

# Are Your Patients Instilling Their Drops?

Glaucoma Today asked several members of the glaucoma community the following question: How do you know whether patients are using their topical glaucoma medications?

by Henry D. Jempel, MD, MHS; Kelly W. Muir, MD; Gary D. Novack, PHD; and Alan L. Robin, MD

## HENRY D. JEMPEL, MD, MHS

As a disclaimer, the following list does not help me determine whether my patients are correctly instilling their eye drops, which is a huge but separate problem. It does, however, outline the top five ways that I know that they are using their topical glaucoma medications:

5. The patient resides in a highly reputable assisted living setting, and I am asked to renew his or her eye drop orders at every visit.
4. The request for a renewed prescription coincides with when the supply of eye drops should be running out.
3. The patient reports classic side effects from the eye drops.
2. The patient can rattle off the names and frequencies of the eye drops without hesitation.
1. The patient presents me with a chart documenting the time of instillation on every day since his or her last visit (such a patient is generally a retired engineer or accountant).

I would emphasize that this list does not include “IOP well controlled,” since this is a poor measure of adherence.



## KELLY W. MUIR, MD

I wish that I could know how well my patients are using their medications. Adherence, or how closely an individual’s actual use of medication resembles the prescribed use, is complex. Proper adherence requires that patients obtain the medication, correctly instill the drop, use the agent daily, and do so at the appropriate time each day.

Despite the excellent recent research into adherence with glaucoma medication, we still do not have one measure that captures all aspects of adherence. Although multiple studies using objective measurement techniques have shown that patients overestimate their adherence, self-reporting is still the only method that has the potential to reveal limitations in all aspects of adherence. For this reason, I continue to ask my patients how they use their medications. I find that open-ended questions about specific aspects of adherence, framed with a disclaimer intended

to reduce patients’ anxiety, yield the most information. Because many patients depend on caregivers to help them remember to take their medication or to assist them with instilling their drops, I include caregivers in the discussion.

Alan Robin, MD, and his colleagues have shown the value of directly observing the instillation of eye drops.<sup>1</sup> I often ask patients to bring in their drops (also revealing information about whether they were able to obtain the prescription) and to show me how they instill the medication.

Lastly, in a closed pharmacy system, the provider can pose direct queries regarding pharmacy records to determine the period of time since the patient last requested a refill. I often make such requests in my Veterans Administration clinic.



## GARY D. NOVACK, PHD

When a physician prescribes glaucoma pharmacotherapy for a patient, the consistency of the chemistry of the marketed product is assumed, based upon government regulations. Also assumed is the patient's consistent behavior in filling the prescription, taking the drug at the correct time, and using the proper instillation technique, often for life. Blackwell theorized that patients' variability in compliance was related to the complexity of the dosing regimen, the seriousness and symptoms of the disease, and the symptoms induced by the treatment, hence the issues with pilocarpine q.i.d. for glaucoma treatment.

Studies with validated electronic monitors, superior to the overestimation of pharmacy counts, reveal substantial variability among patients so that even individuals with life-threatening diseases have variable compliance. Theoretically, one assumes that better compliance results in better outcomes and that training patients on compliance and performance will improve their ability to treat their disease. Studies have shown that (1) patients with better compliance with systemic protease inhibitors experienced a reduced HIV-load and hospitalizations and (2) intervention resulted in a modest improvement in compliance with an oral antihyperlipidemic agent.

Can we, as has been suggested, extend the aforementioned findings to glaucoma? One recent study suggests that training can improve short-term compliance, although none yet has shown improved performance. Does better compliance result in lower IOP? Does better compliance result in slower visual field progression? Even the best drugs do not work if the patient does not take them (Koop's Law), and even the best drugs are discontinued early by the majority of treated patients. Should nonadherent patients just be taken to surgery rather than undergo a trial of pharmacotherapy? The answers to these questions would substantially affect the treatment of glaucoma.

## ALAN L. ROBIN, MD

You have to be kidding! There is absolutely no way that you can judge whether or not a patient takes his or her topical glaucoma therapy correctly. The fact that the patient appears for a follow-up visit probably means that he or she has taken at least a few drops since his or her last visit. If a patient does not return, all bets are off.

Having now looked at 3-month data on almost 250 individuals to whom my fellow researchers and I gave a Medication Event Monitoring System (MEMS 6 SmartCap; Aardex, Union City, CA), I have personally validated the work of Kass and coworkers who found that physicians were poor predictors of adherence. Without a recording device, even with medication diaries, one cannot make a prediction.

Even if I could guess who took his or her medications, I would never be able to determine who was actually able to get the drop in his or her eye. The videotaping studies my colleagues and I have conducted have shocked me. One needs at least to watch the patient instill a drop into his or her eye.

Important issues such as contact of the bottle with the eye, the patient's washing his or her hands before using the eye drops, storage of the bottle in a proper environment, nasal-lacrimal occlusion, or forced eyelid closure are overestimated by the patient.

Finally, clinicians cannot rely on patients' perspectives of whether or not they take medications as directed or can get the medication onto their eyes. Most overestimate their ability.

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