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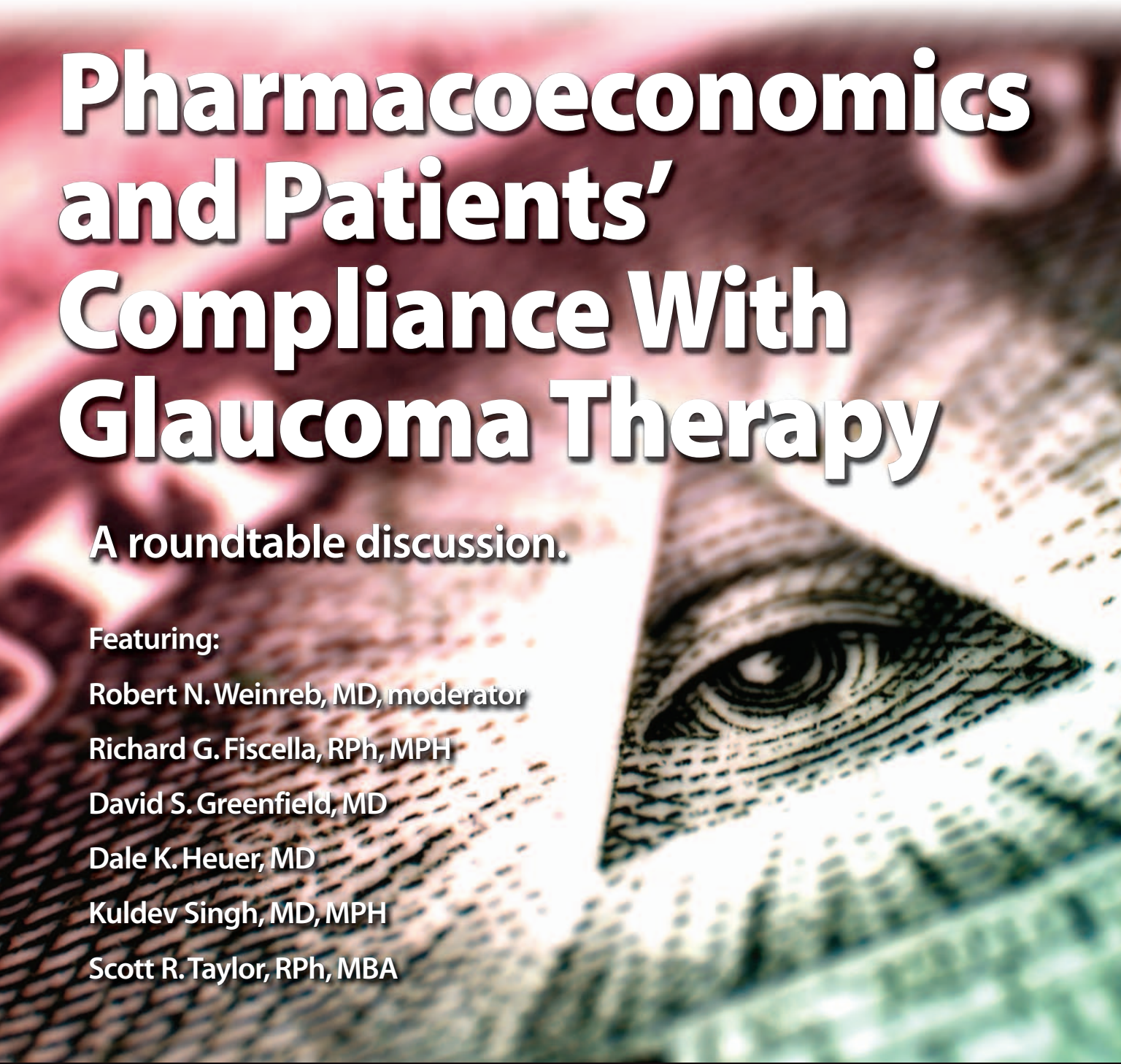

Pharmacoeconomics and Patients' Compliance With Glaucoma Therapy

A roundtable discussion.

Featuring:

Robert N. Weinreb, MD, moderator

Richard G. Fiscella, RPh, MPH

David S. Greenfield, MD

Dale K. Heuer, MD

Kuldev Singh, MD, MPH

Scott R. Taylor, RPh, MBA

This continuing medical educational activity is jointly sponsored by the Dulaney Foundation and *Glaucoma Today*.

Pharmacoeconomics and Patients' Compliance With Glaucoma Therapy

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STATEMENT OF NEED

Glaucoma is a serious, chronic neurodegenerative disease affecting more than 2 million people in the United States.[1] Decreasing IOP can slow or halt the disease's progression, but patients often do not adhere to prescribed medical therapy for the long term. To address this problem effectively, physicians must recognize the barriers to patients' compliance and partner with patients to ensure that they are receiving and using the medications that were prescribed as directed.

