Pitfalls in doctors' decision making

Hans Rutberg,
Professor, Linköping University

Pitfall

- A lightly covered and unnoticeable pit prepared as a trap for people or animals

- An unapparent source of trouble or danger; a hidden hazard

The Free Dictionary

Context

- The complexity of health care
- Working conditions (high workload and staff shortage)
- System and culture
- Medical decision making

Changing World of Health Care

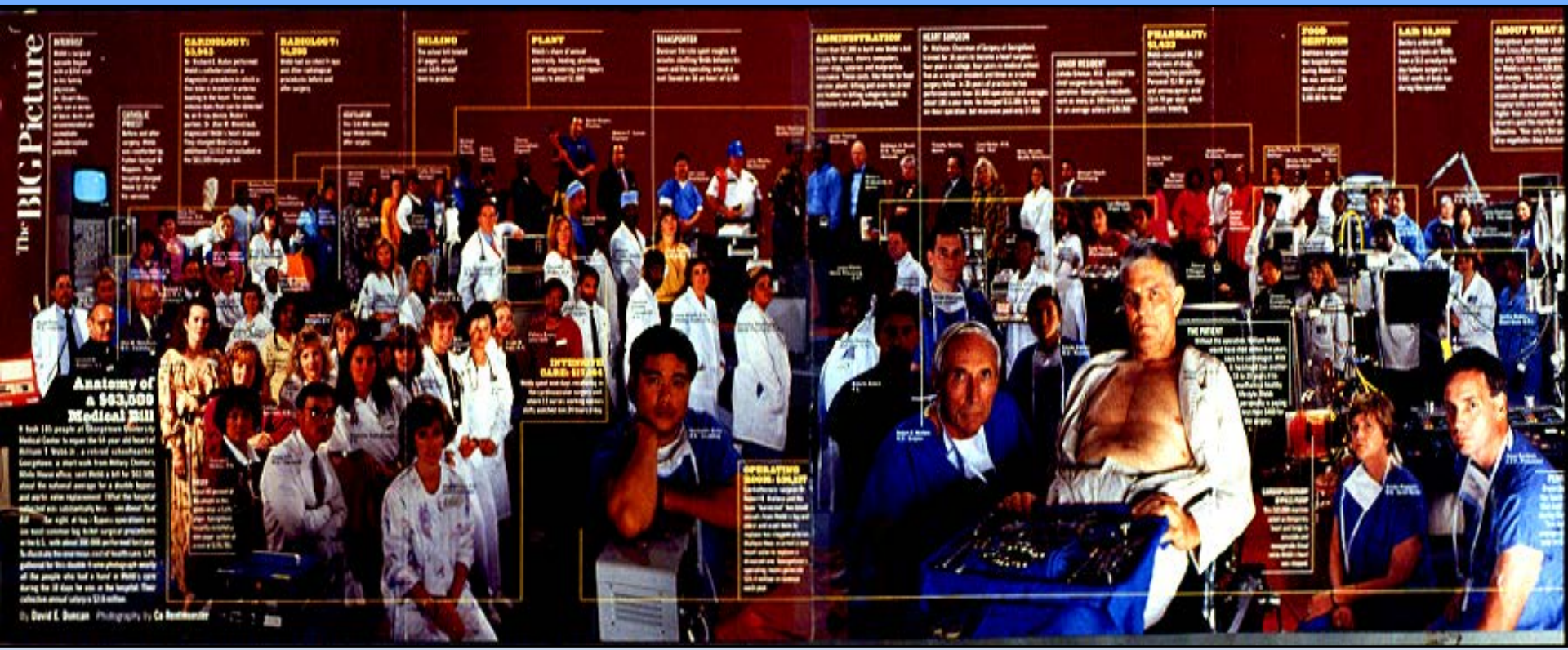
- "Medicine used to be simple, ineffective and relatively safe.
- Now it is complex, effective and potentially dangerous."
- The systems of health care have not kept up with the changes

Chantler C. The role of education of doctors in the delivery of health care. *Lancet* 1999;**353**:1178–1

A Rockwellian View of Medicine

- This view is very appealing.
- It emphasizes the doctor-patient relationship.
- It is NOT the system in which most clinicians work.

