



# Resilience

CHRISTOPHER DENNY

AUCKLAND RESCUE HELICOPTER TRUST

# Disclosure

- ▶ Medical Director: Auckland HEMS, Auckland Rescue Helicopter Trust
- ▶ Senior Medical Officer in Emergency Medicine: Auckland City Hospital
- ▶ Clinical Team Leader: New Zealand Medical Assistance Team
- ▶ Honorary Senior Lecturer: The University of Auckland
- ▶ Adjunct Assistant Professor: The University of Toronto



**RESILIENCE**

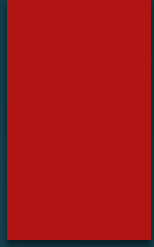


What is Resilience?

An aerial photograph showing a vibrant green island on the left side of the frame. To the right, a massive hurricane with a distinct eye is swirling over the dark blue ocean. The image is used as a background for a text overlay.

**Resilience: the ability to resist, absorb, recover from or successfully adapt to adversity or a change in conditions.**

*-Department of Homeland Security, Risk Lexicon 2008*



# Is Resilience...?

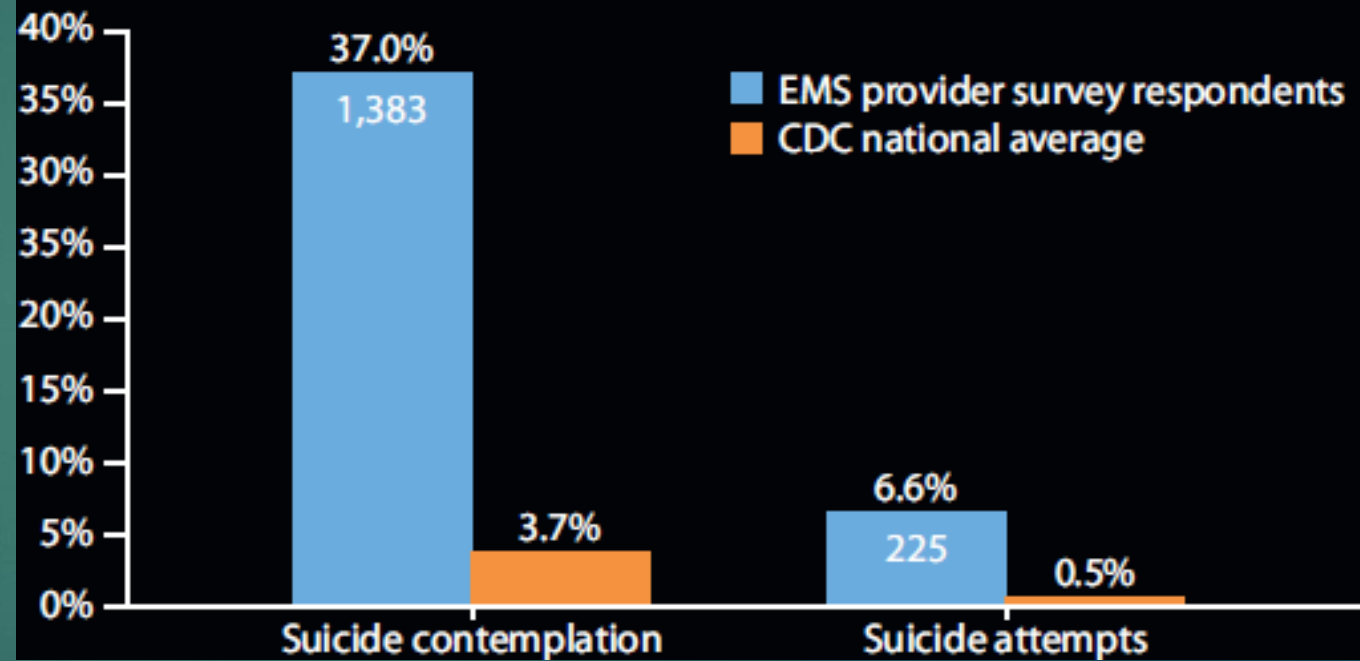
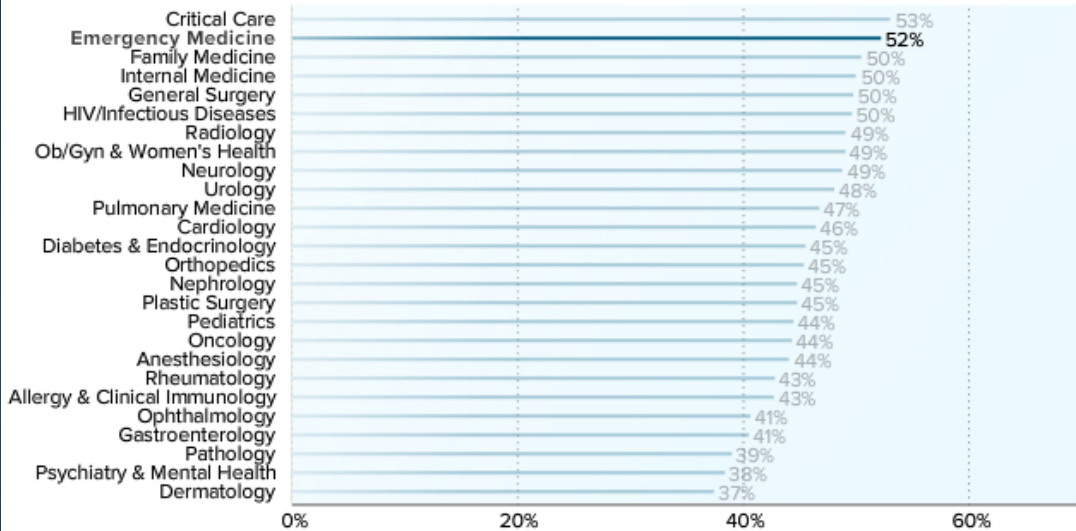
- ▶ The same as:
  - ▶ **Mental toughness:** Cognitive tempering? Stress inoculation?
- ▶ Similar to:
  - ▶ **Equanimity?** 'Calmness and composure, especially in a difficult situation'
- ▶ Part of:
  - ▶ **Wellness** initiatives?
- ▶ Useful in:
  - ▶ Mitigating acute and/or chronic stressors?
- ▶ Mostly: Knowledge, skill or attitude?



