PHILIPS

Clinical Evidence Series

Avatar-based versus conventional patient monitoring with distant vision: a computer-based simulation study

What's different

Avatar-based monitoring converts multiple vital sign parameters into a unified visual representation, allowing clinicians to perceive patient status using visual cues, even at a distance.

Interpretation

When viewed from 8-16 meters, avatar-based monitoring was associated with substantially improved recognition of vital sign abnormalities, suggesting greater efficiency of visual information transfer compared with conventional displays.

Key takeaways

Vital sign recognition was **74% higher at 8 m** and **51% higher at 16 m** with avatar-based monitoring

Background

- Conventional patient monitoring requires clinicians to sequentially process and integrate multiple parameters which may delay recognition of critical changes and contribute to reduced situation awareness
- Avatar-based monitoring is designed to support faster perception and interpretation of patient status, including in situations where clinicians are not positioned directly by the monitor

Objectives

Compare avatar and conventional monitoring for recognition of vital sign changes when viewed from a distance.

Study design and methods

- Prospective, single-center, computer-based simulation study conducted at a Swiss academic hospital
- Within-participant comparison of avatar-based vs. conventional monitoring
- Participants viewed monitors at 8-meter and 16-meter distances
- Two predefined scenarios including 11 vital signs per scenario
- Outcomes included the number of correctly recalled vital signs and correct classification (too low/safe/too high)

Results

Vital sign recognition is significantly higher at a distance with avatar-based monitoring:

- 74% increase at 8 m ($p<0.001$)
- 51% increase at 16 m ($p<0.001$)

Milovanović P, Braun J, Hunn CA, Lunkiewicz J, Tscholl DW, Gasciauskaite G. Avatar-based versus conventional patient monitoring with distant vision: a computer-based simulation study. J Clin Monit Comput. 2025;39(5):1065-1075 doi:10.1007/s10877-024-01239-x