

A person wearing a white lab coat is holding a tablet computer. Their hands are visible, with one hand supporting the tablet from the bottom and the other hand touching the screen. The background is blurred, showing a white mouse on a desk and a window with light coming through. The overall scene is bright and clinical.

# Embedding patient safety into digital health innovation

**Clive Flashman**  
Chief Digital Officer  
Patient Safety Learning

**19 May 2022**

patient  
safety  
learning }

# We need to design for safety, not just address harm



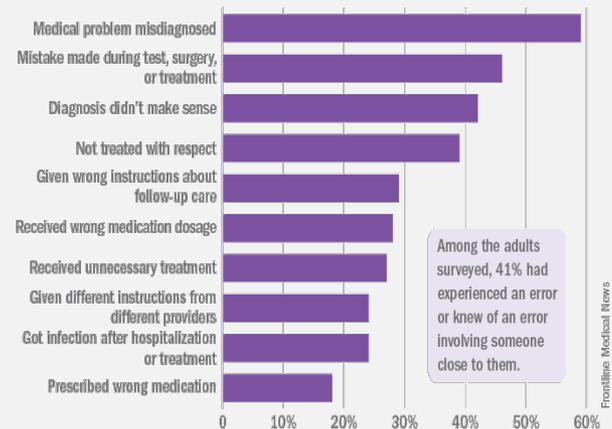
Safety is a core purpose	Competency framework for all staff
Leadership commitment to safety	Patient safety and human factors expertise
Safety standards	Engage patients
Design safe systems	Learn from errors and act
Safety comparison data to drive out variation	A Just Culture; psychologically safe

# Types of errors and issues that cause avoidable harm



- ✓ **Diagnostic errors:** wrong, missed or delayed diagnosis
- ✓ **Medication errors:** prescribing, omission, unauthorised drug, wrong dose, wrong route, deteriorated drug
- ✓ Inadequate **hand hygiene and infection control** leading to hospital acquired infections
- ✓ **Unsafe surgery** such as wrong site surgery – complications in up to 25% of patients (1m deaths a year); 50% unsafe surgery is preventable
- ✓ **Communication** and information errors
- ✓ **Insufficient staff, tired, not properly trained**
- ✓ Very many more.....

Patient survey: 10 most common medical errors



Note: Survey was conducted May 12, 2017, to June 26, 2017, and received 2,536 responses.

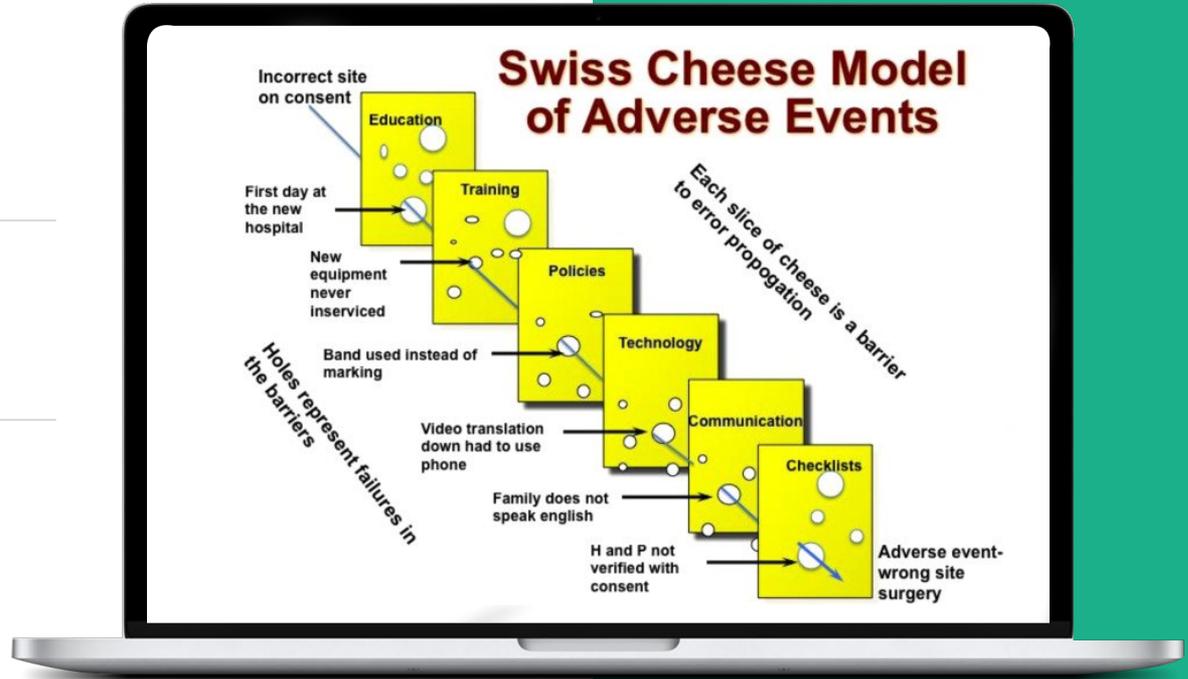
Source: NORC at the University of Chicago and IHI/NPSF Lucian Leape Institute

