

*Teamperformance and cathlab culture:  
dynamics of critical-care teamwork in  
the cardiovascular domain*



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Alexander D. Hilt, MD  
PhD candidate dept. of Cardiology  
Leiden University Medical Center



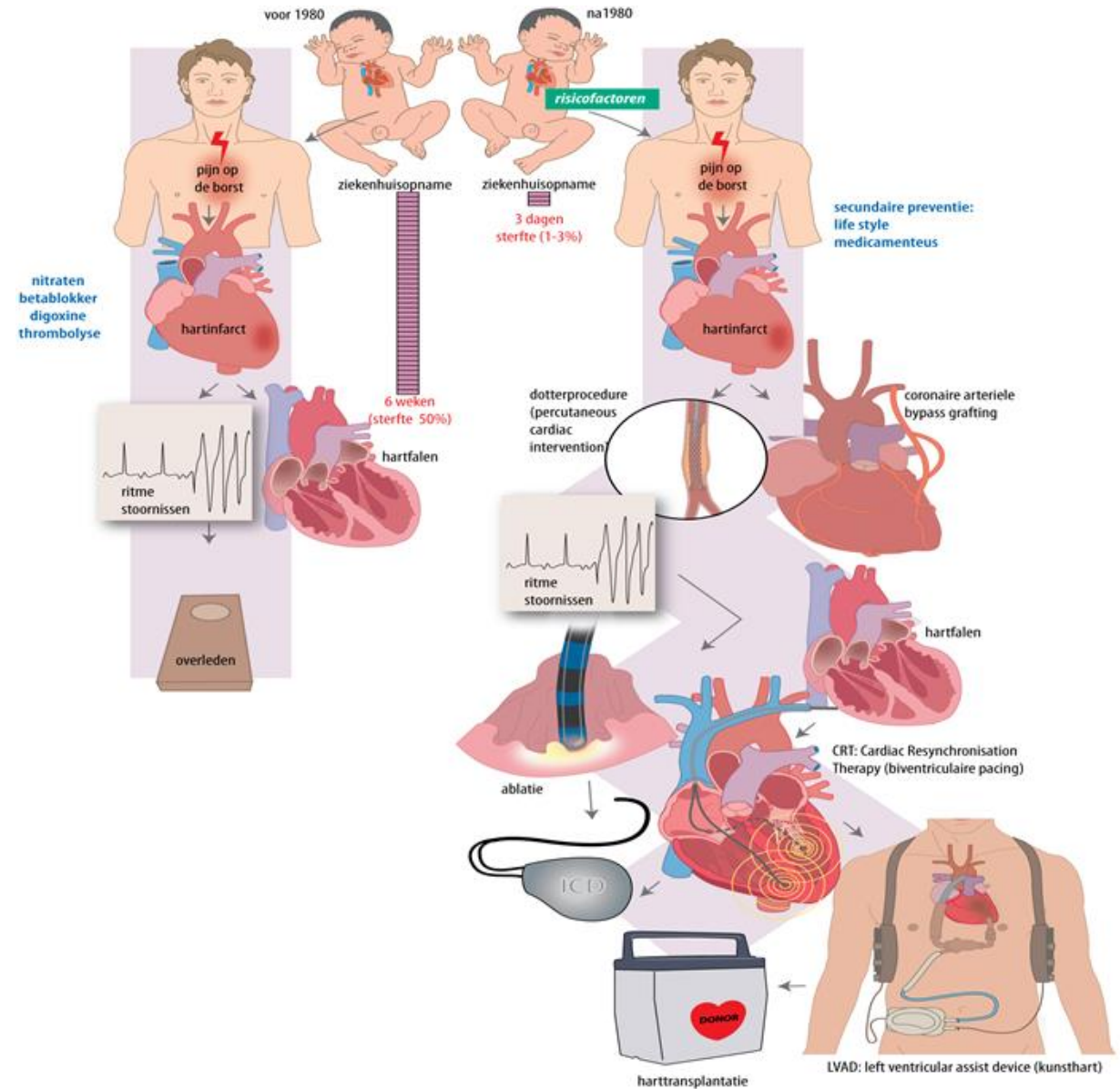
Disclosures

NONE

# Overview

- Introduction:  
Work environment – Modern Cardiology.
- Research focus:  
A new frontier - Human Factors.
- Examples:
  - Teamperformance analysis – SAQ / cultural assessment
  - Simulation training.
- Discussion / Future perspectives.

