

POSTER #18

Wearable Technology and Live Video Conferencing: The development of an affordable virtual teaching platform to enhance clinical skills education during the COVID-19 pandemic

Lauren Wintraub¹, Mary Xie¹, Mariam Issa¹, Yaanu Jeyakumar¹, Matthew Nelms¹, Deepanshu Sharma¹, Daniel Teitelbaum¹, Mirek Otremba^{1,2}, Giovanna Sirianni^{1,3,4}, Joyce Nyhof-Young^{1,3,5}, Fok-Han Leung^{1,3,6*}

¹ MD Program, Faculty of Medicine, University of Toronto,

² Division of General Internal Medicine, Mount Sinai Hospital,

³ Department of Family and Community Medicine, University of Toronto,

⁴ Sunnybrook Health Sciences Centre,

⁵ Office of Assessment and Evaluation, MD Program, Faculty of Medicine, University of Toronto,

⁶ Department of Family and Community Medicine, St. Michael's Hospital,

lauren.wintraub@mail.utoronto.ca

Introduction: Clinical skills education in medical schools has been limited by novel 2019 coronavirus disease (COVID-19) pandemic physical distancing requirements to online curricula, including videos of physicians performing history taking and physical exams along with clinical exam lesson guides. Point-of-view video and live video conferencing (VC) are potential modalities for addressing inherent limitations of online curricula associated with the loss of in-person interactions with patients and tutors. In this study, we trialed and evaluated the abilities of different pairings of electronic devices and accessories to capture physical exam demonstrations over VC. We aimed to identify an optimal device-accessory pair as a novel platform for remote clinical skills education.

Methods: We trialed seven different device-accessory pairings via recorded demonstrations of precordial or abdominal exams. Device-accessory pairs were evaluated according to the following criteria: visualization of physical exam maneuvers, ease of use, VC abilities, footage quality, and cost.

Results: GoPro[®] devices provided good footage quality and views but lacked direct VC capabilities and affordability. Tripods for smartphones and tablets provided only limited views. A chest-mounted smartphone scored highest on all evaluative criteria.

Conclusions: The chest-mounted smartphone with VC is an optimal setup for physical exam demonstrations. It provides excellent visualization of physical exam maneuvers, high quality footage, a user-friendly experience at a low cost, and exhibits great potential for interactive clinical skills teaching in real time. We are now engaged in a rigorous, user-centred, multi-phase evaluation study of this modality.