Embedding patient safety into digital health innovation

Clive Flashman
Chief Digital Officer
Patient Safety Learning

19 May 2022

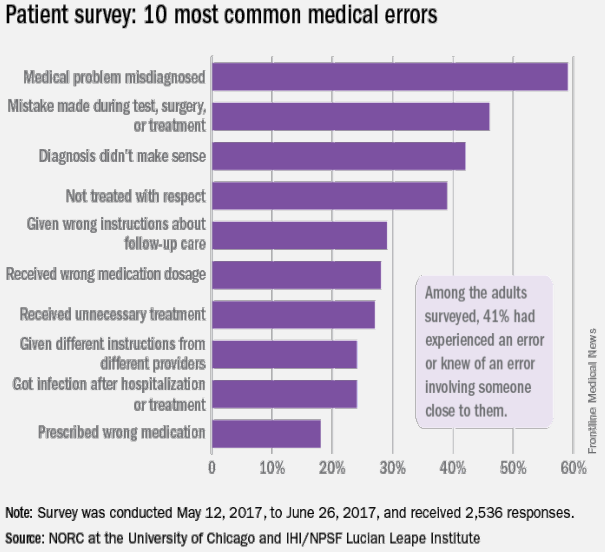
patient safety learning

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…..



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

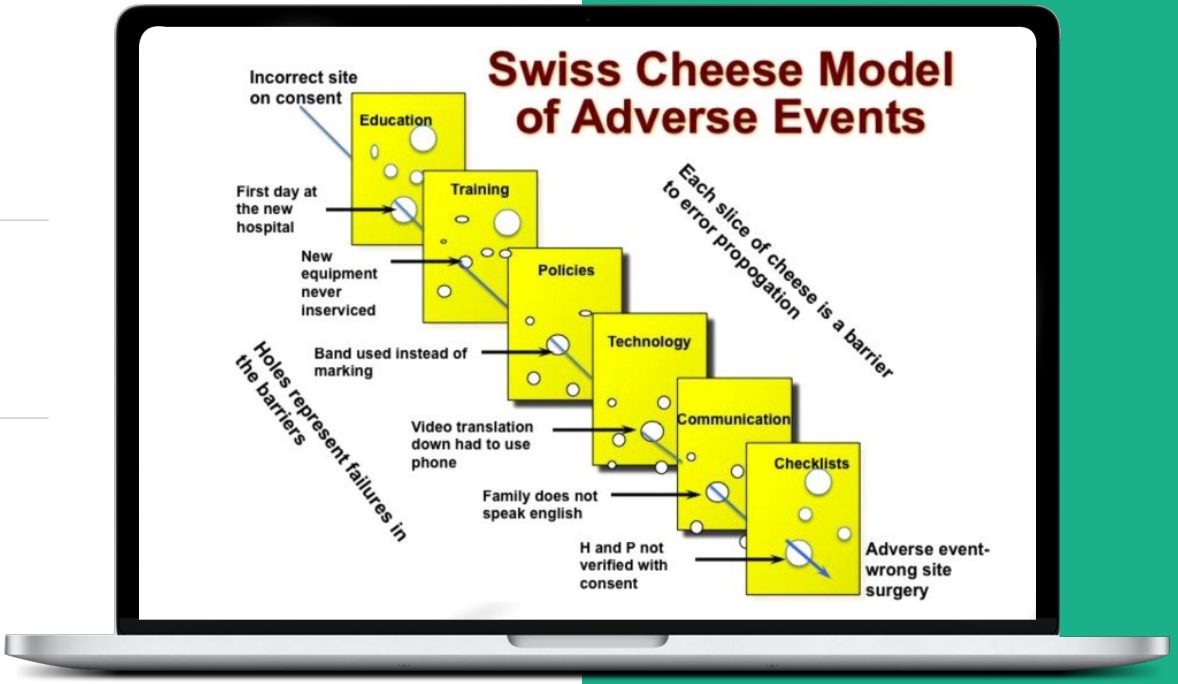
NORC at the UNIVERSITY of CHICAGO

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:

- 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

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

Service and product design should be system focused

Your opportunity

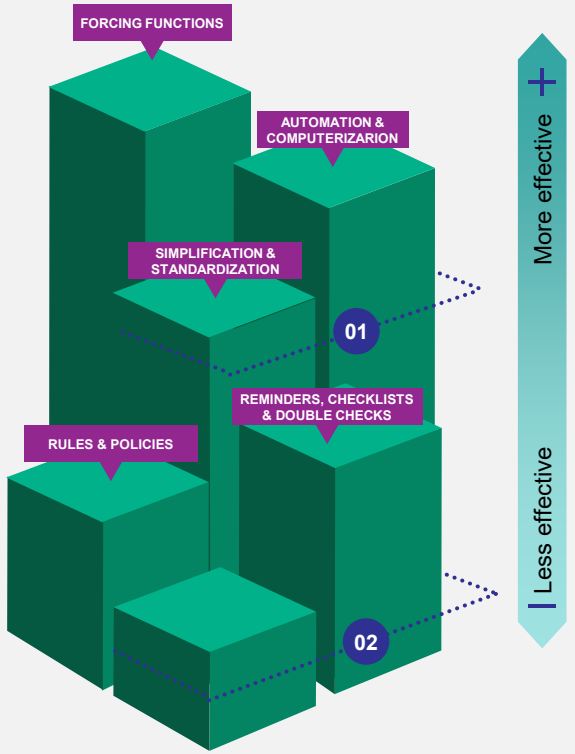
Most effective: system focused

- Forcing functions
- Automation & computerisation
- Simplification & standardisation

