



Dispensing without the rules

Bill Harvey puts the latest electronic dispensing aid from Essilor to the test and finds both it and the Visioffice 2 more than up to the challenge

I am sure many readers are aware of the significant impact upon business that results from spectacle remakes. In some cases there are issues relating to a poor choice of lens or one that clearly does not meet the patient's expectation.

However, a sizeable proportion may be put down to measurement error. Manual measurement with a rule is familiar and, in experienced hands, assumed to be very accurate, but sometimes this very assumption can mask errors creeping in relating to parallax, patient posture, relative positions of practitioner and patient, even eye movements and how deep set the eyes are, so creating a greater distance between eyes and rule.

Increasing numbers of practitioners are becoming familiar with electronic means of assessing dispensing measurements. As personalised lenses became more popular, systems such as the original Visioffice from Essilor were introduced to allow a rapid and repeatable assessment of all the measurements required to dispense such a lens. It is also increasingly the case that a patient who is paying for a premium lens is less impressed by the old ruler, especially if they have previously been dispensed to using one of the electronic systems.

Tablet-based dispensing systems have been introduced (*Optician* 09.08.13) and these are proving popular both with patients, who like the high-tech approach, and practitioners who like the portability and versatility. Typically these involve the adaptation of an existing piece of hardware such as a tablet. Errors may still need to be monitored and, especially for units that are primarily hand-held rather than table top, repeatability may not be as good as required without careful set-up



and handling – prompting some to move back to their rules.

The new Essilor M'Eye Fit Touch (Figure 1) is a dedicated portable touch screen dispensing aid which claims accuracy, portability and ease of use. I was keen to try out the unit and so took along a newly presbyopic patient and an open mind to the Essilor showrooms in Thornbury near Bristol, recently trumpeted as its centre for digital and high-end lens surfacing.

Anisometropic presbyope

KW is a 42-year-old anisometrope having difficulties with prolonged work and who previously had relied on her hyperopic single vision correction for all concentrated visual tasks. Amblyopia intervention as a child had maintained good equal corrected acuities (6/5 and N4.5 R and L) but she is very strongly right eye dominant. Her prescription is:

R +0.75 DS (6/5)
L +2.25/-0.50 x 95 (6/5)
Add +0.75 (N4.5 R+L)

She was adamant she wanted one pair, felt the distance correction useful and was very keen on a multifocal. The just over 1.50DS anisometropia would mean that 1cm below centre there would be 1.50Δ vertical prismatic

difference (base up in the left) which would be pushing the limit of the typical vertical fusional reserves. The patient was also very keen on a shallow eye frame but one that was assessed as having the requisite clearance above centre and adequate depth for the lenses to be prescribed. A pair of Varilux S series lenses was dispensed using the M'Eye Fit Touch and, both to compare measurements and also to appraise patient response to the lens, a pair of Varilux S4D were dispensed using the Visioffice 2 system.

M'Eye Fit Touch

Essilor is keen to emphasise that the new unit is a dedicated instrument for purpose rather than an adaptation to an existing tablet. It has a 29.5cm wide touch screen and a slip-free stand. Stability of these units is essential to allow for the desired repeatability and accuracy, but it is also attractive enough to impress patients at the dispensing area while not intruding in other activities. Previous units I have used had a problem with camera flash detracting from pupil measurements and the integral camera positioning in the curved stand upright appears to have overcome this issue significantly. Company data (on file) suggest a 95 per cent reproducibility to within 0.5mm when 600 patients were measured. Verification of this would make a nice little project for someone wishing to broaden the paucity of dispensing related research out there!

Patient data is input initially and the unit can easily integrate with existing patient management systems.

To begin measurements, the frame is set within the mount (Figure 2 and 3) upon which the various targets are set, so allowing the light reflection differences to be interpreted as required



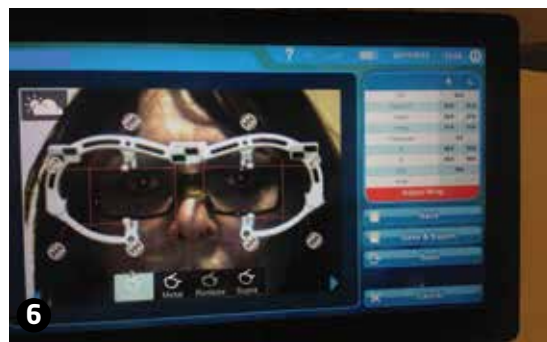
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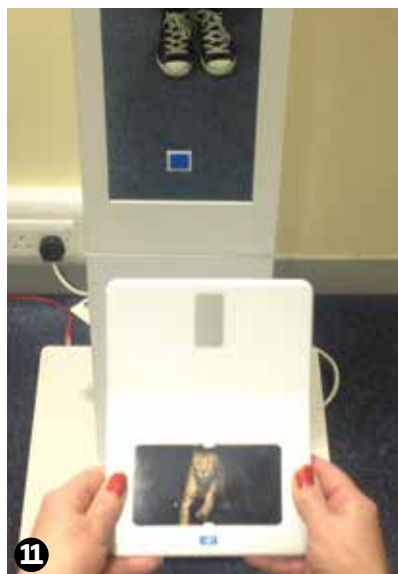


Dispensing



parameters. The patient is encouraged to sit in as natural a position as possible and the unit is placed before them. The correct distance for measurement is clearly indicated by a green border to the screen (Figure 4) at which point a simple press of the camera icon captures the relevant distance data. By measurement of different distances from the targets at the top and bottom and sides of the mount, monocular PDs, heights, vertex distance and pantoscopic angle are all calculated. The patient is then directed to look downward as if reading (Figure 5), allowing near PDs to be taken. Each of these measurements takes seconds.

