

HEALTH CARE: SAFETY AND RESILIENCE



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What does it mean to be safe?

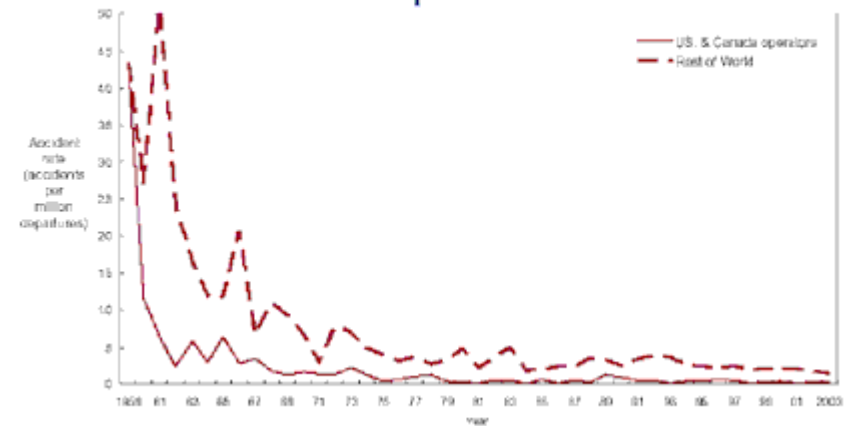


When we think about safety, we usually think about accidents - about (low probability) events with adverse outcomes.

A system is safe if as little as possible goes wrong.



Statistical Summary of Commercial Jet Airplane Accidents Worldwide Operations 1959-2001



Airplane Safety. Boeing Commercial Airplane

Increasing safety by reducing failures



Function (work
as imagined)



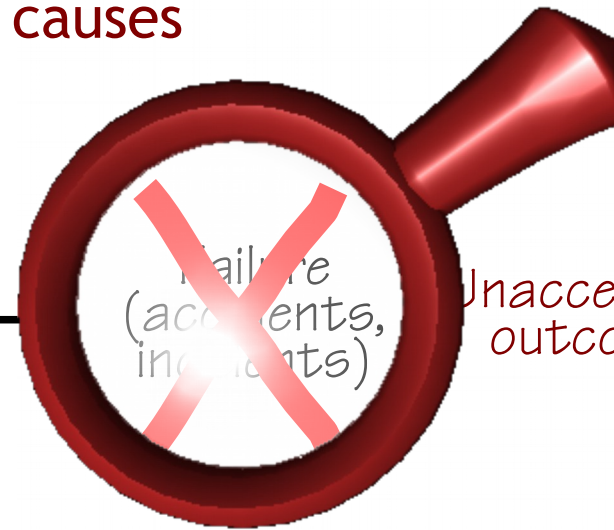
Success
(no adverse
events)

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)~~

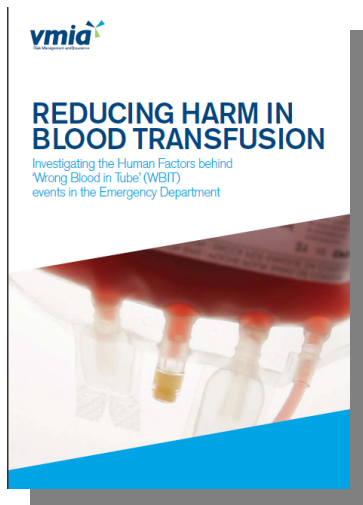
~~Unacceptable
outcomes~~



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.

www.vmia.vic.gov.au

(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.

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.