Cardiac Care is a Team Sport



Clinical care is provided in a very complex environment

- Systems are often responsible for bad quality, but professionals are usually responsible for the system

(Richard Grol)

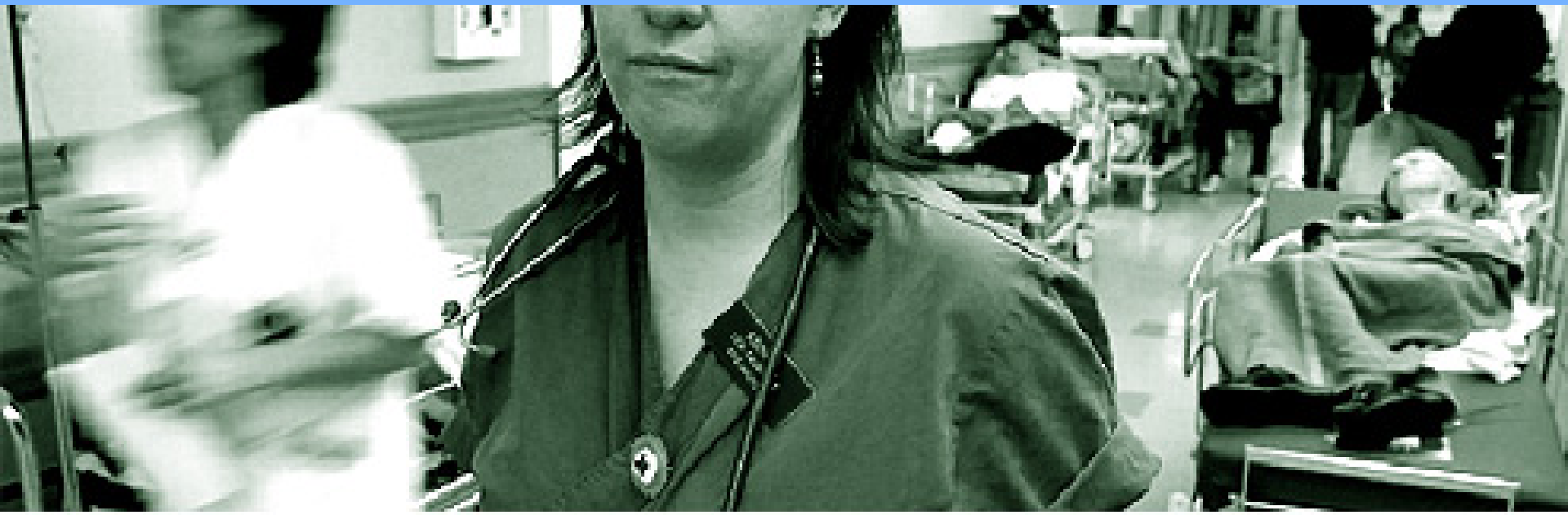


FOTO: LARS PEHRSON

BMJ Quality & Safety Online First, published on 12 April 2013 as 10.1136/bmjqs-2013-001967

Interruptions in emergency department work: an observational and interview study

Lena M Berg,[1,2] Ann-Sofie Källberg,[1,3] Katarina E Göransson,[1,2] Jan Östergren,[1,2] Jan Florin,[4] Anna Ehrenberg[4]

[1]Department of Medicine Solna, Karolinska Institutet, Solna, Sweden
[2]Department of Emergency Medicine, Karolinska University Hospital, Solna, Sweden
[3]Department of Emergency Medicine, Falun Hospital, Falun, Sweden
[4]School of Health and Social Studies, Dalarna University, Falun, Sweden

ABSTRACT

Objective Frequent interruptions are assumed to have a negative effect on healthcare clinicians' working memory that could result in risk for errors and hence threatening patient safety. The aim of this study was to explore interruptions occurring during common activities of clinicians working in emergency departments.

Method Totally 18 clinicians, licensed practical nurses, registered nurses and medical doctors, at

something negative when related to disturbed work processes.

INTRODUCTION

Frequent interruptions are assumed to have negative effects on the clinicians' working memory (the ability to remember future intentions), resulting in risk for errors (mistakes made in the process of care that result or have the potential to

INTERRUPTION *"A break in the performance of a human activity initiated by a source internal or external to the recipient. This break results in the suspension of an initial task to perform an unplanned task which results in a break or termination of the primary task."* Modified from Brixey et al (4).

