients?
- **a.** A 30-year-old overweight man (BMI, 28.9 kg/m^2) with no comorbid conditions who is motivated to lose weight and just started a new diet and exercise regimen
- **b.** A 62-year-old obese woman (BMI, 42.5 kg/m^2) with type 2 diabetes, hypertension, and hyperlipidemia who expresses frustration with her weight and has been nonadherent to her medications and current exercise and diet plan
- **c.** A 45-year-old obese woman (BMI, 32.2 kg/m^2) with type 2 diabetes who has been adherent to a diet and exercise regimen for more than six months but has failed to achieve the weight loss goals set by her provider despite her motivation to lose weight
- **d.** A 25-year-old overweight man (BMI, 26.1 kg/m^2) with hypertension who is motivated to lose weight and has been following a strict diet and exercise plan for several months with favorable results

4. Which of the following are "inappropriate" counseling points for an overweight or obese patient?
- **a.** Educate about the importance of maintaining achieved weight loss through reduced caloric intake, increased physical activity, and behavior therapy
- **b.** Advise the patient to start a high-intensity physical activity program before assessing for individual readiness and obtaining medical clearance
- **c.** Educate about the many potential health risks associated with an increased BMI
- **d.** Recommend that the patient should continue a comprehensive weight loss maintenance program to reduce weight regain

5. All of the following statements are true regarding bariatric surgery except:
- **a.** There is insufficient evidence to recommend for or against bariatric surgery for individuals with a BMI <35 kg/m^2
- **b.** Adjustable gastric banding and Roux-en-Y gastric bypass are examples of bariatric surgical procedures
- **c.** All patients with a BMI ≥30 kg/m^2 are appropriate candidates for bariatric surgery
- **d.** One criteria for eligibility for bariatric surgery failure to achieve sufficient weight loss even with adherence to lifestyle modification strategies

6. All of the following statements are true regarding waist circumference except:
- **a.** The greater the waist circumference, the greater the risk of CVD, type 2 diabetes mellitus, and all-cause mortality
- **b.** The cut points used to identify patients who may be at increased risk for comorbid conditions are as follows: women >102 cm (>40 in); men >88 cm (>35 in)
- **c.** The patient's waist circumference should be measured at least annually in overweight and obese adults
- **d.** Waist circumference is the most practical measurement in daily clinical practice for assessing abdominal fat content before and during weight loss treatment

7. What are the components of a comprehensive weight reduction therapeutic strategy according to the AHA/ACC/TOS guideline?
- **a.** Aerobic physical activity for ≤150 minutes per week and regular self-monitoring of food intake, physical activity, and weight
- **b.** Aerobic physical activity for ≥150 minutes per week and regular self-monitoring of food intake, physical activity, and weight
- **c.** Aerobic physical activity for 120 minutes per week and regular self-monitoring of food intake, physical activity, and weight
- **d.** Aerobic physical activity for ≥300 minutes per week only

8. BMI most likely overestimates body fat in individuals who are:
- **a.** Very muscular **b.** Elderly
- **c.** Underweight **d.** Morbidly obese

taken by patients who are using opioids, undergoing treatment for opioid dependence, or experiencing acute opiate withdrawal.[36]

Response to naltrexone/bupropion ER should be assessed after 12 weeks on the maintenance dose. If the patient has not achieved at least 5% weight loss by this time, the medication should be discontinued, as it is unlikely that clinically meaningful weight loss will be achieved with continued treatment.[42]

Summary of pharmacologic agents

The FDA-approved medications for weight loss have each demonstrated modest weight loss potential when used as an adjunct to diet and exercise, with the greatest amount of weight loss demonstrated in phentermine/topiramate ER studies. Despite the benefits from weight loss with phentermine/topiramate ER, this drug is associated with many adverse effects and requires special dispensing because of its teratogenic risk. Similarly both lorcaserin and naltrexone/bupropion ER have the potential for a variety of adverse reactions and drug-drug and drug-disease interactions. Because of the lack of systemic absorption with orlistat, the common adverse effects are mainly gastrointestinal symptoms. These adverse effects are bothersome to many patients but can be controlled with dietary fat restrictions. Although orlistat is available as a nonprescription formulation, which increases availability to patients, the dose is half that of the prescription formulation and has lower weight loss efficacy when compared with the prescription dose. The choice of medication should be based on a patient's comorbidities, risk of adverse drug events, and potential drug-drug interactions (**Table 2**).[20-24,28,32,42]

