



Visual Patient Avatar

A new way to see patient vitals takes shape

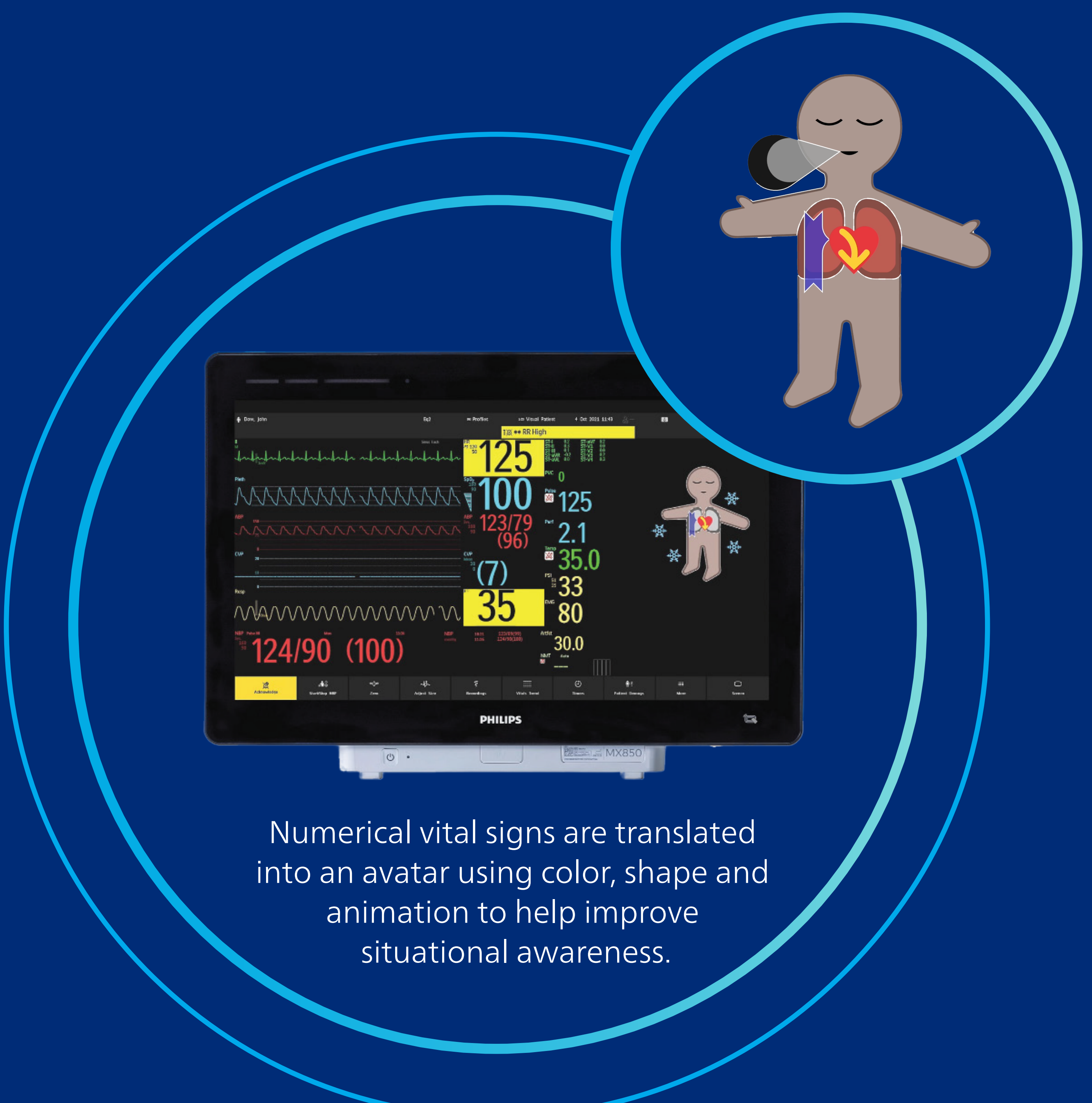
The operating room is a hectic environment where the smallest mistakes can have enormous consequences.



81.5%

of anesthesia incidents are related to situational awareness failures¹.

Used with a conventional monitor, Philips Visual Patient Avatar (VPA) can improve users' situational awareness and may reduce stress² and augment patient care.



Philips and University Hospital of Zürich together **conducted studies with over 150 clinicians** in two Swiss hospitals to validate and refine Visual Patient Avatar using a range of proven methods. Key findings include:



Elevated clinical confidence³

Looking at the VPA for **3 seconds** transmitted more information than **10 seconds** of conventional monitoring.

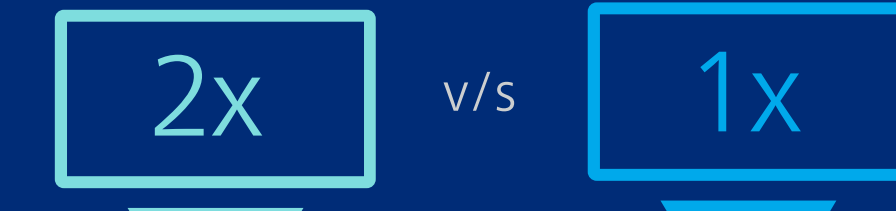


*Compared to the identical conventional monitoring scenarios, VPA more than doubled the number of vital signs the participants were able to recall after 3- and 10-second looks at the monitor.



Accelerated information transfer⁴

VPA can help improve the parallel perception of multiple parameters and vital sign information transfer with a **single glance** at the avatar.



*In two 3-second monitoring scenarios, the median numbers of vital sign fixations with VPA-based monitoring were almost twice as high as conventional monitoring.



Identified changes in multiple patients⁵

57% VPA increased the percentage of perceived vital signs by **57%** (from 7 to 11 of 22 total) when viewed for **10 seconds**.

12% In addition, the **perceived workload** for the task decreased by **12%**.

Benefited from human-centered design⁶

73% of all vital sign information was correctly identified at first use of VPA.



For additional information, please read the narrative summary, "Situation Awareness-Oriented Patient Monitoring with Visual Patient Technology: A Qualitative Review of the Primary Research". It summarizes the scientific background of the VPA, including situational awareness, the limitations of conventional patient monitors, synthetic vision, and aviation. Moreover, it explores the design philosophy behind the solution and connections with related topics, such as alarm fatigue, artifacts, trend monitoring, pattern recognition, and event monitoring.

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- (2), (3) Tscholl DW, Handschin L, Neubauer P, et al. Using an animated patient avatar to improve perception of vital sign information by anaesthesia professionals. British Journal of Anaesthesia. 2018;121(3):662-671. doi: 10.1016/j.bja.2018.04.024
- (4) Tscholl DW, Rossler J, Pfarr J, et al. The Mechanisms Responsible for Improved Information Transfer in Avatar-Based Patient Monitoring: Multicenter Comparative Eye-Tracking Study. J Med Internet Res. 2020;22(3):e15070. doi.org/10.2196/15070
- (5) Garot O, Rossler J, Pfarr J, et al. Avatar-based versus conventional vital sign display in a central monitor for monitoring multiple patients: a multicenter computer-based laboratory study. BMC Medical Informatics and Decision Making. 2020;20(26). doi.org/10.1186/s12911-020-1032-4
- (6) Wetli DJ, Bergauer L, Nothiger CB, et al. Improving Visual-Diagnostic-Avatar Prior to Its Clinical Release: A Mixed Qualitative and Quantitative Study. Diagnostics (Basel). 2022;12(2):555.5. doi.org/10.3390/diagnostics12020555