



# BCS-2026510 FW-HTF-P: Telemedicine at Scale: Expanding the Healthcare Workforce and Healthcare Access

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Objective in this planning proposal is to identify a clear set of hypotheses on the challenges for supporting and training the future telemedicine-assisted emergency health workforce, and the economic impact on healthcare costs if Telemedicine-at-scale was realized in country-wide care.

## WORKSHOP: THE FUTURE OF TELEMEDICINE IN EMERGENCY MEDICINE AND TRAINING

(1) All EMS programs have a difficult time retaining staff. Reduce burnout by introducing a new service model: visiting patients on a more regular basis, which can reduce the number of emergency calls.

(3) EMS workforce is lacking diversity. This is even though the genesis of EMS in the US is rooted in the training of Black people in 1960s Pittsburgh to provide a new type of mobile healthcare. Pipeline models have been shown to be successful.

## TELEMENTORING STUDY: FURTHER SYSTEM NEEDS IDENTIFIED

(1) *Instruction over a Dynamic World.* Guiding a physical task also led to changes in the physical world as the local worker modified it (e.g., assembles equipment). What we observed is instances of local workers associating new verbal instructions with old annotations that remote helpers had placed at a previous moment in time when the state of the world was different. Future work could explore how to mitigate this.

(2) *Improved Input Mechanism:* The actionpad also had limitations in that the remote helpers do not really know where they are drawing when they put their fingers down on the tablet. In our study, participants were hesitant to draw on the actionpad, as they had just a blank canvas. Therefore, they had to compensate by first pointing somewhere in the actionpad, then adjusted by looking at the result in the actionport.

(3) *Local Worker Virtual Interaction & Territoriality:* With HoloMentor 1.0 the local worker does not have control over the pointer or annotations. In the research PI Mentis has been conducting in telementoring in surgery, she has consistently argued for enabling equal ability to interact with a pointer and annotations on both sides.

## HOLOMENTOR SYSTEM DESIGN

AR HMD-based collaborative system designed for remote instruction over live mobile views during local worker's completion of physical tasks.

- (1) *Actionport:* to dynamically align a pointer on a live mobile view, i.e., without the need for the remote helper to freeze the view.
- (2) *Actionpad:* to provide a natural and intuitive indirect interaction mechanism for a remote helper to point and annotate within an actionport.

