



# Basic contact lens course

## Part 11 - Aftercare

**Andy Franklin** and **Ngairé Franklin** take a look at the aftercare appointment and explain how it may ensure long-term healthy and successful contact lens wear. **Module C15121**, one general CET point for optometrists and DOs, one specialist point for CLOs



**T**he purpose of aftercare is to ensure the continued wellbeing of the patient and in the practitioner has both reactive and proactive roles. The reactive element involves gathering information from conversing with the patient and clinical observation of the lenses and eyes, then initiating appropriate management strategies. The proactive element is the encouragement of compliance with lens care that would otherwise deteriorate over time. This second goal is often pursued rather less assiduously than the first, yet it may have a profound influence on the outcome of contact lens wear. To put it another way, prevention is better than cure.

Initially, aftercare appointments could be regarded as part of the fitting process, where minor adjustments are made to the lenses or care system. Once this sequence is complete, the emphasis shifts to the longer-term consequences of lens wear, and to keeping the patient both compliant and aware of any developments in lens design or care systems which may be of benefit to them.

### Symptoms and history

The first question that should be addressed to any patient presenting for aftercare is: 'Are you having any problems, or is this just a routine check?' If problems are being experienced, they are likely to concern discomfort, poor vision, or poor cosmetic appearance. For any of these, detail is important, and this should always include:

- Which eye?
- When did it first start?
- When does it happen?
- What seems to set it off?
- What seems to improve it?
- Is it getting better or worse?

**Discomfort** may manifest itself in several ways:

- If it is immediately on application, it may indicate a sharp or damaged lens edge, or a reaction to solutions



**Compliance with care systems must be established**

- If it gradually gets worse over the wearing period, look for evidence of drying and deposition
- Pain, as opposed to discomfort, may indicate corneal damage or infection
- If the pain gets worse on removal, suspect corneal insult or infection
- Photophobia may indicate oedema or inflammation.

**Poor vision** may also appear in several guises:

- If it is constant, the chances are that the lens power is wrong
  - If it is poor in one eye only, check that the lenses are in the correct eyes. Most wearers have mixed up their lenses at some point
  - If it is transient or intermittent, drying of the lens surface, possibly secondary to lens deposits or a poor tear film, are indicated
  - Vision that gets progressively worse throughout the wearing period may be due to oedema or deposits.
- The cause of **redness of the eyes** may be indicated by its distribution:
- If it is generalised, a solution reaction should be suspected
  - Drying may cause a band of injected

vessels traversing the bulbar conjunctiva from inner to outer canthus

- Swollen eyelids and ptosis may be caused by irritation from the lens edge
- Perilimbal redness may be associated with hypoxia, solution sensitivity or corneal inflammation, including infection
- Localised conjunctival hyperaemia may point to an area of inflammation or damage on the cornea.

Once we know of any problems that will need to be managed, some background information is needed, if we don't already possess it.

The current lens specification is important, since if we don't know what the patient is using, we won't know how to improve on it. Reception staff should be trained to ask the patient to bring their specification with them to the appointment, as the Data Protection Act has made it difficult to gather information from previous practitioners on the day. We should also know the age of the current lenses, and the frequency of replacement suggested by the prescribing practitioner.

Previous contact lens history is of



interest. If the patient has upgraded their lenses regularly as better ones have become available, it suggests that the general standard of care has been relatively high. Conversely, patients who are wearing lens designs of archaeological interest may be doing so through ignorance of anything better. Those patients who have changed their lens type may have done so in response to problems. The soft lens wearer who converts to silicone hydrogels may have had significant neovascularisation, and careful slit lamp examination for ghost vessels is indicated. Where there is a history of repeated inflammatory or infective episodes, the likelihood is that the patient is more than usually prone to these events.

We should determine the pattern of wear in terms of the number of days per week and the hours per day that the lenses are worn, and whether this is imposed by choice or limited by problems.