Why develop resilience?

# Resilient versus 'brittle' systems

What Percentage of Physicians Are "Burned Out"?



# Resilience may

- ▶ Augment performance under stress
- ▶ Improve crew and patient safety
- ▶ Protect against burnout and operational stress injury

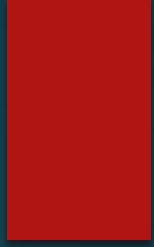


A resilient individual





A resilient team

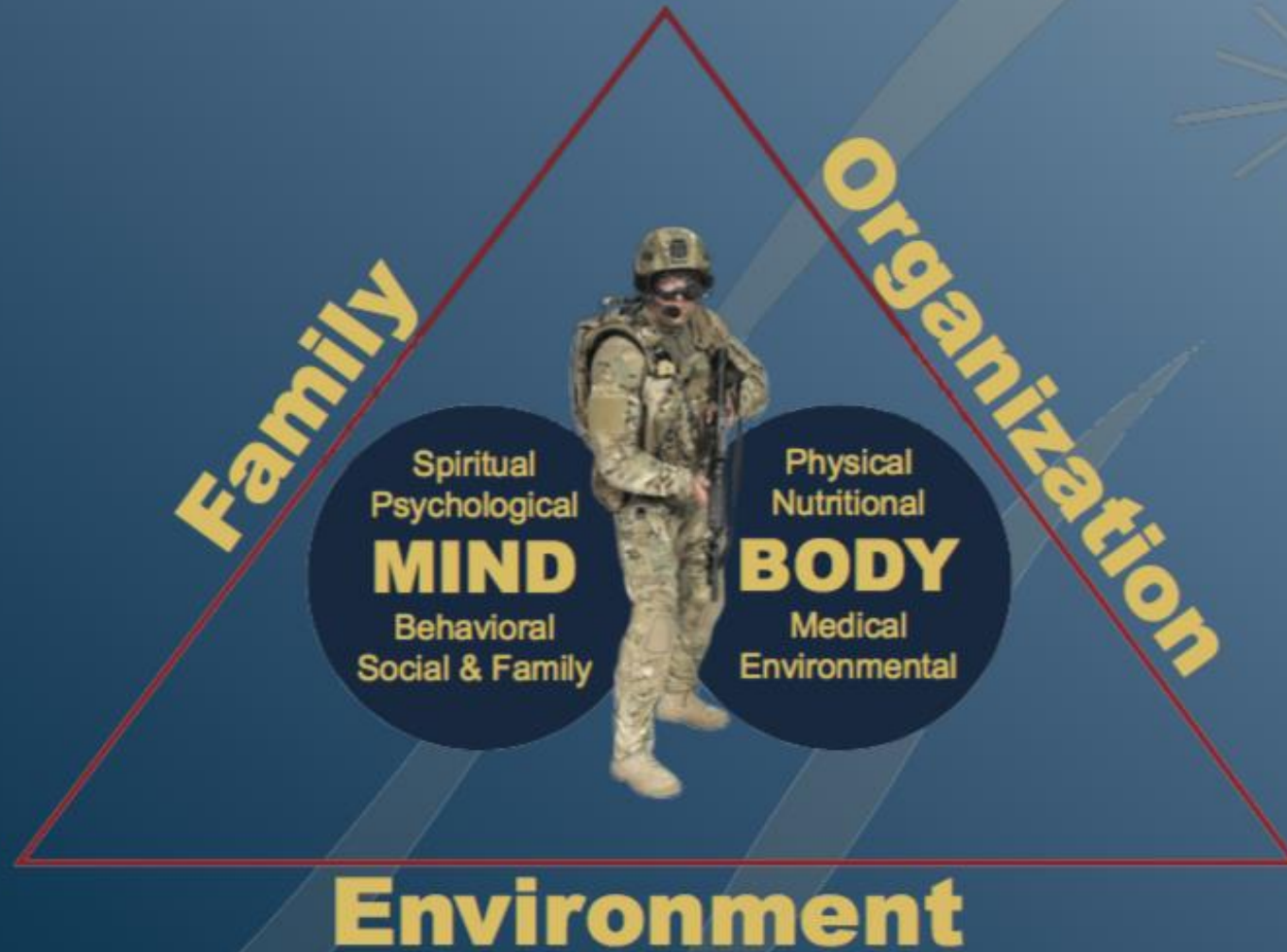




Developing resilience in individuals

# Total Force Fitness for the 21st Century

## A New Paradigm



# Shield of Health



# The Efficacy of Resiliency Training Programs: A Systematic Review and Meta-Analysis of Randomized Trials

Aaron L. Leppin<sup>1,2\*</sup>, Pavithra R. Bora<sup>1</sup>, Jon C. Tilburt<sup>3</sup>, Michael R. Gionfriddo<sup>1,4</sup>, Claudia Zeballos-Palacios<sup>1</sup>, Megan M. Duloher<sup>5</sup>, Amit Sood<sup>3</sup>, Patricia J. Erwin<sup>6</sup>, Juan Pablo Brito<sup>1,7</sup>, Kasey R. Boehmer<sup>1</sup>, Victor M. Montori<sup>1,7</sup>

**1** Knowledge and Evaluation Research Unit, Mayo Clinic, Rochester, Minnesota, United States of America, **2** Department of Health Sciences Research, Mayo Clinic, Rochester, Minnesota, United States of America, **3** Integrative Medicine Program—Division of General Internal Medicine, Mayo Clinic, Rochester, Minnesota, United States of America, **4** Mayo Graduate School, Mayo Clinic, Rochester, Minnesota, United States of America, **5** Division of Pulmonary and Critical Care Medicine, Mayo Clinic, Rochester, Minnesota, United States of America, **6** Mayo Clinic Libraries, Mayo Clinic, Rochester, Minnesota, United States of America, **7** Division of Endocrinology, Metabolism, and Nutrition, Mayo Clinic, Rochester, Minnesota, United States of America

## Abstract

**Importance:** Poor mental health places a burden on individuals and populations. Resilient persons are able to adapt to life's challenges and maintain high quality of life and function. Finding effective strategies to bolster resilience in individuals and populations is of interest to many stakeholders.

**Objectives:** To synthesize the evidence for resiliency training programs in improving mental health and capacity in 1) diverse adult populations and 2) persons with chronic diseases.

**Data Sources:** Electronic databases, clinical trial registries, and bibliographies. We also contacted study authors and field experts.

**Study Selection:** Randomized trials assessing the efficacy of any program intended to enhance resilience in adults and published after 1990. No restrictions were made based on outcome measured or comparator used.

**Data Extraction and Synthesis:** Reviewers worked independently and in duplicate to extract study characteristics and data. These were confirmed with authors. We conducted a random effects meta-analysis on available data and tested for interaction in planned subgroups.

