

# Inclusive Design in Healthcare

A blurred photograph of a hospital ward. In the foreground, a person in blue scrubs is walking towards the camera, their figure out of focus. In the background, another person in blue scrubs stands near a window. The ward is filled with hospital beds, medical monitors, and equipment. The room has light blue walls and a large window with red frames. A clock is visible on the wall above the window.

Jonathan West  
Reader in Healthcare Design,  
Helen Hamlyn Centre for Design | Royal College of Art

Who we are

Why Design Matters

Design Framework

Case studies of Inclusive Design

Conclusions

Who we are

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Design Framework

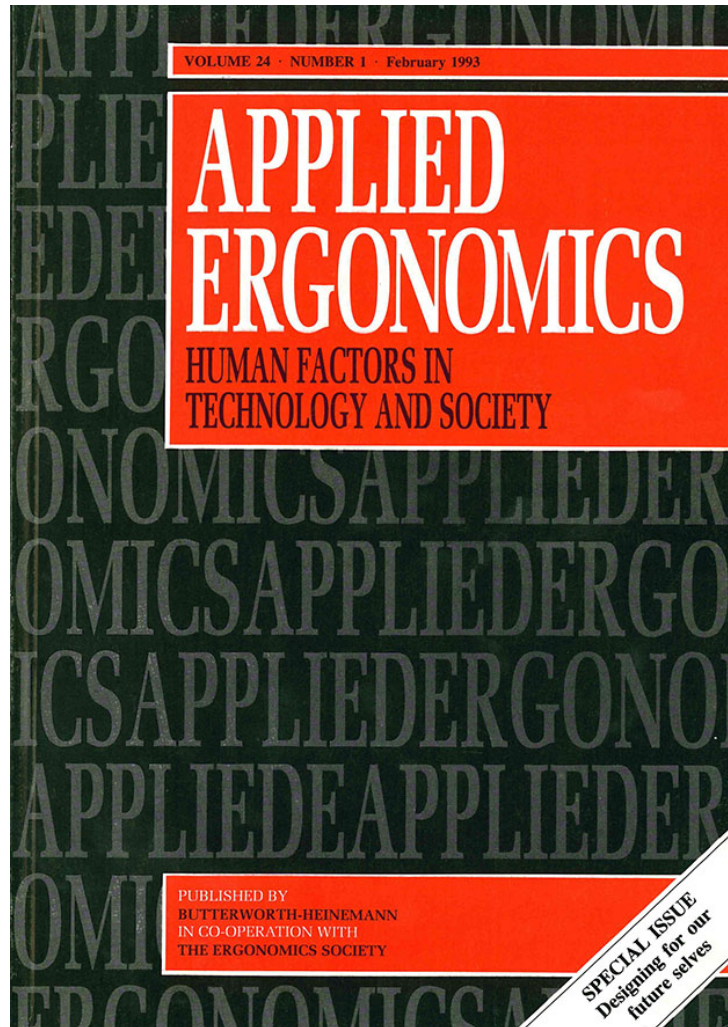
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# The Helen Hamlyn Centre for Design



# 25-year History



## designingwithpeople.org

This web-based resource has been created by the Helen Hamlyn Centre for Design at the Royal College of Art to share ways to design with people. Get started by meeting real people and exploring a range of activities of daily living. On this site you can review design methods, develop protocols for ethical practice and contribute your own ideas.

We welcome your participation, please contribute to this website here...

Home People Activities Methods Ethics Contribute

Home  
About  
The Methods Lab  
Ethos  
Team  
Contact

### Getting Started

**People**  
Meet real people who represent a range of capability

**Activities**  
Explore insights drawn from daily living activities

### Practical Resources

**Methods**  
Choose the right research methods for your project

**Ethics**  
Your guide to the moral maze of ethical practice

This website is one of the outputs of the i-design project.

**helen hamlyn centre for design**  
Royal College of Art

i-design project partners:  
Helen Hamlyn Centre for Design Royal College of Art  
Engineering Design Centre University of Cambridge  
The Well-being Institute University of Cambridge  
Loughborough Design School University of Loughborough

# Business Driven



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## Community Facing



# Public Facing





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Keep out of reach of children

# MERCILON TABS

21  
EVERY NIGHT BEFORE FOOD ONCE DAILY TO BE  
TAKEN FOUR TIMES A DAY THREE TIMES A DAY  
EVERY THREE TIMES DAILY TAKE ONE TAKE TWO  
TAKE THREE ONE OR TWO

Warning: follow the printed instructions you have been  
given with this medicine.

31 May 11 [REDACTED]

Pat 33967 P [REDACTED]



28 **Omeprazole 20mg caps**  
3 of 3  
ROSE CHEMIST  
140 Upper Street, London N1 1BU Tel: 0207 226 4716