The care system needs careful investigation, and a number of questions should be asked:

● **Which solutions are used?** It is surprising how few patients actually know the correct name of the solution they are using, and it is useful to keep a few samples in the consulting room as an aide-memoire ('it's that one in the blue bottle on the right')

● **Are these the ones that were prescribed by the practitioner?** Surveys have shown that about a third of patients are not using the solutions prescribed, and that the situation deteriorates with time. Patients change for a variety of reasons, including cost, availability, and simple curiosity. Some adopt a 'pick-and mix' approach, using a cleaner from one manufacturer and a conditioning solution from another, and these solutions may not be compatible. Furthermore, if the preservatives are

different, it can be time-consuming to identify the culprit in the event of solution sensitivity

● **How old is the case?** Patients have a habit of using a case well past its time, and this can interfere with the action of the solutions, and act as a significant source of infection, particularly as few patients clean them once the novelty of contact lens wear has worn off

● **How do you use the solutions?** It is best to watch the patient remove their lenses and then clean and disinfect as they normally would (assuming they would). This will give a valuable insight into their general approach to hygiene (did they wash their hands?) lens handling and use of solutions. Patients are often rather creative with solutions. Many clean the lenses before application rather than before overnight soaking. 'Topping-up' of storage solutions rather than replacement is often adopted as an economy measure, sometimes with unfortunate consequences

● **Do you use a protein remover?** Many patients who have been given protein removers forget to replace them once they run out, or only use them when the lenses start to feel a bit sticky. Infrequent use is ineffective, as denatured protein will not be removed effectively

● **Have you had any problems with solutions in the past?** This will tell us what to avoid in future in case we need to change the solutions.

## Vision and over-refraction

In most cases, recording of the vision with each eye and binocularly can be followed by a simple spherical over-refraction. If the vision is not correctable to the required standard, sphero-cylindrical refraction may be required. A pinhole can be a quick way to determine whether there is any residual refractive error, and the

retinoscope may detect uncorrected astigmatism. It should not be forgotten that contact lens patients are not immune to binocular vision anomalies, and a patient who appears to have good visual acuity who is unhappy with their vision may require binocular investigation.

## Assessment of the lenses

The lenses should be examined *in situ* first with white light and subsequently with cobalt blue light with fluorescein installed.

White light investigation with diffuse light, then focal light with an angled beam about 2mm wide, is used to determine the state of the lens. Edge damage and surface deterioration should be apparent. The patient should then be invited to look down, and the upper lid should be raised by the practitioner. As the tear film dries, surface deposits will become apparent.

● Protein tends to take on a dull, greyish appearance when dried

● Lipid deposits are shinier, and look 'greasy'.

Right-handed patients will sometimes present with the 'left-lens syndrome'. The right lens is often cleaned first, and the second lens may not be cleaned quite so thoroughly. In time a significantly higher level of deposition will be seen on the lens that is cleaned second.

The fit of the lenses assessed, in the way described in the chapter on lens fitting. Practitioners should resist the urge to fiddle with a fit that is not causing any clinical problems, in pursuit of some mythical perfect fit. 'If it aint, broke, don't fix it'. If it is, fix it. If we are going to change anything, there should always be some tangible benefit to the patient, who is probably going to be paying for the change.

The patient should then be asked to remove and store their lenses as normal and their technique and the state of



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the case can be observed. Slit-lamp investigation of the eyes can then proceed. This follows the same pattern as described on initial examination, observing the adnexa, tear layer and cornea in sequence (Part 2 05.02.10).

### Management of complications

This will be discussed in a later article in this series.

### Promoting compliance

Many contact lens patients do not comply with their wearing schedules or care regimes. This is not a problem specific to contact lenses. Whenever human beings have devised substances or strategies of potential benefit to their fellows, other human beings have found ways of rendering them ineffective, or downright dangerous. Non-compliance is not a product of the consumer age either. Hippocrates was moved to opine 'Patients are often lying when they say they have regularly taken their medicine'. This may seem a bit harsh, until we consider the facts. For short-term medication, such as a course of antibiotics, non-compliance rates of 20-30 per cent are typical, rising to over 50 per cent when the course of treatment is prolonged. The degree of pig-headedness that patients may achieve is staggering. In one study, glaucoma patients were told that they would go blind if they did not comply with medication. Nevertheless, half of them did not comply often enough for treatment to be effective, and compliance did not improve even after sight was lost in one eye.