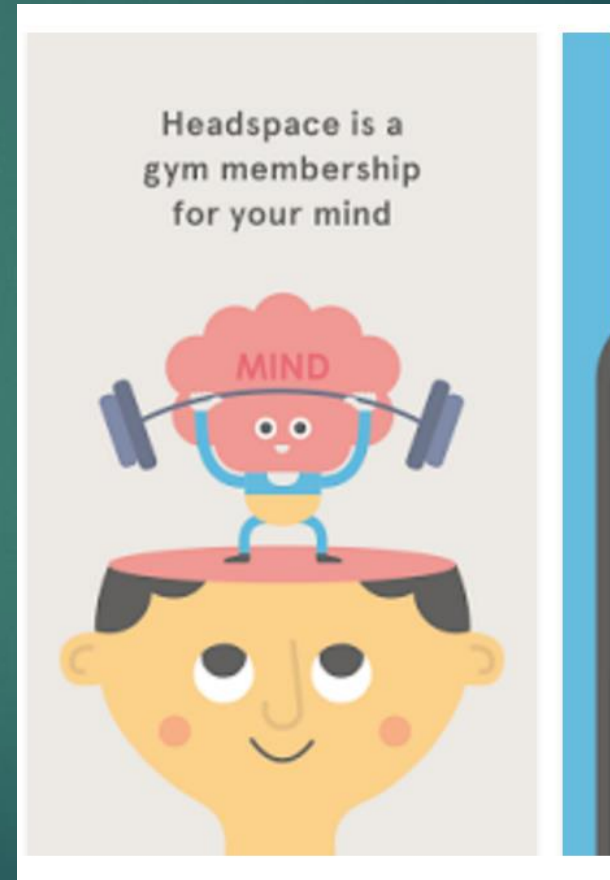
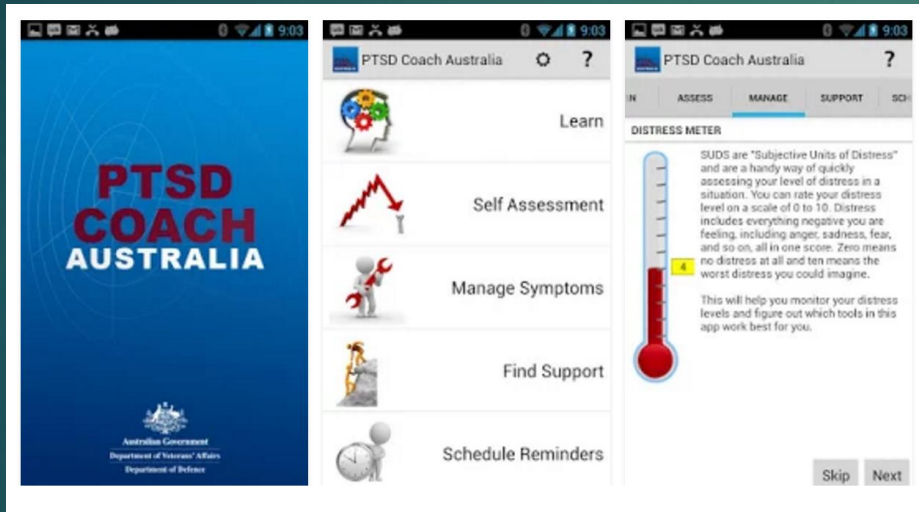
**Main Outcomes:** The standardized mean difference (SMD) effect of resiliency training programs on 1) resilience/hardiness, 2) quality of life/well-being, 3) self-efficacy/activation, 4) depression, 5) stress, and 6) anxiety.

**Results:** We found 25 small trials at moderate to high risk of bias. Interventions varied in format and theoretical approach. Random effects meta-analysis showed a moderate effect of generalized stress-directed programs on enhancing resilience [pooled SMD 0.37 (95% CI 0.18, 0.57)  $p = .0002$ ;  $I^2 = 41\%$ ] within 3 months of follow up. Improvement in other outcomes was favorable to the interventions and reached statistical significance after removing two studies at high risk of bias. Trauma-induced stress-directed programs significantly improved stress [ $-0.53$  ( $-1.04, -0.03$ )  $p = .03$ ;  $I^2 = 73\%$ ] and depression [ $-0.51$  ( $-0.92, -0.10$ )  $p = .04$ ;  $I^2 = 61\%$ ].

**Conclusions:** We found evidence warranting low confidence that resiliency training programs have a small to moderate effect at improving resilience and other mental health outcomes. Further study is needed to better define the resilience construct and to design interventions specific to it.

