Value-Cost Analysis and Comparison: Standard Automated Perimetry vs. Head Mounted Perimetry.

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Purpose: To compare the value and efficiency of in-clinic visual field (VF) testing between Standard Automated Perimetry (SAP) (Humphrey Field Analyzer) and a virtual reality visual field device (VRVF) (Virtual Vision) as measured by the required time, space, and equipment cost.

Methods: This study was performed at an academic Eye Hospital Glaucoma Clinic. VF times are defined as time elapsed from the start of wait time for VF to the start of waiting for the next visit event and encompass wait time, patient relocation time, and test time. Measurements were collected for the months of February 2021 and May 2021, pre- and post-introduction of VRVF in selected patients. Specifications as to physical footprints for SAP and VRVF were quoted from the manufacturers. Equipment, software, licensing, and maintenance costs were provided by the department of hospital purchasing. Equipment portability, technician, and instruction were compared between the two testing modalities.

Results: VF time was 60.22 ± 27.27 minutes for SAP and 44.56 ± 13.53 minutes for VRVF (P= 0.01). VF time reduced by 26% and SD of VF time reduced by 50% with VRVF. The physical footprint of the SAP model is 46 L x 52 W x 58 H (cm)[1] and the physical footprint of the VRVF model is 18 L x 13 W x 10 H (cm). SAP costs $102,400 and VRVF costs $36,000 per device over an estimated 20 years.

Conclusion: While the authors feel there will always be a need for SAP devices in clinic, incorporating an alternative head-mounted perimetry for some patients' VF testing was space and cost-effective and significantly reduced VF times and VF time variability. This has the potential to lead to greater clinical efficiency and possible patient satisfaction for in-clinic glaucoma evaluation.

References:

1. Humphrey Field Analyzer 3 (HFA3) Instructions for Use – Models 830, 840, 850, 860. Dublin, CA: Carl Zeiss Meditec, Inc.; 2018: 12-1. Available at: https://www.zeiss.fr/content/dam/Meditec/international/ifu/documents/hfa3/current/2660021166131_a_artwork.pdf. Accessed October 6, 2021.