The measurements are next refined by adjustment on screen. At this point the patient may relax and remove the mount. Figure 6 shows the display and the moveable markers for each defining line which may be moved on screen with the cursor pen provided to delineate the inner rim. The pupil centres may also be confirmed in a similar way (without



distracting flash reflections). A nice feature to increase the accuracy of this subjective component to the process is a magnifying area (Figure 7) which makes setting the edge limits easy. Finally, the frame may be laid onto the

screen directly to assess the face form angle (Figure 8). That's it. Importantly, repeat measurements tallied well. With careful patient set up the process takes under a minute. The data along with frame details may then be transferred to the lab for glazing and of course electronic transfer minimises any writing-related error.

Visioffice 2

For the S4D lenses, there needs to be an assessment of binocular dominance, something we have discussed before (*Optician* 12.07.13). The Visioffice (Figure 9) can make all the measurements that the original unit could and even has tucked away the extendable arms used to dispense the earlier Ipseo lenses. These are not needed for the newer personalised lenses, however. Again the frame is set in the measuring mount and the patient standing in front of the column looks at the mirror and the data is captured (Figure 10). A second set of data are taken as the patient slowly



turns their head while maintaining fixation on the screen ahead. This allows some compensation for the patient's individual head and eye movement characteristics as well as assessment of the eye rotation behind the frame mount. Results tallied perfectly with the M'Eye Fit Touch.

Finally, and in my view quite ingeniously, the patient looks at a small hand-held target and the Visioffice 2 is able to assess from the fixation the dominant eye. The target, in this case a leopard (Figure 11), can be varied and I think that, dispensing aside, this could be a useful and accurate way of assessing dominance in other areas of work (presbyopic contact lens fitting, paediatric assessment and so on).

KW was, as expected, strongly right eye dominant. The theory behind the S4D lenses appears to be based on aiming to minimise the differences in the aberration profiles of each eye away from axis. By distributing aberration to reflect dominance there is less likelihood of binocular confusion and a more comfortable and aberration free experience away from the direct line of gaze.

A lens that is personalised to minimise off-axis aberration will

attempt individual point correction which, in a progressive lens, will help reduce awareness of the distortion and visual discomfort the patient may be aware of outside the clear viewing zone of their lens. But what if the difference in off-axis aberration profile is different enough for that very difference to cause problems of fusion? This might be expected in KW's case. It might make sense in the monocular state to minimise the aberrations, but for binocular comfort there is a good deal to be said for trying to minimise the difference to allow better peripheral fusional comfort. If this is the case, then one of the profiles needs to be adapted to make for better binocular viewing – but which one? There is a growing body of evidence to support the view that the dominant eye tends to lead in both motor and sensory action. If the monocular peripheral profile of the dominant eye was held as close to the eye's actual refractive state as possible, while adapting that of the non-dominant eye towards equalisation, then this should allow for maximal visual performance while maintaining as wide a binocular clear field as possible and optimal binocular comfort (this all assumes a profile based on

static eyes in a constant position relative to the lenses and with constant pupil sizes). Feel free to contact me if you interpret Essilor's reasoning differently.

Results

I am not going to patronise you with an appraisal based on one patient and subjective feedback upon appliances kindly provided for free by the manufacturer! Suffice to say KW is happy with the appliances and the S4D is her preferred correction with better 'all round vision'.

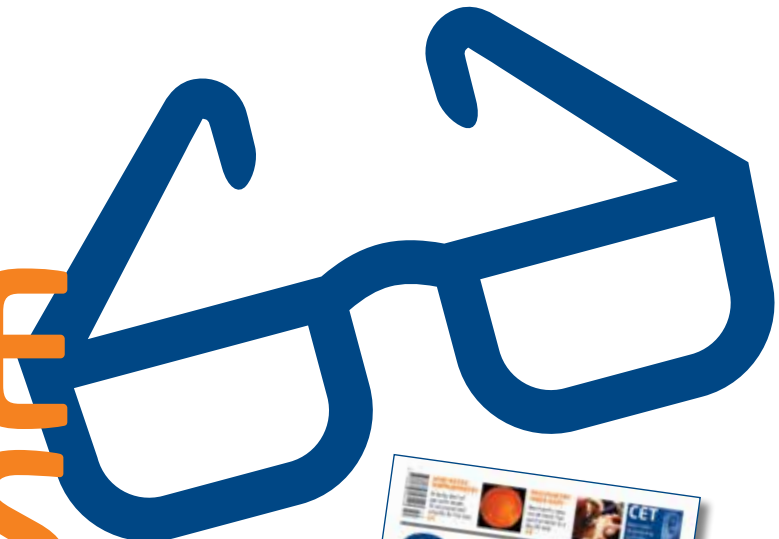
However, I am confident in stating that the M'Eye Fit Touch is easy to use, patient friendly (and indeed likely to impress), while data gathered, if undertaken correctly on a well fitted frame mount using a stable camera base, appear accurate and repeatable. I would suggest a period of training is a very good idea but, with some confidence, most practitioners should find the system an excellent addition to the dispensing area and it will be interesting to see if it makes any inroads into the remake challenge. ●

● For further information contact Essilor on 01454 423451 (email: gbinstruments@essilor.co.uk)

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