A study by Claydon and Efron<sup>1</sup> gives us some interesting statistics. Twenty-seven per cent of patients admitted to wearing their lenses for longer than instructed, research conducted during the development of silicone hydrogels suggests that many wear unsuitable lenses overnight at least occasionally, and this includes RGP wearers. It is also recognised that patients will seek to extend the lifespan of their lenses by using daily disposables for a week or more, and monthlies until they fall apart, often with inadequate care systems.

Claydon and Efron also found significant non-compliance with care systems. Sixty-two per cent keep their solutions for too long, and many of these are probably 'topping-up' rather than replacing their solutions daily. 36 per cent clean their lenses only intermittently, and 8 per cent not at all. Ten per cent never rinse them. The relationship with tap water is fascinating. Three per cent consider it

a suitable medium for lens cleaning, yet 30 per cent have such an aversion to it that they avoid washing their hands before handling their lenses.

The reasons for non-compliance are manifold. In some cases they may have been misinformed, either by a practitioner or by acquaintances, or they may have misunderstood the instructions. Simple ignorance should not be discounted. A Bausch and Lomb study<sup>2</sup> found that 35 per cent of patients thought saline was for disinfection, and there is a story (possible apocryphal, but who cares) of a man who presented in the contact lens clinic of a leading hospital with the complaint that not only were his protein tablets ineffective but that he was sick every time he swallowed one. Cost cutting may motivate some non-compliant behaviour. The patient who extends the lifespan of the lenses or of the solution may be penny-pinching but may equally be just too lazy to get some fresh products and socio-economic status is a poor predictor of non-compliance.

The effect of boredom should not be ignored. Long-term therapy generally has higher non-compliance rates, and the situation deteriorates the longer the treatment continues. Contact lens care systems fall into the long-term category. Patients run out of a product and either continue without it or use something else, perceived to be similar, until they can get to the supplier of the proper stuff. If no adverse effects occur immediately, they have little motivation to return to the original system, especially if the new version is cheaper or easier (and what could be cheaper and easier than doing nothing). Some patients are simply curious. If they see a new product on the shelves of the supermarket they simply have to try it, in the same way they might try out a new shampoo, and advertising encourages such behaviour. Finally, there may be some element of risk-compensation involved. We live in a protected world, and some patients, particularly males, may incline towards risky behaviour consciously or sub-consciously. After all, some people smoke, drink, take recreational drugs and drive above the speed limit, sometimes all at once, despite well-publicised consequences.

Non-compliance may be sight threatening. Even when the consequences are more trivial, they can waste a considerable amount of chair-time, especially as patients rarely make a full confession of their crimes at first. It is therefore essential that practitioners take steps to minimise it, though the statistics do not make

encouraging reading.

Patients need to be aware that they are susceptible to complications as a result of non-compliance, and that these are not rare. Furthermore, the complications are sometimes severe and could result in blindness. While the practitioner would not wish to terrify a patient unnecessarily, when one is faced with an individual whose ambitions appear to encompass the joys of microbial keratitis some shock tactics may be in order. There are many pictures of microbial keratitis available these days, and a suitably gory example, kept on a practice computer or printed out, can concentrate the mind splendidly. Pick one with lots of red bits and purulent discharge for maximum effect. A short discussion of corneal grafts should complete the operation. For less severe transgressions, the carrot/stick ratio can be modified by emphasising the potential benefits to visual performance and comfort of compliant behaviour.

Compliance may be aided by ensuring that the care system is simple and quick to use, and easily obtained. Novelty may promote at least short-term compliance, so there is a case for discussing new developments in both lenses and solutions at every aftercare. Free samples of new products are readily available to practitioners, and we should make use of them.

The one thing that is generally accepted to promote compliance is repetition. By reminding patients of the correct care regime at aftercare visits Radford *et al* found compliance rates could be raised from 44 per cent to 90 per cent.<sup>3</sup> In summary the strategy for promoting compliance should begin at the initial consultation and continue throughout the time that the patient continues to wear contact lenses.