SELF-INTERRUPTION *"An individual, independent of another person, suspends an activity to perform another activity; ie. while walking, stops abruptly and talks to another person"* (4, page 237).

DISTURBANCE *"An interruption that is perceived as negative."*

A DISTURBED WORK PROCESS *"An interruption of a work process which is negatively perceived, as being irrelevant, annoying or delaying the ongoing work process."*

AN UNDISTURBED WORK PROCESS *"An ongoing work process during which interruptions do not cause a negative perception."*

Definition of central concepts.

Table 1. Factors perceived as patient safety risks by physicians and nurses in the ED.

Theme	Categories	Sub categories
Complex professional practice	High workload	High patient load
		Critically ill patients
	Lack of control	Interruption
		Inexperience
	Communication failures	Information gap
		Lack of information
	Organizational failures	Unclear ED structure
		Lack of inpatient beds
		Lack of resources
		Electronic health record (EHR) flaws

ORIGINAL INVESTIGATION

Association of Interruptions With an Increased Risk and Severity of Medication Administration Errors

Johanna I. Westbrook, PhD; Amanda Woods, RN, MEd; Marilyn I. Rob, PhD; William T. M. Dunsmuir, PhD; Richard O. Day, MD

Background: Interruptions have been implicated as a cause of clinical errors, yet, to our knowledge, no empirical studies of this relationship exist. We tested the hypothesis that interruptions during medication administration increase errors.

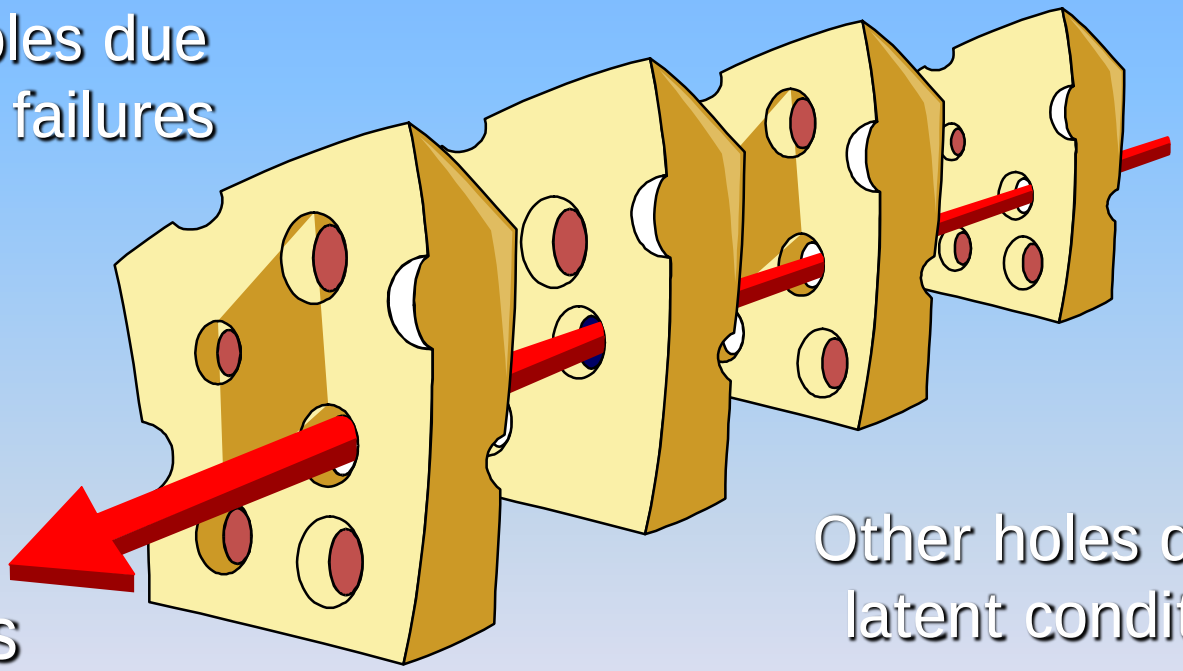
Methods: We performed an observational study of nurses preparing and administering medications in 6 wards at 2 major teaching hospitals in Sydney, Australia. Procedural failures and interruptions were recorded during direct observation. Clinical errors were identified by comparing observational data with patients' medication charts. A volunteer sample of 98 nurses (representing a participation rate of 82%) were observed preparing and administering 4271 medications to 720 patients over 505 hours from September 2006 through March 2008. Associations between procedural failures (10 indicators; eg, aseptic technique) and teristics. Interruptions occurred in 53.1% of administrations (95% confidence interval [CI], 51.6%-54.6%). Of total drug administrations, 74.4% (n=3177) had at least 1 procedural failure (95% CI, 73.1%-75.7%). Administrations with no interruptions (n=2005) had a procedural failure rate of 69.6% (n=1395; 95% CI, 67.6%-71.6%), which increased to 84.6% (n=148; 95% CI, 79.2%-89.9%) with 3 interruptions. Overall, 25.0% (n=1067; 95% CI, 23.7%-26.3%) of administrations had at least 1 clinical error. Those with no interruptions had a rate of 25.3% (n=507; 95% CI, 23.4%-27.2%), whereas those with 3 interruptions had a rate of 38.9% (n=68; 95% CI, 31.6%-46.1%). Nurse experience provided no protection against making a clinical error and was associated with higher procedural failure rates. Error severity increased with interruption frequency. Without interruption, the estimated risk of a