Criteria for bariatric surgery

Even though comprehensive lifestyle interventions are the foundation of weight loss management, some patients who are considered obese with high medical risks and who are unable to achieve sufficient weight loss goals may be appropriate candidates for bariatric surgery. The criteria for bariatric surgery include extreme obesity (BMI ≥40 kg/m^2) or obesity (BMI ≥35 kg/m^2) in conjunction with obesity-related comorbid conditions such as diabetes.[10] Furthermore, patients should be motivated to lose weight

9. Which of the following treatment option(s) will be most effective in a 30-year-old person with a BMI of 30 kg/m^2?
- **a.** Reduced caloric intake
- **b.** Increased physical activity and behavior therapy
- **c.** Increased physical activity and reduced caloric intake
- **d.** Reduced caloric intake, increased physical activity, and behavior therapy

10. What is the prevalence of overweight and obesity in U.S. adults?
- **a.** One out of three **b.** Two out of three
- **c.** Two out of four **d.** Three out of four

11. Which of the following diets is an example of a low-fat diet?
- **a.** South Beach diet **b.** The Zone diet
- **c.** The Ornish diet **d.** All of the above

12. How much exercise is recommended by the AHA/ACC/TOS obesity guideline to achieve long-term weight loss maintenance for more than one year?
- **a.** 30 minutes of exercise at least five days per week or more
- **b.** 200 to 300 minutes of exercise per week
- **c.** 30 minutes of exercise on three days per week
- **d.** 150 minutes of exercise per week

13. Which of the following are components of behavior modification therapy?
- **a.** Stimulus control
- **b.** Behavioral contracting
- **c.** Setting realistic goals
- **d.** All of the above

14. When can pharmacotherapy options be considered in patients who are trying to lose weight as an adjunct to lifestyle modification therapy?
- **a.** When BMI is ≥30 kg/m^2
- **b.** When BMI is ≥25 kg/m^2 with at least one obesity-related comorbid condition
- **c.** When BMI is ≥27 kg/m^2 with at least one obesity-related comorbid condition
- **d.** Both a and c

15. Phentermine/topiramate ER is only dispensed by certified pharmacies under a REMS program. What is the risk involved with phentermine/topiramate ER treatment that requires this restricted access to the medication?
- **a.** It may decrease absorption of fat-soluble vitamins, therefore causing nutritional deficiency in patients who are on a calorie-restricted diet
- **b.** The topiramate component of the medication causes an increased risk of fetal oral clefts with exposure in the first trimester of pregnancy
- **c.** The phentermine component of the medication is associated with an increased risk of valvulopathy
- **d.** The medication can cause seizures upon sudden discontinuation

16. Which medication for weight loss has been shown in a four-year study to reduce the incidence of progression to type 2 diabetes as compared to placebo?
- **a.** Phentermine/topiramate ER
- **b.** Lorcaserin
- **c.** Diethylpropion
- **d.** Orlistat

17. What action should be taken if a patient has not lost at least 5% of baseline body weight after 12 weeks of treatment with lorcaserin?
- **a.** Discontinue lorcaserin
- **b.** Increase dose of lorcaserin and evaluate weight loss again after an additional 12 weeks of therapy
- **c.** Counsel patient on diet and exercise
- **d.** Both b and c

18. Which of the following medications is approved for long-term treatment of obesity?
- **a.** Orlistat **b.** Phentermine
- **c.** Diethylpropion **d.** Both a and b

19. Orlistat may reduce the absorption of fat-soluble vitamins and beta carotene; therefore, what medication considerations should be observed while a patient is taking orlistat?
- **a.** Take a multivitamin at bedtime
- **b.** Avoid in combination with serotonergic drugs
- **c.** Monitor INR closely in patients taking concomitant warfarin
- **d.** Both a and c