28 Capsules





123.5 x 180.5mm



# DESIGN FOR PATIENT SAFETY

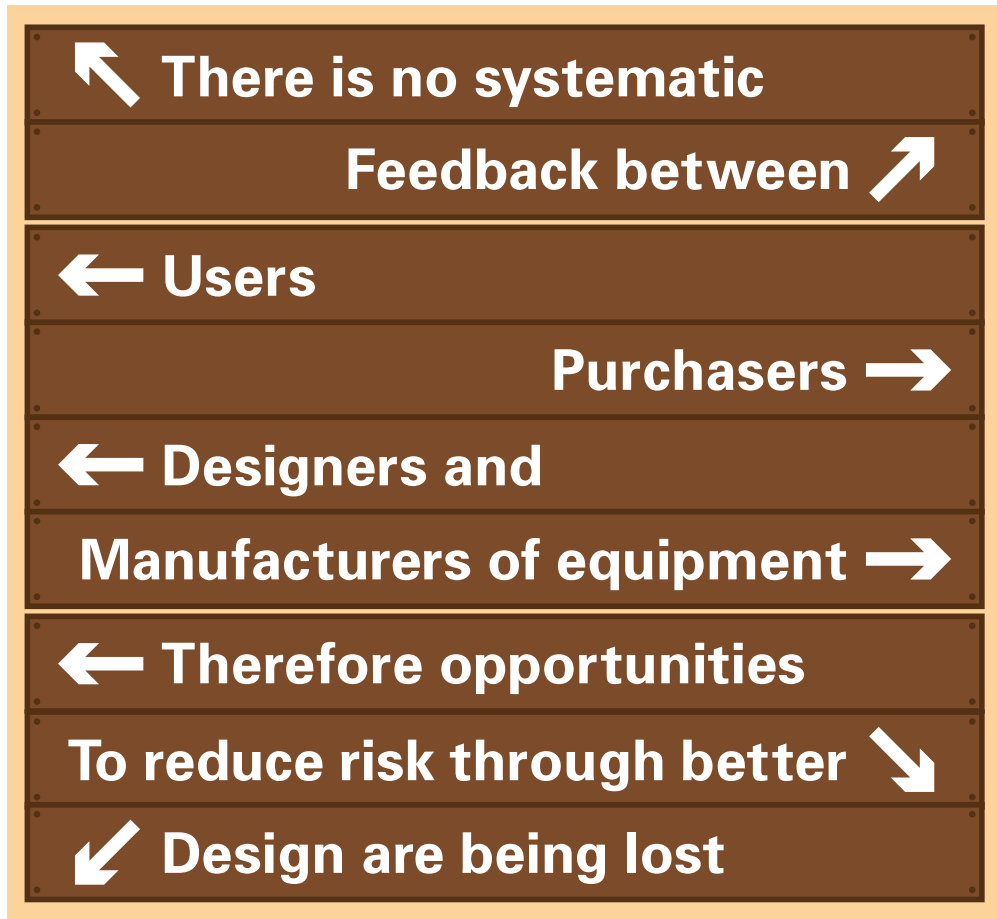
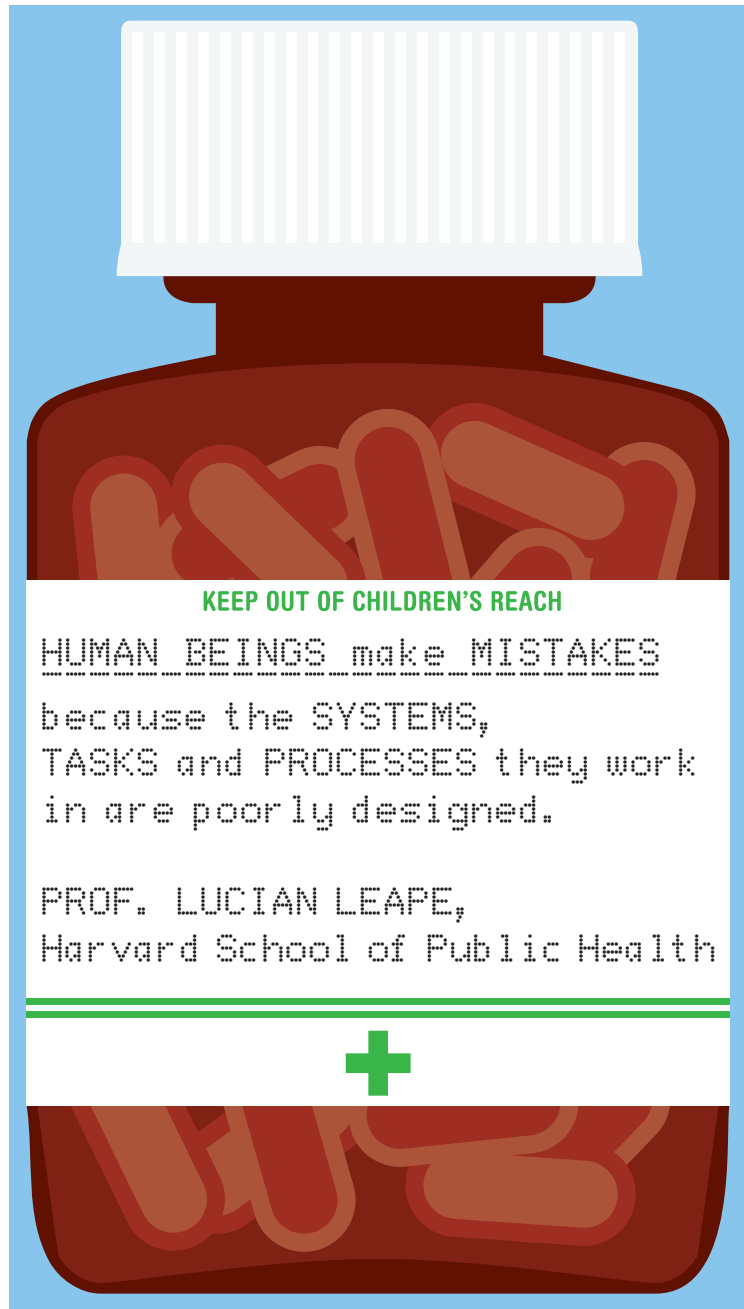
## A SYSTEM-WIDE DESIGN-LED APPROACH TO TACKLING PATIENT SAFETY IN THE NHS

This report sets out a perspective from the world of design - based on a scoping study carried out by a research team from the Universities of Cambridge and Surrey and the Royal College of Art - to identify previously unrecognised opportunities for improved patient safety in the NHS.



