Benefits of multitasking

Nidek is launching a new multifunction desktop instrument for optometric practice. **Bill Harvey** went to take a look

There are obvious benefits to having one instrument capable of several functions. It can minimise the instrument footprint in busy practices, reduce the time and patient inconvenience, and ultimately make for efficiency savings. I was interested to hear about the newly launched Nidek OPD-Scan III which claims to master many roles, so I travelled to the Birmingham Optical Group showroom to try it out.

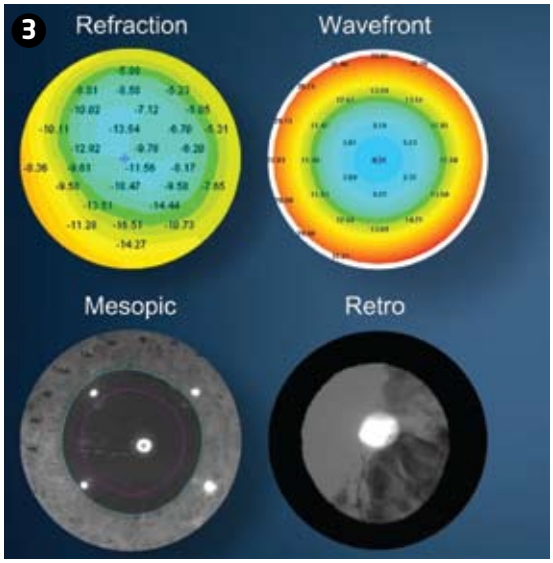
The instrument is similar in appearance to most modern desktop autorefraction or topography units, with the now increasingly essential tiltable touch screen facing you and a Placido disc type cone towards the patient (Figure 1). This one machine, however, functions as an autorefractor, keratometer, topographer, pupillometer and wavefront aberrometer. It can detect media changes through retroillumination, aid biometry in IOL positioning and power calculation, and make both photopic and mesopic measurements to aid accuracy of refraction prescribing. So does this multiplicity of function make operation complicated? Well I can confirm that operating the OPD-Scan III is amazingly simple and a complete scan takes just 10 seconds per eye.

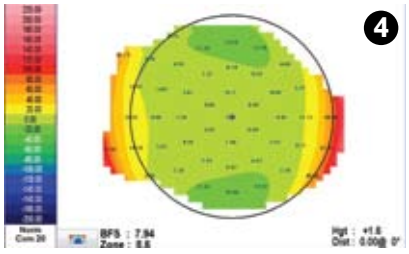
Easy to use

I have been accused of over-emphasising ease of use as an important consideration for instruments. But as long as there is no compromise in accuracy, I would suggest that the ability for any trained staff member to be able to acquire data for you to later evaluate is a boon to practice efficiency. The patient is positioned as with any such instrument (Figure 2) and then the unit positioned in front of the eye which appears on screen. Once patient data is input, the eye is simply brought into focus and, once in place, the instrument takes all the data requested. During capture, the machine has three-dimensional autotracking to maintain a stable measurement. The instrument may be operated by the touch screen or via a USB attached computer (I prefer the former). The instrument may also be set up as part of a network to ease flow of information.

Novel features

A number of features are impressive. Autorefraction measurement provides the refractive data, wavefront aberration profile, mesopic pupil data and a retroillumination view of the eye (useful in detecting early cataract) (Figure 3). The autorefraction data is available for on-axis measurement as used in prescribing vision correction, and also as a map of refractive error across the corneal surface. The second part of the scan involves a blue light topographic scan which provides keratometry readings (from a 3.3mm diameter zone), photopic pupil data, Zernike graphs (for higher-order aberration assessment), and a range of topographic data (axial, instantaneous, gradient, elevation – Figure 4).





This combination of mesopic and photopic data gathering is interesting. Firstly, the autorefractor result shows if there is a significant shift in the refractive profile in different lighting conditions. In some patients the change from mesopic to photopic can result in 0.25DS or more change and this may be incorporated into a final prescription where deemed necessary. Pupil diameter changes are measured under the two conditions and this can again be used to adjust the refraction profile, especially useful in refractive surgery situations. Pupillography allows changes in pupil shape to be measured which may influence refraction. The distance between the first Purkinje image and the pupil centre are measured and this can be important when clinicians use the instrument to help with IOL centration.

Another nice feature is the inclusion of acuity chart displays which can be presented as if seen through the various refractive profiles to help demonstrate to patients the difference between corrected and less well corrected states. Even small aberration shifts can be demonstrated in a way a patient can easily relate to.

This sort of multi-combined function instrument is the future of pre-screening in optometry and the repeatability and ease of use of this particular instrument makes it very attractive. It also makes for a useful addition to contact lens work, clinical assessment and monitoring of corneal states, and as a patient education tool.

● *Optician* will be following the use of an OPD-Scan II in a busy high street practice in the new year. For more details contact sales@nidek.co.uk tel: 0845 2303020.