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DESIGN4HEALTH

Melbourne 2017

Proceedings of the
4th International Conference on Design4Health
Melbourne Cricket Ground, Melbourne, Australia

4-7th December 2017

Editors: **Deirdre Barron and** Kurt Seemann

DESIGN4 HEALTH MELBOURNE 2017

Sheffield Hallam University

LAB 4 LIVING

Cover:
Jayden Ryles-Smith
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Preamble

Welcome to the first Design4Health Conference in Australia, convened by the Centre for Design Innovation, Swinburne University of Technology, on behalf of, and jointly chaired with, the conference founders, Lab4Living, Sheffield-Hallam University, UK.

The Centre for Design Innovation investigates and validates the key factors that underpin the design of products, services, systems, spaces, and symbols to improve the chance of user uptake and impact.

Lab4Living, who established the conference, is an interdisciplinary research initiative that develops products and environments, and proposes creative strategies for dignified, independent and fulfilled living for all.

This international event invited the world of health and design practitioners and researchers to come together between the 4th and 7th of December, 2017 in Melbourne, Victoria, Australia.

About the conference

Design4Health is an international conference that brings together designers, health professionals and creative practitioners with researchers, clinicians, policy makers and users from across the world to discuss, disseminate and test their approaches and methods in the ever-changing nexus between design and health.

The conference hosted a series of different events that provided an active forum to explore how the disciplines of design and health might intersect to bring forth new ways of thinking and working in what is a dynamic, innovative and increasingly important area of research and practice. The central question has been:

> How can we work together to achieve positive and sustainable impact on the social, economic and cultural factors within our communities and beyond?

The range and insights presented at the D4HMelbourne event has revealed both the enormous value of this movement in research, and the benefits from undertaking serious, applied, and critical efforts that design and health expertise generate when they come together.

We invite you to browse the innovative ideas and critiques scoped in these proceedings

Sincerely

Associate Professor, Kurt Seemann, PhD. | Convenor | Design4Health 2017

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Centre for Design Innovation, Swinburne University of Technology, Australia.
Faculty of Health, Arts and Design, Swinburne University of Technology, Australia.
Jean Hailes for Women's Health
Lab4Living, Sheffield-Hallam University, UK.
Melbourne Cricket Ground, Melbourne.
Ms Sarah Markey-Hamm and Ms. Siobhan Bahn, Conference Managing Agents, ICMS.
Peter Stacey, Human Scale

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Ms. Bridgette Engeler (Design4Health Melbourne Exhibition)
Dr. Gianni Renda (Design4Health Melbourne Exhibition)

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ICU journey: Humanising the patient experience of Intensive Care

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Keywords

Intensive Care, humanising patient experience, personalising patient experience, patient care, Orientation.

Introduction

Intensive Care Units (ICU) are spaces designed to look after patients with life threatening conditions; they provide life-support, extensive therapies and continuous monitoring aiming to preserve life and return patients to good health. Despite this, the mortality rate is high (Critical Care Statistics. 2017). The clinical intensity and invasiveness of this highly medicalised and technology-dependent environment can be intimidating and threatening for patients. Moreover, the patient's physical and mental condition—compounded by medication—can make them vulnerable to disorientation, sleep deprivation and hallucinations, the effects of which remain with the patient long after their medical recovery. Ensuring that people have a positive experience of care is one of NHS England's National Outcomes Framework key domains. Achieving this is a challenge in most ICUs (Framework Domains. 2017).

Working in partnership with four hospitals in England, we have co-developed a tablet-based application—called Senso—aiming to reduce the psychological effects of Intensive Care by enabling clinicians, carers and patients to personalise some aspects of their environment.

Background

The collaborative team of designers and clinicians have undertaken a 24-month long project looking to improve the experience of patients and relatives in ICU. The project laid out the foundations for a new scalable solution aiming to address some of the major problems experienced by patients going through ICU.

Drawing from previous research and anecdotal evidence from staff and patients at the participating hospitals, the starting point for the research team was to bring balance between the heavily medicalised ICU environment and the basic, yet complex, emotional needs of patients and carers.

Research shows that a great number of patients suffer from hallucinations and delirium, leaving them in a state of confusion and disorientation, exacerbated by the difficulty they have in sleeping; noisy and often over-lit wards make matters worse (Avinash Konkani, Barbara Oakley 2012, 522.e1–522.e9). It is well documented that a high

percentage of patients suffer from psychological disorders even years after being discharged from ICU (Post-traumatic stress disorder after intensive care. 2013).

Methods

The project was structured around the *'Double-Diamond'* framework—a research and design methodology involving four stages of divergent and convergent thinking (Design Council. 2005)—and divided into two 12-month phases.

During the first 12-month phase, the team performed primary research in four hospitals in England. The team developed an understanding of the problem from the point of view of different stakeholders including patients, relatives and clinicians. Findings were clustered in ten areas:

1. Orientation
2. Sleep deprivation
3. Motivation
4. Anxiety
5. Involvement of relatives
6. Dignity
7. Communication
8. Boredom
9. Hallucinations
10. Senses

Further analysis through co-design workshops distilled three design questions:

Positive sensory disruption: How might we stimulate the patient's senses in a positive way in order to help reduce the incidence of hallucinations and delirium, and improve the overall experience of the ICU journey?

Orientation: How might we help patients overcome disorientation and confusion and establish a personalised routine that draws insights from their preferences and normal activities, supported by relatives and staff?

Information and space utilisation: How might we help carers and relatives better navigate the ICU environment and understand the key role they might play in delivering care for patients?

Guided by the experience of a steering group, the second phase of the project explored creative solutions to answer the briefs. Through co-design workshops involving a ICU Patient Support Network Group, the team prototyped and tested ideas. After two cycles of iteration, requirements for a minimum viable product were outlined.

Outcome

The outcome is a digital application that provides a personalised sensory experience for the patient named Senso. The first version has been designed for patients going through

planned admissions; future development will focus on the more challenging needs of emergency patients.

To initiate Senso, patients go through an onboarding process preoperatively; this includes the selection of images, sounds and smells that will be made available to them in the ward. A key objective of this process is to help patients understand the ICU environment prior to admission.

After onboarding, Senso generates a moodboard from the selected images and videos. This not only provides a familiar view for the patient but can also help staff to engage personally with the patient. A daily schedule helps relatives understand the patient's day-to-day activities and progress. Furthermore, Senso provides patients with a daily routine, supporting them through their journey from leaving the operating theatre through to the point of discharge from ICU. Our hypothesis is that by providing structure to the patient's day we will help in orientation and engagement.

Results

Feedback sessions were conducted with ten patients (5 females and 5 males) staying in ICU between 24 hours and 7 days. Sessions consisted of a structured questionnaire about their current ICU experience followed by a demonstration of the application. Responses were encouraging, patients thought Senso may improve their stay by reducing anxiety and providing better orientation. An additional focus group session with five participants aimed to evaluate the onboarding process. The session was further informed by a structured questionnaire, which helped to draw key insights for the next phase of development.

Next steps

Initial testing indicates that Senso has potential to improve outcomes. Our work has been recognised with the Environment of Care Award in the 2017 Patient Experience Network National Awards. The team now aims to perform wider testing and improve the application. A route for testing will be to make Senso available to the wide network of ICUs that have shown interest in our research so they can offer it to their patients. Further funding is being sought for this and to develop a version for emergency admissions.

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