# Introduction: Modern Cardiology



# What we do best..

**Dapagliflozin reduces death and hospitalisation in patients with heart failure**

**Complete revascularisation is superior to culprit-lesion only intervention**

**Prasugrel cuts ischaemic events in acute coronary syndrome patients**

**Ticagrelor plus aspirin reduce ischaemic events in stable coronary patients with diabetes**





“Let’s do something with Culture” |

Specialisation	Description	Example for healthcare
Ageing	Human factors applications to meet the needs, capabilities, and limitations of the elderly and other special populations	Applying human factors principles to reduce inpatient falls <sup>50</sup>
Augmented cognition	"Development and application of real-time physiological and neurophysiological sensing technologies that can ascertain a human's cognitive state while interacting with computing-based systems"	Designing tools that can transmit feedback to the surgeon to improve laparoscopic grasp control <sup>44</sup>
Cognitive engineering and decision making	"Research on human cognition and decision making and the application of this knowledge to the design of systems and training programmes"	Identifying cues and strategies experienced nurses use to recognise infants at risk for sepsis and necrotising enterocolitis to guide the design of training and decision support <sup>51 52</sup>
Communication	Human-to-human communication, especially when mediated by technology	Comparing the information accuracy of manual versus electronic patient status boards in emergency departments <sup>53</sup>
Human performance modelling	"Development and application of predictive, reliable and executable quantitative models of human performance"	Model-based simulations to investigate how and why age and localised muscle fatigue affect postural control and fall risks <sup>54</sup>
Industrial ergonomics	"Application of ergonomics data and principles for improving safety, productivity and quality of work in industry"	The design of a workstation for radiologists using appropriate ergonomic and biomechanics data
Macroergonomics	"Organisational design and management issues in human factors and ergonomics as well as work system design and human-organisation interface technology"	Evaluating system components at various organisational levels (eg, drug route; nurse to patient ratios; medication administration policies) and modifying them in a coordinated manner to aid safe medication administration during shift change <sup>27</sup>
Perception and performance	"Perception and its relation to human performance"	Designing and evaluating visual, audio and combined displays for anesthesiologists <sup>55</sup>
Product design	"Developing consumer products that are useful, usable, safe and desirable"	Redesigning epinephrine autoinjectors for patients in an effort to reduce injection errors during anaphylaxis <sup>56</sup>



# A New Frontier

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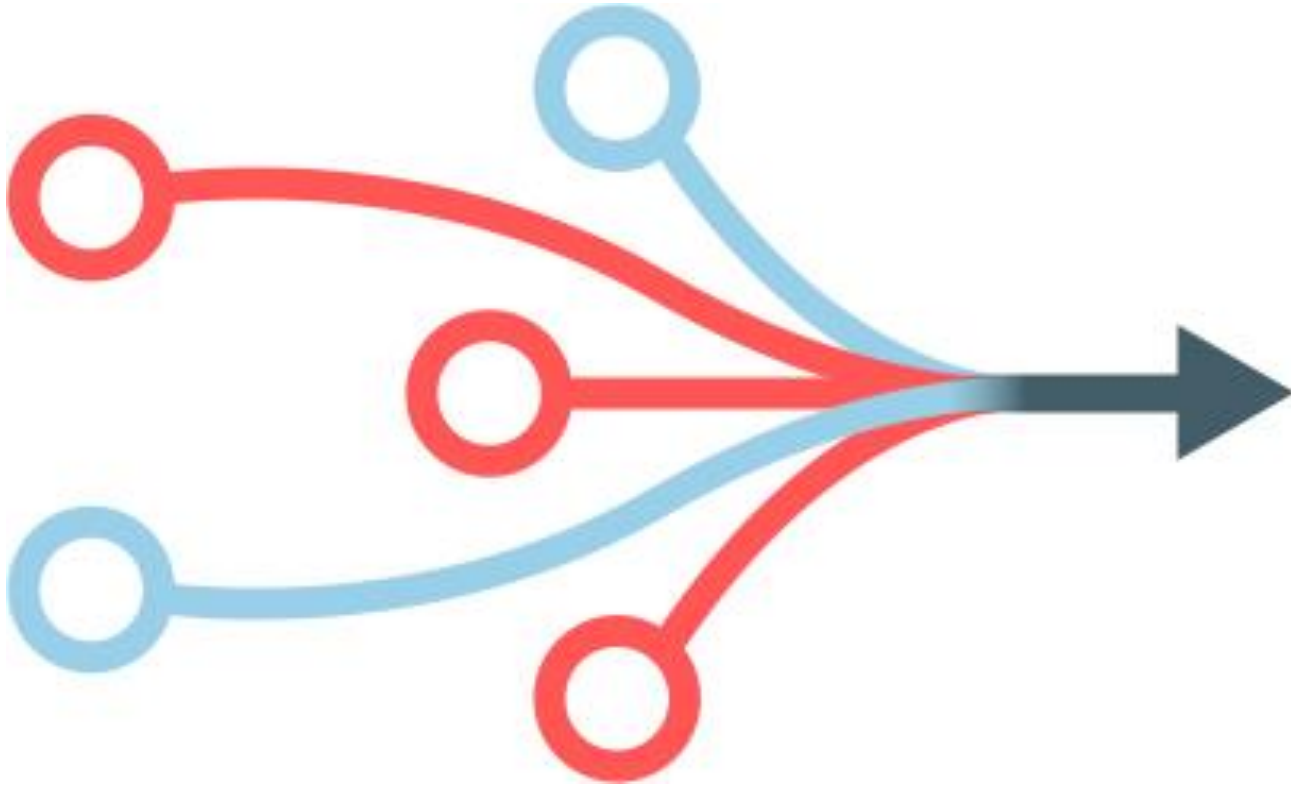