TARGET AUDIENCE

This activity is designed for ophthalmologists.

LEARNING OBJECTIVES

Upon the completion of this activity, the participant should be able to:

- Recognize the importance of patients' adherence to prescribed glaucoma therapy in medical outcomes
- Identify the key barriers to patients' adherence to prescribed glaucoma medical therapy
- Understand the impact of poor economic conditions on compliance with glaucoma therapy
- Employ effective strategies to ensure that patients are receiving the medications prescribed and facilitate their appropriate long-term use
- Implement strategies for educating patients about the importance of adhering to the prescribed therapy and work with patients to develop strategies for overcoming the barriers that adherence poses for them.

METHOD OF INSTRUCTION

Participants should read the learning objectives and continuing medical educational (CME) activity in their entirety. After reviewing the material, please complete the self-assessment test, which consists of a series of multiple-choice questions. To answer these questions online and receive real-time results, please visit www.dulaneyfoundation.org and click "online courses."

Upon completing the activity and achieving a passing score of over 70% on the self-assessment test, you may print out a CME credit letter awarding 1.5 *AMA PRA Category 1 Credits™*. The estimated time to complete this activity is 1.5 hours.

ACCREDITATION

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Mr. Fiscella discloses that he has received grants/research support from Allergan, Inc., and is on the speakers' bureau of Allergan, Inc.

Dr. Greenfield discloses that he has received grant/research support from Allergan, Inc., and Pfizer Inc. He is a consultant to Alcon Laboratories, Inc., Allergan, Inc., and Pfizer Inc. He is on the speakers' bureaus of Allergan, Inc., and Pfizer Inc.

Dr. Heuer discloses that he is a consultant to Alcon Laboratories, Inc., Allergan, Inc., Danube Pharmaceuticals Inc., NicOx SA, and Pfizer Inc. He is on the speakers' bureaus of Alcon Laboratories, Inc., Allergan, Inc., and Pfizer Inc. He is a stock shareholder in Danube Pharmaceuticals Inc.

Dr. Singh discloses that he is a consultant to Alcon Laboratories, Inc., Allergan, Inc., Novartis Pharmaceuticals Corp., Pfizer Inc., and Santen, Inc.

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All others involved in the planning, editing, and peer review of this educational activity have indicated that they have no financial relationships to disclose. ■

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THE IMPORTANCE OF ADHERENCE TO PRESCRIBED THERAPY

Weinreb: Glaucoma is a serious neurodegenerative problem. As the US population ages, the disease's impact on society increases in terms of vision-related quality of life and the economic burden on society. We are here today to discuss pharmacoeconomics and patient compliance. How might we reduce the impact of glaucoma in terms of its economic and societal costs? Let us begin by discussing patients' adherence to prescribed glaucoma therapy.

Singh: Clinical trials have shown that topical IOP-lowering medications are effective in slowing glaucomatous progression and in lowering the risk of conversion from ocular hypertension to glaucoma.[2,3] Patients' compliance with prescribed therapy is believed to be a limitation of topical glaucoma therapy, but compliance is difficult to measure, even in a research setting. The magnitude of the problem, although considered to be large, remains unknown.

BARRIERS TO COMPLIANCE

Overview

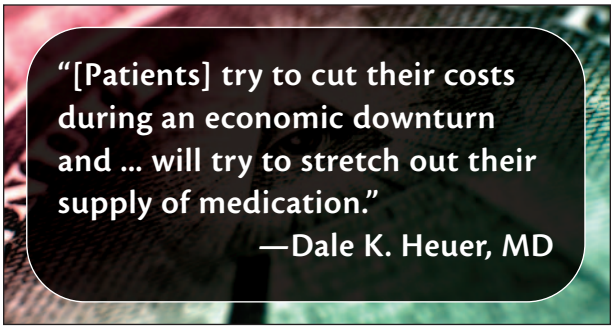
Greenfield: The factors that affect patients' compliance are well known. They include the cost of medication, the complexity of therapy, and its side effects. Other factors are probably less well understood. One is the frequency with which the medication actually reaches the target, the ocular surface. Issues here relate to the patient and include poor vision, tremors, arthritic hands, and memory loss. The material design of a bottle, for example, can be challenging for patients who have arthritis and tremor.[4-7]

Dosing Frequency

Weinreb: Dr. Heuer, based on your clinical experience, how does patients' compliance with prescribed therapy today compare with 10 years ago?

