Eye drops and ointments are prescribed by doctors to treat acute or long-term ocular conditions. Drops and ointments are administered directly in the site of action and are therefore very effective in treating the diagnosed condition.

Proper instillation of drops or ointments is as critical as instructions for taking systemic medications. Ophthalmic staff and patients alike need to understand the proper technique for best delivery of the prescribed medication.

Explain, then instill

First, be courteous and explain to the patient what you are doing and what she will experience.

Are you instilling the drop to anesthetize the eye or to dilate? Will she feel a burning or stinging sensation? Will her vision be blurry after the drop is instilled?

Hand patient a tissue to blot away any excess drops

Next, follow these steps to instill the drops.

1. Position the patient in a sitting position with head tilted back.
2. Remove the cap from the bottle, and hold the dropper over the eye.
3. Ask the patient to look up while gently pulling down the lower lid.
4. Squeeze the dropper to release

**FIGURE 1** Examples of proper eyedrop instillation. The technician is gently pulling down the lower lid to place the drop in the lower cul-de-sac. Note that the bottle dropper tip is not touching the conjunctiva, lid, or lash.

Images courtesy Karen Bachman, COE, COMT, CCRC

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Correct procedure is critical for your patients’ best care

By Karen Bachman, COE, COMT, CCRC

INSTILLING DROPS CONTINUED ON PAGE 3
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Instilling drops
Continued from page 1

one drop into the lower cul-de-sac. Avoid applying pressure to the globe.

- Release the eyelid, and ask the patient to close the eye gently for 30 seconds to contain the drop. This allows even distribution of the eye drop, and prevents rapid clearance of medication caused by blinking.

- Placing more than one drop is a waste of solution; the total capacity of the cul-de-sac is one-sixth of a drop.

Avoid touching the bottle dropper tip to the patient’s conjunctiva, eyeball, eyelid, or eyelashes. If contact is made, the bottle is considered contaminated and should be thrown away. Be sure to firmly screw the top of the bottle back in place immediately after use.

Anesthetic drops are an exception to the method in which the patient looks up. When instilling anesthetic drops, ask the patient to look down and direct the drop to the 12 o’clock position of the sclera.

This method is used because drops placed into the conjunctival sac are used to dilate the eyes or instill a medication to be in contact with the eye for a period of time.

When instilling drops on the 12 o’clock scleral position, the patient will blink, closing the eyelids so the cornea goes underneath the upper lid (called Bell’s phenomenon or palpebral oculogyric reflex). This provides maximum coverage of the cornea with anesthetic.

In instilling ocular ointments is similar to instilling eye drops. Instill them in the lower conjunctiva sac by gently pulling the patient’s lower lid away, then placing the ointment directly from the tube into conjunctival sac. Place about a quarter-inch ribbon of ointment into the sac.

Patient drop instillation

We now know how to handle instillation of eye drops in our offices, but what about the patient?

Provide written detailed instructions with simplified language to patients.

Give an in-office drop instillation demo, then ask the patient to give it a try and offer feedback. If a family member accompanied the patient to the visit, suggest the family member try instilling the drops. An actual demonstration to instruct the patient on drop usage is especially critical if there is a language barrier between technician and patient.

Instilling drops continued on page 4

FIGURES 2 and 3 Example of proper eyedrop instillation. The technician is gently pulling down the lower lid to place the drop in the lower cul-de-sac. Note that the bottle dropper tip is not touching the conjunctiva, lid, or lash.
Instilling drops
Continued from page 3

One report shows that over 30 percent of patients miss the mark by placing drops on their eyelids or cheeks, over 70 percent touch the tip of the bottle to eyelashes, and only 25 percent comply with closing their eyes for a few moments after instillation. In addition, many patients squeeze out up to eight drops instead of one with each instillation.1

Be cognizant of physical impairments that could impact patient compliance such as tremors or arthritis.

Poor hygiene practices can lead to contaminated medication in the office as well as many illnesses, such as Salmonella, Campylobacter, MRSA, flu, diarrhea, common cold, and impetigo.

25 percent comply with closing their eyes for a few moments after instillation. In addition, many patients squeeze out up to eight drops instead of one with each instillation.

Be cognizant of physical impairments that could impact patient compliance such as tremors or arthritis.

Contamination and hygiene
Eye drops contain preservatives to prevent bacterial growth during use. But preservatives cover only certain microorganisms. Good hygiene is required to prevent contaminated bottles of eye drops.

