



VISUAL PATIENT AVATAR

Problem – Challenge

Patient monitoring has grown in complexity over the years due to an ever-increasing number of vital signs being measured. Each new sensor introduced a new indicator to the monitor screen. Consequently, today caregivers are faced with a large number of individual indicators to interpret, which increases mental workload and makes it more challenging to achieve situation awareness. It is important to foster situation awareness as research has found that over 80% of incidents in anesthesia and intensive care settings stem from a lack of situational awareness.

Solution

Inspired by synthetic vision technology from the aviation industry, which provides pilots with an intuitive visual representation of the outside world, a patient avatar was developed. A visualization technology designed for quick and easy situation awareness for patient monitoring. It was developed based on user-centered criteria optimized for the specific perceptual abilities of humans. The visualizations used in the avatar have a logical commonality with the reality they represent. For example, the avatar changes its skin color to purple, just like the real patient, when the measured oxygen saturation decreases. Or its body

pulsates rapidly when the pulse rate increases, representing the rapid pulse wave flowing through the patient's body. Caregivers can read the information from the avatar immediately and do not have to piece it together by checking waveform by waveform and number by number. In addition, the information transfer with the avatar also functions with peripheral vision, allowing the patient to be monitored even when the primary focus is not directly on the monitor, which is often the case. Furthermore, the avatar has been shown to reduce workload and increase perceived diagnostic confidence. The technology was developed at the Institute of Anesthesiology of the University Hospital Zurich and was exclusively licensed to Philips in 2018. It went on sale in Europe (CE countries) in 2023, and it is expected to become available for sale in North America in Q1 2024. The first European centers where Visual Patient is being used are the University Hospitals of Zurich and Bonn.



Visual Patient Avatar in a Philips MX750 patient monitor



A care provider monitoring a patient using a split screen view of conventional patient monitoring and Visual Patient Avatar