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

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

The first interpretation of safety

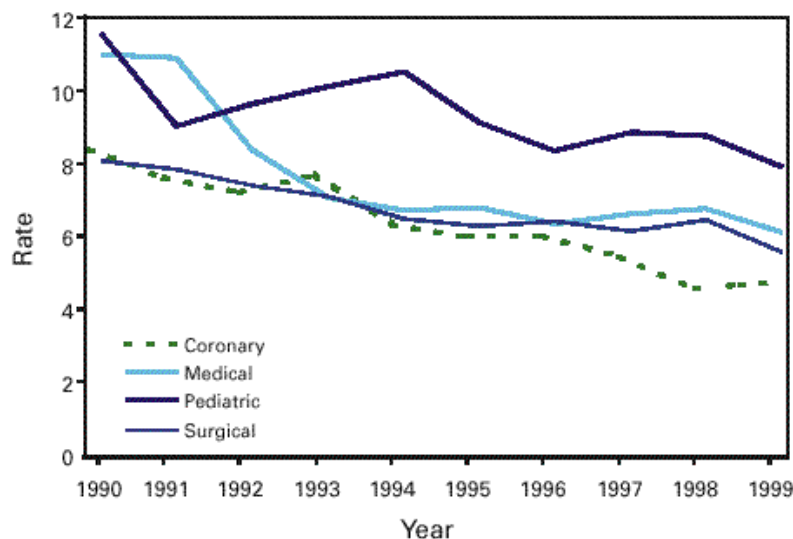
Safety is the prevention of harm to patients

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

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

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

FIGURE 1. Trends in bloodstream infection rates*, by intensive care unit type and year — National Nosocomial Infection Surveillance System, United States, 1990–1999



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)



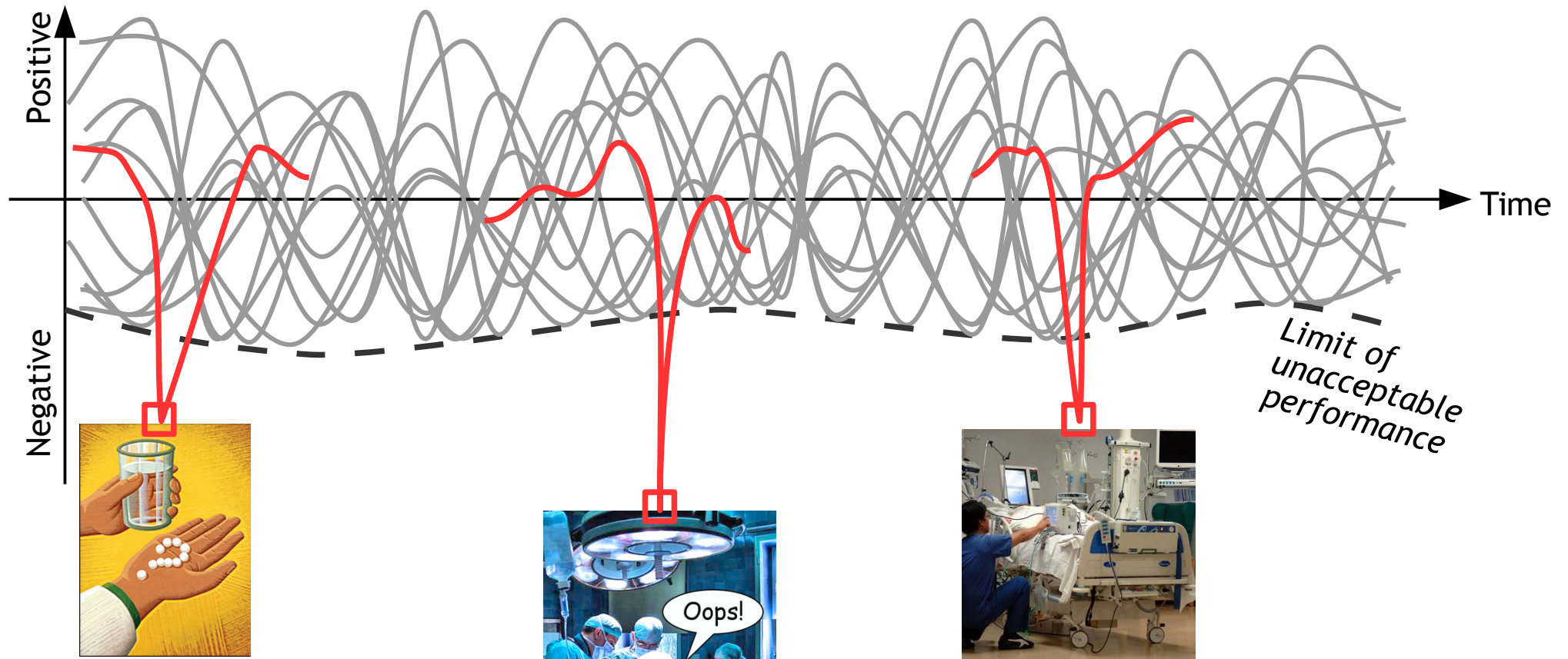
- (1) Adverse outcomes happen because something has gone wrong (cause-effect thinking + value congruence between cause and effect).
- (2) Causes can be found and treated (rational deduction).
- (3) All accidents are therefore preventable (zero harm principle).

