



# Vision under the spotlight

**C**omfort has traditionally been considered the most important attribute of contact lens wear but a recent study of consumer attitudes to vision correction challenges that perception.

The NSIGHT Study, commissioned by Bausch+Lomb, found that, out of 40 different product features, vision was ranked as the most important to contact lens and spectacle wearers alike, with comfort only in sixth place overall. Six of the top seven product features were vision-related.

The study showed that halos, glare and blurred vision are common symptoms in contact lens wearers, highlighting a need for better vision correction and for solving these specific problems. Fewer than one in 10 lens wearers had a complete solution to these symptoms and almost all were interested in a solution to blurry or hazy vision.

Bausch+Lomb recently introduced an aspheric lens, PureVision2 with High Definition Optics, designed to reduce spherical aberration across the power range and to reduce halos and glare. Thinner than the original PureVision design, and with poloxamine added to the packaging solution, the lens is also aimed at improving comfort while maintaining eye health.

So would a product that met consumer needs by delivering better vision, as well as comfort and health, be attractive to eye care practitioners? How could practitioners present the product to patients in practice? And in what situations might it help?

To explore these questions, Bausch+Lomb invited a panel of experienced contact lens practitioners who have trialled the lens to a roundtable discussion. The aim was to learn from their experiences and find out how they communicated the product features and benefits to their patients.

### Moving out of the comfort zone

Chairing the meeting, **Dr Christine Purslow** started by asking the panel how specific they were when discussing visual symptoms with contact lens wearers.

Hay-on-Wye practitioner **Annette Latham-Jackson** summed up her feelings: 'I've probably been brainwashed into "the comfort zone" and for years have been talking about

Are practitioners neglecting the one feature that patients regard as most important in contact lens wear? **Alison Ewbank** went along to a panel discussion hosted by Bausch+Lomb to find out more



**Annette Latham-Jackson and Dr Chris Purslow (r): how should practitioners ask about visual symptoms?**

comfort as a key issue. I probably do ask about vision and about blurry vision but I'm not specific enough. A couple of patients I've trialled with the lens have mentioned night driving and it did start me thinking.'

**Dr Sandip Doshi**, who practises in East Sussex, had a similar view. Practitioners were conditioned to look at comfort but he tended to focus particularly on health. 'When I get a patient with a vision problem I'm reactive rather than proactive in addressing the issue. We need to be more proactive in asking if they have a vision or glare-related problem, although we haven't had the solution or tests for that in the past.'

Nottingham optometrist **David Bennett** agreed with this assessment. 'The problem is we don't have a good way of checking these elements in the consulting room. We have Snellen acuity and, in my practice, we have a glare meter and contrast sensitivity charts, but how many people use these on a daily basis?'

Others were more cautious about vision being the priority, including Northampton-based practitioner **Brian Tompkins**. 'Comfort is massively important because, however good vision is, if comfort isn't good, wearing time will go down,' he argued. 'Also, patients don't come in and say they've

got problems with halos or glare; they come in saying they can't see very well.'

**Peter Ivins**, who recently opened a practice in Glasgow, said his approach would depend on the age of the patient. 'Do I ask contact lens wearers about these aspects of vision? No I don't. Not routinely. Do I ask patients who have early cataracts? Yes, I do. I think age is a big factor in whether you get halos or glare and it gets worse as you get older.'

'It reminds me of the discussion we had about comfort five or six years ago. None of us used to ask about end-of-day comfort because if the patient said it was rubbish we had nothing to help them with that. Maybe we haven't asked about vision too deeply because we assumed this is as good as it gets.'

Other panellists felt comfort and vision were not unrelated, or even, as Dr Purslow suggested, 'intrinsically linked'. Midlands optometrist **Susan Bowers** suspected they were connected: 'If I send them out for a trial with a lens that's the wrong prescription they'll come back and say the lens is uncomfortable. If I sent them out with lenses that are spot on, they come back and say they're comfortable.'

**Vinod Mistry**, who works in a busy London contact lens practice, argued that comfort and dryness did affect vision, so most people experienced visual symptoms by the end of the day. 'I start with comfort then go on to vision and ask them what environments they have trouble in,' he said, adding that, at afternoon appointments, he often removed lenses and rehydrated

### PUREVISION2HD PANEL MEMBERS

- Chair: **Dr Christine Purslow**, Cardiff University
- **David Bennett**, Brooks and Wardman Optometrists, Nottingham
- **Susan Bowers**, Susan R Bowers Optometrists, Coventry
- **Nick Dash**, Visual Edge Optometrists, Loughborough University
- **Dr Sandip Doshi**, The Eyecare Centre, Hove
- **Peter Ivins**, Peter Ivins Eye Care, Glasgow
- **Annette Latham-Jackson**, Jackson and Gill Opticians, Hay-on-Wye
- **Vinod Mistry**, Camden Contact Lens Centre, London
- **Brian Tompkins**, Tompkins & Knight, Northampton



them before checking vision.

Practitioners had various ways of discussing night-time vision symptoms. Bowers explained her approach:

'When I'm testing myopes I ask them, do they get "starburst" with headlights and streetlights. If they're driving 100,000 miles a year because they're a sales rep, that's quite an important issue. But I agree that you don't start probing these things unless you can do something about it.'