# Why do errors happen?

Model by  
**Prof. James Reason**

Healthcare is  
extremely complex

There are holes in the  
defences/ cheese slices



# Digital health innovation

Generally, founders and innovators have the following priorities:



If the solution is patient facing, then patient safety should also be one of these core aims, but it rarely is.

Developing their idea into a prototype



Ensuring that it addresses a real market problem



Finding places to pilot their solution



Commercialisation – sales and funding



Building a team



# Service and product design should be system focused

## Your opportunity

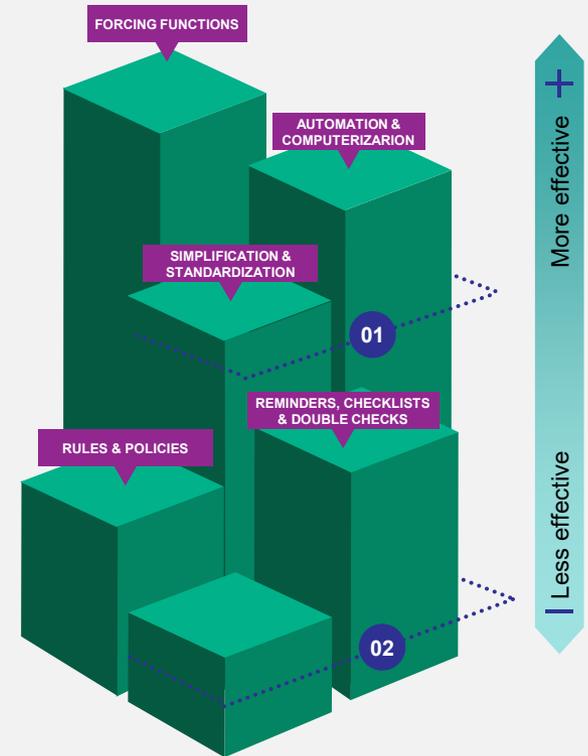
### ✓ Most effective: system focused

- Forcing functions
- Automation & computerisation
- Simplification & standardisation

### ✓ Least effective: people focused

- Checklists
- Rules and policies
- Education and Training

## Hierarchy of Improvement Intervention Effectiveness



01 System-focused      02 People-focused

# Human Factors and Ergonomics takes a systems view

*The scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data, and methods to design in order to optimize human well-being and overall system performance*

Chartered Institute of Ergonomics and Human Factors



# Human factors and ergonomics takes a systems view

## Learning from other industries and High Reliability Organisations



Safety goals need a whole organisation approach



Safety management systems



Detect and understand the hazards and risks



Proactively make changes to minimise risks



Learn from errors order to prevent their reoccurrence



Understand human factors



# Innovating in a high reliability industry sector



01

**Commitment to resilience**



The digital solution must remain accessible during high-demand periods

02

**Preoccupation with failure**



To avoid failure, plan for it, look for it and be sensitive to early signs of it

03

**Reluctance to simplify interpretations**



Acceptance that healthcare is complex, and solutions may be used in unexpected ways

04

**Deference to expertise**



Listen to professionals on the front lines and to patients who know their conditions expertly

05

**Sensitivity to operations**



Be aware of the context and situations in which the digital solution will be used

# 5

## Very basic principles

patient safety learning

Talk to **ALL** relevant front-line staff who actually do the job



Think about what **can go wrong**



As far as possible, **simplify and standardise**



Always take a **system-wide perspective**



Focus on how we can design work to **make it easier, safer and more efficient**



**Paul Bowie,**  
NHS Scotland  
Education and CIEHF



# Involve patients and the public in design

## Patient engagement for patient safety

Every day thousands of patients suffer harm in health care



Be actively involved in your own care



Be informed, ask questions.