**Registration Number:** PROSPERO CRD42014007185

# Flip the classroom.





# Developing resilience in teams

# Sources of resilience (Karl Weick): *'Sensemaking'*

- ▶ Improvisation: 'Work the problem.' (NASA)
- ▶ Virtual role systems
- ▶ Attitude of wisdom (stance of curiosity)
- ▶ Respectful interaction

# Building team resilience

## 1 Does everyone know what's going on?

SBAR

PREBRIEF

RECAP

## 2 Does everyone know who is doing what?

- ROLE CLARITY
- LEADERSHIP + ACTIVE FOLLOWERSHIP

## 3 Are we clear in our communication?

- NAMED PERSON
- READ BACK
- CLOSED LOOP

## 4 How do we ensure we reach our goals?

Even when things change?

- ANTICIPATE
- MONITOR
- RESPOND
- LEARN

## 5 How do we speak up if we have concerns?

- ENQUIRE
- ADVOCATE
- ASSERT

## 6 How do we make it safe to speak up?

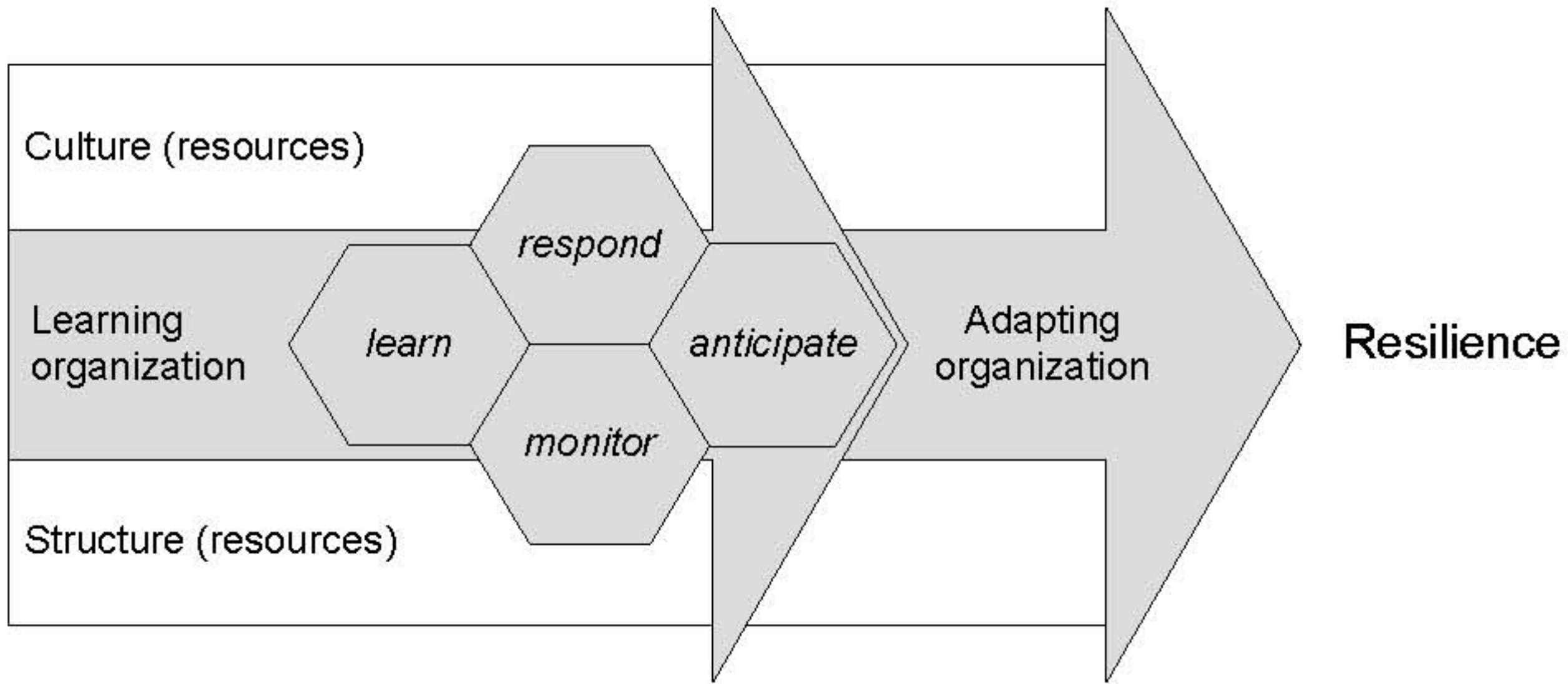
- REDUCING HIERARCHIES
- VALUING SPEAKING UP
- FOCUS ON LEARNING