20. Which of the following are potential adverse effects associated with naltrexone/bupropion ER?
- **a.** Suicidal ideation
- **b.** Seizures
- **c.** Increased blood pressure and heart rate
- **d.** All of the above

and have a history of being unable to achieve sufficient weight loss even with adherence with lifestyle modifications with or without pharmacotherapy. The current AHA/ACC/TOS obesity guideline does not recommend bariatric surgery for individuals with a BMI <35 kg/m^2 (**Table 1**). Patients undergoing bariatric surgery need to be aware of the immediate surgical risks as well as the need for long-term postoperative follow-up and dietary changes. Strict eligibility criteria are often in place for these procedures, including demonstrated ability to adhere to comprehensive lifestyle modification plan and medications, medical clearance, and a psychological evaluation.

The available bariatric surgical procedures include laparoscopic adjustable gastric banding (LAGB), laparoscopic Roux-en-Y gastric bypass (RYGB), open RYBG, biliopancreatic diversion (BPD) with and without duodenal switch, and sleeve gastrectomy. Although the current guidelines do not recommend one particular bariatric surgical procedure over another, the choice of a specific procedure should be based on various patient factors such as age, severity of obesity, comorbid conditions, and complication risks for each individual.

Bariatric surgery is currently the most effective treatment for patients with morbid obesity. Bariatric surgery is associated with a reduced incidence of type 2 diabetes and an increased likelihood of disease remission.[10,43] There has also been evidence of reductions in blood pressure and the use of blood pressure medications, as well as favorable changes in cholesterol levels and other obesity-related comorbid conditions. Evidence has also demonstrated that total mortality is decreased with bariatric surgery compared with nonsurgical management.[10]

The mean weight reduction at 2 to 3 years post-surgery is 20% to 35% of baseline body weight.[10] Because bariatric surgery can lead to biochemical changes and a substantial reduction in baseline body weight, many patients will require a reduction in the dose or number of their prescribed medications after surgery. Additionally, because of changes in the gastrointestinal tract with the various techniques of surgical manipulation, most patients will require supplementation with vitamins and minerals after surgery, and the absorption of medications for comorbid conditions may also be affected.

Patient education on weight management

For overweight and obese patients and those with an elevated waist circumference, healthcare professionals should provide education on the increased risks of CVD, type 2 diabetes, other comorbidities, and all-cause mortality associated with increased BMI. In general, overweight and obese adults should be counseled on the benefits that sustained weight loss (eg, even a 3%-5% sustained reduction in initial baseline body weight) can achieve. In particular, the benefits of reductions in triglyceride, blood glucose, and hemoglobin A1C levels and the reduced risk of the development of type 2 diabetes should be emphasized to patients.

All overweight and obese adult patients should be encouraged to participate in a comprehensive lifestyle program that includes a reduced-calorie diet, increased physical activity, and behavioral strategies for at least 6 months. Patients who have lost weight should be further encouraged to participate in a long-term (at least one year) lifestyle maintenance program.

After a patient begins taking a medication for weight loss, pharmacists should educate him or her on the medication's side effects, lack of adequate long-term efficacy and safety data, and efficacy of medications for weight loss as compared to lifestyle modifications. In addition, patients should be informed that pharmacologic therapy is intended to be only an adjunct to lifestyle interventions, which are still the mainstays of weight loss treatment. Patients eligible for bariatric surgery should be counseled on the various surgical procedure options and the short-term risks, as well as the long-term side effects and potential need for alterations of currently prescribed medications. All patients undergoing a weight loss treatment plan who take medications for diabetes and hypertension should be advised to closely monitor for hypoglycemia and hypotension as weight loss can lead to a decrease in blood glucose and blood pressure.

Conclusion

Weight loss and weight management involve various methods, including reduced caloric intake, increased physical activity, behavioral therapy, FDA-approved medications, and bariatric surgery. The decision regarding which treatments to use should be based on patient-specific factors, such as BMI, comorbidities, dietary preferences, and potential for drug interactions. Although there are various weight loss options available for overweight and obese patients, lifestyle modifications with reduced caloric intake, increased physical activity, and behavioral therapy, must be the foundation of any weight loss plan. Pharmacists can play an important role in the management of overweight and obese patients in their weight loss attempts by providing education on health complications of excess body weight, assisting in the selection of the most appropriate lifestyle modification strategies and medications, educating the patient about the potential adverse effects and drug interactions of weight loss drugs, and providing support and motivation to help patients reach their weight loss goals. •

References are available online at www.drugtopics.com/cpe.