PRIMUM NON NOCERE



Prevent, eliminate, constrain.
Safety, quality, etc. are different
and require different measures
and methods.

Managing safety by snapshots

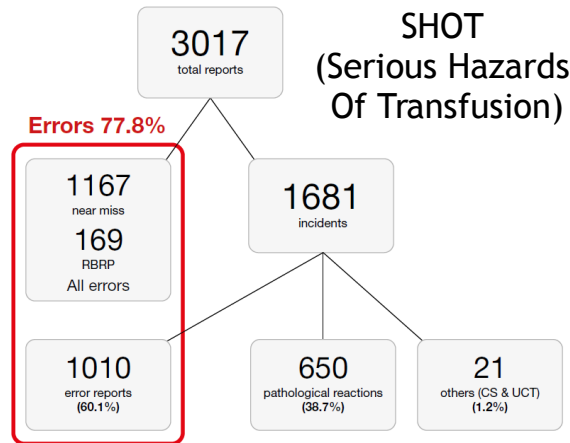


Harmful events attract attention. But they are rare and isolated.

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)



Numerator

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

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

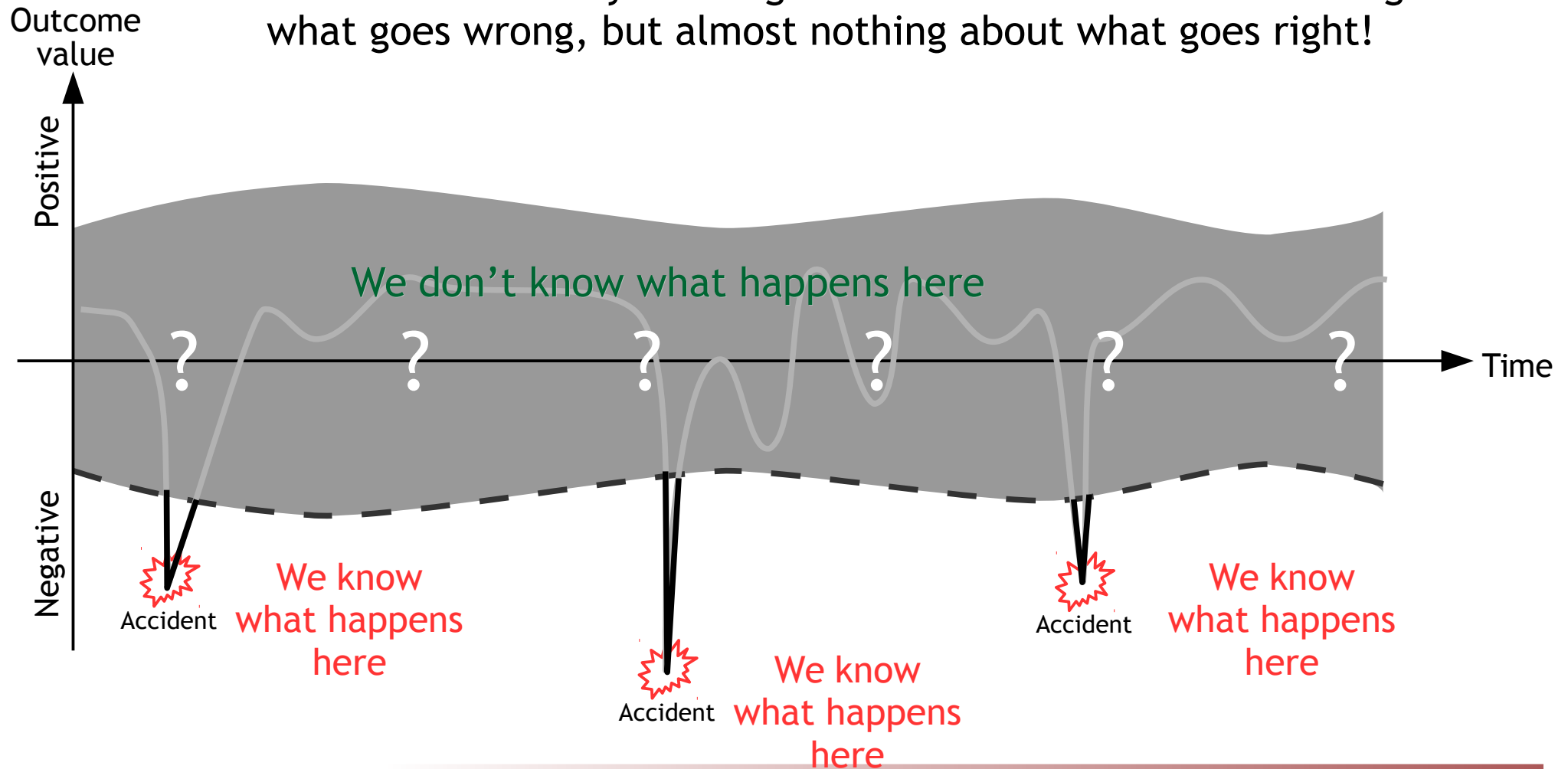
Denominator



We rarely count the number of times something goes well. We need to understand the common events.

Do we really know why things go well?

The result of safety-I management is that we know something about what goes wrong, but almost nothing about what goes right!



The problem is safety – or is it?



3. DEFINITIONS

3.20 **Safety.** Freedom from unacceptable risk.

Safety. A condition in which the risk of harm or damage is limited to an acceptable level.

Safety is defined and measured more by its *absence* than by its presence.