Arch Intern Med. 2010 Apr 26;170(8):683-90. doi: 10.1001/archinternmed.2010.65

Conclusion

- High work load was perceived as the main patient safety concern by ED clinicians. An interruption occurring during high patient load was perceived as increasing the risk for communication failures and medication errors.

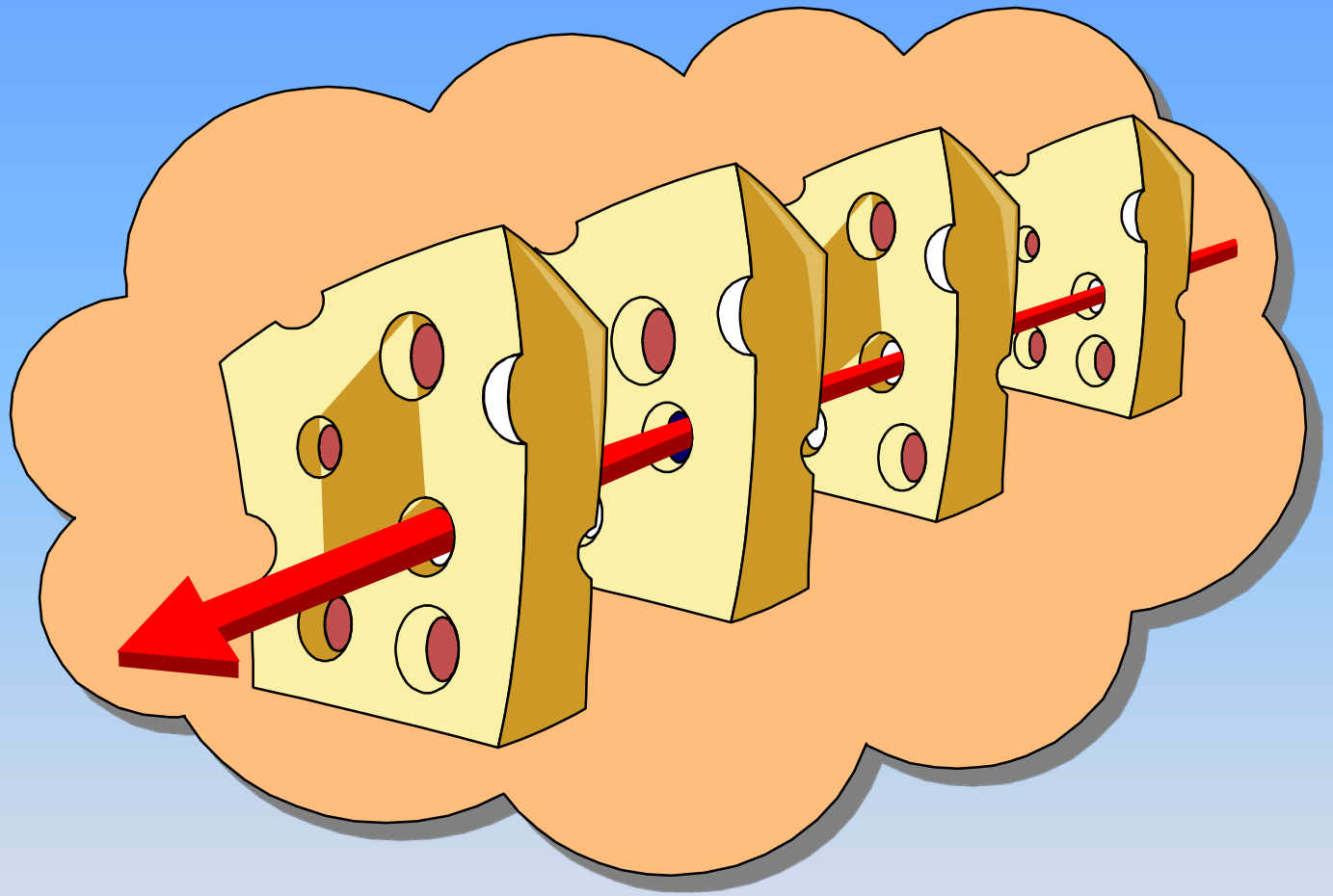
A system model of accident causation



Successive layers of defences, barriers, & safeguards

Reason, System defences

The importance of culture



Only culture can reach all parts of the system.
Only culture can exert a consistent influence, for good or ill.

Reason, System defences

An informed culture?

31,033 Pilots, Surgeons, Nurses and Residents Surveyed

*Sexton JB, Thomas EJ, Helmreich RL, Error, stress and teamwork in medicine and aviation: cross sectional surveys. BMJ, 3-18-2000.

% Positive Responses from:	Pilots	Medical
Is there a negative impact of fatigue on your performance?	74%	30%
Do you reject advice from juniors?	3%	45%
Is error analysis system-wide?	100%	30%
Do you think you make mistakes?	100%	30%
Easy to discuss/report mistakes?	100%	56%

Mental preparedness

- Assume that errors can and will occur.
- Stop and think. Identify those circumstances most likely to breed error
- Have contingencies in place to cope with problems, interruptions and distractions.
- Mentally rehearse complex procedures.

James Reason

Five pitfalls in decisions about diagnosis and prescribing

Jill G Klein

Everyone makes mistakes. But our reliance on cognitive processes prone to bias makes treatment errors more likely than we think

Psychologists have studied the cognitive processes involved in decision making extensively and have identified many factors that lead people astray. Because doctors' decisions have profound effects on their patients' health, these decisions should be of the best possible quality. All doctors should therefore be aware of possible pitfalls in medical decision making and take steps to avoid these unnecessary errors. In this article, I present five examples of cognitive biases that can affect medical decision making and offer suggestions for avoiding them.