Even lifestyle modifications that produce a sustained weight loss of just 3% to 5% can result in health benefits.

Softlips Cube provides lip care that hydrates, smoothes, nourishes, and protects.

MedActive products for oral relief include a gel, a spray, lozenges, and a rinse.

Carmex Cold Sore Treatment works on contact to block pain and minimize appearance.

OTC

Getting ahead of the weather

JULIANNE STEIN, CONTENT CHANNEL MANAGER

When wintry weather hurls rain, sleet, snow, and hail straight at our heads, defensive health behaviors take in everything from the top down. So this month, we start at the top.

Lip care

As temperatures plunge, inclement weather takes its toll on lips that turn dry, chapped, and sore. To counteract those effects, the Mentholatum Company offers its Softlips line of products.

Softlips Cube offers "5-in-1 Lip Care" in a formula that includes Shea butter for hydration, vitamins A, C, and E for antioxidant support, emollients to smooth the lips, an SPF 15 sunscreen for protection, and ingredients to add shine. Cube choices include pomegranate blueberry, vanilla bean, and fresh mint.

Also from Softlips: **Intense Moisture** tubes, offering hydration and protection in berry mint, citrus mint, and double mint flavors. Featured ingredients include breath fresheners and murumuru seed butter to help prevent moisture loss.

Softlips also features its **Classic lip balms**, available in vanilla, watermelon, and raspberry flavors, and its **Tints**, in pearl, blossom, and honey tones. **(www.softlips.com)**

Oral relief

As winter air loses moisture, dry mouth can become a problem even for those not contending with such conditions as Sjögren's Syndrome, oral thrush, oncology side effects, and burning mouth or tongue. For all of the above, MedActive Oral Pharmaceuticals offers a complete line of oral care products, beginning with its **Oral Relief Gel** and **Spray** products, which enhance saliva, relieve burning feelings, and safely coat, lubricate, and soothe gum pain and inflammation, burning and cracked tongue, dry mouth and low saliva, mucosal soft tissue dryness, bleeding gums, and oral sores and lesions. These products are sugar- and gluten-free, and available without prescription for use by adults.

MedActive's **Oral Relief Lozenges** hydrate mucosal soft tissue, stimulate saliva flow, and relieve burning sensations. They can be used by adults and children above the age of six years. Flavors include lemon lime, orange crème, ruby raspberry, and natural spring.

MedActive also offers an alcohol- and sugar-free **0.1% Stannous Fluoride Rinse**, available in a "mix-before-use" dual dispenser, for nighttime use. Effective for up to eight hours, this product is said to aid in prevention of tooth decay, remineralization of tooth surfaces, and tooth desensitization. It too is available without prescription. **(www.medactive.com)**

Sore throats

Designed to relieve winter-triggered sore throats is new **GoGargle!**, an effervescent salt-water rinse that combines such soothing ingredients as honey, aloe, camomile, and mint with zinc, vitamins C and E, and herbs. GoGargle! was named Best New Product of 2014 by the retail marketing group ECRM. It is available at a variety of retail outlets across the country. **(www.gogargle.com)**

Cold sores

Last but not least, Carma Labs, the makers of Carmex lip balm products, have launched new **Carmex Cold Sore Treatment**, described as the only OTC therapy that works on contact to block pain and itch with 10% benzocaine while minimizing the appearance of a sore, using a patented technology that softens its appearance, helps fill in unevenness, and corrects the skin tone. This product can be found at pharmacies and mass-market retailers throughout the United States. **(www.carmexcoldsore.com)** DT

