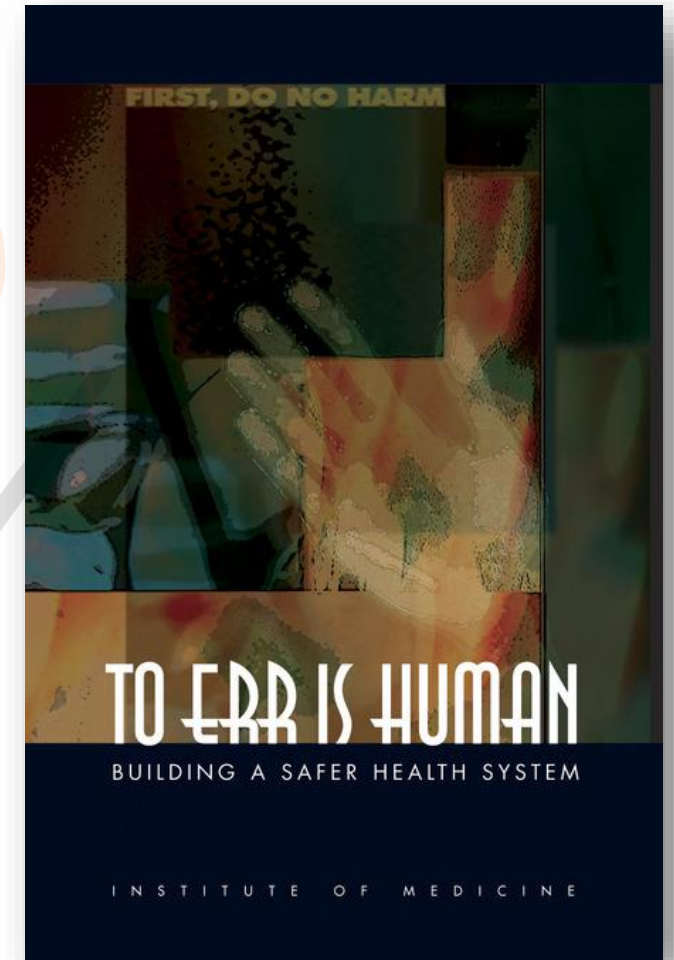


**To Err is Human
or are things more complicated?
Safety II concept in safety culture**

Irina Morozova

To Err is Human

- Landmark report in the development of safety culture
- Every year, between 44,000 and 98,000 patients die from preventable medical errors in hospitals in the United States
- Most mistakes in the healthcare industry are systemic by nature
- Reducing the number of preventable medical errors requires a change in approach



USA, 1999



Safety culture

- Healthcare is about people
- It is human nature to make mistakes
- We need to help prevent human errors:
 - Instructions, rules, and checklists
 - Learning from our mistakes (incidents)
 - Safety culture: openness and transparency, non-punitive practices

Daily Aviation Security Control Checklist

Conduct aviation security controls to ensure the security measures at all stages of aviation operations have been met. Find the digital version of this form and more at <https://www.fulcrumapp.com/apps/daily-aviation-security-control-checklist-app>.

Check-in Counter

- ▶ Risk assessment on passenger behavior by check-in or agent's staff
 Yes No N/A
- ▶ Passenger's ID or passport checked by check-in or agent's staff
 Yes No N/A

Surgical Safety Checklist



Before induction of anaesthesia

(with at least nurse and anaesthetist)

Has the patient confirmed his/her identity, site, procedure, and consent?
 Yes

Is the site marked?
 Yes
 Not applicable

Is the anaesthesia machine and medication check complete?
 Yes

Is the pulse oximeter on the patient and functioning?
 Yes

Does the patient have a:

Known allergy?
 No
 Yes

Difficult airway or aspiration risk?
 No
 Yes, and equipment/assistance available

Risk of >500ml blood loss (7ml/kg in children)?
 No
 Yes, and two IVs/central access and fluids planned

Before skin incision

(with nurse, anaesthetist and surgeon)

Confirm all team members have introduced themselves by name and role.
 Confirm the patient's name, procedure, and where the incision will be made.