Heuer: Let me begin by providing a few brief definitions. The term *compliance* has fallen somewhat out of favor, because it apparently implies a hierarchical rather than cooperative or partnering relationship between the patient and doctor. The preferred terms to describe the two aspects of what we have historically described as compliance are *adherence* and *persistency*. *Adherence* is the measure of the degree to which a patient's use of medication follows (or adheres to) its prescribed use. *Persistency* is a measure of the duration of treatment with a medication until a patient *first* discontinues its use—even if the patient recommences using the agent after that first discontinuation. Recent studies indicate that adherence and persistency with prostaglandin analogues is much better than with other ocular hypotensive medications.[8-10]

Nevertheless, some studies have found that, by 1 or 2 years after beginning therapy, as few as one-third of patients continue to use their glaucoma medications.[11] I would also emphasize that the clinical trials Dr. Singh mentioned represent best-case scenarios, because the enrolled subjects tend to be more highly motivated than the average patient, and medications are provided for free to enrolled subjects in many clinical trials.



To summarize, compliance remains problematic but is less so with prostaglandin analogues. This difficulty is common to the treatment of chronic asymptomatic diseases like glaucoma. For instance, one study found virtually identical rates of persistency among patients using prostaglandin analogues and those using statins to lower their cholesterol.[11]

Cost of Therapy

Weinreb: Prostaglandin analogues were a breakthrough in glaucoma therapy. These once-daily medications are not only relatively safe and well tolerated but also highly effective. This class of medications, however, is also more expensive than some other available drugs, particularly those that are available as generics.[12,13] How great a barrier to glaucoma therapy is the cost of the medications, particularly in our challenged economy?

Heuer: There is little doubt that people try to cut their costs during an economic downturn and that patients will try to stretch out their supply of medication[14] (see *Stretching Medications to Save Money*). They may use a drug every other day, rather than daily as prescribed. A recent study also showed that, when a second ocular hypotensive medication is added to a patient's treatment regimen, the time between refills for the original ocular hypotensive medication increased on average by almost 7 days and, in about 23% of patients, the time between refills of the original medication increased by more than 2 weeks.[15]

Fiscella: It is an issue of potency and convenience versus cost. In terms of efficacy, prostaglandins are clearly the most potent agents. For example, beta-blockers were primary glaucoma therapy for many years, but they are slightly less effective than prostaglandins[16] and are dosed once or twice a day. Beta-blockers cost less than prostaglandin analogues, because the former are available in generic formulations. Additionally, in November 2008, a generic fixed combination of a beta-blocker and a carbonic anhydrase inhibitor (CAI) and a generic CAI became available.

I should note that new generic formulations often do not initially retail for a dramatically lower price than their brand-name counterparts. Generics do not offer patients an advantage in terms of cost until they become part of formularies and patients are then able to pay the lower generic copay. The cash price may still be expensive for quite some time so that generic manufacturers can make back some costs.[12,13,17]

Singh: Recent research has found that the beta-blocker timolol does not lower IOP very effectively at night. Liu et al showed in their sleep laboratory that timolol does lower IOP during patients' waking hours but that it has little or no effect during the nocturnal period, when IOP is highest if one takes measurements in habitual body positions (seated during the day and supine at night).[18]

Greenfield: All of us who are clinicians have a growing number of patients who are expressing a desire to lower the cost of their medications and a resultant interest in generic formulations. Because prostaglandin analogues are dosed once daily, can control IOP for 24 hours,[18] have no effect on blood pressure, and have excellent tolerability,[19-22] they may well be the most cost-effective compounds. I tell patients that cost is certainly an important consideration but that efficacy must be considered.

IMPACT OF MANAGED CARE

Pharmacy Versus Mail Order

Weinreb: What are the issues surrounding where patients purchase their medications?

Taylor: It is important to recognize that many patients with glaucoma are also taking medications for other conditions. When they present to a retail establishment or a mail-order facility, they must manage more than a single copay or fee for a 90-day supply through a mail-order service. Patients who are 65 years of age or older may find it complicated to fill a mail-order prescription on the computer or telephone.

STRETCHING MEDICATIONS TO SAVE MONEY

ICR/International Communications Research (Media, PA), an independent market research company, surveyed 1,020 adults between November 13 and 16, 2008. The main finding was that more than 13.5 million or one in five adults in the US who use prescribed systemic medications (oral and injectable) long term stretched them out during the 3 months preceding the survey. The sample study had a 95% level of confidence and a margin of error of ±3.1.

Adults who stretched their medications did so either by reducing the dosage or the frequency of administration. The most often cited reasons for this behavior were the overall cost of therapy and financial factors related to insurance coverage and copays.[1]

1. National survey finds that in the last three months millions of Americans are stretching their drug prescriptions, saving themselves money, by either taking the medication less often or by taking a smaller dosage than the physician prescribed [news release]. Media, PA: International Communications Research; December 16, 2008. http://www.icrsurvey.com/Study.aspx?f=ICR_Press_Release_Prescription_Stretching_12-16-08.htm. Accessed January 8, 2009.