# Developing resilience in organizations

*'RESILIENCE AS AN EMERGENT PROPERTY OF A SYSTEM'*

ERIK HOLLNAGEL (DENMARK)



# Resilience Analysis Grid

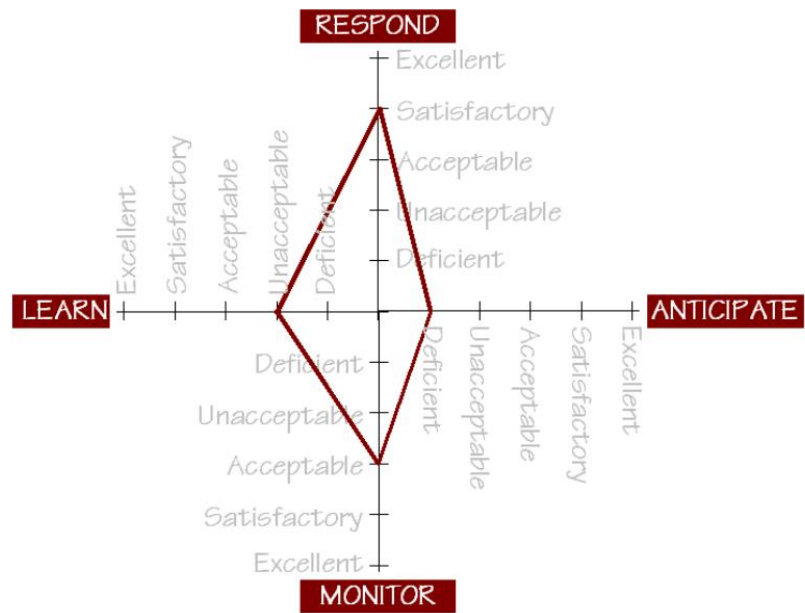


Figure 6: RAG star diagram (show lack of resilience)

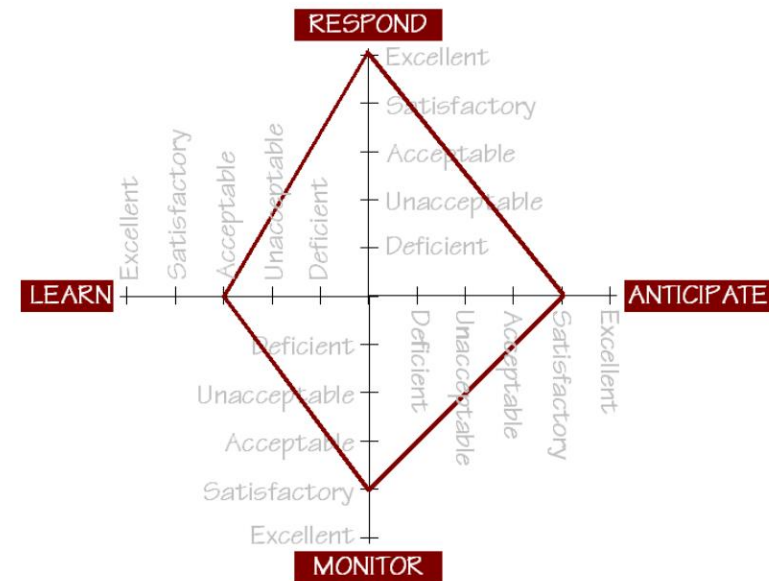


Figure 7: RAG star diagram for resilient organisation



“Work as imagined; work as done.”

BLAIR'S LAW #3: “ANY RESEMBLANCE BETWEEN THE EXPECTED AND ACTUAL SITUATIONS IS USUALLY COINCIDENTAL.”