IMAGES COURTESY OF THE MENTHOLATUM COMPANY / MEDACTIVE ORAL PHARMACEUTICALS / CARMA LABS

RX & OTC

New products

IMAGES COURTESY OF INTERMUNE / BOEHRINGER INGELHEIM / EISAI / TEVA

RX CARE

New drugs

October saw simultaneous FDA approval of **pirfenidone** (Esbriet; InterMune) **[1]** in 267-mg capsules and **nintedanib** (Ofev; Boehringer Ingelheim) **[2]** in 150-mg capsules to treat idiopathic pulmonary fibrosis (IPF). Progressive lung scarring caused by IPF results in shortness of breath and severe coughing disruptive of normal living. According to FDA, treatments to date have included oxygen therapy, pulmonary rehabilitation, and lung transplant, making Esbriet and Ofev significant new treatment options. Both products will cost more than $90,000 per year, and will manage, not cure, the disease, requiring lifelong adherence. **(www.esbriet.com; www.ofev.com)**

Eisai has announced FDA approval of the fixed combination of **netupitant 300 mg/palonosetron 0.5 mg [3]**(Akynzeo) for the prevention of acute and delayed nausea and vomiting associated with chemotherapy treatment. There are no contraindications. Patients have reported some hypersensitivity reactions, including anaphylaxis, and adverse reactions have included headache, asthenia, dyspepsia, fatigue, constipation and erythema. Patients with severe hepatic or renal impairment should not use this product. **(www.akynzeo.com)**

FDA has approved **ledipasvir 90 mg/sofosbuvir 400 mg** (Harvoni; Gilead Sciences), the first combination tablet for the treatment of chronic hepatitis C genotype 1 infection. The interferon- and ribavirin-free once-a-day therapy is expected to simplify treatment regimens. Three phase 3 trials demonstrated sustained virological response rates (no sign of virus six months after treatment) above 90%. Sofosbuvir, branded Sovaldi, is priced at $1,000/pill. The price tag for one tablet of Harvoni is $1,125; 24 weeks of treatment will run $189,000. Gilead Sciences is offering a patient-assistance program for patients who lack insurance coverage; for information, paste "Support Path for Sovaldi and Harvoni" into your browser. Harvoni is the third drug treating chronic HCV infection to win FDA approval in the past year. Simeprevir (Olysio) was approved in November 2013 and sofosbuvir in December 2013. **(www.harvoni.com)**

Teva has announced that its **beclomethasone dipropionate HFA with dose counter [4]** (Qvar), approved in May, is now commercially available throughout the United States. The inhaled corticosteroid is approved for twice-daily use in the ongoing treatment of asthma as a preventative therapy for patients five years of age and older. This product does not replace inhalers for quick relief of sudden symptoms. **(www.qvar.com)**

New generics

Camber Pharmaceuticals has launched **raloxifene hydrochloride, USP 60-mg tablets**

Continued on pg. 75

FINANCING

EDUCATION

MARKETPLACE ADVERTISING

PRODUCTS AND SERVICES
JOAN MALEY at (800) 225-4569 x 2722
Email: jmaley@advanstar.com

RECRUITMENT
JOANNA SHIPPOLI at (800) 225-4569 x 2615
E-mail: jshippoli@advanstar.com

Search for the company name you see in each of the ads in this section for **FREE INFORMATION!**

Products & Services

Brokers

Thinking of SELLING YOUR PHARMACY?

Get the highest possible price.

If approached by a chain or independent buyer, call me immediately for a FREE CONSULTATION. 888-808-4RPH (4774)

STOP

ATTENTION OWNERS:

IF YOU ARE IN ONE OF THE FOLLOWING SITUATIONS, CALL ME!

1. In discussions with a pharmacy chain
2. A wholesaler is helping you find a buyer
3. Planning to sell to an employee pharmacist
4. You already have an interested buyer(s)
5. Thinking of selling in the next one to two years

"I WILL PERSONALLY REPRESENT YOU. No risk ... No obligation ... Call me before talking to or sharing information about your pharmacy with ANY interested buyer."

• Experienced • Licensed • Insured

Daniel J. Lannon, RPh, Broker
Cell: 651.769.4932
Email: dan@pharmacycbs.com

www.pharmacycbs.com
888.808.4RPH (4774)
Call me today!