Singh: Many of my patients use mail orders to fill their prescriptions.

Greenfield: Patients comfortable using the Internet may find ordering their medications online convenient.

Heuer: I practice in the Upper Midwest and am surprised by how many of my patients fill their prescriptions 1 month at a time at their local pharmacy.

Greenfield: In South Florida where I practice, it is common for patients to obtain their medications by mail order. I think cost is a major driver.

Taylor: Five to 7 years ago, there was a true economic incentive for patients to obtain their medications by mail order: they were subject to one or two copays for a 3-month supply of a drug. Many insurance plans, including mine in central Pennsylvania, now require two copays for a 3-month supply in the Medicare and commercial populations. I think patients who are purchasing antihypertensive, cholesterol-lowering, and diabetic medications, for example, may still realize a financial advantage, because they can order generic formulations in bulk.

Singh: Are there any data on trends?

Taylor: Mail-order volume is not rising, but specialty is. Specialty medications require unique administration

(eg, infusion, self-injectable, and oral), cost $6,000 per year on average, and treat a select group of diseases (eg, oncology, multiple sclerosis, autoimmune). These medications accounted for 34% of the drug costs in 2008 based on Medco's *Drug Trend Report*.[23] Specialty pharmacies include case management, education, and additional services for patients to enable them to access appropriate administration and a continuum of care. In contrast, mail-order services are primarily a substitute for retail pharmacies with a copay incentive for patients.

Greenfield: Has that changed with Medicare part D at all?

Taylor: I cannot speak to national trends, but in my area, these patients follow the traditional model of going to a drug store and working with a pharmacist on a regular basis. Some insurance plans such as mine allow patients to use mail-order services to fill their prescriptions. Many states now allow patients to obtain a 90-day supply of a medication at a local pharmacy.

Greenfield: I have had experience obtaining medications through mail order. Whereas I may wait an hour at the local drugstore for a prescription to be filled, it can take days to weeks for a mail-order supply to arrive. The primary advantage I see to mail-order services is cost.

Heuer: I find ordering medications online much easier than waiting at a local pharmacy.

Weinreb: Are there any data on how patients with glaucoma obtain their medications?

Fiscella: Changes in Medicare part D have affected how patients get their medications. They can now enroll in part D from Medicare and pay a copay for medication, similarly to insurance coverage.

Insurance Formularies

Fiscella: Formularies change. I noticed recently that United Healthcare Services, Inc., is reclassifying latanoprost as a third-tier medication, whereas travoprost and bimatoprost are second tier. A patient now will have to try therapy with one of the second-tier products and have it fail before being allowed to use latanoprost. There is a difference in the copay.

Weinreb: How do insurance plans decide whether a medication is in the second or third tier?

Taylor: The classification is based on clinical efficacy and the safety of the product.

Weinreb: Who makes those decisions?

Taylor: Pharmacists and physicians (team or collective group of clinicians).

Singh: How about cost?

Taylor: Cost is a question, but it is not at the Pharmacy and Therapeutic Committee level. The Pharmacy and Therapeutic Committee looks at medications (treatments) based on evidence-based guidelines and the peer-reviewed literature. Cost and economics are evaluated by contract analysts and clinical experts as they relate to their population and how the medication will be positioned on the formulary. Most plans today start with generics on the first tier, preferred (or contracted) brands on the second tier, and not preferred brands on the third tier. The difference in copays varies across the country. The average copay is $7 for the first tier and $20 for the second tier. Third-tier copays may exceed $40. These are the portions paid out of pocket by the patient at the pharmacy. Specialty products, as mentioned earlier, may be considered in some cases under the medical benefit, whereas others are managed and allocated on the pharmacy benefit. The basis for this decision is specific to the plan and a benefit design consideration.

Weinreb: Are you involved in making those decisions?

Taylor: Yes. My organization evaluates new benefit designs, treatments, and technologies to improve the access to, quality of, and cost of care for patients in my region. It also implements primary research to evaluate the barriers to care, which may include the number of medications, comorbidities, copays, and other factors to support the appropriate utilization of pharmaceuticals, which includes improved screening, disease stratification, and patient activation.

Weinreb: Do you work with any ophthalmologists?

Taylor: Yes, on an ad hoc basis. If we were evaluating products for the eye in this category, we would get an ophthalmologist.