Has antibiotic prophylaxis been given within the last 60 minutes?
 Yes
 Not applicable

Anticipated Critical Events

To Surgeon:

- What are the critical or non-routine steps?
- How long will the case take?
- What is the anticipated blood loss?

To Anaesthetist:

- Are there any patient-specific concerns?

To Nursing Team:

- Has sterility (including indicator results) been confirmed?
- Are there equipment issues or any concerns?

Is essential imaging displayed?

- Yes
- Not applicable

Before patient leaves operating room

(with nurse, anaesthetist and surgeon)

Nurse Verbally Confirms:

- The name of the procedure
- Completion of instrument, sponge and needle counts
- Specimen labelling (read specimen labels aloud, including patient name)
- Whether there are any equipment problems to be addressed

To Surgeon, Anaesthetist and Nurse:

- What are the key concerns for recovery and management of this patient?

Fukushima nuclear accident (March 11-15, 2011)

Earthquake (magnitude 9.0)

Nuclear reactors shut down automatically
Emergency reactor cooling systems were activated

Tsunami (waves up to 13-14 m high)

Loss of external power supply
Failure of most emergency diesel generators

Impossible to cool the nuclear reactors actively
Unavailability of station status readings

Explosions in blocks 1, 3, and 4

Threat of explosions in blocks 5 and 6



Fukushima nuclear accident (March 11-15, 2011)

Context: lack of instructions • lack of communication • restricted data
hazardous working conditions • unclear consequences of decisions taken

Decision: drilling ventilation holes in the roofs of blocks 5 and 6 for cooling
and to prevent the threat of explosion

The contractor refused to perform the work for safety reasons

The work is assigned to employees who have not been to the nuclear
power plant before and did not know how to complete the task

The employees who were assigned the job happened to meet the director
of a local construction company, with whom they had a long-term working
relationship

The director, who was familiar with the equipment, volunteered to take
the job

The director and the employees completed their work successfully



Lessons learned

- It's impossible to anticipate everything
- One can't develop instructions for everything
- In some cases, people are the only source of proper non-standard solutions in crisis situations



Paradigm shift

Safety I

Safety II

Human error

Safety risk



Safety risk

Non-standard human solution

“People” are the “elements threatening system safety”

“People” are “a resource necessary for system flexibility and resilience”

Controversy?