Reason, J. (2000). Safety paradoxes and safety culture. *Injury Control & Safety Promotion*, 7(1), 3-14.

Reliability is a dynamic non-event ... it is an ongoing condition in which problems are momentarily under control due to compensating changes (in components) ...

It is *invisible* (because) people often don't know how many mistakes they could have made but didn't ... (and) also *invisible* in the sense that reliable outcomes are constant, which means there is nothing to pay attention to.

Weick, K. E. 1987. Organizational culture as a source of high reliability. *California Management Review* 29 (2), 112-128.

The second 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



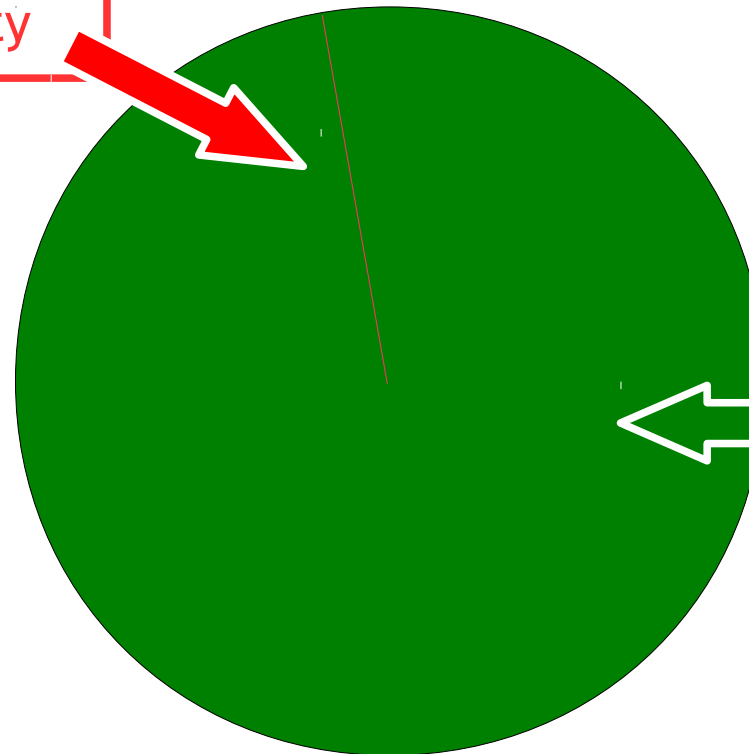
Is it possible to count the number of times something does not happen?

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 “successes”
in 10.000 events

Time to discuss

Where do you find
yourself in this history?



What should you do if you
want to move on?