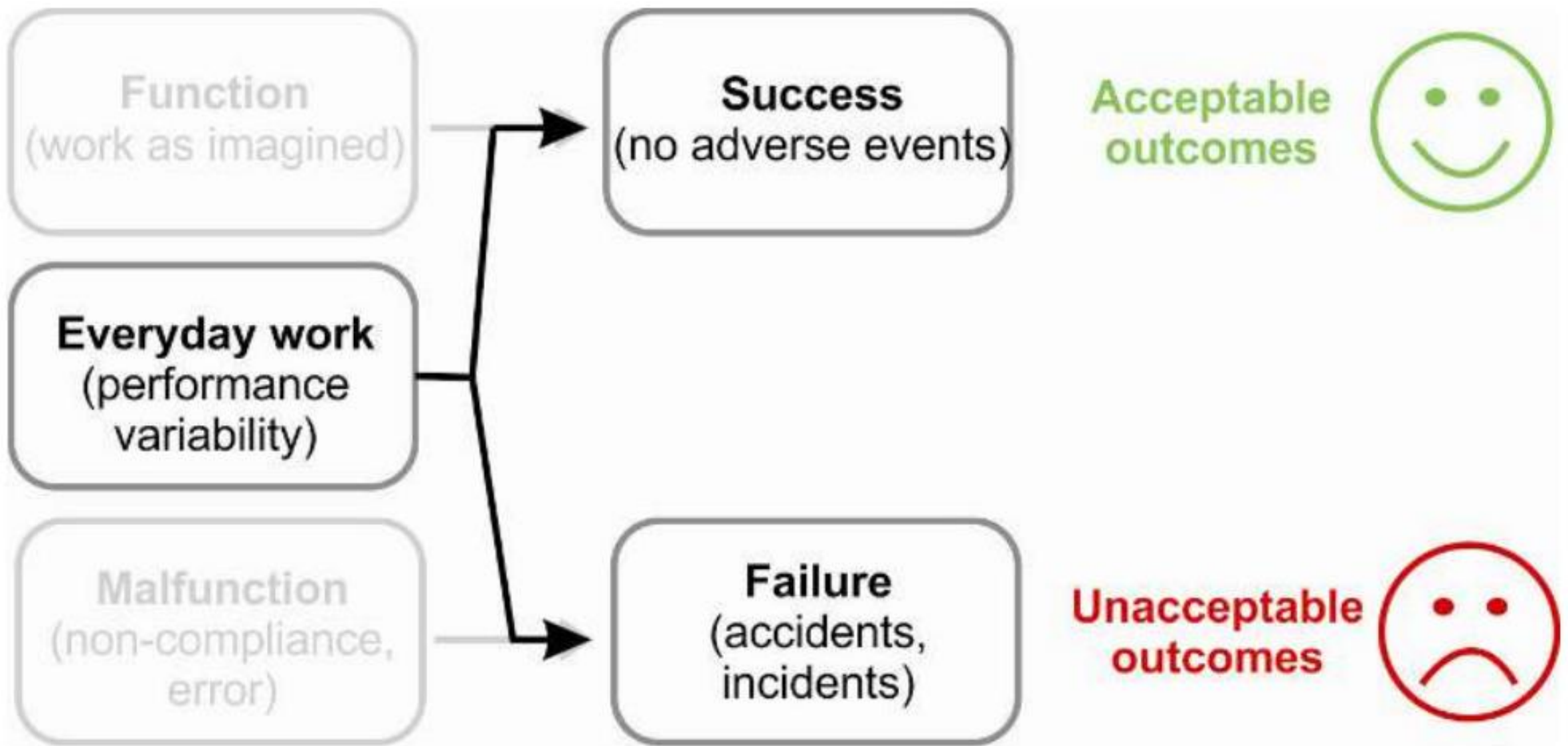