Singh: I have to think cost is a big factor. I have seen insurance plans move one agent to a higher tier and

another to a lower tier without any discernable reason. In some instances, there may be a reversal at a later time resulting in patients being pressured to change back, also without any apparent scientific basis.

Taylor: Pharmacy and Therapeutic Committees are not responsible for the business end. They review a drug for its clinical merits. As mentioned earlier, other employees at an insurance company then review the drug from a contracting standpoint to determine its tier. When insurers are evaluating three products in a class that are considered equivalent by evidence-based standards in a class, cost is going to be the tiebreaker.

Heuer: For our Medicare patients, there is the potentially confounding impact of the Medicare part D doughnut hole, within which I am concerned that patients more frequently "dough nut" fill their prescriptions. Under Medicare part D, beneficiaries who are subject to the standard benefit structure have a $250 deductible, after which 75% of the next $2,000 in formulary drug costs are covered. Once the $2,250 initial coverage limit on formulary drug expenses has been exceeded, beneficiaries bear the full cost of their medications until their total out-of-pocket formulary drug costs exceed $3,600, at which point they become eligible for 95% "catastrophic" coverage. That gap in which beneficiaries are responsible for their total cost is called the *doughnut hole*.

Is there any information about what happens to patients' compliance or refill rates when they get into the doughnut hole with Medicare part D?

Taylor: As you might expect, the biggest shift in patients' behavior when they entered the doughnut hole was a move to generic alternatives. Those who did not have generic alternatives available hoarded their medications by dosing less frequently. The Henry J. Kaiser Family Foundation published a study describing the number of patients in Medicare part D that reached the gap and how many made it through the gap to catastrophic full coverage.[24]

Singh: When patients get out of the doughnut hole, do they go back to the brand-name products?

Taylor: Yes. My response is based on my experience. In many cases, patients moved to lower-cost alternatives (generics), and a new trend occurred in the last 2 years that has opened another area for evaluation: large retailers (eg, Wal-Mart [Bentonville, AR]) offering $4 generics. Thus, for medications for which no alternative (generic) exists—especially in the specialty benefit classes for autoimmune, oncology, and other complex disease states—patients remained on their brands as their catastrophic benefit was reached. For many chronic conditions (including hypertension, diabetes, and cholesterol reduction), the shift or trend was to generics, and in some cases, patients stopped taking their medications or began to use them less often than prescribed. That is an important area in which the Centers for Medicare & Medicaid Services and managed care organizations can collaborate to ensure that patients do not lack sufficient coverage or access when the gap is reached, and I expect changes to Medicare part D plans and administration for this situation in 2009 and 2010.

Brand-Name Versus Generic Drugs

Greenfield: How do insurers assess generic medications, since there is no evidence on generic ophthalmics' efficacy and bioavailability?

Taylor: Those medications have been out on the market. They are the lowest-cost alternatives. They have been used for that indication longer than any other product. In my organization as well as in other parts of the country, we have accepted the newer agents based on their clinical benefits, based on actual clinical studies, evidence-based medicine, and those products do have formulary access. It may not have tier 1 access because there is no generically available prostaglandin analogue. That is the differential. Beta-blockers, for example, have generic equivalents, so those products are in the first tier, and there is a cost benefit in that situation.

Heuer: I think the point that Dr. Greenfield is making is that there is no direct evidence that ophthalmic generics work. Provided the generics are formulated with the same active product, their safety and efficacy are assumed based on the safety and efficacy profile of the branded product.

Weinreb: There are no clinical data, and we cannot measure bioequivalence. After orally administering a

pill, one then can sample concentrations in the blood. We cannot, however, sample aqueous humor after the topical administration of an eye drop to assess bioequivalence in the eye. We therefore cannot compare the bioequivalence of two separate eye drops.

Taylor: You can measure IOP.

Weinreb: Yes, however, there is a paucity of studies conducted using generic ophthalmics.

Fiscella: There is no way to measure bioavailability with topical glaucoma products. As Dr. Weinreb mentioned, with a systemic agent, you can draw blood; you can look at the area under the curve and determine if the brand-name product produces the same concentration of drug as the generic product. You can determine equivalency between drugs. With ophthalmic products, we do not take samples of aqueous fluids. We cannot know, for instance, if the same concentration of drug A and drug B penetrates the anterior chamber, reaches the target site, etc. There have been instances when generic products were not equivalent to their brand-name counterpart and have been taken off the market. This occurred with a generic topical ophthalmic formulation of Voltaren (diclofenac; Novartis Pharmaceuticals Corporation, East Hanover NJ) that caused corneal melts and perforations.[25] Inequivalence was also reported with a brand-name versus generic prednisolone acetate product.[26,27]

Greenfield: You can measure IOP-lowering efficacy with a generic, but it is only one of many considerations.

