

PPE SAFE

- School of Psychology, Trinity College Dublin
- Beaumont Hospital · Bon Secours Hospital Cork · Tallaght Hospital
- Learnovate, Trinity College Dublin · Surewash

Background

- COVID-19 infection in HCWs is a critical risk factor in the healthcare system's ability to manage the COVID-19 pandemic.
- Appropriate PPE practices are critical to protect HCW from acquisition of COVID-19 in the workplace.
- Smith et al (2020) found that 90% of PPE practices by HCW were incorrect resulting in an increased risk of infection.
- After the 2014 EBOLA outbreak (Greenberg et al, 2015) identified that, in addition to sufficient PPE training, achieving a reduction in HCW infections requires a multidisciplinary response that addresses HCW fears, stresses, and the risk of burnout.
- Donning and doffing of PPE is a very stressful moment for HCW and there is considerable fear amongst HCW as regards their own personal health and safety.



- **Changes to the 'lived experience'** of HCW during COVID 19 - impact of PPE use on role, workload, teamwork, patient interaction.
- **Staying in good physical and mental health**, is essential to the response and management of COVID-19 (Smith et al, 2020).
- **Mindfulness** is being used to support HCW wellbeing and help 'reset' in these challenging times.
- **Potential for technological support** that will assist tired HCW be diligent in following the infection control protocols for Safe PPE use, along with using mindfulness to support their wellbeing.

Objectives & Endpoints

Objective

To engage in **human factors/stakeholder evaluation research** to build an evidence map regarding the requirements for two technology tools for use by HCW:

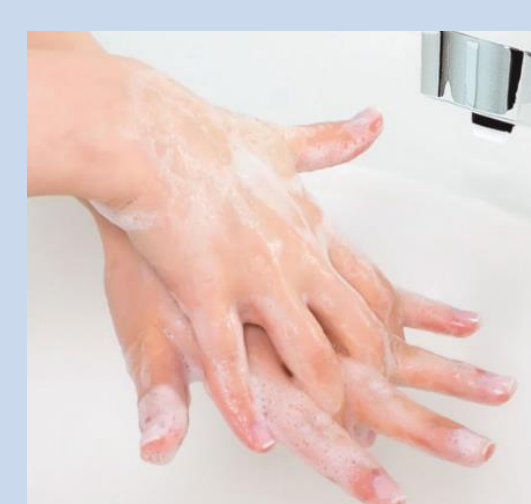
- **Mobile training app** (to support training at home)
- **Augmented Reality (AR) Kiosk** (to support practice/evaluation of learning + safe donning/doffing in clinical practice)

Endpoints

- HCW training requirements for PPE
- Lived experience of using PPE & delivering safe and compassionate care during COVID
- To specify the **requirements for technology tools** and their **implementation** supporting PPE training, safe PPE donning and doffing in clinical practice and **HCW wellbeing**

Mindfulness & HCW Wellbeing

- Mindfulness has been shown to reduce Stress, burnout and anxiety in HCW (Sancar, 2019; Krasner et al 2009).
- A key part of this human factors research is to identify how brief mindfulness exercises can be introduced into the donning/doffing task (**hand hygiene step**) and **incorporated in the two technologies.**