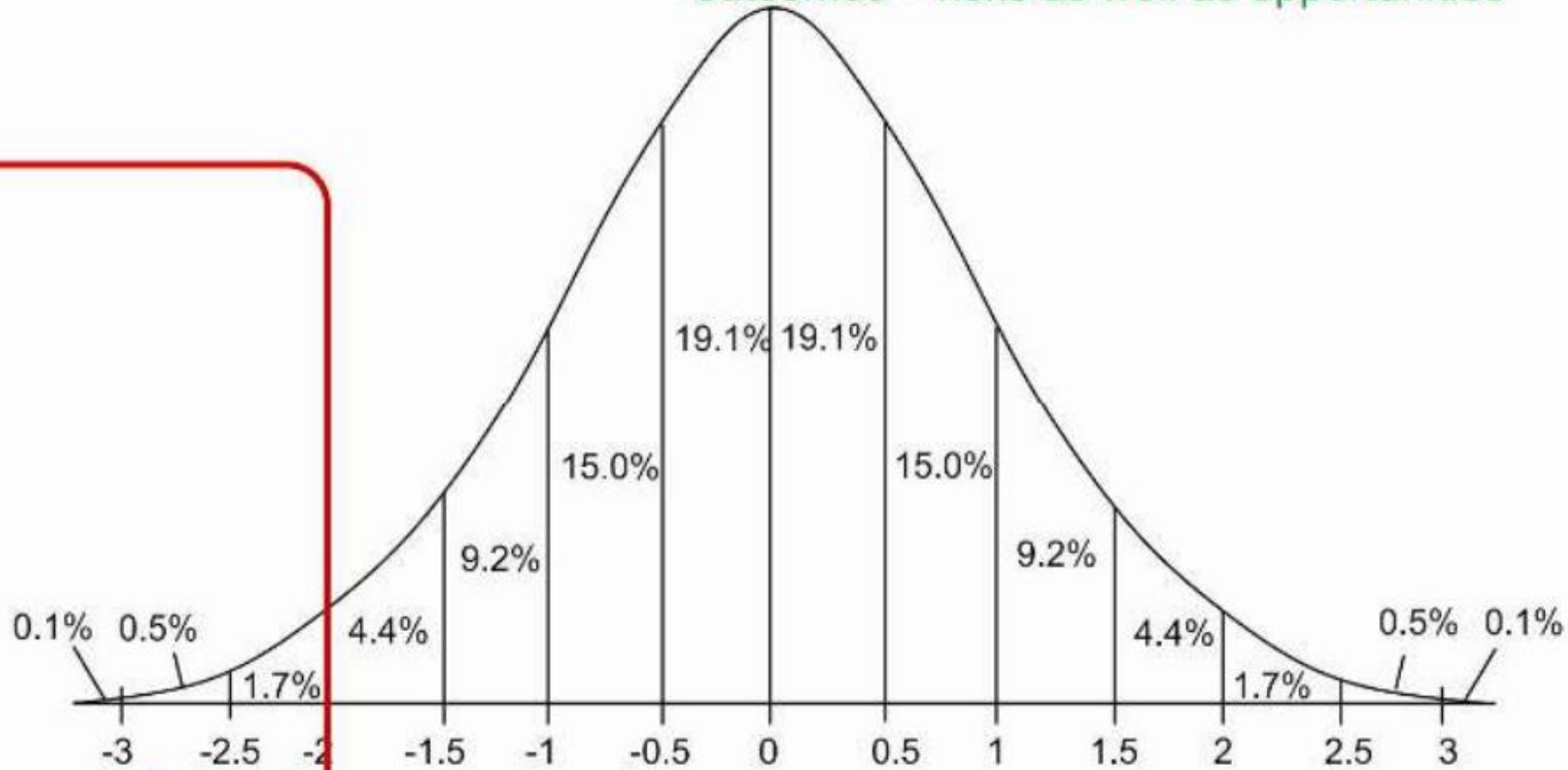