84 pages  
5 chapters  
12 images  
1 diagram





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**Discover**

**Define**

**Develop**

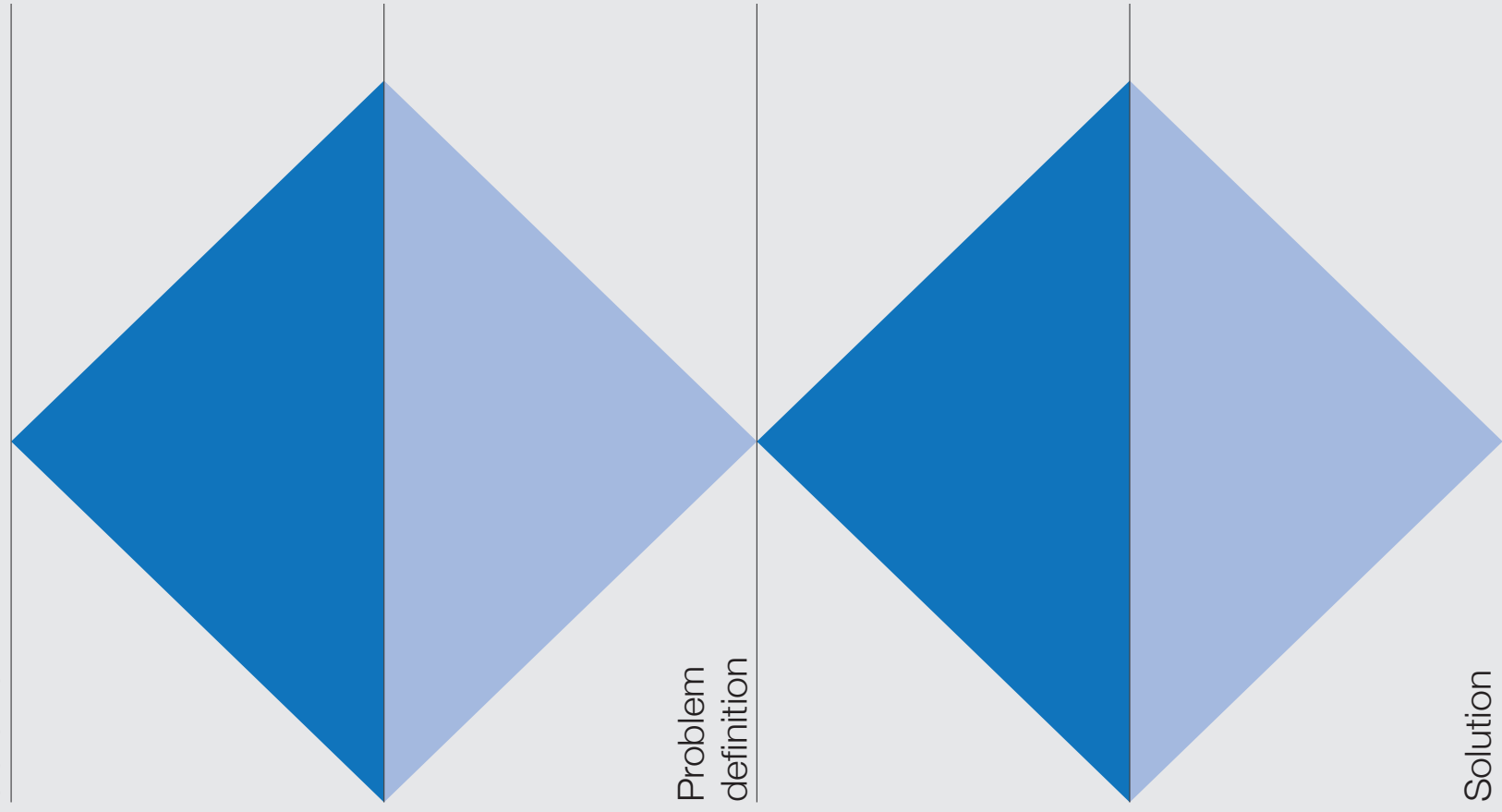
**Deliver**

Problem  
statement

Problem  
definition

Solution

Proposition



**Discover**

**Define**

**Develop**

**Deliver**

Problem  
statement

Problem  
definition

Solution

User  
research

Evidence  
base

Brief

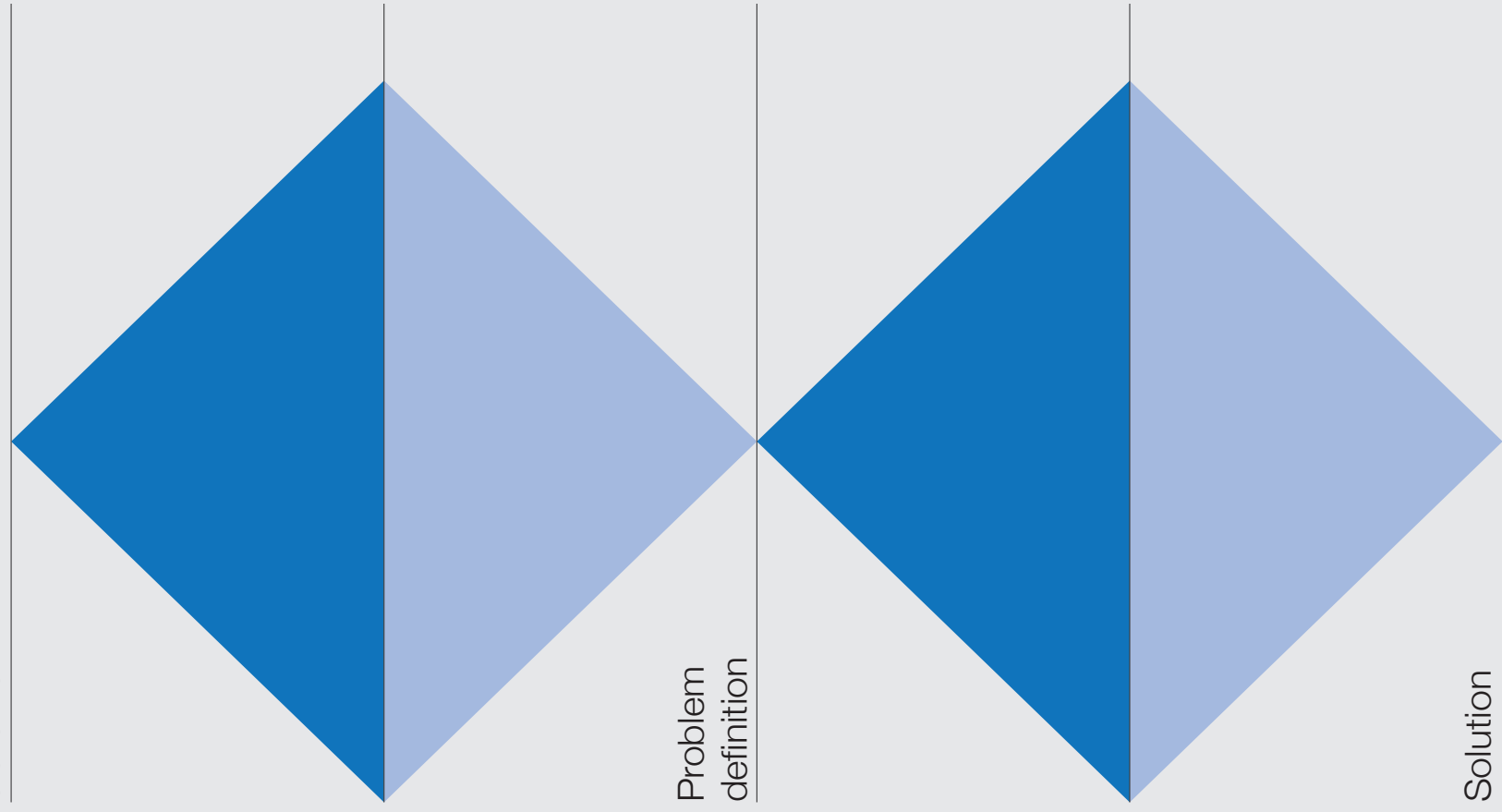
Co-design

Prototype

Co-evaluate

Proposition

Feedback











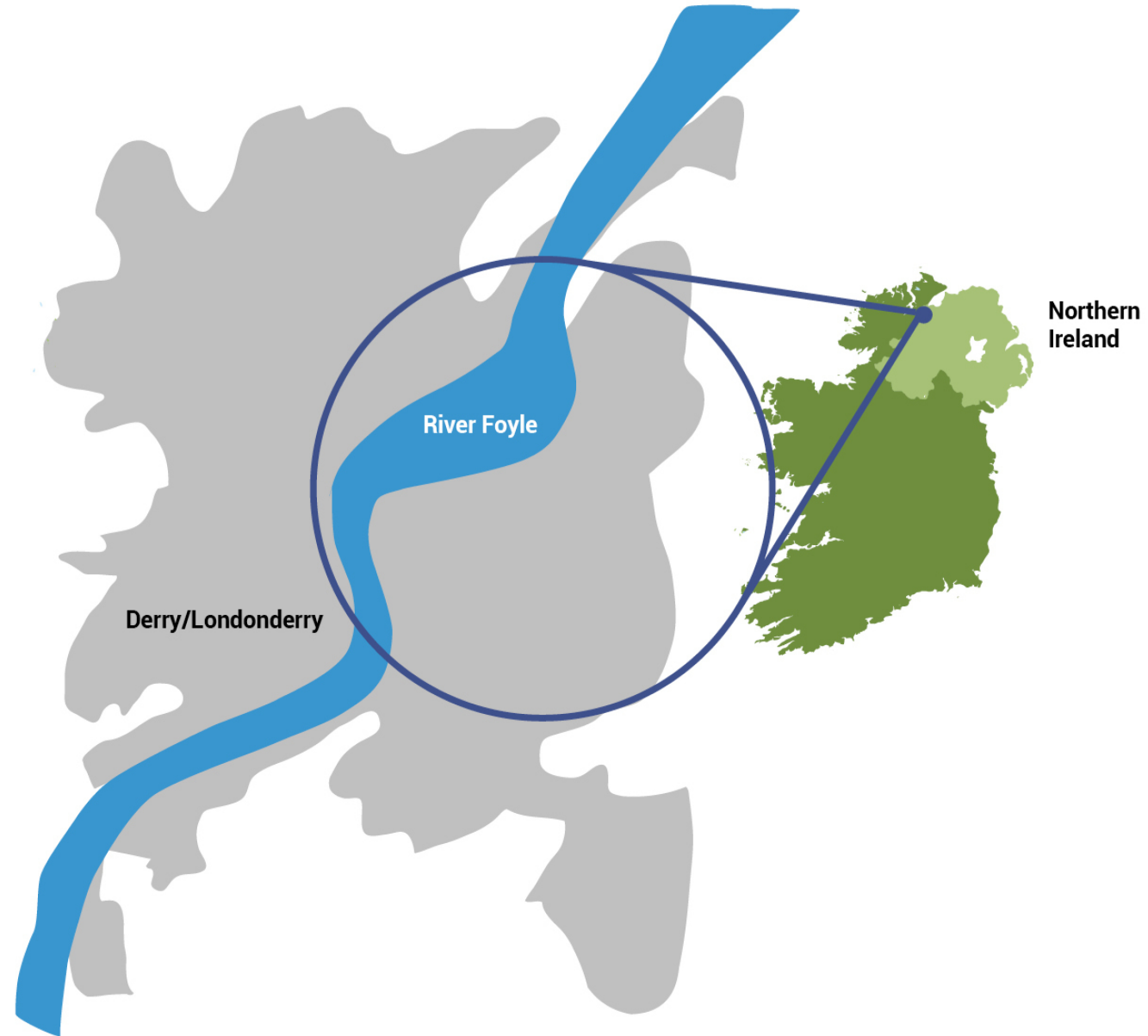
**THE ALCOHOL STAR PACK**

Inside these bottles there are a selection of tasks and questions. Feel free to add your contributions, add others and generally have your say. You can't do anything wrong and it is just great to get your thoughts into alcohol dependency in general and Portsmouth's Alcohol Services. Each sheet should take about a cup of tea to complete! please enjoy the bottles while you do so!