Pharmacy Consulting Broker Services

Avoid costly mistakes made by sellers…Watch this brief movie before talking with any buyer!
www.pharmacycbs.com/movie

www.pharmacycbs.com | 888.808.4774

SEE MORE BROKERS ON NEXT PAGE!

Know who is reading your catalog.

Introducing Advanstar's Custom Digital Solutions.

Stop spending time and money sending out expensive print catalogs and company brochures that may never be read.

With our Custom Digital Solutions, we'll scan and convert your print catalog into an interactive digital catalog that lets you track every time your catalog is opened. Use the clickable catalog icon on your website, for your e-mail correspondence and all e-mail blast campaigns. Perfect for pre-show and post-show follow-up.

Open up new markets.

Place your digital catalog on one of our trusted industry publication's websites and receive monthly impression exposure.

Maximize your results.

Send your digital catalog using an industry-leading, targeted Advanstar e-mail list.

Receive a full deployment report — including how many e-mails were sent, how many were received and how many were opened. Your digital catalog will record all reader activity.

Go Digital Today!

Contact Your Sales Representative
1 (800) 225-4569

Products & Services

Brokers

Pharmacy Consulting

Continuing Education

Education

Products & Services

Pharmaceutical Returns

MARKETPLACE ADVERTISING

FOR PRODUCTS AND SERVICES ADVERTISING:
JOAN MALEY at
(800) 225-4569 x 2722
Email: jmaley@advanstar.com

FOR RECRUITMENT ADVERTISING:
Joanna Shippoli at
(800) 225-4569 x 2615
E-mail: jshippoli@advanstar.com

New Products

Continued from pg. 70

5

6

7

8

IMAGES COURTESY OF CAMBER / HERITAGE PHARMACEUTICALS / EB5 / PILL TERMINATOR

[5], generic for Eli Lilly's Evista, used to treat and prevent osteoporosis in postmenopausal women. **(www.camberpharma.com)**

Dr. Reddy's has announced the launch of **levalbuterol inhalation solution**, a bronchodilator for treatment of bronchospasm in people with reversible obstructive airway disease. The product is a generic version of Sunovion's Xopenex. **(www.drreddys.com)**

Heritage Pharmaceuticals has launched **rizatriptan benzoate IR [6]**, generically equivalent to Merck's Maxalt, in 5-mg and 10-mg strengths, to treat migraine headaches. **(www.heritagepharma.com)**

OTC

The **eb5 [7]** brand of anti-aging skin-care products, created by a pharmacist 60 years ago using a blend of vitamins A, B, and E, and botanicals, has launched a new formulation that is hypoallergenic, non-GMO, vegan, and paraben-, gluten-, and fragrance-free. Find products at Walmart, Ulta, select Walgreens and CVS stores, and many independent drugstores and retail chains. **(www.eb5.com)**

Arctic Ease, which makes the only iceless cold and compression-therapy wrap, has launched a wrap specifically for small joints such as wrists, ankles, and elbows. All wraps provide cool relief from pain and swelling for up to three hours, can be reused up to five times, and need no refrigeration. These products retail at CVS and the Vitamin Shoppe, as well as online. **(www.arcticeasewrap.com)**

A new product now available is the **Pill Terminator [8]**, a bottled compound that destroys prescription medications, syrups, capsules, or suspensions when water is added and the bottle is shaken. Each single-use bottle can dispose of up to 300 pills. Order this product from Amazon or the manufacturer's website. **(http://pillterminator.com)** DT

Advertiser Index

Diabetes Supplement Advertiser Index

JP AT LARGE Jim Plagakis, RPh

This is your life: A cautionary tale for pharmacists

It has been a tough year for JP. Among other afflictions, he has been hit with a stroke, bad falls, permanent blindness in the right eye, cardiac insufficiency, heart attack, a heart catheterization that turned into a triple bypass, and coma. But nothing keeps JP down. Even before his return home from rehab, he was bashing out the following column.

People were talking to my wife about making arrangements for my funeral. If Victoria gives up, said the voice inside my head, it is over. JP will cross the River Dread.

