

Webinar on scaling-up spectacles provision using handheld autorefractors in low-resource settings

Webinar Questions and Answers

This document captures the questions and answers discussed during the Webinar on scaling up spectacle provision using handheld autorefractors in low-resource settings held on 19 November 2025, hosted by ATscale. As there was limited time to answer all questions, additional clarifications have been provided in this document. Please refer to the [reports](#), webinar recording, transcript and presentations for full context.

Question 1: Is there any age limit or power limitation for providing instant, ready-to-clip spectacles, particularly for children with high myopia, hypermetropia and astigmatism?

It was found that the concerned handheld autorefractor technologies were not very reliable in estimating the refractive errors in children. Therefore, based on this study, they are not recommended to dispense spectacles based on non-cycloplegic refraction in children. Handheld autorefractor technologies need to evolve further and provide sufficient evidence to support their use for on-the-spot dispensing of eyeglasses in children.

However, they can still be used for screening children in community settings. Handheld autorefractors with Synchroscan technology performed the best.

Question 2: What is the difference between “wavefront aberrometer” and “Shack-Hartman wavefront sensing” in the technical report?

In Shack-Hartman wavefront sensing technology, a wavefront of light is projected into the eye and reflected from the retina. The returning array of lights is then captured by the lenslets with different powers, which helps identify the defocus amount and calculate the power needed for clear focus. This is done at multiple entry points, making it not just for refractive error measurement but also for capturing peripheral aberrations. This technology is sensitive to eye movements and may produce erroneous readings when the eyes move. Wavefront aberrometers work on a similar principle but differ in their design.

Question 3: How were the clinical study teams trained? How did you ensure the field teams were trained well and according to the manufacturer’s protocols for each specific technology?

All teams are trained as per the manufacturer's protocols. After hands-on practice, a pilot study was conducted to ensure that the examiner could use the device comfortably and obtain consistent readings.

Question 4: Were the clinical teams trained only on operating the handheld auto-refractor, or did the training also include subjective refraction techniques? Additionally, understanding what to prescribe and what modifications are necessary for children is crucial in paediatric refraction. Were these aspects covered as part of the training?

The teams were trained only on the use of the devices and recording the findings obtained from the devices. Qualified ophthalmologists and optometrists performed subjective refractions. The study was limited to assessing the clinical accuracy of handheld autoreflectors relative to gold standard methods (retinoscopy and subjective refraction). The study did not implement the modifications needed for paediatric refraction, as none of the devices could accurately measure paediatric refraction.

Question 5: Can spectacles be prescribed solely based on autorefractor results, or only after confirmation through subjective refraction?

As per the study findings, in low-resource settings where trained human resources are not available, spectacles can be dispensed based on the autorefractor readings in the older age groups (17 years and above) and with a lower magnitude of refractive errors, where vision improves to 6/9 or better with correction. Please note that not all handheld autorefractor technologies are equally capable of producing accurate results. Please refer to the technical report to identify the handheld autorefractor technologies that work best.

Question 6: Has the route of involving training institutions to promote the adoption of this new technology been explored?

The study was conducted in large training institutions. However, exploring the involvement of training institutes in adopting this technology was not pursued in this study. It is always advisable to include training institutions to standardize, promote and adopt handheld autorefractor technologies in eye and vision care training.

Question 7: How could we develop synergies between organizations like WHO, UNICEF, Sightsavers, ATscale and especially the private sector, to practically implement the provision of spectacles for children?

Please refer to the response provided to Q1. Also, the study recommends that handheld autorefractor technologies work best in the older age group (17 years and above). In this age group, they can be used for on-the-spot dispensation of spectacles without the subjective refraction in low-resource settings. Please note that not all handheld autorefractor technologies are equally capable of producing accurate results. Please refer to the technical report to identify the handheld autorefractor technologies that work best.