- At the initial visit, the practitioner must set an example by washing his/her hands thoroughly before touching either the patient or a lens and by discussing the importance of hygiene and compliance

- During the collection appointment, clear information on the wearing and care of the lenses needs to be given verbally, though it would be optimistic to expect the patient to listen to it all. Many patients are in a rather nervous and excited state when first collecting their lenses, and much of the information goes in one ear and out of the other, without ever making any impression on the cognitive centres. For this reason, it is important to back any verbal information with a written version, as the odd patient may even



read it. It is also useful to get the patient to sign a form acknowledging that a full discussion of the care of the lenses took place, as the patient's memory may be somewhat incomplete, especially if things subsequently go wrong ('he never told me that, honest')

● The real work begins at the first aftercare. The patient should be asked to demonstrate their technique for removal, cleaning and storage of the lenses, and any deficiencies addressed. Many patients forget to wash their hands before removing the lenses and such hydrophobia should be tackled at an early stage

● At subsequent aftercare appointments, the same procedure should be adopted. We need to know what the patient is using, how they use it and how often they use it. The patient should also be made aware of any developments in lens design or solutions that might be of benefit to them. Too many patients gradually become out of date and eventually turn up for an infrequent aftercare appointment wearing lenses that transmit little oxygen, are worn for too long and with a care system that is either somewhat minimal or ill-matched to their lenses or wearing pattern. Such behaviour becomes ingrained, and it can be difficult to convince this patient that change is a good thing

● Patients should be encouraged to have regular aftercare, at intervals of six months to a year, as longer periods encourage the patient to 'go native'. Reminders should be sent out, and if they are not acted upon, attempts should be made to contact the patient. It may take up time but it will hopefully avoid the day when the patient turns up with a problem that takes weeks or months to resolve. Planned replacement of the contact lenses will tend to encourage regular attendance, as will the occasional upgrade. Continuity of care should

## MULTIPLE-CHOICE QUESTIONS - take part at [opticianonline.net](http://opticianonline.net)

**1** Which of the following symptoms is most likely associated with desiccation?

- A Pain on lens application
- B Photophobia
- C Gradual increase in discomfort over wearing time
- D Worsening of pain on removal of lens

**2** Which of the following might indicate corneal insult or infection?

- A Pain on lens application
- B Photophobia
- C Gradual increase in discomfort over wearing time
- D Worsening of pain on removal of lens

**3** Diffuse redness is most likely indicative of which of the following?

- A Lens edge defects
- B Solution adverse response
- C Corneal inflammation
- D Dessication

**4** Which of the following may reveal uncorrected refractive error with a contact lens *in situ*?

- A Pinhole
- B Retinoscopy
- C Stenopoeic slit
- D All of the above

**5** According to one study,<sup>1</sup> what percentage of contact lens patients keep their solutions for too long?

- A 22 per cent
- B 44 per cent
- C 68 per cent
- D 89 per cent

**6** What is the best way find how a patient uses solutions?

- A Observe them removing and cleaning their lenses
- B Ask them a pre-designated list of questions
- C Pre-test questionnaire
- D Assess the cornea for evidence of non-compliance

Successful participation in this module counts as one credit towards the GOC CET scheme administered by Vantage and one towards the Association of Optometrists Ireland's scheme. **The deadline for responses is December 2 2010**



also help in establishing trust between patient and practitioner

● It is important that the practitioner keeps abreast of new developments, as advertising in the media and on the internet is far more effective now than it used to be. A practitioner who knows less than the patient will rapidly lose all credibility and their advice will be ignored, probably with some justification. Regular continuing education and training and continuing professional development is the remedy, and in the contact lens field the pace of change makes them essential. ●

### References

- 1 Claydon BE and Efron N. Non-compliance in CL wear. *Ophthalmic Physiol Opt*, 1994; 14:356-364.
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- 3 Radford CF, Woodward EG and Stapleton F. Contact lens hygiene compliance in a university population. *J Br Contact Lens Assoc*, 1993; 16; 105-111.

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