Health Care: Safety and Resilience

Erik Hollnagel, Ph.D.
Professor, University of Southern Denmark
Chief Consultant, Center for Kvalitet, Region of Southern Denmark
E-mail: erik.hollnagel@rsyd.dk
What does it mean to be safe?

When we think about safety, we usually think about accidents - about (low probability) events with adverse outcomes.

A system is safe if as little as possible goes wrong.
Increasing safety by reducing failures

Function (work as imagined) → Success (no adverse events) → Acceptable outcomes

Hypothesis of different causes: Things that go right and things that go wrong happen in different ways and have different causes

Malfunction, non-compliance, error → Failure (accidents, incidents) → Unacceptable outcomes
Wrong Blood in Tube (WBIT)

WBITs are estimated to occur at a rate of approximately 1 in 2,000 samples. Main causes are:

- Labelling of sample tubes away from the bedside
- Failure to check patient identity
- Similar names (together with incorrect identity checks)
- Use of pre-printed labels
- Confusion of patient notes and/or request forms
- Inaccurate verbal instructions/no request form

Environment (3 recommendations)
Staff (9 recommendations)
Equipment (12 recommendations)
Patient (2 recommendations)
Procedure (6 recommendations)
Culture (8 recommendations)

 Altogether 40 recommendations.

(These recommendations) will provide input for those responsible for reducing errors related to mislabelling and miscollection of blood samples.

The implementation ... should be considered in the broader context of the organisational culture of Australian healthcare.

www.vmia.vic.gov.au
Safety-I – when nothing goes wrong

Safety is a condition where the number of adverse outcomes (accidents / incidents / near misses) is as low as possible.

Safety-I is defined by its opposite - by the lack of safety (accidents, incidents, risks).

The premise for Safety-I is the need to understand why accidents happen.

Accidents and incidents represent a lack of safety.

How can we learn about safety by studying situations where it isn’t there?

If we want something to increase, why do we use a proxy measure that decreases?

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The first interpretation of safety

Safety is the prevention of harm to patients

\[
\text{Safety} = \sum_{i=1}^{n} \text{Accident}_i
\]

There is an presence of failures (things that go wrong) due to risks and hazards. The number of harmful events can be counted.

It is “easy” to count how much goes wrong, but does that measure safety?

AHRQ Patient Safety Indicators (PSIs)

PSI 04  Death among surgical inpatients with serious treatable complications.
PSI 06  Iatrogenic pneumothorax.
PSI 11  Postoperative respiratory failure.
PSI 12  Postoperative PE or DVT.
PSI 14  Postoperative wound dehiscence.
PSI 15  Accidental puncture or laceration.
Managing Safety-I

Safety-I is a condition where the number of adverse outcomes (accidents / incidents / near misses) is as low as possible.

The belief in causality (Causality Credo)

1. Adverse outcomes happen because something has gone wrong (cause-effect thinking + value congruence between cause and effect).
2. Causes can be found and treated (rational deduction).
3. All accidents are therefore preventable (zero harm principle).

PRIMUM NON NOCERE

We are safe if there is as little as possible of this __

Prevent, eliminate, constrain. Safety, quality, etc. are different and require different measures and methods.
Managing safety by snapshots

Harmful events attract attention. But they are rare and isolated.

Events are analysed step-by-step. Responses are developed for each problem found.
But do we really know what happens?

The numerator is how many there are of a type of event — accidents, incidents, etc. This number is known (with some uncertainty).

The denominator is how many cases something went well. This number is usually unknown.

We always count the number of times something goes wrong. We analyse the rare events.

We rarely count the number of times something goes well. We need to understand the common events.
What should we be looking for?

$10^{-4} := 1$ failure in 10,000 events

Adverse outcomes = Absence of safety

Easy to see
Complicated aetiology
Difficult to change
Difficult to manage

‘Difficult’ to see
Uncomplicated aetiology
Easy to change
Easy to manage

Intended outcomes = Presence of safety

$1 - 10^{-4} := 9.999 \text{ “successes” in 10,000 events}$
“Work-as-imagined” and “work-as-done”

- Design (tools, roles, environment)
- Work & production planning ("lean" - optimisation)
- Safety management, investigations & auditing

Diagram showing the concepts of Work-As-Imagined and Work-As-Done.
Blood transfusion: WAI ≠ WAD

1 REQUEST
2 SAMPLE
3 SAMPLE RECEIPT
4 TESTING
5 COMPONENT SELECTION
6 LABELLING
7 COLLECTION
8 PRESCRIPTION
9 ADMINISTRATION
The second interpretation of safety

Safety is the prevention of harm to patients

\[ \text{Safety} = \sum_{1}^{n} \text{Accident}_i \]

There is an absence of failures (things that go wrong) due to risks and hazards.
The number of harmful events can be counted.