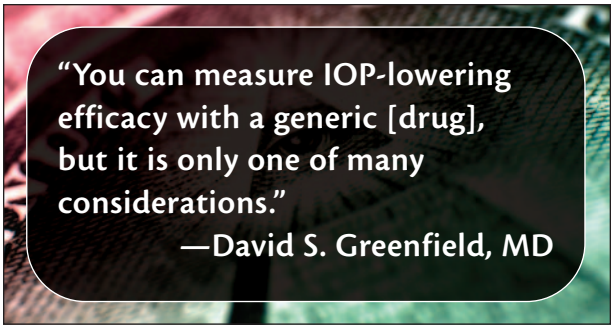
Heuer: In a single patient, IOP can vary substantially from one visit to another, so trying to make an assessment of a generic's efficacy is problematic. The situation is even more complex when more than one generic version of the same glaucoma medication or fixed-combination medication is available, because the patient may receive a different generic version anytime his prescription is refilled.

Supply

Weinreb: Mr. Taylor, how does an insurer determine what constitutes a 30-day supply of a medication? With pills, you would simply count them out. How do you approach an eye drop?

Taylor: We make population-based decisions. The standard maximum is two packages per copay in most cases. The package label or insert is a guide for the payers to quantify the amount of medication used over time based on clinical trials, daily dosing schedule, and unit size.

Weinreb: If I write a 90-day prescription for a prostaglandin analogue used once daily, what does the patient actually get?



Taylor: He should get a 90-day supply of that medication, which should be three 2.5-mL units or one 7.5-mL bottle. The number of drops per bottle is not the only consideration. Dosage per day and one eye versus two eyes are considerations based on the prescriber's instructions.

Heuer: One thing I have just learned is that there really is no economic advantage to prescribing the larger bottles. Actually, some of the smaller bottles have a proportionally greater overfill and thus may represent a better overall value in terms of cost per volume actually received.

Fiscella: It depends on the type of medication. For prostaglandin analogues, for example, Rylander and Vold found a greater overfill by percentage with the 2.5-mL versus the 5.0-mL or 7.5-mL bottle of Lumigan (bimatoprost; Allergan, Inc., Irvine, CA). Similarly, the overfill percentage was greater for the 2.5- versus the 5.0-mL bottle of Travatan (travoprost; Alcon Laboratories, Inc., Fort Worth, TX) and Travatan Z (travoprost preserved without benzalkonium chloride; Alcon Laboratories, Inc.). Of these, the overfill was greatest with the 2.5-mL bottle of Lumigan, followed by the 2.5-mL bottle of Xalatan (latanoprost; Pfizer Inc., New York, NY), which had an overfill slightly below that of the same size bottle of Lumigan.[12] In general, products from Alcon Laboratories, Inc., appear to have the least overfill.[13,27,28]

Singh: Mr. Taylor, is it an industry standard to count drops?

Taylor: No. The viscosity and the bottle itself change the number of drops that can be gained from that 1 mL. Information regarding overfills and drop counts have only received a higher level of attention as the acquisition price of these agents has grown significantly with new biologic technologies. Because new branded products for glaucoma exceed $300 per month, many plans will automatically pay closer attention to the quantity of units and utilization. The dollar value varies for different payers, because some are more focused on medication priced above $500 per month. Basically, ophthalmic medications have remained below this economic threshold until the recent advances in technology and ophthalmic treatments, which may cost $100 per month.

Managed care decision makers use economic thresholds as signals of areas that need monitoring when much lower-cost alternatives are available. Ultimately, the payer is managing thousands—sometimes millions—of consumers and answers to the end purchaser, the employer. Unlimited benefits or broad access leads to an increased utilization of drugs and higher costs, which are passed back to employers and employees in the form of increased premiums and copays or coinsurance. Providing optimal care while remaining cost effective is a difficult balance to strike.

Greenfield: Is the amount of medication that a pharmacy dispenses for a 90-day supply different for bilateral therapy versus unilateral therapy?

Taylor: The dispensing pharmacist will base the amount of medication dispensed on the provider's instructions and benefit limitations per individual benefit design.

Weinreb: What about twice versus three times daily?

Fiscella: As an example, in the article by Rylander and Vold, the CAIs and brimonidine are twice-daily dosing.[12] How long the bottle lasts is based upon twice-daily dosing. If a patient's prescription were increased to three times a day, then the bottle might not last long enough.

Heuer: In your system, if a patient receives a 3-month supply and contacts his pharmacy to say it has run out, what happens?

Taylor: The patient will need another prescription. Early refills are evaluated when possible on a case-by-case basis. Some plans have created automated decision guides, whereas others use nurse, pharmacy, and physician call centers to provide override codes to allow for these prescriptions to be filled.