Least effective: people focused

- Checklists
- Rules and policies
- Education and Training

Hierarchy of Improvement Intervention Effectiveness



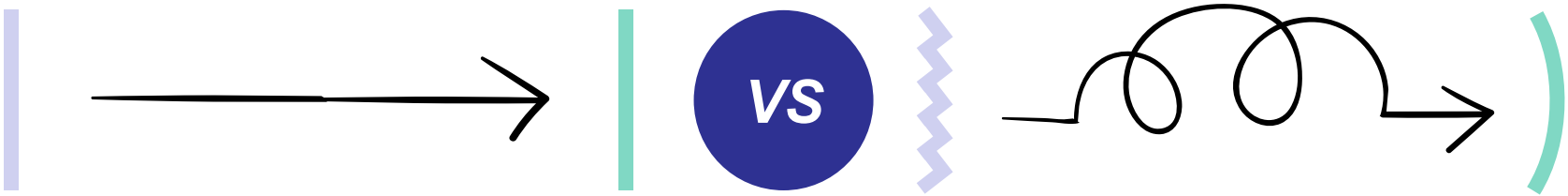
01 System-focused

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



TASK
(Work-as-imagined)

ACTIVITY
(Work-as-done)

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

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

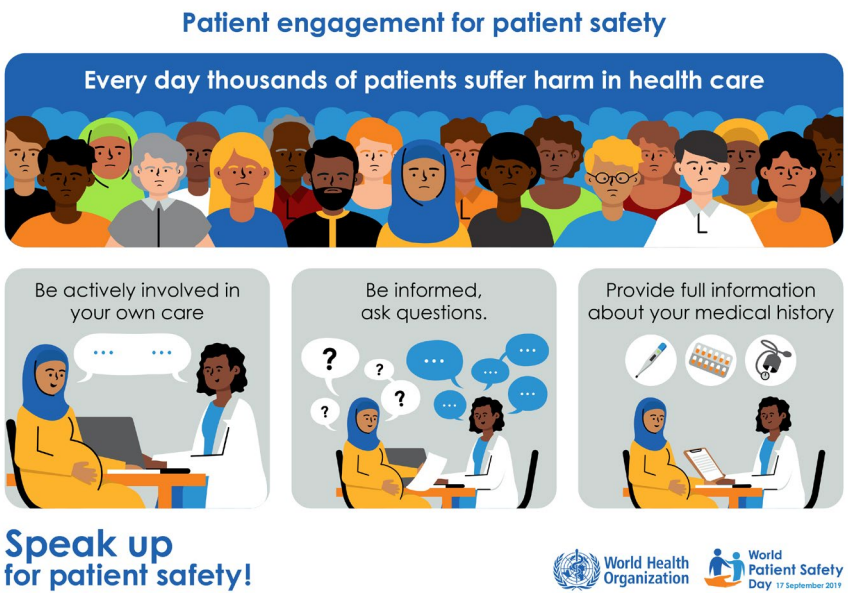
Think about what **can go wrong**

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**

Involve patients and the public in design



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

Using the toolkit

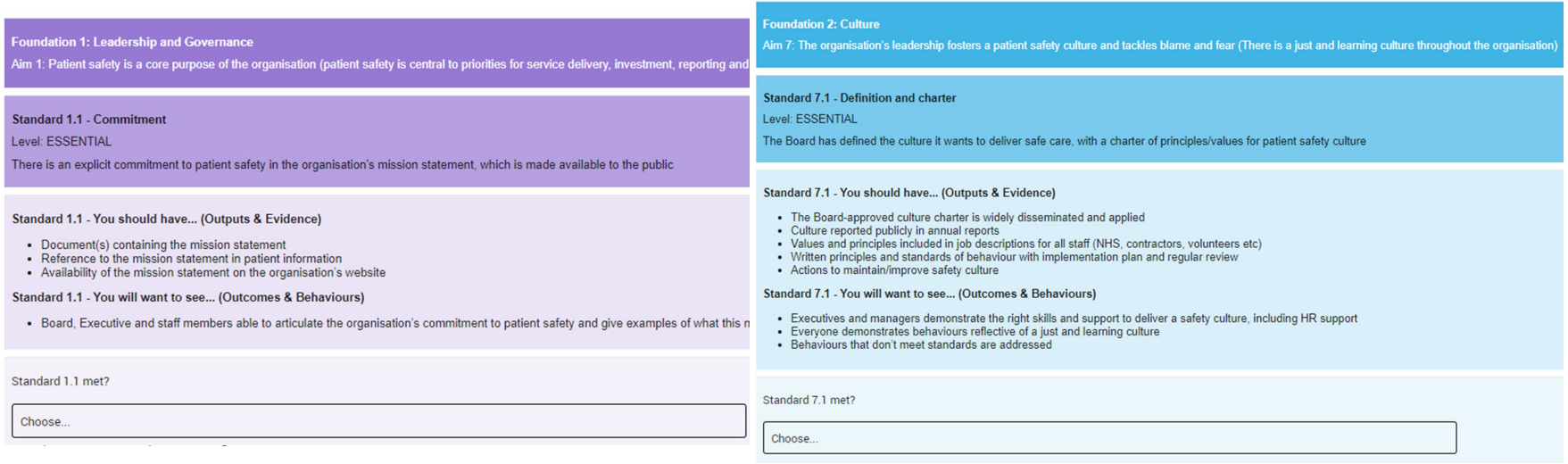
Welcome to the Patient Safety Standards Self-Assessment Toolkit.

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



Initial Output