One study showed contamination in 44 percent of residues of eye drops.2 Single-use containers have the advantage of continuous sterility, but they cost more than stocking larger sizes.

If contamination is suspected, err on the side of caution and discard the bottle.

Don’t forget to routinely check all drops for expiration date. Follow the expiration date on the label if the bottle is unopened. Manufacturers usually advise discarding open bottles 30 days after opening. Train your team to write on the bottle label the date it was opened.

Poor hygiene practices can lead to contaminated medication in the office as well as many illnesses, such as Salmonella, Campylobacter, methicillin-resistant Staphylococcus aureus (MRSA), flu, diarrhea, common cold, and impetigo.

Hand hygiene is a generic term that applies to handwashing, antiseptic hand wash, alcohol-based hand rub or surgical hand hygiene. Specific indications for hand hygiene are simple: Follow hygiene recommendations before and after patient contact to protect the patient and yourself.

Plain soap is good at reducing bacterial counts, but antimicrobial soap is better, and alcohol-based hand rubs are the best.3 Alcohol-based hand rubs may be a better option than handwashing with soap—less time because rubs act faster, less hand irritation, and less flow time. You don’t need to walk to a sink before taking care of the next patient. The time required can end up being a deterrent to frequent or proper handwashing.

The best hand rub technique is to apply the rub to the palm of one hand, and rub hands together covering all surface until dry. Make sure you allow the rub to dry.

Think about all you touch every day: doorknobs, toilet seats, animals, other people’s hands via handshake, and more. Germs live on almost everything. Handwashing is the most important act to help stop the spread of disease.

Evaluate your clinic to improve hygiene best practices by placing hand rubs at entrance to patient lanes and in clinic hallways for easy access. Provide staff with individual pocket sized containers as well.

Avoid touching the dropper to the conjunctiva, eye, lid, or lashes. If contact is made, the bottle is contaminated and should be discarded.

References
The Joint Commission on Allied Health Personnel in Ophthalmology (JCAHPO) best practice guidelines advise how to administer medication to a patient.

These steps make sense and really do become second nature with experience; you probably follow most of them now.

THE FOLLOWING STEPS SHOULD BE TAKEN:

**STEP 1:** Verify the medical directive for the instillation of eye drops per physician orders.

**STEP 2:** Verify name and strength of drop to be instilled.

**STEP 3:** Verify the identity of the patient.

**STEP 4:** Verify the eye.

**STEP 5:** Check for history of any allergies.

**STEP 6:** Ensure adequate room illumination.

**STEP 7:** Wash hands or put on gloves.

**STEP 8:** Check the medication label and color of cap.

**STEP 9:** Has the drop expired?

**STEP 10:** Re-verify the eye before instillation.

**STEP 11:** Explain what you are doing to the patient and why.

**STEP 12:** Explain to patient any potential side effects.

**STEP 13:** Position patient with head tilted back.

**STEP 14:** Remove cap, place on tissue on counter.

**STEP 15:** Follow proper way to instill drop based on type.

**STEP 16:** Replace cap immediately after use. If contamination of bottle or cap suspected, discard.

**STEP 17:** Blot excess medication from patient’s face.

**STEP 18:** Clean up the area; store medications per manufacturer’s guidelines

**STEP 19:** Remove gloves if used and dispose of properly.

**STEP 20:** Assist patient back to a comfortable position.

**STEP 21:** Wash your hands.

**STEP 22:** Record administration and time drop given in record.
My refractive surgery journey as surgeon and patient

By James J. Salz, MD

My interest in refractive surgery started in 1976 when my fellow University of Southern California (USC) ophthalmology resident Rick Villaseñor returned from his course in keratomileusis surgery with Jose Barraquer in Bogota, Columbia. Rick was very excited about this surgery, and after he explained what he learned my interest was also stimulated. Fortunately, we were both on the voluntary attending staff at USC under the direction of Drs. Steve Ryan and Ron Smith. We discussed the complicated keratomileusis surgery with them and asked for their assistance in studying the procedure as a research project at the Doheny Eye Foundation.

Refractive surgery early days
With the support of Drs. Ryan and Smith, we obtained access to the Doheny research lab where we met every Friday for over a year. Somehow we were able to obtain funding to purchase a cryolathe and a Barraquer microkeratome. The Doheny lab had a Terry keratometer, and we had access to cadaver eyes from the Doheny Eye Bank. Dr. Villaseñor also eventually purchased a cryolathe for his own practice.