“Safety is a dynamic non-event”

\[ \text{Safety} = \sum_{1}^{n} \neg\text{Accident}_i \]

There is an presence of failures (things that go wrong), but as a result of active engagement.
If safety is a non-event, it can neither be observed, nor measured.

Is it possible to count the number of times something does not happen?
Why don’t people bump into each other?

When we move in a crowd, we continuously adjust to what other people do.

Just as others continuously adjust to what we do – or will do.
Everyday clinical work must be flexible

Resources (time, manpower, materials, information, etc.) may be limited and uncertain.

People adjust what they do to match the situation. Performance variability is inevitable, ubiquitous, and necessary.

Because of resource limitations, performance adjustments will always be approximate.

Performance variability is the reason why everyday work is safe and effective. 😊

Performance variability is the reason why things sometimes go wrong. 😞
Increase safety by doing things right

Safety must be begin by understanding the variability of everyday performance.

Everyday work (performance variability)

Function (work as imagined)

Success (no adverse events)

Acceptable outcomes

Malfunction, non-compliance, error

Failure (accidents, incidents)

Unacceptable outcomes

Constraining performance variability to remove failures will also remove successful everyday work.

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Safety II – when everything goes right

Safety-II: Safety is a condition where the number of successful outcomes (meaning everyday work) is as high as possible. It is the ability to succeed under varying conditions.

Safety-II is achieved by trying to make sure that things go right, rather than by preventing them from going wrong.

Safety is defined by its presence. The focus is on everyday situations where things go right – as they should.

Risk-based: Think about how something can go wrong and then try to prevent that.

Opportunity-based: Think about how something can go well and then try to support that.
Thinking about safety

We should think about safety in terms of how many things go well and how frequently we succeed.

A system is safe if as much as possible goes right.
The third interpretation of safety

Safety is the prevention of harm to patients

\[ \text{Safety} = \sum_{1}^{n} \text{Accident}_i \]

There is an presence of failures (things that go wrong) due to risks and hazards. The number of harmful events can be counted.

“Safety is a dynamic non-event”

\[ \text{Safety} = \sum_{1}^{n} \neg \text{Accident}_i \]

There is an absence of failures (things that go wrong), but as a result of active engagement. If safety is a non-event, it can neither be observed, nor measured.

Safety is a dynamic event

\[ \text{Safety} = \sum_{1}^{n} (\text{acceptable outcome})_i \]

Safety is the presence of acceptable outcomes. The more there are, the safer the system is.
To measure safety properly, we must understand how and why everyday clinical work goes right. This understanding provides the basis for defining practical and meaningful measurements.

Counting what goes wrong does not measure lack of safety.
Managing Safety-II

Safety-II is a condition where as much as possible goes well.

1. Care about what happens all the time rather than what happens rarely. **We always count the number of times something fails, but rarely the number of times it just works.**

2. Look for ‘work-as-done’ - the habitual adjustments and why they are made. **When something is done, as a part of work, it has usually been done before and gone well before.**

3. Learning should be based on the frequency of events rather than their severity. **Small improvements of everyday performance may be more important than large improvements of rare performance.**

**PRIMUM BENE FACERE**
From Safety-I to Safety-II

Health is ‘a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity’.

Safety-I: Safety is the freedom from unacceptable risk

Reduce unacceptable outcomes (accidents, incidents, etc)

Safety-II: “Safety” is the ability to sustain required operations under both expected and unexpected conditions.

Increase acceptable outcomes (everyday work)

World Health Organization

IMPROVED SAFETY
RESILIENT HEALTH CARE

“Health is more than the absence of disease”
“Safety is more than the absence of risk”

The first announcement for the RHCN workshop 2016 is here.

Have you read these?
The White Paper on Patient Safety
"Resilient health care: turning patient safety on its head"

The Resilient Health Care Net is pleased to announce
The International Prize in Resilient Health Care
Details can be found here