Thank you much for taking part,  
Stacy May  
Alcohol Support @ P.A.D.  
Research Associate  
Any questions please email:  
stacy.may@portsmouth.gov.uk

Please write any extra comments or info I should know about on the holder. If you do please include it in the envelope.

**THE ALCOHOL STAR PACK**



River Foyle

Derry/Londonderry

Northern  
Ireland



















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# Violence & Aggression **in A&E**

clinical care



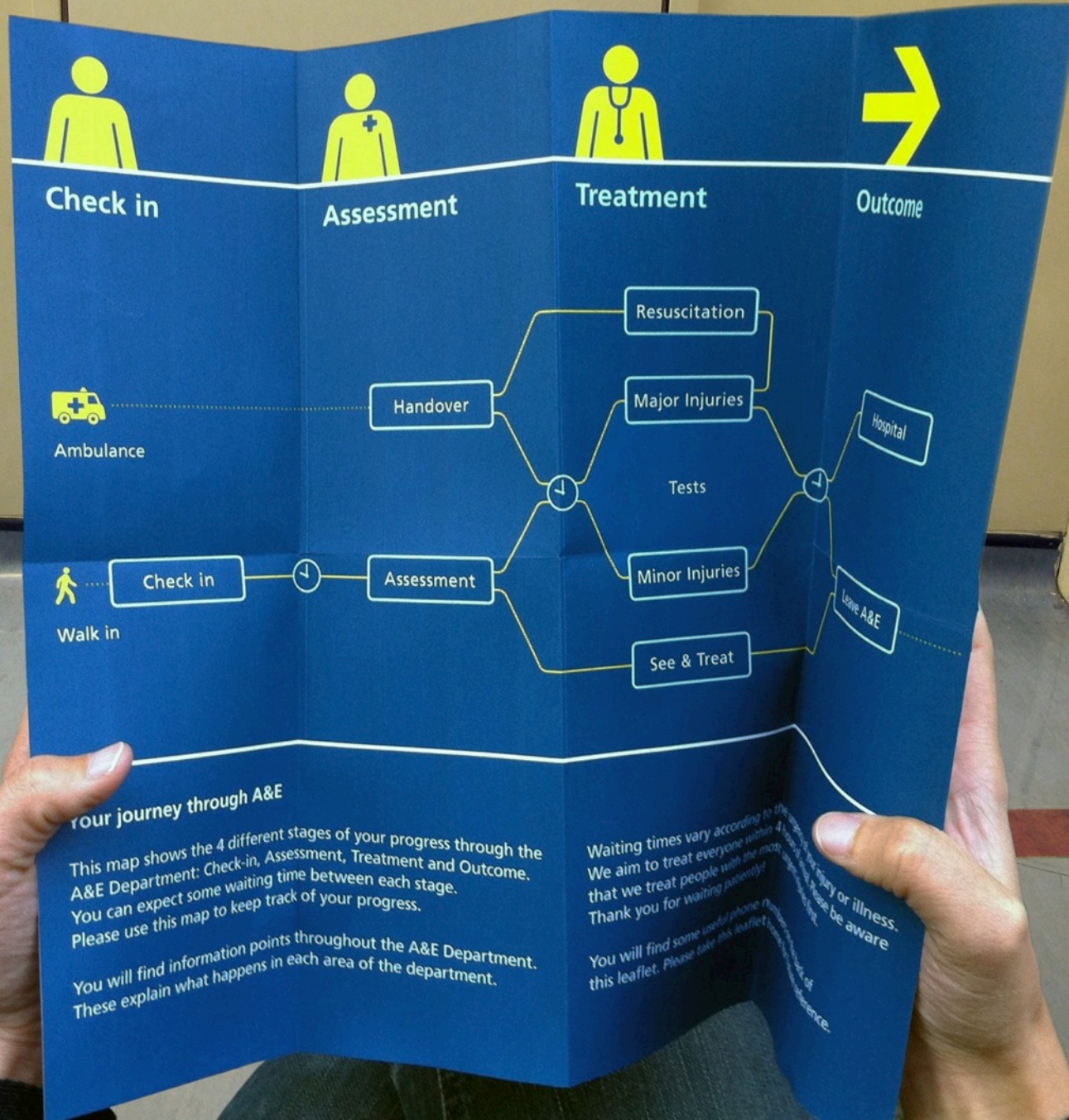
©ESRO/Andy Smith 2011

patient needs









### Your journey through A&E

This map shows the 4 different stages of your progress through the A&E Department: Check-in, Assessment, Treatment and Outcome. You can expect some waiting time between each stage. Please use this map to keep track of your progress.

You will find information points throughout the A&E Department. These explain what happens in each area of the department.

Waiting times vary according to the number of people waiting. We aim to treat people with the most serious injury or illness. Thank you for waiting patiently. Please be aware that we treat people with the most serious injury or illness. Thank you for waiting patiently. Please be aware that we treat people with the most serious injury or illness.

You will find some useful phone numbers on this leaflet. Please take this leaflet with you for reference.