Keratomileusis was an incredibly complex procedure which involved obtaining a free cap of cornea with the manual microkeratome, placing it on the cryolathe, then reshaping the cornea to correct myopia by shaving off the proper number of microns of corneal tissue and suturing this lenticule back on the cornea.

It involved calculations with a Texas Instruments calculator (this was before the invention of computers). We had to follow a detailed manual and audio tape outlining about 60 steps to accomplish the surgery. We practiced on cadaver eyes for over a year before actually operating on patients, but we eventually performed a few cases of myopic keratomileusis and keratophakia.

In the late 1970s, radial keratotomy (RK) was introduced in the United States by Dr. Leo Bores. This was a much simpler procedure to reduce myo-

| Table 1. K readings one year post topoguided PRK prior to phaco OS |
|---------------------------------|-----------------|-----------------|
| Refraction -1.50 -0.50 x 141 = 20/40 |
| IOL master                   | 48.77/49.20 x 06 | Cyl = 0.43 D |
| Marco 3 D Wave               | 49.24/49.63 x 160 | Cyl = 0.43 D |
| Atlas                        | 48.20/48.94 x 65  | Cyl = 0.75 D |
| Pentacam                     | 48.70/ 49.96 x 40 | Cyl = 0.90 D |

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weeks later when the refraction was stable. My topography showed symmetrical with-the-rule mixed astigmatism in my left eye, and I was an excellent candidate for arcuate keratectomy.

My uncorrected vision improved to 20/30, and for over 10 years I was in

FIGURE 1 Irregular astigmatism 23 years post arcuate. Images courtesy James J. Salz, MD

FIGURE 2 Immediate post-laser photo with Dr. David Lin in Vancouver.

JOURNEY CONTINUED ON PAGE 8

weeks later when the refraction was stable. My topography showed symmetrical with-the-rule mixed astigmatism in my left eye, and I was an excellent candidate for arcuate keratectomy.

My uncorrected vision improved to 20/30, and for over 10 years I was in
my warped corneal shape. So I emailed my map to Dr. David Lin in Vancouver. David is one of the leading experts in topography-guided photorefractive keratectomy (PRK). I also happened to be his proctor when he first started his career in laser vision correction with the VisX laser after a fellowship with Dr. Marguerite McDonald at Louisiana State in New Orleans.

After reviewing my topography and refractions, David said I was a good candidate for topography-guided PRK with the Schwinn laser system. I spent two days in Vancouver, and David performed the surgery. I told him I wanted to have mild monovision because he was operating on my non-dominant eye. After reviewing my records, he told me we could try to set my postop K readings at about 49.00 D, which should leave me between -1.00 D and -1.50 D.

The topography-guided PRK was performed with the transepithelial approach, which took approximately 40 seconds, while the stromal portion took about 12 seconds (Figure 2). There was no discomfort, and believe me, I did not move my eye even 1.0 mm while looking at the fixation light. The video looks like a PRK on a dead person!

We tell patients they will experience a faint smell like a burning hair. That’s because the surgeon is a couple of feet away from the cornea. When you experience it as a patient with the plume next to your nose, you think your eye is cooking.

David also applied mitomycin C. My partner Dr. Barry Seibel removed my bandage contact lens five days postop, and my postop course was uneventful with no corneal haze.

Initially, my refraction was about -4.00 D, but in a few weeks it was down to -2.00 D. At one year, my refraction was -1.25 D. My final K readings were near 49.00 D just as Dr. Lin had predicted (Figure 3).

Moving on to cataract surgery
Now that I had a near spherical cornea with topography that looked like hyperopic PRK, the next challenge was to remove my cataract because my vision had decreased to 20/40.

Dr. Seibel had removed my right cataract seven years earlier, and it was time to plan the surgery on my left eye. I decided I wanted a monofocal lens targeted for monovision of between -1.00 D and -1.50 D. I had corneal measurements which showed four different amounts of astigmatism (Table 1), and the Pentacam showed over 1.00 D of posterior astigmatism.

I consulted with my friends Dr. Jack Holladay and Dr. Dough Koch. Because of the uncertainty of the keratometer readings, we used the ASCRS post hyperopic PRK or LASIK formula, and we had both a toric lens and a monofocal lens available. The plan was to use a toric if ORA readings revealed consistent astigmatism and a monofocal if the readings were variable. We could not obtain consistent readings, so we chose a monofocal implant, targeted for monovision of about -1.50 D.