INSEAD, 1 Ayer Rajah Avenue, 138676 Singapore

Jill G Klein
associate professor of marketing

jill.klein@insead.edu

BMJ 2005;330:781–4

Heuristic

- A heuristic technique (/hjʉˈrɪstɨk/; Ancient Greek: εὑρίσκω, "find" or "discover"), often called simply a heuristic, is any approach to problem solving, learning, or discovery that employs a practical method not guaranteed to be optimal or perfect, but sufficient for the immediate goals.

Wikipedia

Pitfall 1: The representativeness heuristic

- Is the assumption that something that seems similar to other things in a certain category is itself a member of that category

How to avoid it:

- It is important to be aware of base rates of the occurrence of a particular condition and to avoid giving too much weight to one piece of information.

Pitfall 2: The availability heuristic

- Place particular weight on examples of things that come to mind easily, perhaps because they are easily remembered or recently encountered

How to avoid it:

- Be aware of all the diverse factors that influence a decision. Knowing whether information is truly relevant, rather than simply easily available, is the key.

Pitfall 3: Overconfidence

- Research has shown that almost all of us are more confident about our judgments than we should be.
- Unfortunately, most of us are poor at assessing the gaps in our knowledge

How to avoid it:

- It is critical to be aware of the limits of your knowledge and to ensure that knowledge is kept up to date. Make it a habit to seek the opinions of colleagues

Pitfall 4: Confirmatory bias

- The tendency to look for, notice, and remember information that fits with our pre-existing expectations.
- Similarly, information that contradicts those expectations may be ignored or dismissed as unimportant.

How to avoid it:

- Ask questions that would disprove, rather than confirm, your current hypothesis

Pitfall 5: Illusory correlation

- The tendency to perceive two events as causally related, when in fact the connection between them is coincidental or even non-existent.

