

*Clinical & Refractive Optometry* is pleased to present this continuing education (CE) article by Dr. Milton M. Hom entitled **Contact Lens Solutions and Patient Compliance**. In order to obtain a 1-hour Council of Optometric Practitioner Education (COPE) approved CE credit, please refer to page 10 for complete instructions.

## Contact Lens Solutions and Patient Compliance

Milton M. Hom, OD, FAAO

### INTRODUCTION

A great deal of attention has been focused on contact lens compliance in the past few months. This has largely been brought about by recent events with contact lenses and eye care products, mostly related to formulation and manufacturing. From a practitioner's point of view, the spotlight has been on compliance. In the past, research and development has looked more toward enhancing lens wear with less focus on eradicating bacteria. With these microorganisms constantly evolving, those that were once rare are now becoming commonplace, thereby posing more of a prevalent challenge.

Currently available contact lenses and care products are safe and effective for 99% of the patient population. The caveat, and the focus of this paper, is proper contact lens care, patient education in this area, and patient compliance. In fact, reports indicate that 32% to 80% of patients do not follow their prescribed contact lens care regimen.<sup>1</sup>

Patient compliance is the responsibility of all practice personnel and each member of the staff should be encouraged to take ownership of this issue. This paper presents methodologies for educating patients about the importance of compliance and proper lens care, types of lens cases and lens case replacement, along with practical ways to enhance compliance.

### METHODOLOGIES FOR ENHANCING

#### PATIENT COMPLIANCE

##### Compliance Instruction

Patient compliance does not rest only on the actual consultation with the practitioner. From the moment a patient enters the office, compliance instruction can begin and manufacturers offer many print resources for

practitioners, such as educational brochures and office posters. Sales representatives can be a premium source for this type of help, despite the competitive nature of the contact lens companies. Other materials that can prove useful in encouraging patient compliance include written instructions and appointment reminders, such as calendars, recall cards, and stickers.

##### Types of Non-Compliance

Contact lens non-compliance issues can be divided into four main areas: wearing lenses for longer than they were approved; sleeping in lenses designed only for daily use; inappropriate or inadequate lens disinfection; improper lens cleaning procedures.

To the manufacturers' credit, more frequent replacement schedules and newer contact lens modalities offer a significant safety net to patients who do not comply with contact lens wear and care regimens.<sup>2</sup>

##### Advantages and Disadvantages of Patient Profiling

It is important to ascertain the type of patient seeking consultation. Patients most likely to be non-compliant have been categorized as falling within distinct groups. These include younger patients, long-time contact lens wearers, wearers who are refitted, extended or continuous wear patients, and patients who wear lenses without the need for a prescription.<sup>3</sup>

Profiling the patient may help, but practitioners should avoid the tendency to "over-profile" and to make assumptions based on observations as these can at times be deceiving. A patient falling in a certain demographic is more likely to suffer from specific types of conditions and the same can be said of compliance.

A study by O'Donnell reported that profiling the patient does not necessarily provide an accurate assessment.<sup>4</sup> The authors hypothesized that contact lens wearers with diabetes may represent a special group displaying higher levels of compliance with their lens care regimens. This results from lifestyle training relating to maintenance of their diabetic condition. To test this hypothesis, 29 contact lens patients with diabetes and 29 control subjects without diabetes were given identical instruction on lens care and maintenance. Compliance levels were assessed at 12 months by demonstration and questionnaire. Although the patients were generally

---

M.M. Hom — Private Practice, Azusa, California

Correspondence to: Dr. Milton M. Hom, 1131 East Alost Avenue Azusa, CA 91702; E-mail: [eyemage@mminternet.com](mailto:eyemage@mminternet.com)

This article is adapted from: Hom MM. Improving contact lens compliance. *Review of Optometry*, September 2007: 44-47.

**Table I** American Optometric Association Contact Lens and Cornea Section guidelines on proper lens care

Reinforce proper lens care by explaining the following steps to your patients:

1. Always wash hands before handling contact lenses.
2. Carefully and regularly clean contact lenses, as directed by your optometrist. If recommended, rub the contact lenses with fingers and rinse thoroughly before soaking them overnight in sufficient multi-purpose solution to completely cover the lens.
3. Store lenses in the proper lens storage case, and replace it every three months. Clean the case after each use and keep it open and dry between cleanings.
4. Use only products recommended by your optometrist to clean and disinfect your lenses. Saline solution and rewetting drops are not designed to disinfect lenses.
5. Only fresh solution should be used to clean and store contact lenses. Never re-use old solution. Contact lens solution must be changed according to the manufacturer's recommendations, even if the lenses are not used daily.