Dr. Seibel also used the Catalys Femtosecond laser system to create a 5.3 mm rhexis and pre-divide the nucleus into sextants (Figure 4).

I am happy to report that six months postop, my UCVA is 20/100, near vision is J3, and my refraction is -1.25 D. Although I can function quite
Help your patients out of their optical comfort zone

By Tami L. Hagemeyer, ABOC

One Sunday afternoon at our local mall, I ran into Mary, a wonderful lady who has been a loyal patient for many years. We exchanged pleasantries, she asked about my family, and I inquired about her new grandchild.

Mary then became quiet and looked around, as if about to tell me her deepest secret. Softly, she said that while attending the wedding of her best friends’ daughter, she noticed her friend’s unique eyeglasses.

“The color was a beautiful fuchsia with rhinestone trimmings,” she said.

Afraid of hurting my feelings, she went on to clarify that although she had purchased several pairs of glasses from me, it had never occurred to her to try styles that were not similar to the brown metal semi-rimless frames she had worn for years.

I remembered her last appointment—she had seemed rushed, like there were other places to be. She asked me to order the same frames that she was currently wearing because she didn’t have time to look at frames that day. So without much thought, I had duplicated her current frames with her new prescription, just as she requested.

Another opportunity

Monday morning, Mary called to schedule her annual eye exam. She again mentioned her best friend’s beautiful fuchsia glasses and that she eagerly anticipated a new style for herself.

I was thrilled that she wanted to try new styles, but I felt that I had somehow let her down. It is my responsibility to suggest and encourage change, or at least urge her to try a few diverse frame styles and remove her from her optical frame style comfort zone.

When Mary arrived for her scheduled appointment, she made sure she had no time limitations and was able to relax and appreciate the process. It was an enjoyable, stress-free visit for both of us. Every professional on my team, including the prescribing doctor, became involved in the fun, giving their opinions and ideas for changing up the look.

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COMFORT ZONE CONTINUED ON PAGE 10
Comfort zone
Continued from page 9

Mary’s new eyeglass frames.

In the end, Mary purchased her most unique eyewear ever—she chose a beautiful semi-rimless frame that is a striking shade of teal with dark and light gray crystals. Mary also found a second pair, an amazing sapphire blue plastic frame. Both frames have provided Mary with a new confidence, knowing her updated look is both gorgeous and modern. Mary will tell her family and friends where she got her fresh new look. And I will receive countless referrals that guarantee practice growth.

Doing our job
When I reflect on patients, including Mary, who come back to us year after year, I realize that frame/lens duplication happens often.

It almost always occurs when a patient is in a hurry and does not want to take time to look at new frame styles. When patients are under time constraints, it may be beneficial for us to suggest they return at a more convenient time. Or, with proper security documentation, we may encourage them to take a few frames home. Either will end that sense of making a rushed decision.

Patients arrive in our frame room with a mood of apprehension or excitement. A patient can be filled with dread over what frame style to choose. Her apprehension can be linked to the perceived monetary value because the expense can feel overwhelming. Sometimes the frame process itself feels like a chore, and the notion of physical change is just too much for some patients to handle.

We must put our patient’s mind at ease if we sense anxiety. Help her to understand the product’s value by discussing how features will benefit her vision. Explain why the product has been recommended to her.

Of course, helping our patients out of their comfort zones requires lenses and frame knowledge. New products are constantly changing the face of frame styling and optical dispensing, so it’s important to stay on top of what’s new in fashion and technology.

Try to keep the visit relaxed and fun. Allow patients to try a few silly frames, something they would never purchase. Comfort will start to creep in on anxious patients. Once they start to relax and smile, it is time to show them frames that may be the exact styles they never thought they would like. It is up to us to dictate and maintain the upbeat mood of frame styling.

Our patients should never know if we are having a bad day, we must leave any negative tension outside the frame room. When we are focused on our patients without any distractions, it becomes obvious that they are our top priority.

Keep the motivation and momentum high to find the perfect new look. Excitement is easy to build on. When the mood is positive, the encounter is a fun experience not only for our patients, but for us as well.

We should not underestimate the importance of the decision our patients are about to make. It is important because most will wear their glasses every day. We must also remember that we are responsible for both a medical device and fashion accessory.

Courage
Continued from page 8

well without glasses, I still wear progressive lenses most of the time.

So, when discussing LASIK and premium cataract surgery with patients, this question still comes up. “If this surgery is so great Dr. Salz, why are you wearing glasses?”

References
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