**88%**  
of patients felt the Guidance project clarified the A&E process.

**75%**  
of patients said the improved signage reduced their frustration during waiting times.

**↓ 50%**  
Threatening body language and aggressive behaviour fell by 50% post-implementation.

**3:1**  
For every £1 spent on the design solutions, £3 was generated in benefits.

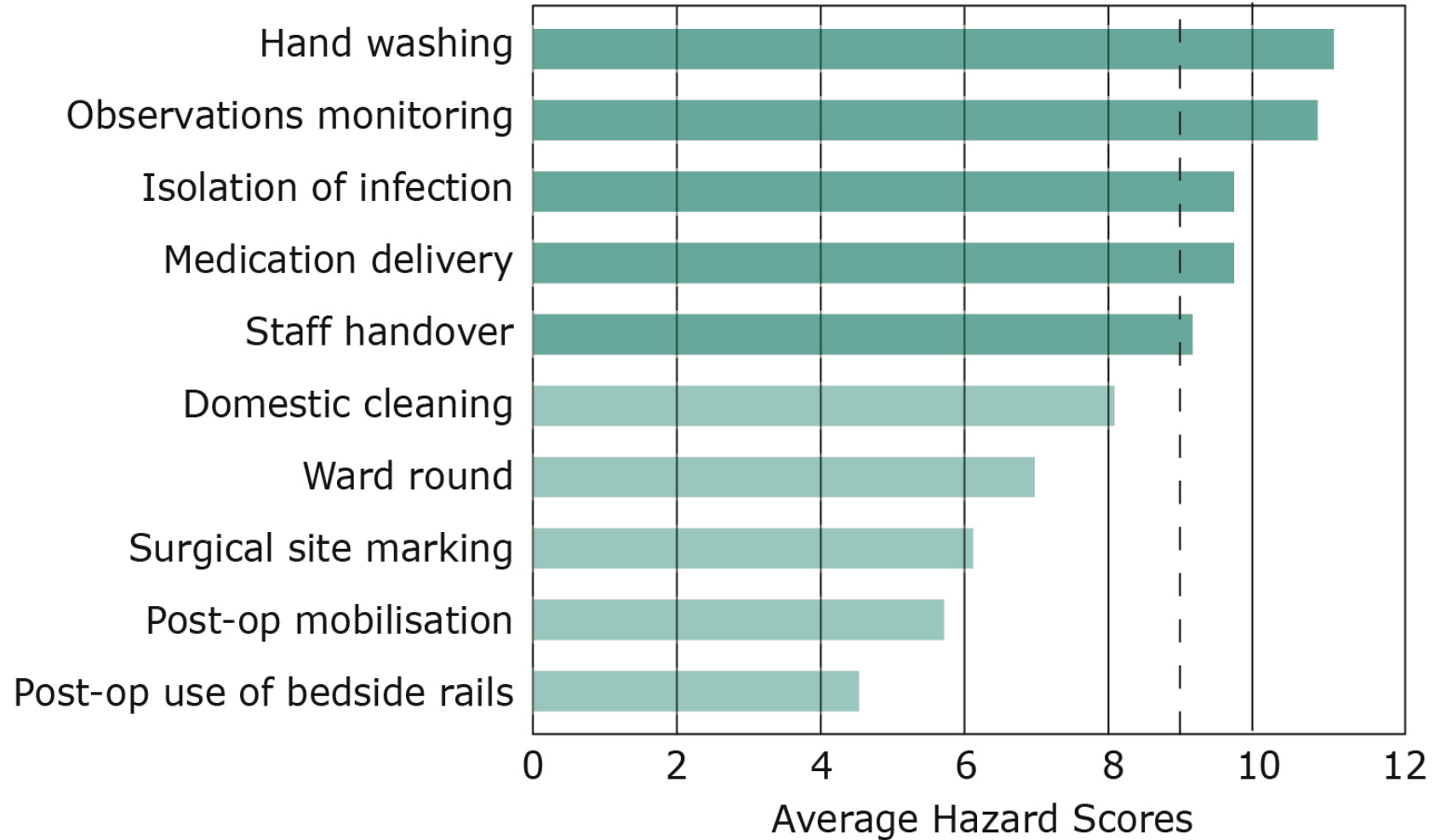


Patients' complaints relating to information and communication fell dramatically post-implementation.



Designing Out Medical Error

# HAZARD SCORES





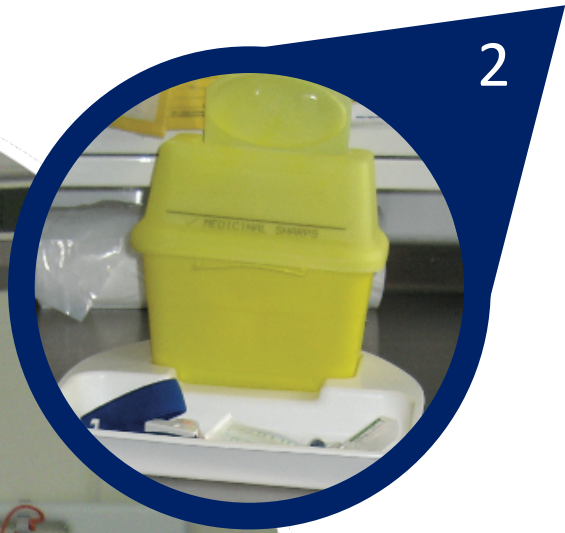
PHYSICIAN OFFICE  
Room 21 →

Day Case Unit

21



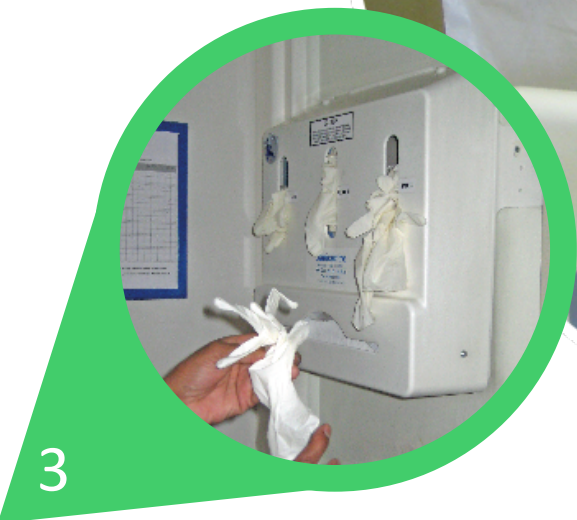
1



2



- 1. Patient medication locker
- 2. Nowhere to put sharps bin
- 3. Gloves and apron out of bedside
- 4. No flat surface for writing



3



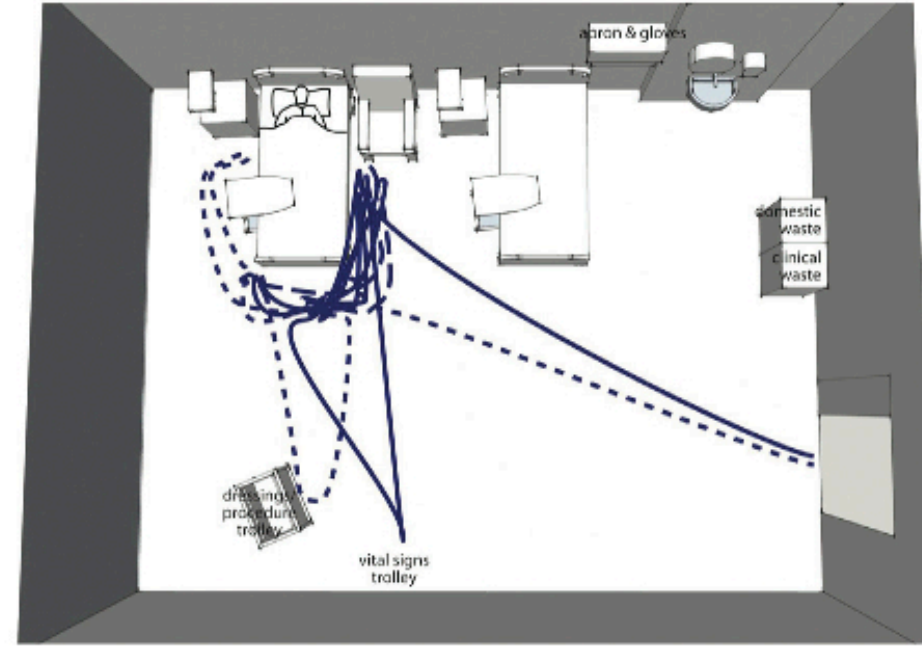
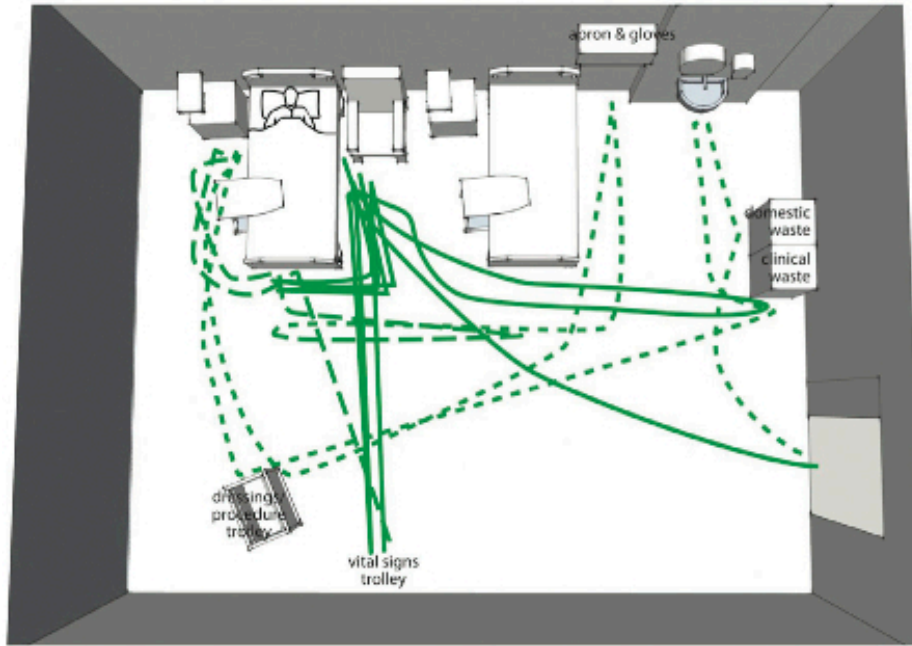
4







# Simulation study: link analysis



## Clinical trial

Hand hygiene compliance increase **x3**

Correct use of gloves increase **x3**

Correct use of aprons was **67%** with the CareCentre and **0%** without

CareCentre implementation will help reduce healthcare associated infections.