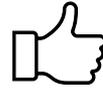
Provide full information about your medical history



**Speak up**  
for patient safety!



Service or product design



Service or product testing



Designing for improvement



Safety *in use*



If things go wrong;  
reporting and learning

# HealthTech and patient safety: key issues



## Placing patient safety at the heart of design and development

- ✔ Patient safety should be a key priority that helps drive innovation forward.

- ✔ Safety implications should be raised early in the development process with founders and those who support them, such as NHS England Clinical Entrepreneurs Programme and the AHSNs.



## Key challenges for HealthTech innovators and companies

- ✔ Balancing embedding safety in development processes without stifling innovation.
- ✔ Ensuring data is as 'joined up' as possible for the benefit of patients and clinicians.
- ✔ Avoiding existing biases being carried over/ amplified in new developments, e.g. AI systems embedding racial biases in diagnosis.
- ✔ Working within the constraints of a health and care system facing serious workforce shortages – developing solutions that take account of this.

# My ten top tips for digital health innovators

- 1 Start with the problem, not the solution.
- 2 If your solution is patient-facing, consider how it will be used, and the diversity of potential users.
- 3 Always consider human factors and ergonomics. This is more than just UI/ UX.
- 4 Don't just do a clinical safety review (DCB0129) on launch, do it 1 year post launch too.
- 5 Take patient safety seriously, have a person on the team who understands the potential risks to patients when your solution is used.

- 6 Design safety into your solution from the outset.
- 7 Co-design and co-produce with patients and the public (and health & care staff as appropriate).
- 8 Interoperability is key – by any means necessary.
- 9 Review the new patient safety standards when they are issued and consider the implications for your solution.
- 10 Understand concerns about privacy and data use, balance these against contextualisation.





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# The new Patient Safety Standards Self-Assessment Toolkit

- ✔ Can be done at organisation (Trust) and/ or unit (hospital) level

- ✔ Covers all 7 foundations, 26 aims and 140+ standards

- ✔ Easily saved and continued later

- ✔ Will create a patient safety-specific document library for you as you add documents and links to the tool

## Improve your standards by meeting ours

Introducing an evidence-based way to deliver safer patient care



# Using the toolkit

## Welcome to the Patient Safety Standards Self-Assessment Toolkit.

We hope you find this website valuable in assisting your progress on your journey to improved patient safety within your organisation.

Here you will be able to access a set of unique patient safety standards (and over time support tools too) that can help your organisation not only establish clearly defined safety aims and goals, but also demonstrate your achievements.

View how many standards of each type (Essential, Enhanced, Exemplary) your organisation and units currently meet, and from this create your own goals for improvement.

Within the self-assessment you will be able to upload relevant documents and paste external links to salient materials. These will be brought together in a simple document library that means that all of your organisation-specific patient safety documentation can be curated in a single place

### Foundation 1: Leadership and Governance

Aim 1: Patient safety is a core purpose of the organisation (patient safety is central to priorities for service delivery, investment, reporting and

#### Standard 1.1 - Commitment

Level: ESSENTIAL

There is an explicit commitment to patient safety in the organisation's mission statement, which is made available to the public

#### Standard 1.1 - You should have... (Outputs & Evidence)

- Document(s) containing the mission statement
- Reference to the mission statement in patient information
- Availability of the mission statement on the organisation's website

#### Standard 1.1 - You will want to see... (Outcomes & Behaviours)

- Board, Executive and staff members able to articulate the organisation's commitment to patient safety and give examples of what this means

Standard 1.1 met?

Choose...

### Foundation 2: Culture

Aim 7: The organisation's leadership fosters a patient safety culture and tackles blame and fear (There is a just and learning culture throughout the organisation)

#### Standard 7.1 - Definition and charter

Level: ESSENTIAL

The Board has defined the culture it wants to deliver safe care, with a charter of principles/values for patient safety culture

#### Standard 7.1 - You should have... (Outputs & Evidence)

- The Board-approved culture charter is widely disseminated and applied
- Culture reported publicly in annual reports
- Values and principles included in job descriptions for all staff (NHS, contractors, volunteers etc)
- Written principles and standards of behaviour with implementation plan and regular review
- Actions to maintain/improve safety culture

#### Standard 7.1 - You will want to see... (Outcomes & Behaviours)

- Executives and managers demonstrate the right skills and support to deliver a safety culture, including HR support
- Everyone demonstrates behaviours reflective of a just and learning culture
- Behaviours that don't meet standards are addressed

Standard 7.1 met?

Choose...

# Initial Output