Most patients who receive their medications by mail order receive two prescriptions, one for the mail-order service and one for a small supply of the drug that they may obtain that day at their local retail pharmacy. It may take 2 or 3 weeks for that individual to receive medication by mail. It is that time lag—both initially and on refills—that leads many patients to continue obtaining their medications through a retail store.

Singh: Is there a national society that publishes guidelines on how managed care groups should practice with regard to providing medications?

Taylor: The industry does not have a single voice in this area. There are pharmaceutical benefit managers, regional managed care organizations, and national managed care organizations. Each develops its own rules and best practices. They look for evidence-based guidance and evaluate trends across the nation and their region based on the therapeutic category.

Weinreb: Is there a need for a consensus on what constitutes an appropriate supply of medication for patients receiving topical glaucoma therapy?

Fiscella: I think there may be a need as the environment changes. As Mr. Taylor mentioned, people started losing an advantage to the mail order if their insurance plan began to require two copays. Obviously, the cost advantage for a 3-month supply of medication was reduced. If a plan uses a published number of drops per bottle but does not take into consideration the drops that the patient will lose by missing his eye during administration due to arthritis, essential tremor, Parkinson's disease, low vision, etc., then the patient may run out of medicine sooner than expected. Based on the environment and the economic times, I think managed care organizations are looking at ways to save money such as adding an extra copay for a 3-month supply or limiting the number of bottles a person may receive for a month's supply.

Weinreb: Is there a need for consensus then on best practices?

Fiscella: I think what is happening is that these issues will force people into some consensus on what should be done.

Weinreb: In order to ensure an adequate supply, I

have heard that some physicians write for t.i.d. dosing but instruct patients to use the medication b.i.d.

Heuer: I fear that such an approach has a corrosive effect on the profession. I think there is a desperate need for our profession to serve as advocates for our patients and develop a consensus about what constitutes a reasonable supply for 30 and 90 days. There also needs to be a safety net whereby patients can get additional bottles, because of all the reasons that Dr. Greenfield eloquently outlined (tremor, etc.) that lead to wastage. Some patients need more than a typical supply of a medication. Another issue is that, unlike with pills, patients cannot look at their bottle of eye drops and know when they will run out. One can also argue that all patients should be able to obtain their first refill early, because they should be able to have one bottle in reserve.

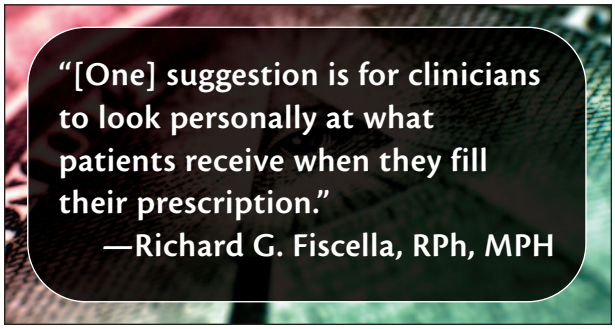
SUGGESTIONS FOR IMPROVING PATIENT CARE

Weinreb: What advice can we provide to our colleagues on ensuring that their patients are going to obtain what they are prescribed?

Heuer: One step is to train our office staff to ask patients, "Are you getting enough medicine(s) to last between your prescription refills?" If we do not ask, unfortunately, many of our patients will not volunteer this information. Our staff should also ask patients, "Are you having trouble affording your medication(s)?" One of the advantages of having our staff ask questions is that patients will often tell our staff things they will not tell us. We should also regularly ask patients to demonstrate how they instill their drops.

Fiscella: Another suggestion is for clinicians to look personally at what patients receive when they fill their prescription. The physician may have prescribed a brand-name product, but the patient received a generic equivalent. The patient may have switched to a second-tier medication, because the prescribed prostaglandin is more expensive. Maybe the clinician's office staff made the change. Perhaps the patient went to get the prescription adjudicated, it was rejected, and he was told that the cost is $60 now. The patient may have requested a less expensive alternative. That change is supposed to be approved by the physician, but, sometimes, the staff receives and okays the switch.

Weinreb: I ask patients always to bring in their medication. We have colored labels on the counter, and the patient and assistant who checks that person in match the bottle caps to the colored labels on the table. When I enter the room, I see the medications the patients are taking. It is not uncommon for me to discover that my patients are taking at least one medication that I did not expect, either because I did not prescribe it or they were switched within a class. I have also had patients switched outside a class, called the pharmacy, and been told that it was an acceptable change according to the patient's insurance plan.



Singh: There is another advantage to having patients bring all of their medications with them on their visit. If you recommend that they discontinue a medication, there is the option of having patients discard the bottle at the time of the visit to avoid confusion at a later time.