Bristol Maid   
Hospital Metalcraft Limited

**Flomark™**  
THE DRIP REDESIGNED







Less than 15% of infusions were within +/- 10% of desired rates, while only 21% of observations fell within +/- 20% of desired rates.<sup>1</sup>

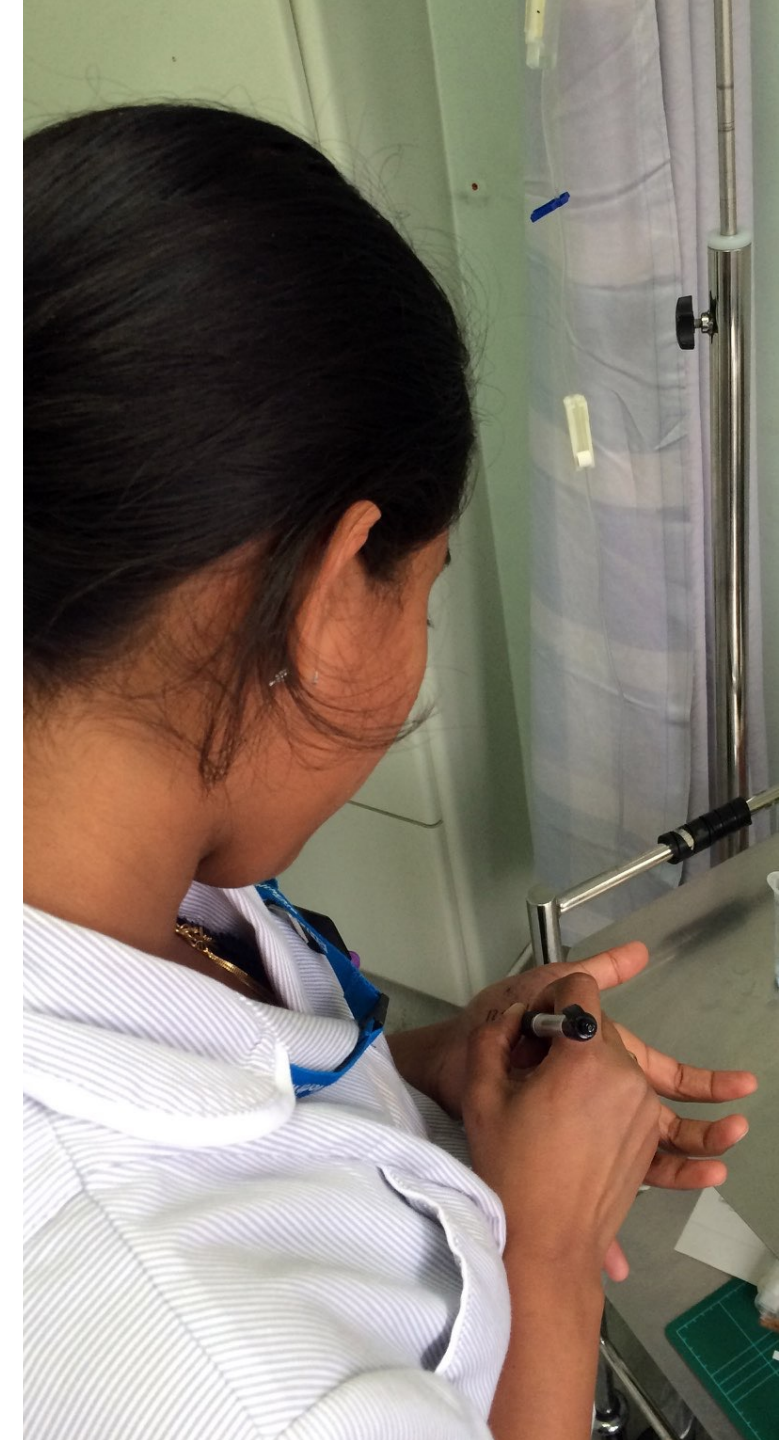
Approximately wastage of US\$ 3.98 per patient per 24-hours infused.<sup>2</sup>

Staff time wasted on calculations & inefficiencies

Extended patient stay

1. In vivo accuracy of gravity-flow i.v. infusion systems, RE Crass and Vance JR, American Journal of Health-System Pharmacy February 1, 1985 vol. 42 no. 2 328-331

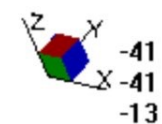
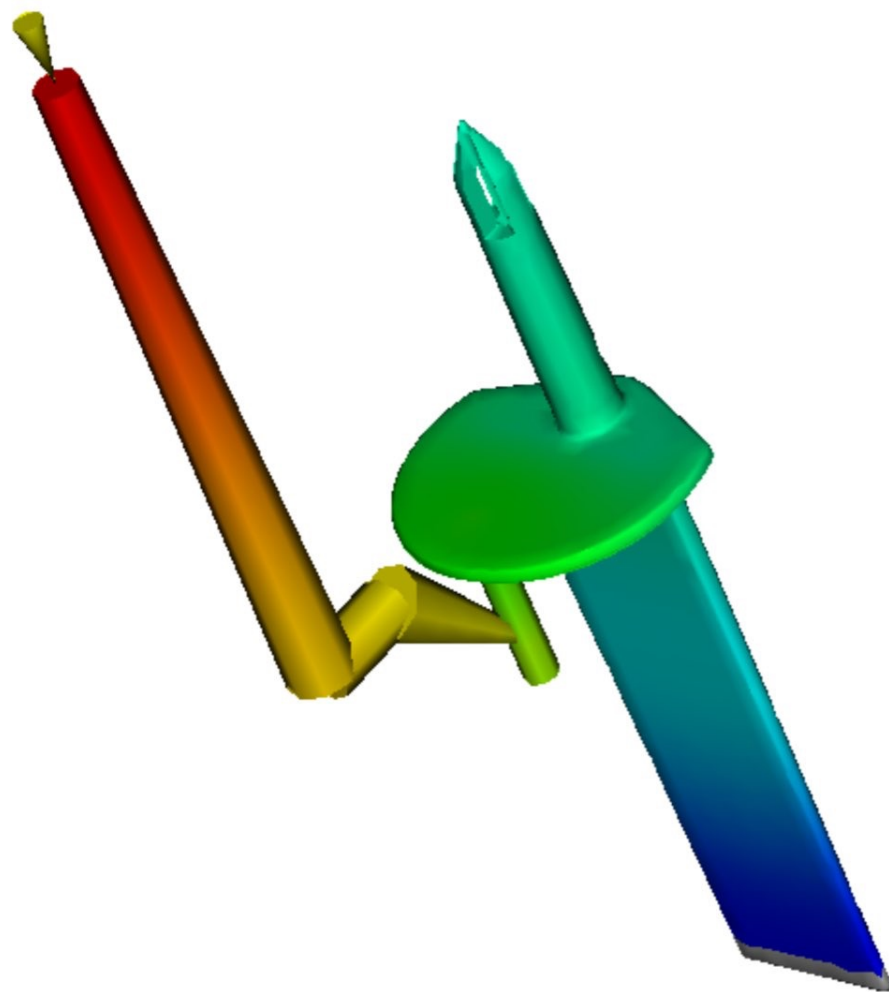
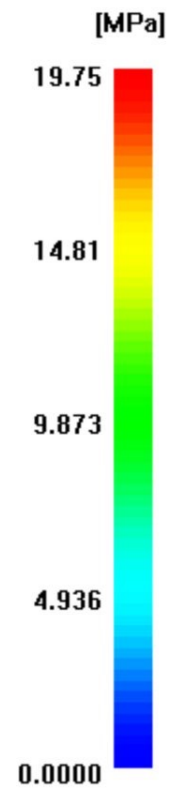
2. [http://www.varori.co.za/infusion\\_problem.htm](http://www.varori.co.za/infusion_problem.htm)