Safety I

Task:
Prevent possible
problems in the future

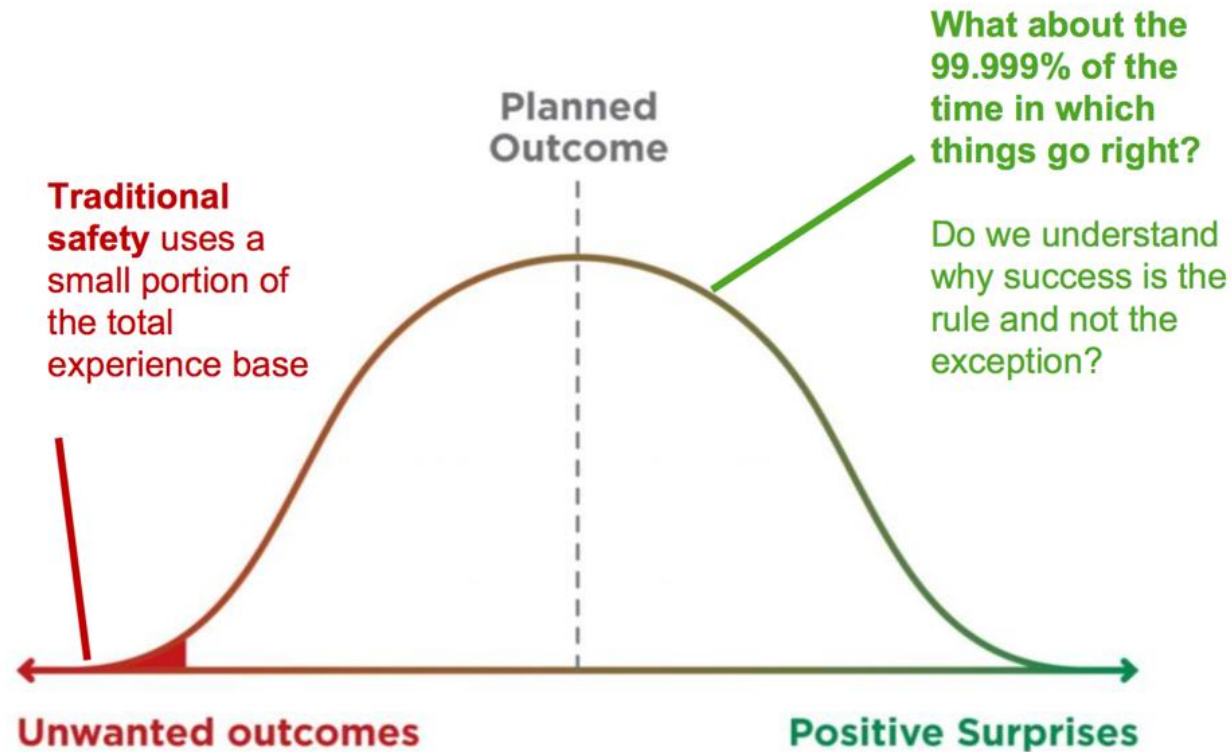
Safety II

Task:
Prevent possible
problems in the future



Safety I and Safety II complement each other

Safety I and Safety II principles



Reduce risk by learning everything possible from when things go wrong
(Safety I)

Focus on success by performing and repeating the actions when things go right
(Safety II)



How to put this into practice?

What went right?

Analyse not only mistakes but also positive aspects, especially in serious incidents

What was done wrong?



What was done right?

The value of understanding your daily workflow

Follow instructions clearly
("work-as-imagined")



Adapting to a specific situation
("work-as-done")

"Safety is not about the absence of negatives; it is about the presence of capacities"



The secret second handover



Goal: Reduce the time for transferring a patient from an ambulance to staff in the emergency department

Optimization (“work-as-imagined”): Unified process of patient handover
Paramedics take the patient to the designated room and return to the route
Regulatory procedures and protocols

In reality (“work-as-done”): additional "secret" handover of a patient from paramedics to emergency department staff outside of mandatory protocols

The secret second handover



I'm responsible for this patient
Just a piece of paper isn't enough
I want to pass on all clinically
important information

It's not necessary – there are standard
protocols
It's a waste of time
This delays the flow of patients
Other patients are waiting for the
ambulance

