

Press release

Where does the attention need to be?

Video trainings with smart glasses in the neonatal intensive care unit

Smart glasses can improve medical education and even enable remote hands-on training. The advantages of eye tracking in particular in this context are now shown in a joint study* by the Medical University of Vienna and Leiden University Medical Center.

Vienna, Dec 15, 2021 - Contact limitations during the Covid 19 pandemic inevitably led to a decrease in bedside teaching for medical staff and students. To provide the practical educational support needed, a scientific team led by Viennese neonatologist MD PhD Michael Wagner proactively focused on testing new technologies: Using the eye tracking smart glasses "VPS 19", the team conducted video-based trainings and live streamings during neonatal procedures.

The study was implemented during a stay abroad in the neonatal intensive care unit (NICU) of Leiden University Medical Center. Over a period of three months (Sept.- Nov. 2020), the smart glasses were used to record twelve eye tracking recordings of procedures performed on ten neonates, such as neonatal intubation, minimally invasive surfactant therapy, and catheter placement. These recordings were used to conduct nine video-based reflections with the neonatal team, with a total of 88 participants. The training videos were also streamed online so that staff working from home could also follow the procedures. In particular, the display of the performer's point of view in the videos, made possible by eye tracking, proved to be very useful.

"Eye tracking technology enables trainees to understand procedures from the perspective of the expert performing them. The trainees immediately identify critical areas during the procedure and memorize the expert's gaze patterns. This allows them to understand the clinical reasoning process during task performance and learn strategies for successful interventions," explains study leader MD PhD Michael Wagner.

The results of the study at a glance:

- **Those performing the procedures found wearing the smart glasses to be convenient and not disruptive.** They reported no discomfort associated with the glasses or any change in performance. None of them discontinued wearing the glasses during the procedures.
- **Trainees reported that the eye tracking videos provided educational benefits for them.** Both the participants in the video-based training sessions and the online observers rated the videos and streamings recorded from the first-person perspective as an educational experience. The display of the gaze

point in the videos gave them the opportunity to immediately identify areas critical to the procedure and learn from the expert's visual attention.

“With the study, we were able to demonstrate the practical feasibility of the smart glasses used, and also the added educational value offered by eye tracking,” said MD PhD Michael Wagner. “Such innovative technologies have the potential to involve medical staff in even more bedside procedures, and to close crucial gaps in learning neonatal procedures and interventions, even independently of the pandemic situation.”

About the eye tracking smart glasses VPS 19

The CE-certified VPS 19 eye tracking smart glasses from Viewpointssystem were used for the eye tracking videos and streamings. The glasses have binocular eye-tracking cameras that capture the wearer's first-person perspective and gaze behavior in real time. The front camera records the wearer's field of view in full high definition. The glasses weigh 43 g. The Smart Unit, a mini-computer that is part of the system, can be used to record, stream and analyze the videos.

To view the study report, click here: <https://doi.org/10.1136/archdischild-2021-321806>

*Wagner M, den Boer MC, Jansen S, et al. Video-based reflection on neonatal interventions during COVID-19 using eye-tracking glasses: an observational study. *Archives of Disease in Childhood - Fetal and Neonatal Edition*. Published Online First: 19 August 2021. <https://doi.org/10.1136/archdischild-2021-321806>

About Viewpointssystem

Viewpointssystem combines pioneering technology development with scientific expertise in vision research. The Vienna-based deep-tech company develops and produces internationally awarded smart glasses based on eye tracking, and sensor technology for eye tracking and eye data. The smart glasses are used by B2B customers worldwide for remote support and maintenance, for training and documentation, as well as for research and analysis, among other things. As the inventor of Eye Hyper-Tracking and pioneer of Digital Iris technology, Viewpointssystem's goal is to deepen the interaction between people and the digital world and to make Mixed Reality more intuitive. [Viewpointssystem.com](https://viewpointssystem.com)

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