How to avoid it:

- Ask yourself whether any instances do not fit with your assumed correlations

Rules for good decision making

- Be aware of base rates
- Consider whether data are truly relevant, rather than just salient
- Seek reasons why your decisions may be wrong and entertain alternative hypotheses
- Ask questions that would disprove, rather than confirm, your current hypothesis
- Remember that you are wrong more often than you think

Safety is a dynamic non-event

Karl Weick

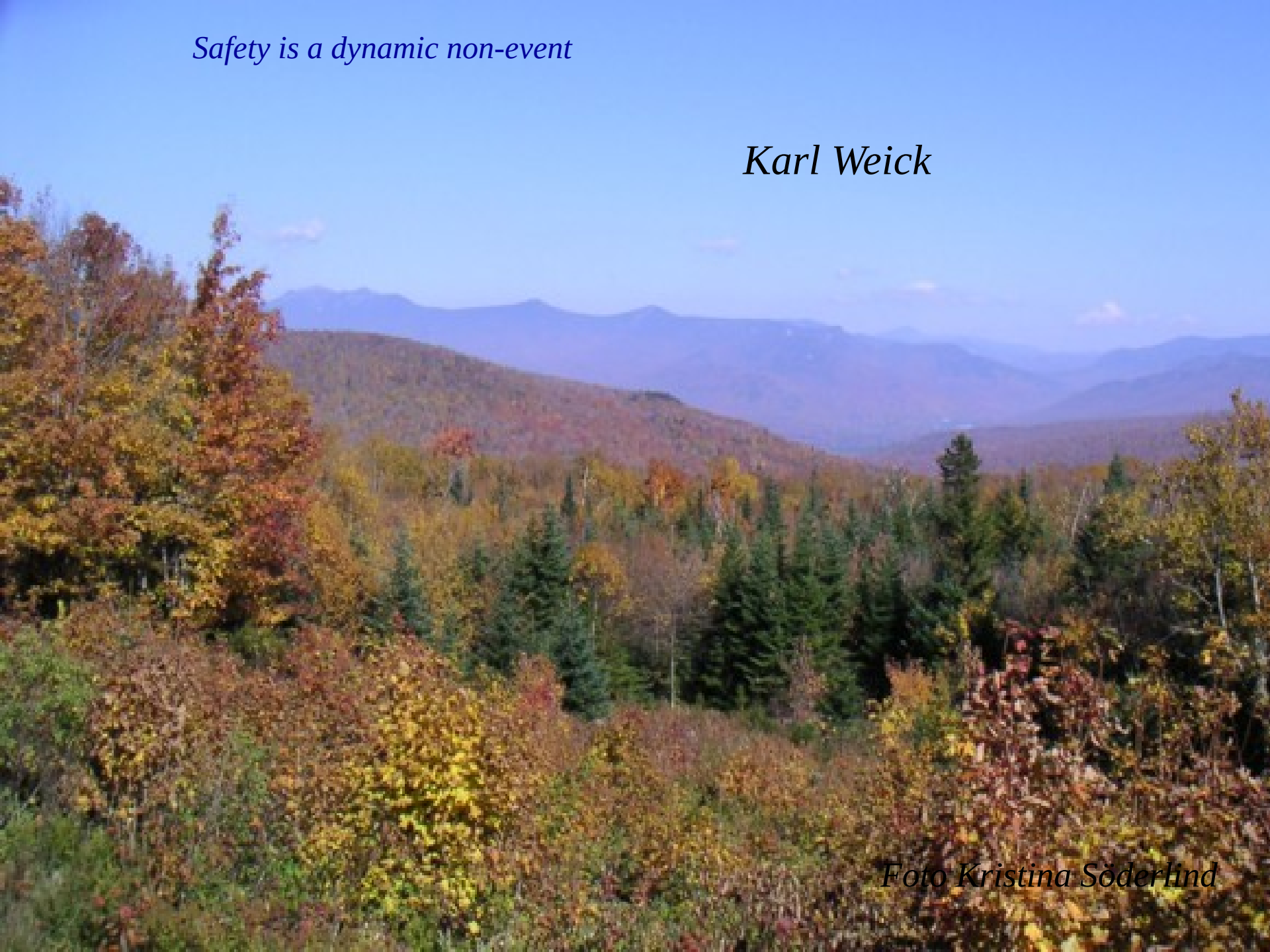


Foto Kristina Söderlind