Source: [www.aoa.org/x5185.xml](http://www.aoa.org/x5185.xml)

**Table II** Symptoms of microbial keratitis

Indications that a patient may have microbial keratitis include:

- Red and irritated eyes lasting for an unusually long period of time after lens removal
- Pain in and around the eyes, especially if it progressively worsens
- Increased sensitivity to light
- Rapid onset of blurred or fuzzy vision
- Excessive tearing or discharge

Source: [www.aoa.org/x5185.xml](http://www.aoa.org/x5185.xml)

compliant, there were examples of non-compliance in both groups. Whether the patient had diabetes or not had no significant effect on compliance. The results suggest that eye care practitioners cannot assume that patients with diabetes will be more compliant with contact lens care and maintenance than those without.

### Patient Communication

Patient education and communication initiate with the reception staff, continue with technicians and, finally, extend to the practitioner. Compliance instruction works best when the entire office staff understands and delivers the same message. Clear instructions should be given throughout the initial visit and subsequent visits. These should delineate wearing, cleaning, care and replacement schedule. Steps suggested by the American Optometric Association Contact Lens and Cornea Section can also be emphasized (Table I).

It is essential to emphasize to patients that non-compliance is one of the key issues when considering contact lens failures and related ocular complications. A study by Cordona reported a correlation between non-compliance and ocular complications and between ocular complications and the physical appearance of contact lenses and cases.<sup>5</sup> Symptoms associated with microbial keratitis can be reviewed with patients (Table II).

To enhance the likelihood of compliance, it is important to explain to patients the negative ocular health repercussions of non-compliance. Clinical studies have cited that 72% of practitioners instruct patients to clean contact lenses daily, but fewer than 30% explain the

consequences of not doing so. Compliance can help ensure successful contact lens wear.

### Developing Practitioner-Patient Dialogue

To optimize productive dialogue and instruction, patients should be encouraged to bring in their lens care products at each visit, and to ask the practitioner questions. There is a tendency for patients to purchase lens care products that are on sale. If a practitioner has a specific reason for recommending a care system, it needs to be clearly communicated to the patient.

Another good approach is to request that the patient demonstrate the steps they are taking in their care regimen, and for the practitioner to explain which solution is used for each step. Patients can use the solutions they brought in with them.

Asking open-ended questions (“Show me what you do with your lenses after taking them out”) rather than leading questions (“Do you rinse your lenses with solution before storing them in your case?”) may reveal more to the practitioner. Proper guidance in contact lens care can lead to the prevention of problems later on.

### Contact Lens Care

A recent study revealed that 70% of eye care professionals surveyed cited that the main barrier to compliance is the patient's belief that a contact lens cleaning regimen is unimportant; the cleaning process, therefore, must be underscored to patients.

There are two aspects of proper contact lens care: day-to-day maintenance and storage. Patients should be educated on proper day-to-day lens care techniques, including the importance of rubbing their lenses as a method of cleaning. Take a step-by-step approach as if walking patients through the procedure they undertake at home. The cleaning procedure can be summarized as: rub, rinse, and soak. Review these steps as follows:

- 1) Be sure hands are clean before handling your contact lenses.
- 2) Place three drops of solution on one side of the lens and rub it with your fingers, taking care to use the proper rubbing technique, from the center of the lens to its edges for at least ten seconds.
- 3) Turn the lens over



**Fig. 1** Make sure patients store their lenses in fresh solution — not tap water. (Reprinted with permission from: *Review of Optometry*, September 2007)



**Fig. 2** Educate patients on the effects of wearing lenses for too long. If they have difficulty complying, switch them to a lens with a more frequent replacement schedule. (Reprinted with permission from: *Review of Optometry*, September 2007)

and repeat the rubbing procedure. Never rub in a circular motion as this may tear the lens and may not clean the outer edge surface. 4) Carefully rinse the lenses for five seconds to remove all residue of solution. 5) Fill the lens case with solution and store the lenses in their case overnight. Lenses should be soaked for a minimum of six hours to ensure complete disinfection, cleaning, and protein removal. 6) Always rinse the lens case daily with fresh solution and let it air dry.

Note that some patients' non-compliance takes the form of occasionally rinsing and storing lenses in saline or tap water. Explain to patients that lenses should never be rinsed or stored in tap water or any other non-sterile liquid (Fig. 1).