Contact

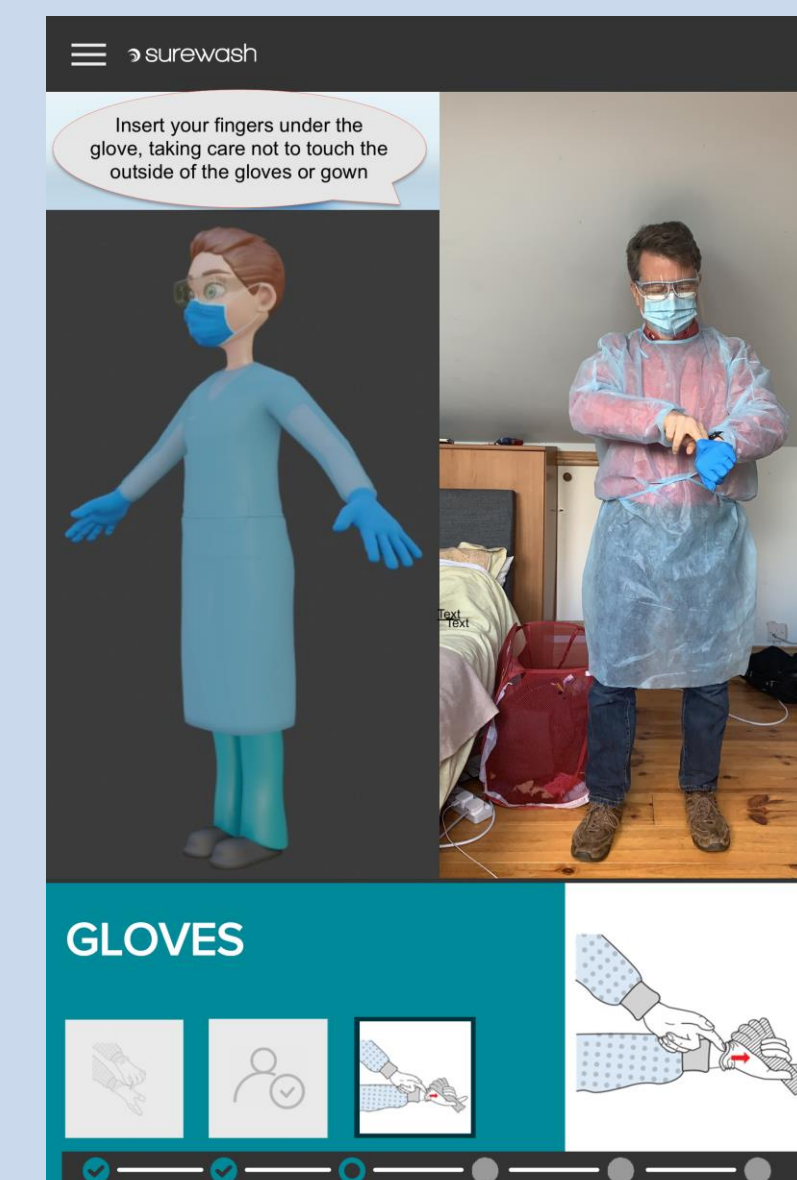
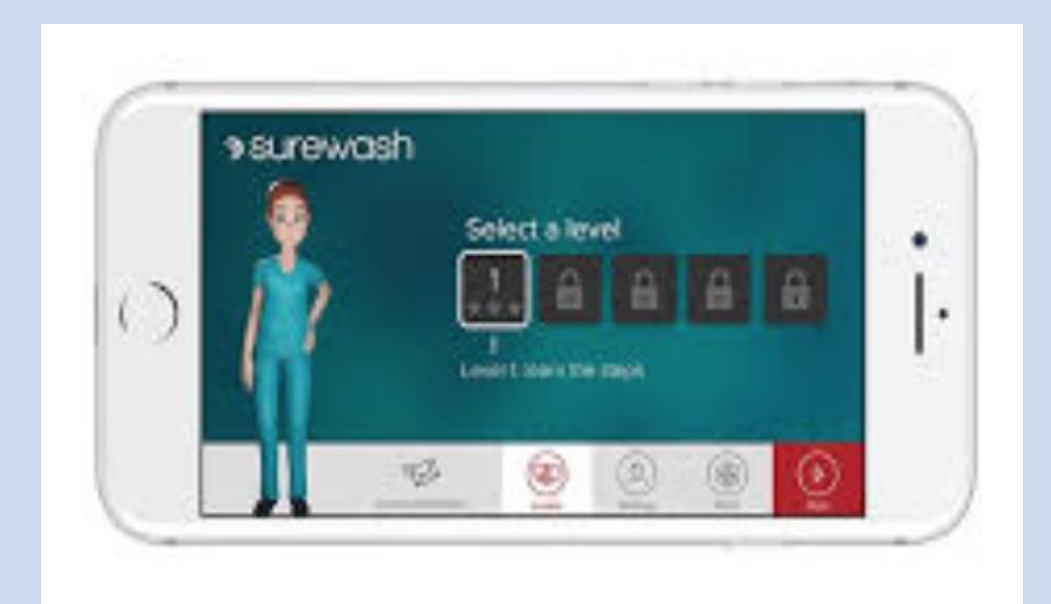
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Research Overview

- When** September to December 2020
- How** Semi structured interviews, co-design/evaluation sessions (using Surewash technologies & and group workshops
- Who** All health care workers (HCW)
- Sites** Beaumont Hospital, Bon Secours Hospital Cork & Tallaght Hospital

Technology

The **SureWash learning system** combines e-learning, gamification and patented gesture recognition technology to assist HCW to learn and memorize the WHO hand washing technique.



The **SureWash PPE Kiosk** assists HCWs in learning to don and doff PPE safely. It highlights the key risks and their mitigations and provides an automatic checklist to support safe donning and doffing. The system is also used to test HCW learning. Importantly, the system acts as a 'spotter' in clinical practice – providing task assistance and risk mitigation for HCW.

Personae and Scenarios

Scenarios and personae are useful for translating HCW lived-experience and needs into a user-friendly format to support stakeholder problem solving and technology specification.



Lived Experience

- "You are so tired when you take the PPE off"
- "Stress, claustrophobia, anxiety. It can be really really horrible"
- "You're with a patient when they are at their most vulnerable, but you've got a mask and gloves on. Human touch is not possible, it is really hard"
- "...aware of some staff with pressure sores on face from wearing masks"

Hazards

- "Buddy system can fall apart in alarm situation"
- "Two biggest things that do not happen to the correct standards is seal checking and doffing gown technique"
- "Big challenge – you have to look after yourself first – opposite of every instinct"

References

- Greenberg, N., Wessely, S. and Wykes, T. (2015) Potential mental health consequences for workers in the Ebola regions of West Africa – a lesson for all challenging environments, *Journal of Mental Health*, 24:1, 1-3, DOI: 10.3109/09638237.2014.1000676
- Krasner, M.S., Epstein, R.M., Beckman, H., Suchman, A.L., Chapman, B., Mooney, C.J. and Quill, T.E. (2009) Association of an Educational Program in Mindful Communication With Burnout, Empathy, and Attitudes Among Primary Care Physicians *JAMA*. 2009;302(12):1284-1293. doi:10.1001/jama.2009.1384
- Sancar F. A Cultural Sea Change: Mindfulness for Surgical Residents. *JAMA*. 2019;322(5):388-389. doi:10.1001/jama.2019.9999
- Smith, P.M., Oudyk, J., Potter, G. and Mustard, C. (2020) The Association between the Perceived Adequacy of Workplace Infection Control Procedures and Personal Protective Equipment with Mental Health Symptoms: A Cross-sectional Survey of Canadian Health-care Workers during the COVID-19 Pandemic: *Can J Psychiatry*. 2020 Sep 21:706743720961729. doi: 10.1177/0706743720961729.