Greenfield: One of the most important things I do is to use a team approach to the instillation of eye drops. In other words, a spouse, neighbor, or good friend may help the patient administer his or her drops. This collaboration can reduce the waste of the medication. Of course, it can be difficult to implement a team approach with patients who live alone.

Additionally, in my experience, patients find written instructions helpful. Many of them have short-term memory loss. Writing the instructions takes a lot of time, so my technicians often assist with this task.

Weinreb: I have preprinted instructions with all of the medications that I prescribe and the frequency of administration. It is just a matter of circling the medication for each patient. With an electronic medical records system, one is also able to provide an individualized printout.

Greenfield: I also instruct patients to refrigerate their medication. Often, the reason for waste is because the first drop did not hit the desired target or the patient was not sure that it did and therefore delivered a second drop. If the drop is cold, the patient can feel its

application and knows whether it was delivered to the appropriate surface.

Is there an opportunity for manufacturers to provide assistance with the delivery of eye drops?

Heuer: Efforts have been made. For example, the bottle for Xalatan and the bottles for both Trusopt (dorzolamide; Merck & Co., Inc., Whitehouse Station, NJ) and Cosopt (timolol/dorzolamide; Merck & Co., Inc.) were designed by focus groups. Both focus groups preferred a bottle that is not round. The Xalatan focus group, however, apparently preferred a bottle that requires the exertion of very little pressure to release a drop. In contrast, the Trusopt/Cosopt focus group preferred a bottle that was unlikely to release a drop without the intentional application of firm pressure on a specific location on the bottle.

Weinreb: What about the role of the pharmacist in improving patient care?

Taylor: A nurse practitioner or consultant (vs dispensing) pharmacist might assist with a program or mini-clinic at the local grocery store that shows patients how to administer eye drops properly.

Fiscella: I think there is a need for pharmacists to be educated about glaucoma and ocular diseases in general. They need instruction on how to administer eye drops properly. This information could be incorporated into the curriculum at pharmacy schools. It is also important for physicians and certified ophthalmic technicians to be aware of the problems patients face when trying to obtain their medication. If they are running out of their medication early because they do not receive enough, the health care plan needs to be made aware of the problem.

Weinreb: The education of patients and physicians is key to improving the use of eye drops. ■

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CME QUESTIONS

1. The barriers to patients' compliance with prescribed glaucoma therapy include:
a. Cost
b. Tremor
c. The bottle's design
d. All of the above
e. A and B

2. In glaucoma therapy, the term *persistency*
a. Refers to the duration of treatment with a medication until a patient first discontinues its use
b. Includes the time period when a patient resumes treatment with a medication after discontinuing its use
c. Has the same meaning as the term *compliance*
d. B and C

3. Many insurance plans have decreased the cost advantage of filling prescriptions by mail order by requiring two copays for a 3-month supply.
a. True
b. False

4. Which of the following is true about formularies regarding tier-2 and tier-3 drugs?
a. Two primary determinants of a medication's tier are clinical efficacy and safety. Insurers consider cost when evaluating multiple agents within a class that are relatively similar in terms of the aforementioned qualities.
b. Cost is a primary factor in the determination of a drug's tier.

5. The Medicare part D "doughnut hole" refers to the gap in coverage when a patient subject to the standard benefit structure reaches the $2,250 initial coverage limit on formulary drug expenses until his total out-of-pocket formulary drug costs exceed $3,600, at which point the patient becomes eligible for 95% "catastrophic" coverage.
a. True
b. False

6. According to the panelists, how does entering the Medicare part D "doughnut hole" tend to affect patients' adherence to prescribed medical therapy?
a. They switch to generic equivalents
b. They dose less frequently
c. A and B
d. None of the above

7. Panelists voiced concern over which of the following aspects of generic equivalents?
a. Active ingredients
b. Bioavailability
c. Bioequivalence
d. A and B
e. B and C

8. Research has shown an advantage in terms of patients' supply to prescribing the largest available bottle of prostaglandin analogues for patients due to the bottle's overfill.
a. True
b. False

9. By asking during their visits to see which medications patients are taking, panelists have discovered that patients
a. Are taking a generic equivalent instead of the brand-name drug prescribed
b. Are taking a different drug from the same class as the one prescribed
c. Are taking a different drug from a different class as the one prescribed
d. All of the above
e. A and B

10. Additional suggestions from the panelists for improving patients' compliance with prescribed glaucoma therapy included
a. Asking patients if they have a sufficient supply of their medication(s) to see them through each 30-day period
b. Asking patients to demonstrate their instillation technique
c. Asking patients to refrigerate their medication
d. All of the above
e. A and B

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