速度/压力切换时的压力  
= 19.75[MPa]



缩放 (50 mm)

Design for manufacture

Trials

Regulatory

Licensing

Links with procurement

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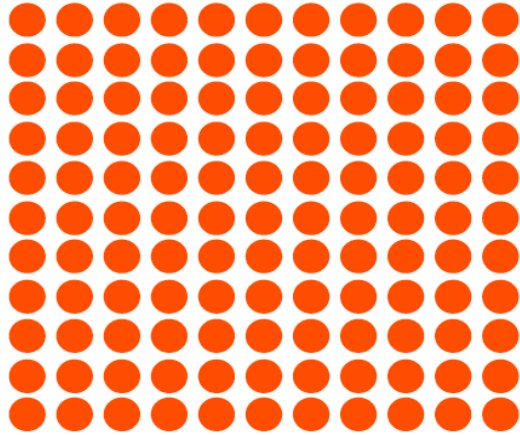
Conclusions

Subjects

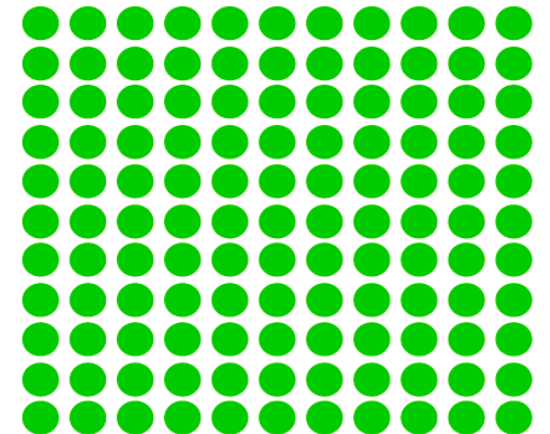
Truth

Inspiration

Traditional  
Market  
Research



Empathic  
Research



Derived from presentaton by Martin Bontoft (IDEO)

