Customised logMAR charts for mass vision-screening

Visual acuity is an important measure of disease severity, progression and the treatment outcome. Standardisation of measurement and reproducibility of visual acuity testing are particularly important. A standardised test chart introduced in 1862 by a Dutch ophthalmologist Hermann Snellen is being used in conventional testing of visual acuity. The chart consists of a series of symbols e.g. block letters, in gradually decreasing sizes corresponding to the distance at which that line of letters is normally visible. As such, printed Snellen charts are less expensive and suited where time and resources are limited. There are some inherent design flaws in the Snellen chart which include non-geometric progression of letter sizes and variable number of letters per line. The relatively large gaps between acuity levels at the lower end of the acuity scale can result in gross overestimation and underestimation of changes of visual acuity, compromising the clinical sensitivity. A more scientific method than the Snellen chart for determining visual acuity is imperative for research studies and is desirable now in clinical situations as well as population surveys.

These design problems are addressed in the logMAR (logarithmic minimal angle resolution) acuity chart which has equal number and geometric progression of letter size, equal logarithmic interval between lines, and equal average legibility for each line. LogMAR format chart tests reduce test–retest variability. Although these superior charts are useful in research settings, even 20 years after their development, they have not been widely adopted into routine clinical practice because of unfamiliar scoring system, the chart’s size, and the time-consuming perception of logMAR measurements.

Several investigators have produced customised logMAR charts, one such example is an abbreviated logMAR chart that could combine the advantages of existing charts with a clinically acceptable measurement time. In addition, if we use Landolt C optotypes, the test turns out to be simpler as Landolt C requires only the orientation of the optotype rather than the name of the optotype. Hence the same chart can be used in numerous populations irrespective of literacy or age enabling a direct comparison of the results. Authors of the article on a customised portable logMAR Chart published in this issue bring out a chart using Landolt’s broken ring letters with adjustable illumination. It is an appreciable effort to bring out a portable, relatively cost-effective logMAR chart that can be used as a mass vision-screening device in rural camp settings.

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References