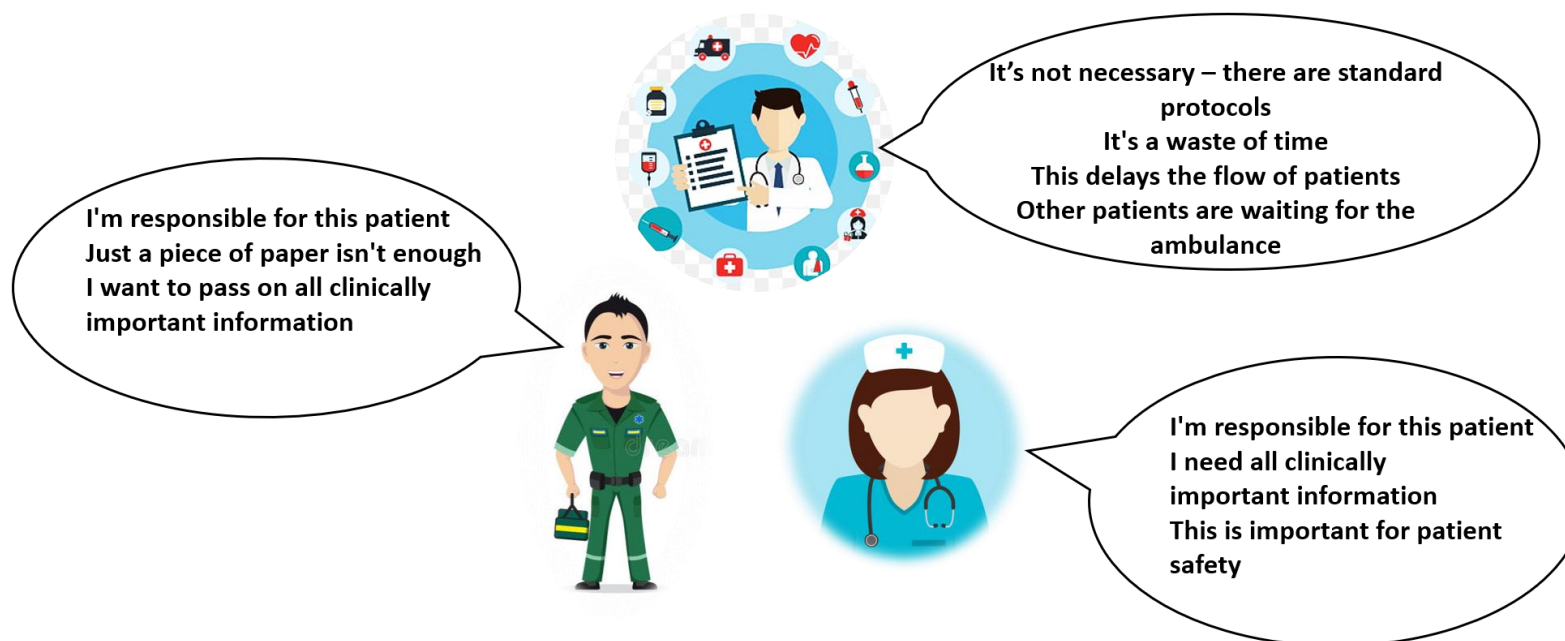


I'm responsible for this patient
I need all clinically
important information
This is important for patient
safety

Who's right?



The secret second handover



Decision: Paramedics decide on an additional handover individually based on their experience and depending on the specific state of the patient

System flexibility

Safety I

Patient safety is assessed by the frequency of unwanted outcomes



We define safety by its **absence**, rather than by its presence

Safety II

Patient safety is assessed based on the situations where it is present



We focus on day-to-day work, which **usually** goes right



Conclusion

- “We work in a complex system, not a factory”
- It is important to switch the focus from preventing things going wrong to purposefully enabling them to go right
- It is necessary to reconcile work-as-imagined and work-as-done
- The principles of a safety culture are very important: fairness, openness, transparency of leadership decisions, a culture of non-punishment, and continuous training

Healthcare workers create safety every day

Let's build a system that supports them



References

Atsufumi Yoshizawa, Kyoko Oba, Masaharu Kitamura. Lessons Learned from Good Practices During the Accident at Fukushima Daiichi Nuclear Power Station in Light of Resilience Engineering IFAC-PapersOnLine 49-19 (2016) 245–250.

Bentley S.K., McNamara S., Meguerdichian M. et al. Debrief it all: a tool for inclusion of Safety-II. Adv Simul (Lond). 2021. 6(1):9.

J. Braithwaite, R.L. Wears, and E. Hollnagel. Resilient health care: turning patient safety on its head. International Journal for Quality in Health Care. 2015. 27(5), 418–420.

Hollnagel, E. (2014). Safety-I and Safety-II: The past and future of safety management. Farnham, UK: Ashgate.

M.A. Sujan, P. Spurgeon and M.W. Cooke. Translating Tensions into Safe Practices Through Dynamic Trade-offs: The Secret Second Handover. In: Braithwaite et al. Resilience of Everyday Clinical Work, Ashgate, 2015.

Merel J Verhagen, Marit S de Vos, Mark Sujan, Jaap F Hamming. The problem with making Safety-II work in healthcare. BMJ Qual Saf. 2022 May;31(5):402-408.