### Contact Lens Case Replacement

The importance of lens case replacement cannot be overstated. If the patient understands the reasoning behind the care regimen — and that it is in their best interest to follow it — they are more likely to comply with it. Lens case contamination is a well-documented occurrence for contact lens wearers despite the efficacy of current lens disinfectants.

Emphasize to the patient that a one- to three-month case replacement schedule should be followed and provide the patient the rationale for this: a frequent, regular lens case replacement regimen will significantly reduce the likelihood of bacterial contamination, which can result in discomfort. Convey to the patient that this, in turn, may lead to dissatisfaction with the contact lens wearing process and, finally, non-compliance. Instruct patients to clean their case after each use and keep it open and dry between cleanings.

It is advisable to dispose of the patient's current lens care case in the patient's presence and provide a new one, to ensure that the patient begins their new care regimen with fresh materials.

### Material Selection

When daily disposable contact lenses are prescribed, lenses made from two-week or monthly materials should not be recommended. Daily disposable lenses that have built-in compliance should be recommended. In the past, patients wore their lenses until they either tore or were so badly coated with protein and deposits that their eyes literally gave up from hypoxia or irritation.

Conventional lenses were worn for as long a period of time as possible, and the patient typically presented with red eyes, reduced wearing time, and significant contact lens-induced papillary conjunctivitis (CLPC). The lack of adequate lens cleaning and poor compliance were frequently the cause of deposits. Replacing the lenses on a more regular basis (such as daily) often prevents these complications and is probably the reason for the now diminished frequency of CLPC as a problem (Fig. 2).<sup>7</sup>

### The Influence of the Practitioner

Wearing schedules, replacement schedules and lens care products should be recommended to patients. An essential part of the role of the practitioner is developing an effective dialogue with patients, involving, specifically, a discussion of compliance issues. Compliance appears to improve when emphasis is placed on the interpersonal relationship between doctor and patient. Practitioners who invite their patients to participate in the decision-making process regarding their own therapy are more likely to promote compliance.<sup>8</sup>

### **The Importance of Positive Feedback**

Compliance is important but can be difficult to instill in patients. Rewarding them with praise may be another strategy. A lot can be gleaned from one study on young children and contact lens compliance.<sup>9</sup> Compliance was rewarded with praise and tangibles, and non-compliance was followed with brief time-out for three of the children and restraint for the fourth. Three children showed high compliance even during the ten-month follow-up visits.

### **CONCLUSION**

In light of the current low levels of patient compliance, the importance of patient compliance in contact lens wear and care cannot be overestimated. Practitioners and their staff ought to undertake every possible measure to help patients minimize bacteria contamination and discomfort leading to non-compliance and an unsuccessful contact lens wear experience. □

### **REFERENCES**

1. Weisbarth RE, Henderson B. Hydrogel lens care regimens and patient education. In: ES Bennett BA Weissman eds. *Clinical Contact Lens Practice*. Philadelphia, LWW, 2005; 19: 381-419.
2. Lebow KA. Product choices to promote contact lens compliance. *Visioncare Product News*. April 2002.
3. Weisbarth RE, Henderson B. Hydrogel lens care regimens and patient education. In: ES Bennett BA Weissman eds. *Clinical Contact Lens Practice*. Philadelphia, LWW, 2005; 19: 381-419.
4. O'Donnell C, Efron N. Non-compliance with lens care and maintenance in diabetic contact lens wearers. *Ophthalmic Physiol Opt* 2004; 24(6): 504-10.
5. Cardona G, Llovet I. Compliance amongst contact lens wearers: comprehension skills and reinforcement with written instructions. *Cont Lens Anterior Eye* 2004; 27(2): 75-81.
6. Amos CF, George MD. Clinical and laboratory testing of a silver-impregnated lens case. *Cont Lens Anterior Eye* 2006; 29(5): 247-55.
7. Lebow KA. Product choices to promote contact lens compliance. *Visioncare Product News*. April 2002.
8. Weisbarth RE, Henderson B. Hydrogel lens care regimens and patient education. In: ES Bennett BA Weissman eds. *Clinical Contact Lens Practice*. Philadelphia, LWW, 2005; 19: 381-419.
9. Mathews JR, Hodson GD, Crist WB, LaRoche GR. Teaching young children to use contact lenses. *J Appl Behav Anal* 1992; 25(1): 229-235.