Mindful hand hygiene and self-guided training using a Mobile Phone App

Dr Joan Cahill, Alison Kay & Vivienne Howard (School of Psychology, Trinity College Dublin, Ireland)
Ber Mulcahy and Siji George (Bon Secours Hospital, Cork, Ireland)
Prof Gerard Lacey (School of Computer Science & Statistics, Trinity College Dublin, & Surewash)
Richie Harte and Frank O Reilly (Learnovate, Trinity College Dublin, Ireland)
Rachel Nolan (Tallaght Hospital, Dublin, Ireland)
Fidelma Fitzpatrick & Eva Ziampra (Beaumont Hospital, Dublin, Ireland)
Problem Statement

- **Importance of Hand Hygiene (HH)**
  - Infection management (protect staff/patients)
  - Personal Protective Equipment (PPE) use
- **HH training**
  - HCW need accessible and user-friendly training for safe donning/doffing PPE - includes HH practice
  - Address error rate (hand hygiene & PPE Donning/Doffing)
- **Human Factors**
  - Lived experience of PPE (COVID) – burnout, fear, stress, anxiety
  - Need for self care for Health Care Workers (resilience, preventative approach)
  - Need to enable compassionate care
  - Benefits of mindfulness
Technology Opportunities & Research Objective

1. **Extend existing technology**
   - Hospital virtual learning environment (VLE)
   - Augmented Reality Kiosk (training in PPE donning/doffing)
   - Augmented Reality Phone App (training in HH)

2. **Proof of concept**
   (requirements for App - training mindfulness integrated with HH, link to overall PPE training)
Self Care & Mindfulness

• Staying in good physical and mental health, is essential for HCW during the COVID-19 pandemic and beyond

• Wellness as a protective factor for safe performance (PPE Donning/Doffing).

• Resilience to “prepare for”, “recover from” and “adapt to” stressful or traumatic situations and events.

• Brief mindfulness interventions success in impacting HCW stress, anxiety, and resilience in a positive manner (Gilmartin et al 2017).

• Preventative approach
# Methods

## Human Factors Action Research, 3 Clinical Sites

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<th>Method</th>
<th>Total Participants</th>
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<th>Beaumont</th>
<th>Tallaght</th>
<th>Other</th>
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Total Participants = 174
Learner Journey

- **Stage 1**
  - User setup
  - Registration
  - User Profile
  - Provide learner with learning plan/overview

- **Stage 2**
  - Theoretical Training
  - Interaction with VLE
  - Completing Modules
  - Set learning outcomes
  - Pass assessments

- **Stage 3**
  - Practical training
  - Interaction with Smartphone App
  - Interaction with Kiosk
  - Pass levels/assessments

- **Stage 4**
  - Training results on VLE
  - Receive certificate
  - Reflect on learning
  - Refresher training plan
Stage 3: Practical Training

User downloads and logs into smartphone App

Handwash training

Iterative Training

User completes practical HH assignments on smartphone App (Levels 1-5)

VLE scores record of completed theoretical training and directs user to complete HH practical training. VLE provides instructions for user on how to download and operate smartphone App.

Practical Training (PPE Donning)

User completes PPE donning training on Kiosk (3 levels)

Results of PPE Donning Training collected in VLE (Completion, attempts, timing) VLE directs user to complete PPE Doffing training on Kiosk

Practical Training (PPE Doffing)

User completes PPE donning training on Kiosk (3 levels)

Results of PPE Doffing Training collected in VLE (Completion, attempts, timing) VLE directs user to now go to the Kiosk and login using their details and complete their PPE training.

Results of HH training (completion, number of attempts, timings) sent to VLE VLE directs user to now go to the Kiosk and login using their details and complete their PPE training.

User logs into Kiosk
Mindful Hand Hygiene Approach

- Mindfulness is part of an overall training piece addressing **self-care**
- Storytelling: emphasis on compassion for self and for patient
- Differences between mindful hand washing and hand hygiene
- Integration with WHO steps
- **STOP**
- PPE Constraints & breathing (focus on sensations in hands/fingers)
- Integration of approach with other opportunities (1) golden moments, (2) 5 moments for HH and (3) HH as part of PPE donning/doffing
Mindful HH Training Using Phone App
Implementation

- Organisational commitment to worker wellness, staff safety and patient safety
- One of many training interventions for safe PPE & self-care
- HCW learner journey: level of information to be appropriate for full range of users (i.e., from novices and experts)
- Proven impact of mindfulness in other healthcare settings to be included in training
- Link to GRACE approach (Halifax, 2014) – “In protecting myself, I protect the patient”
- Trainees should be able to control the pace of learning
- Access for HCW with older phones
- Part of induction programme for all new staff
- Provision of APP for free (no cost to HCW)
Feedback from HCW

“It's a good idea to find some time for own wellbeing.”

“Great idea - to let all your stress go out.”

“Great to prepare for my journey home”

“I will be more focused it will refresh my mind”
Conclusions

- Initial validation – more to do
- Link to overall PPE training – and HH training using both App & Kiosk
- Mindfulness is important for HCW – preventative approach, COVID context
- Opportunity self-care and protection (staff and patient safety)
- Using the WHO HH technique in combination with the mindfulness exercise - bringing attention to the moment
- Acceptability of approach
- Positive feedback – training in mindful HH using Mobile Phone App
- Learner journey and implementation – self care, worker wellness, patient safety
- Further research: mobile phone App design & Implementation
Acknowledgements

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- Personal Protective Equipment (PPE) Safe, Sponsored by **Irish Government funded by Science Foundation Ireland**
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References:


Further Information

- [https://www.tcd.ie/cihs/projects/mindfulhandhygiene.php](https://www.tcd.ie/cihs/projects/mindfulhandhygiene.php)
- [https://surewash.com/](https://surewash.com/)
- cahilljo@tcd.ie