Figure 5: Things that go right and things that go wrong happen in the same way

Focus of Safety-II: Everyday actions and outcomes – risks as well as opportunities



Focus of Safety-I:  
Accidents & Disasters

Figure 11: Focus of Safety-I and Safety-II

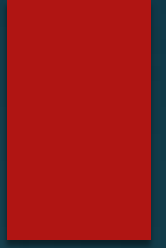
	<b>Safety-I</b>	<b>Safety-II</b>
<b>Definition of safety</b>	That as few things as possible go wrong.	That as many things as possible go right.
<b>Safety management principle</b>	Reactive, respond when something happens or is categorised as an unacceptable risk.	Proactive, continuously trying to anticipate developments and events.
<b>View of the human factor in safety management</b>	Humans are predominantly seen as a liability or hazard.	Humans are seen as a resource necessary for system flexibility and resilience.
<b>Accident investigation</b>	Accidents are caused by failures and malfunctions. The purpose of an investigation is to identify the causes.	Things basically happen in the same way, regardless of the outcome. The purpose of an investigation is to understand how things usually go right as a basis for explaining how things occasionally go wrong.
<b>Risk assessment</b>	Accidents are caused by failures and malfunctions. The purpose of an investigation is to identify causes and contributory factors.	To understand the conditions where performance variability can become difficult or impossible to monitor and control.

# The ARHT Experience

- ▶ Individual
  - ▶ Selection criterion
  - ▶ Resilience research project: Practical tools tested via clinical simulation
- ▶ Team
  - ▶ Human factors integrated into our clinical curriculum
  - ▶ Team building (adventure sport, charity rides,...)
- ▶ Organization
  - ▶ Moving from pre-contemplative to contemplative
  - ▶ 'Wellness Initiative'

# Resilience

- ▶ May add value to:
  - ▶ Human performance under stress
  - ▶ Crew and patient safety
- ▶ Requires development in:
  - ▶ Individuals
  - ▶ Teams
  - ▶ Organizations





Questions or suggestions?

[chris.denny@gmail.com](mailto:chris.denny@gmail.com)



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