'Could it be that if you don't ask they won't say?' suggested Dr Purslow. 'And because we don't ask we're assuming they don't have an issue. If vision is the first thing that drives patients back to complain about their spectacles, why are we so adamant that it isn't like this with contact lenses?'

## Unique perspective

Nick Dash's experience with elite athletes in his sports vision practice, and his work in refractive surgery assessment, gives him a unique perspective on quality of vision. He argues that patients take it as read that their practitioner will prescribe the lens that gives them the best possible vision: 'They can perceive comfort for themselves but they entrust you with delivering the best quality of vision.'

But Dash pointed out that drop-out rates were higher in low astigmatic wearers than in other wearers and the likely reason was poor vision. 'If they don't have the quality of vision they get with their specs, then they're going to drop out and we'll lose them. We see patients for refractive surgery because they're not satisfied. You've got to correct vision as well as possible, and that's small cyls and spherical aberration too.'

Ivins observed that vision was not the primary reason for drop-out but it was in very many cases. 'It may be uncorrected cyl or presbyopia coming in, but there's no doubt some of those are dropping out because they're not seeing well. If we had a lens that would make people see better, would it help the drop-out rate? Absolutely.'

For Mistry, no one lens could provide wearers with everything they needed. 'We give them different types of lenses for different requirements. Our pricing plan is set up so we can combine products and they can make it up with three different lenses if they want to. For instance, multifocal wearers often complain about vision being poor at night – for driving, cinema and theatre – so we give them aspheric distance lenses and say, "why don't you try these?"'

But were practitioners neglecting

other situations where vision with current lenses was less than optimum? Dr Purslow suspected they were:

'We're used to talking to older patients but how many people routinely talk about night vision with a young person, where quality of vision can also be an issue due to pupil size?'

'I think pupil size is the crucial point,' said Bennett. 'I do talk about night vision if I've got a patient with a very large pupil. Whatever lens I fit I'm going to get a bit of peripheral flare. That's an issue.' However, the way the question was posed was also important. 'If you ask "what's your vision like at night – is it blurred?" we're introducing words to their vocabulary which may give them negative feelings about their lenses,' he pointed out.

Perhaps a better approach to eliciting quality of vision symptoms might be to use open questions to prompt wearers to describe how they felt about their vision, not just at night but in a range of potentially challenging situations throughout the day, according to the patient's age, lifestyle and occupation (see panel, top right).

Assessing quality of vision remained an issue, as Ivins explained: 'We measure vision in perfectly lit rooms with high contrast charts and it's nothing like the real world. So often people will come in and read 6/5 but they're not seeing well.'

What was needed was not only more detailed questioning on visual symptoms – one suggestion being a pre-examination lifestyle questionnaire to act as a prompt – but also better methods of testing for problems with vision that were not elicited by current tests. Optometrists in Ireland, for instance, were now required to include

## CHALLENGING VISUAL SITUATIONS TO EXPLORE IN SYMPTOM-TAKING

- Low light situations, especially in patients with large pupils
- Bright sunlight, especially when the sun is low in the sky
- Going to the theatre and cinema
- Business or school presentations when lights are turned down
- Prolonged viewing of a computer screen or games console
- Watching 3D TV, cinema and games
- Long hours of study
- Reading in low light levels
- Performing arts such as music, dance or drama
- Sports and active leisure pursuits
- Learning to drive
- Street lighting at night
- Oncoming headlights and tail lights at night
- Driving at night or in twilight
- Long hours of driving

tests for contrast sensitivity, glare and low-contrast acuity when assessing drivers' vision. Yet the consensus was that there had been little point in probing too deeply without having a solution to deal with quality of vision symptoms. If such a product were now available, some way of demonstrating the problem, and the solution, in practice would also be needed.

## Lessons from laser

In refractive surgery, quality of vision is a key attribute and testing and correcting for ocular aberration has been standard practice for many years. Wavefront-guided ablation to reduce night vision problems was followed by aspheric wavefront ablations that address the eye's pre-existing aberration, rather than inducing aberration. This technology has now been applied to intraocular lenses too.

So what can the experience of refractive surgery tell us about how to discuss spherical aberration with patients, and the effects of correcting it? Nick Dash explained that aberrometry was the standard tool but there were simpler ways of explaining aberrations, either with photographic images or with lenses dropped into the trial frame to simulate these effects.

Looking at a point source in a dark room to demonstrate halos, shining a pen torch on the eye to introduce glare or deliberately smearing a trial lens were among the methods suggested by the panel, although all were subjective.

Another solution might be an app on the iPhone or iPad. The same tool could be used to demonstrate improvement in vision quality with a lens on the eye, although some



**Nick Dash: 'Patients perceive comfort for themselves but trust practitioners to deliver the best quality of vision'**



thought a trial under real-world conditions was a better option.

The panel also discussed whether 'high definition' was a powerful analogy to explain how quality of vision could be improved. 'Looking at the younger end of the market, in the digital age, the guys familiar with high-definition TV, if we ignore this are we missing a trick?' asked Dr Purslow. 'I think everyone can relate to HD,' replied Mistry.