**Discover**

**Define**

**Develop**

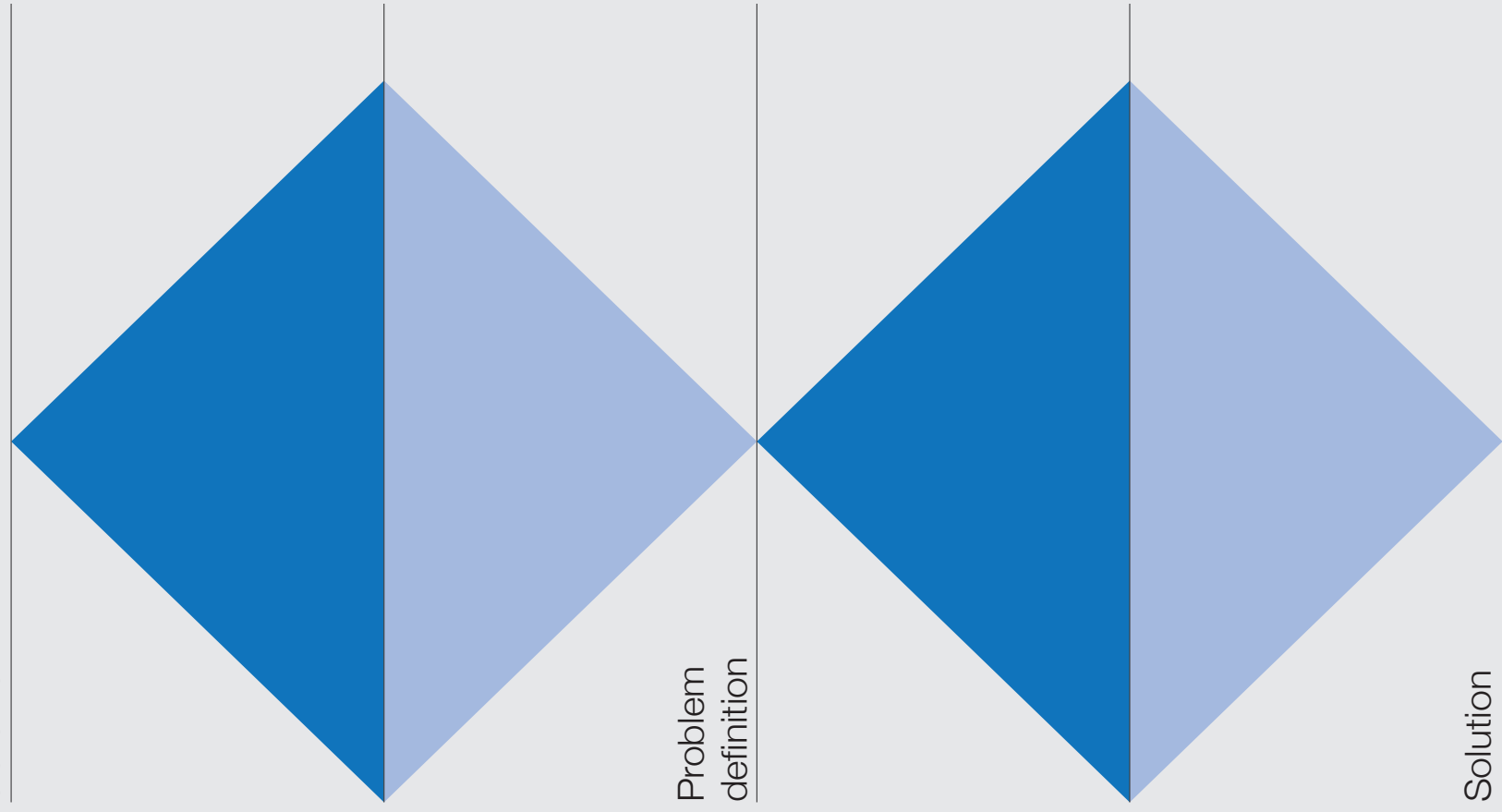
**Deliver**

Problem  
statement

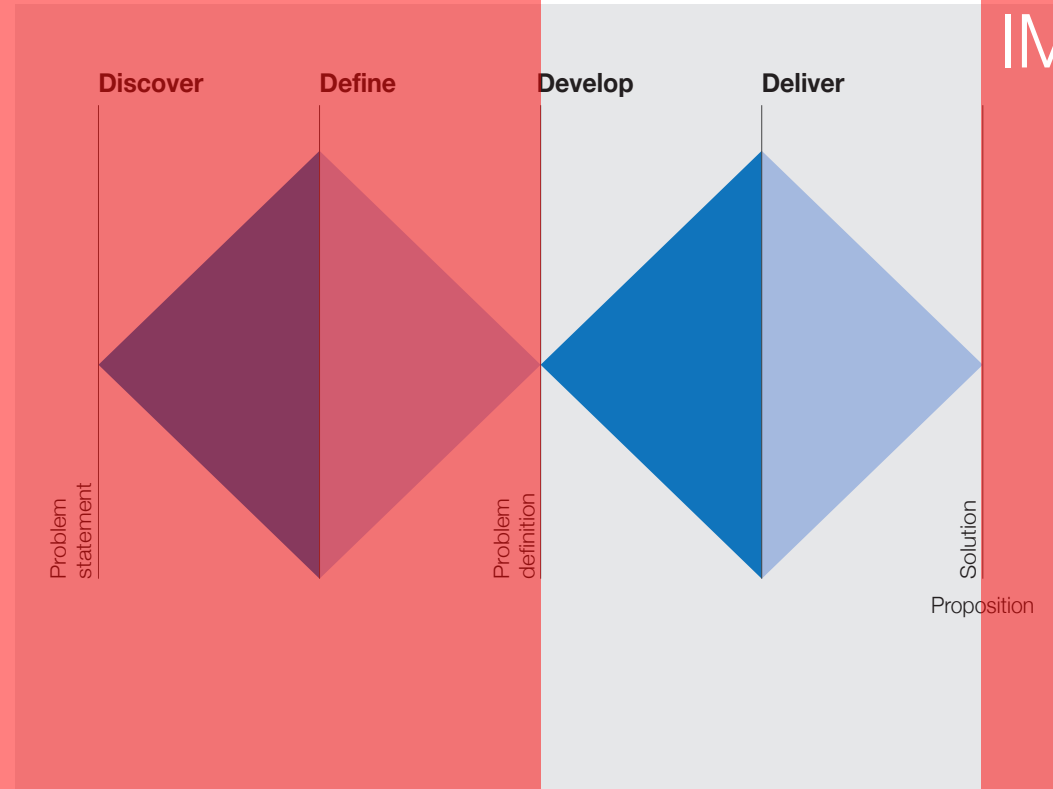
Problem  
definition

Solution

Proposition



# SCIENTIFIC METHOD – NEEDS GATHERING



# SCIENTIFIC METHOD – TRIAL & IMPLEMENTATION

A blurred photograph of a hospital ward. In the foreground, a person in blue scrubs is walking towards the camera, their figure out of focus. The ward contains several hospital beds with white and blue frames, some with monitors and medical equipment attached. A man in blue scrubs stands in the middle ground near a window. The room has light blue walls, a clock on the wall, and large windows with blue curtains. The floor is highly reflective, showing the overhead lights and the people in the room.

Design research is bespoke

Insights into human element

Different design disciplines, collaborations and outputs

In parallel with scientific method

# Thank you



**Jonathan West**

Leader, Healthcare Lab, Helen Hamlyn Centre for Design

Royal College of Art

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[hhcd.rca.ac.uk](http://hhcd.rca.ac.uk)  
@HHCDesign

# Design Bugs Out



# The Challenge



# Insights



## Exploration, Shadowing, Observation, Interviews



# Brief Generation



Ground Research, Desk Research, Workshop

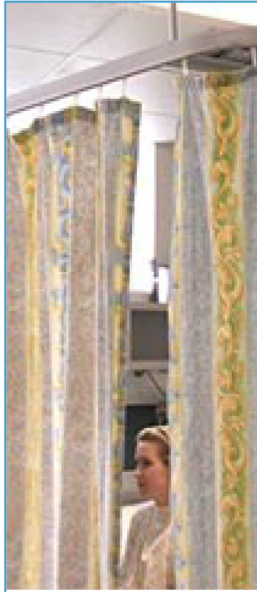
# Our Six Design Briefs



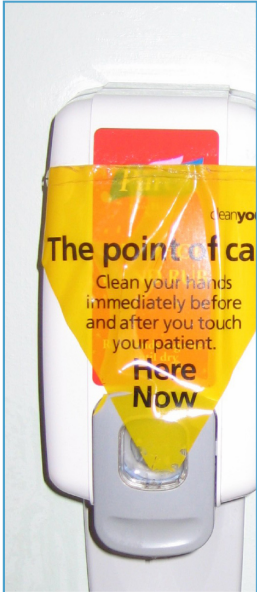
Blood Pressure Cuff



Pulse Oximeter



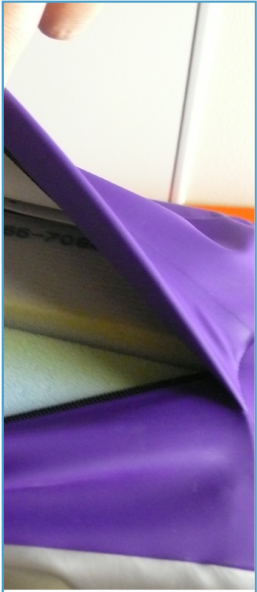
Curtains



Patient Hygiene



Invasive Procedures



Mattress

## Blood Pressure Cuff



Problem

## Blood Pressure Cuff



Problem



Solution

## Invasive Procedures



Problem



# Invasive Procedures



Problem



Solution

# National Showcase and Feedback



gameChange  
Improving lives through VR therapy





**6** SCENARIOS

**5** LEVELS

**30** MINUTE TREATMENT

VIRTUAL COACH

Allows people to evaluate their expectations and learn that they are 'safe enough' in everyday situations





Design workshops around the UK

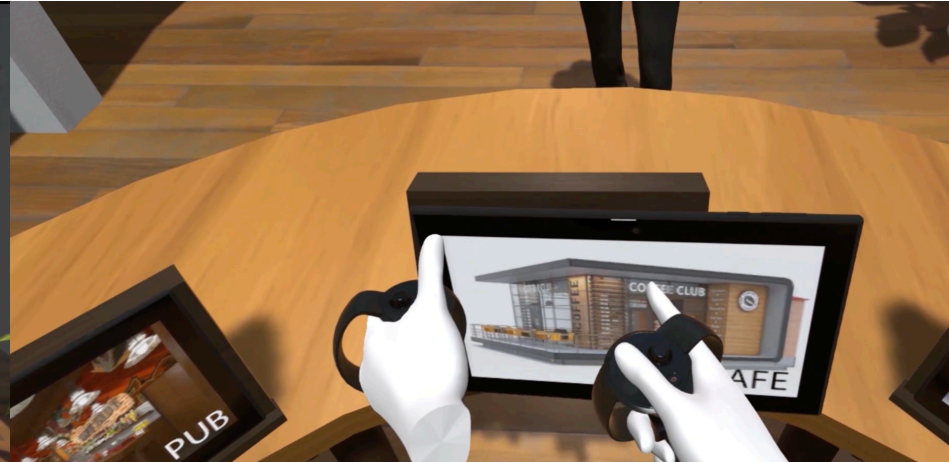
Smaller weekly workshops

Meetings with developers

Internal workshops

Building prototypes

## Therapist House



## Café Scenario





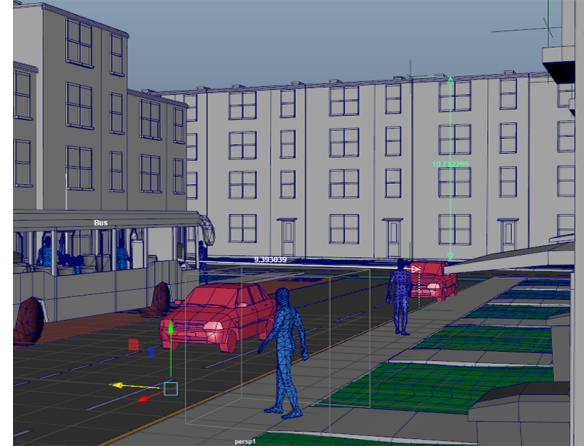
# PROTOTYPE DEVELOPMENT

## LEVEL DESIGN

-Creating friendly and stress relief spaces

## REALISTIC DIMENSIONS

-Getting the right measurements for each level



# THERAPIST PRESENTATION

## FLOATING TABLET

-Therapist being placed as a video



## FULL BODY FORM

-Therapist standing in front of the user