Victoria is my champion. She was a Rottweiler, teeth bared, saliva dripping. No one would put her Jimmy Boy down without her teeth clamped in their neck. She fought Humana daily. She faced down the hospital. She cornered the so-called patient-care assistant and made her take care of the patient. Lazy nurses who thought that it was a waste of time to feed a comatose, nearly dead man wilted under her wrath. Victoria held the spark of my life in her hand. *She would not let me die.*

"It is amiodarone encephalopathy." A too-young clinical-type pharmacist presented. The amiodarone was discontinued. The coma ended. I opened my eyes.

It all happened just a few weeks ago. I'm alive. I have weeks of rehab to do and my walker will be my best friend for a long time. I can't tell you how satisfied I am. No fooling.

This is your life

I should title this column *This is your life.* Here's why.

When I was working retail, I brought healthy food from home. I had to microwave it and find the time to sit down in a quiet place to eat. How often do you think that happened? Finally I gave up and went food shopping in the front of the store. I settled for a giant-sized bag of Cheetos, a king-sized Baby Ruth, and a 20-ounce Diet Coke. Sound familiar?

I've got your number, so don't you dare tell me that you heat up the homemade soup your wife sends every day. Your career at the prescription mill has been about dredging up enormous hunger with six or eight periods of frenetic nonstop activity. Forget that soup. Your default lunches have been fun-size Snickers, salty snacks, cold coffee, Slim Jims, shared donuts, and stale Mountain Dew.

Look what it got me. You believe you are impervious? You think you can continue to skate on thin ice and never fall through? Seriously, when will it be time to take care of yourself and the hell with wait times?

You know the answer you'll get if you ask your nonpharmacist supervisor that question. "Float team? Did you say float team? We can arrange it." But the issue remains.

I was getting away with it

For three decades, I honestly believed I was safe. The telephone, the stress, and the profit-scrounging MBAs from the night program at the local junior college could not touch me.

And, in 2014, here's what it got me: A stroke, four serious falls, right-eye blindness, a heart attack, a heart cath and then triple-bypass open-heart surgery, and oh, yeah — the coma.

Can I blame this on my career as a retail pharmacist? Plenty of folks out there will answer that question in the unambiguous affirmative.

You're living it. You know what it feels like to have that achy, empty sensation in your stomach at 7 p.m. It's even worse for the folks who try to manage their hypoglycemia with sugar. Where are they going to find high-quality protein at 6 p.m. at the height of the Friday rush? Trust me, Lunchables from the cold case up front won't do it.

The cost of this column

I can't imagine anyone being willing to pay the price I paid to be able to write this column. Here's how my primary physical therapist put it: "You went through some horrendous violence. It will be a long time before you are a well-bodied man again."

But I'm still here, and JP at Large will continue to be here for you.

I worry about the members of my tribe who threw away their health while serving as loyal employees for 20 years, only to be dumped because they are getting older.

My suggestion to you? Don't take things to heart. Find another way. DT

Jim Plagakis *lives in Sarasota, Fla. E-mail him at jpgakis@hotmail.com.*

It takes a compassionate heart and an analytical mind to get new therapies through the rigors of trials as well as developing business strategies to bring them to market. It takes a global healthcare solutions leader dedicated to enhancing patient care through end-to-end solutions for manufacturers, pharmacies and providers. It takes AmerisourceBergen.

AmerisourceBergen®

ItTakesAmerisourceBergen.com

NOW AVAILABLE!

Two Points of **Reference.**

The 2014/2015 *GBR® — Generic Brand Reference* — Guide, which contains a comprehensive, cross-referenced listing of generic and brand pharmaceuticals, is now available in print *and* as an app for Android™,* Apple®† and BlackBerry®‡ devices.

To order the FREE print edition, go to Mylan.com/mylan-resources/access-gbr.
To download the FREE app, scan the appropriate code or visit the app store for your device.

Android **Apple** **BlackBerry**

Mylan.com

**Trademark of Google Inc.*
†Registered trademark of Apple, Inc.
‡Registered trademark of Research in Motion (RIM).

NON-2014-0329 MYNMKT544 10/14

Mylan®
Seeing is believing