Tompkins agreed that the analogy with HD TV could be useful: 'I think it's an opportunity. If there's HD in the name of the lens, it's easy to mention it,' he said.

### Putting HD in practice

Discussion then turned to the panel's own experiences of fitting the PureVision2HD lens and the type of patients who had benefited. Dr Doshi described a series of case studies, including a film cameraman complaining of poor vision and glare under studio lighting; a 62-year-old shift worker presenting problems with oncoming headlights; and an 11-year-old playing sport to a high level.

Market research among neophytes showed the lens performed particularly well in 12-18 year-olds, a group that represented an untapped resource for new, long-term contact lens wearers, he said. There was growing evidence that children as young as eight years could wear lenses safely and contact lenses significantly improved the quality of life of children and teenagers.

Other practitioners reported success with the lens among young patients. Latham-Jackson had fitted one teenager who, without prompting, reported reduced glare from lights when driving at night. Feedback on lens comfort – particularly on insertion, an important feature for first-fit success – was also positive.

The panel trialled the lens on existing wearers as well as neophytes, and each had a different way of initiating discussion of the lens with their patients. Approaches ranged from simply saying 'here's a new lens' to a detailed explanation of spherical aberration and its effects on vision.

Bowers said she presented the lens as an upgrade to the latest product, allowed patients to experience it and asked them to report back. 'Some commented, "I don't get glare any more". Patients hadn't realised they had glare or didn't think you could fix it until it was gone,' she observed.

Latham-Jackson was more likely to

### HD OPTICS: HOW DOES IT WORK?

A practitioner with long experience with aspheric vision correction, **Nick Dash**, explained the technology behind the PureVision2HD lens. Spherical aberration was the inability of the eye to focus light rays passing simultaneously through the centre and the periphery of the eye, said Dash. The retinal image appeared blurred because peripheral light rays were focused anterior to the retina.

Of all aberrations, spherical aberration made the most impact on quality of vision and low-light vision. As pupil size increased, spherical aberration increased disproportionately. If we could neutralise the eye's spherical aberration, vision would be improved.

Different people had different levels of spherical aberration but the average was +0.15µm with a 6mm pupil, depending on the aberrometer used to measure it. Most people had positive spherical aberration but some had negative values. Spherical aberration occurred with any refractive error, including emmetropia, and was independent of sphere or cyl power. The effect of 0.15 spherical aberration was equivalent to about a 0.75DC uncorrected cyl, said Dash.

With conventional spherical contact lenses, as the lens power increased so did the amount of induced spherical aberration. Mi-

nus power lenses induced negative spherical aberration but plus powers induced positive spherical aberration, adding to the eye's own aberration. With aspheric contact lenses, the aim was to introduce negative spherical aberration to neutralise the eye's inherent aberration and give a net value close to zero.

With the PureVision2HD design, the net spherical aberration with a -1.00D lens on an average eye was -0.03, whereas other current SiH spherical lenses had values as high as +0.25. Changes to the design meant that not only did the lens account for the eye's inherent spherical aberration and the induced spherical aberration in the contact lens, it also took into account the lens shape as the lens conformed to the eye.

In his sports vision practice, Dash fitted 48 patients with PureVision2HD and two spherical lens designs in powers from +3D to -6D. With the aspheric lens, he found residual spherical aberration was consistent and close to zero across all powers. With the spherical lenses there was positive residual spherical aberration that increased across the power range, with the highest values induced with plus powers.

He concluded: 'Aberration control in a contact lens takes vision correction to a more refined level. This is the lens that has the best control of spherical aberration that I've seen over the whole range of powers.'

ask her patients directly about end of the day and night vision, and then describe the product benefits, whereas Ivins used a general question in his pre-exam questionnaire: 'Is there anything about your vision you feel could be improved?'

The terminology each used to describe the lens itself also varied. Doshi emphasised the key features in turn: high definition, 'ultra-breathable', healthy and comfortable. Ivins suggested describing the lens as 'customised to your own prescription'. And Tompkins would tell patients 'you will notice a difference' rather than ask them if they could see a

difference on the chart.

For Dash, this was a lens that performed in the real world rather than in the consulting room, so the benefits were best demonstrated in an extended trial. Photographic simulations were useful to explain the concept to patients but incorporating some simple questions to routine aftercare would soon elicit issues with vision quality.

Would you like to see more clearly? Are there times when you'd like crisper vision? Do you ever notice halos or glare on street lights or headlights at night? Is it ever blurry when you watch movies, or a Powerpoint presentation in class? These were just some of his suggestions for practitioners to try out.

### Addressing patients' needs

Summing up the day's discussion, Dash said that the NSIGHT study had identified unmet needs with current vision correction that aspheric optics could help to address. 'We've seen that vision is the most compelling feature when choosing eye-related products. And that's what patients entrust us with. We need to communicate what spherical aberration is and what causes halos and glare. If we now have the tools to deliver better quality of vision, we should have much happier patients.' ●



**Dr Sandip Doshi: 'We need to be more proactive in asking patients if they have a vision or glare-related problem'**