
Protecting children: co-designing child friendly PPE

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Service Improvement

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Summary

Although Personal Protective Equipment (PPE) is regularly used within paediatric settings, the COVID-19 pandemic has brought to light limitations in current PPE for clinicians working with children. PPE can be perceived as scary, unfriendly, confronting and de-humanising, creating a barrier between clinicians and their patients, affecting their ability to work with and assess children's

health needs. In this project the HEAL team have been working with Sunshine Coast University Hospital (SCUH) and Queensland Children's Hospital (QCH) to develop less frightening PPE for healthcare professionals to wear.

Key dates

Jul 2021

Jul 2021

Implementation sites

Queensland Children's Hospital, Sunshine Coast University Hospital

Partnerships

Queensland University of Technology

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Aim

The overall objective of this study was to determine if co-designed child-friendly PPE for health care professionals mitigates the identified issues and is safe, effective and acceptable from the perspective of end-users (including health care professionals, children and their parents or carers). This project aims to provide a deeper understanding of the views, experiences and preferences of children and their families. The ultimate end goal of the project is to develop less frightening PPE for health care professionals to wear.

Benefits

Specific benefits include:

- uncovering and understanding the experience of children of various ages, their families, and clinicians, of the therapeutic process when PPE is worn
- discovering the perceptions of and emotional responses of children, young people and their families to PPEs
- understanding health care professionals' perspectives of positive and challenging aspects of wearing PPE while interacting with children

Background

PPE has become a ubiquitous phenomenon – driven by the global pandemic of COVID -19. However, amid supply shortages, access issues and debate regarding the efficacy of PPE in a healthcare context, the voice of one group has remained largely silent – the children. There is very little peer-reviewed literature to guide best practice in this area.

Solutions Implemented

The project will look at using co-discovery, co-design and implementation principles in three distinctive phases of the project.

- PHASE 1: Contextual study, field study and product investigation. Methods include quantitative surveys and virtual field observations with retrospective interviews. To test the methodology, a pilot study utilising three simulations was conducted at one site. The simulations represented the therapeutic interactions between clinician, nurses, a parent and a

child in three scenarios of care: (a) inpatient, (b) outpatient, and a (c) negative pressure room. The pilot included: video recorded observations of the three simulations, and retrospective interviews with healthcare professionals who role played those simulations. These field observations were analysed using Observer (a specialised software for qualitative analysis in behaviour research) which facilitated the coding of each moment in the interactions. Findings from the survey and field observation analysis informed and generated new opportunities for PPE design, with a design sprint – by the design team – resulted in two early PPE designs: Sunny and Buddy.

- PHASE 2: This phase consists of co-design workshops with children, their families and clinicians to develop new PPE design ideas and design priorities – adopting a hands-on approach where designers and participants can work together in creating new designs.
- PHASE 3: Implementation and evaluation will focus on product development, including technical specification documentation, prototyping and testing, with a consideration of manufacturing requirements and testing the prototype against required standards.

Evaluation and Results

Pilot study

- The results from the pilot study were helpful to validate the coding scheme and methodology approach to the analysis of videos. In addition, insights gained from the pilot study informed a list of requirements and design opportunities for the design of new PPEs for paediatricians.
- The pilot validated the method and delivered two new designs as a result: Halo and Sunny.

Surveys and interviews

1. Preliminary results indicated clinicians found engaging children aged two to five years old much more difficult while wearing a mask and PPE (54%) compared to their experience pre-COVID-19 pandemic (14%).
 2. More than 78.% of health care professionals surveyed strongly agree that wearing a mask interrupts with their ability to interact with children.
- "My girl went super shy and didn't want to interact to start with. Took a bit to help her warm up to the staff when they were wearing masks and gowns" (Parent of child, aged two to five years old)
 - "Kids can be a little overwhelmed and scared by all the paraphernalia. It is also very easy to have PPE breach when trying to care for and console a crying, upset, sick toddler..." (Nurse)
 - "PPE can be very noisy and overly stimulating or anxiety-inducing for children with brain injuries, neurodevelopmental disorders or sensory differences. It can be hot, non-breathable and cause discomfort and sweating for the wearer with occasional personal hygiene challenges in some staff. It also limits therapists' ability to provide intensive therapy, as physical movement can be restricted or very uncomfortable" (Allied Health Care Professional)

Lessons Learnt

- build in timeframes to allow for ethics, in-person discussions, third party agreement and local governance approvals
- think creatively to address challenges working around clinical protocols, such as the field observations had to be conducted remotely - smart video tripods collected data via video
- much value afforded in bringing together a diverse and interprofessional team to generate innovative solutions to clinical challenges

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