## Example (1)

- Teamwork in the cardiovascular domain
  - “Cathlab culture: a qualitative approach for improvement”



# Cognitive and Individual domain - “Bloodlines”



# KLM: learning from the professionals

- Qualitative analysis of local team culture and work patterns:
  - how to define our teamwork: who are we and what do we do?
- Organizational Psychologist / KLM senior safety trainer
- Stepwise analysis:
  - I) understanding our teamwork (observations, interviews)
  - II) what is our daily flow – where are obstructions?
    - Themes of improvement?
  - III) what is needed to change this? – i.e. workshops, monthly meetings.

Work in progress...



## Example (2)

- **Teamwork in the cardiovascular domain**
  - “Assessing teamwork in complex aortic surgery: how can we improve? A single centre experience with the SAQ as diagnostic tool”.



# Learning from the Pro's (2)





# Safety climate analysis: SAQ-use.

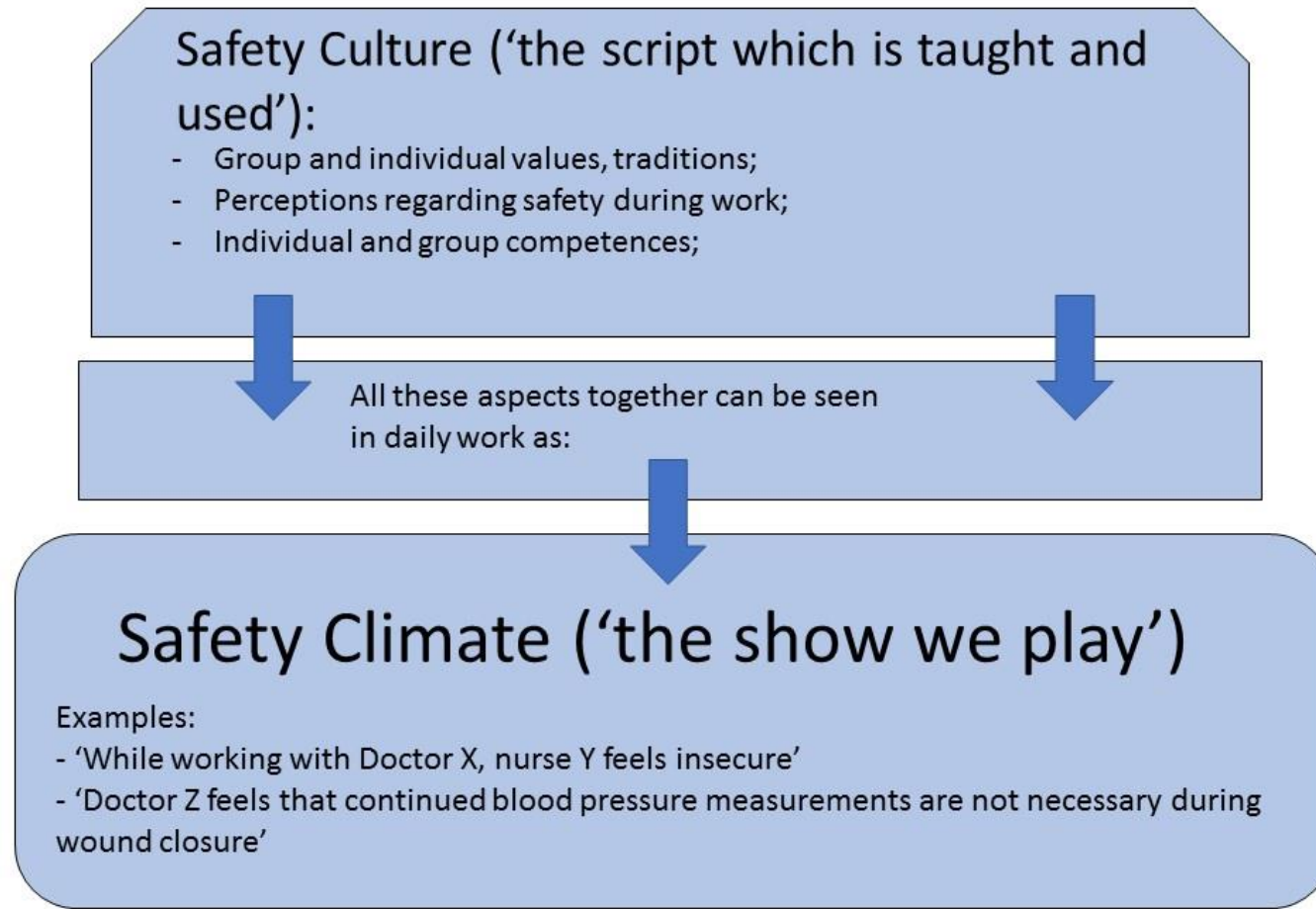
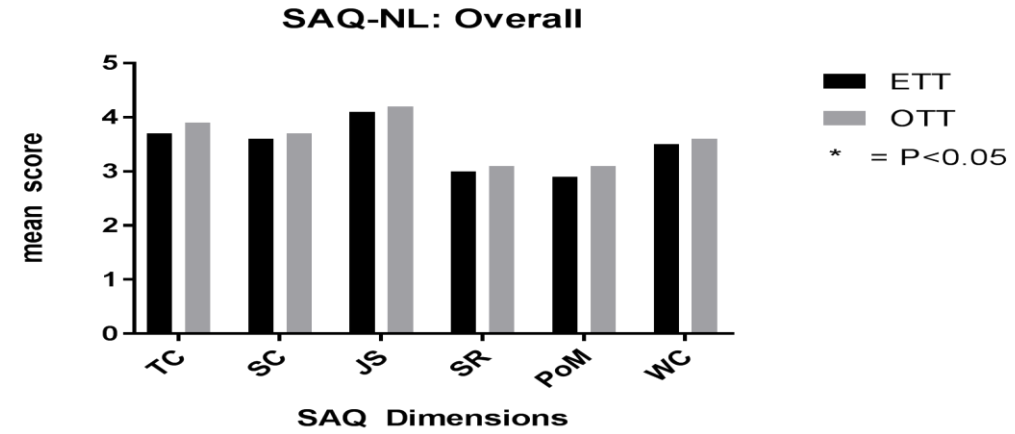


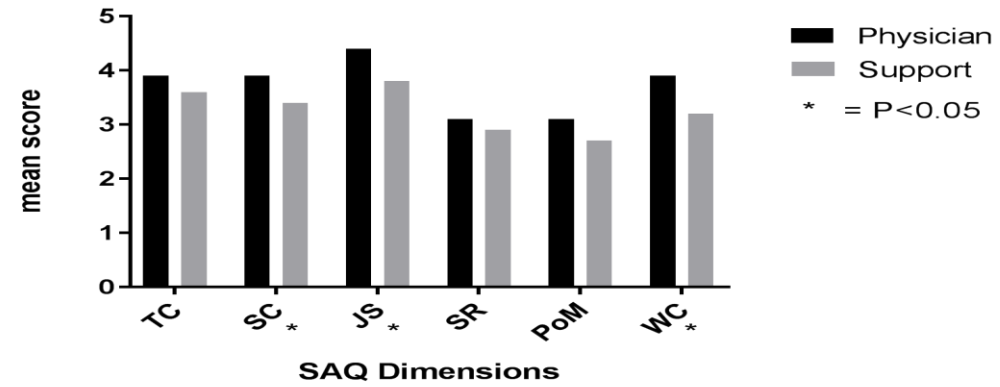
Table 2. Demographics		
	ETT	OTT
Total (N)	23	13
Male, (N,%)	13(60%)	8(61%)
Physician (N,%)	11(48%)	7(53%)
≥5 years team tenure (N, %)	12(55%)	3(23%)
≥10 years healthcare tenure (N, %)	19(86%)	12(92%)
≥50 weekly workhours (N,%)	5(23%)	6(50%)
Response (N, %)	23(100%)	13(100%)

ETT = Endovascular Treatment Team; OTT = Open Treatment Team

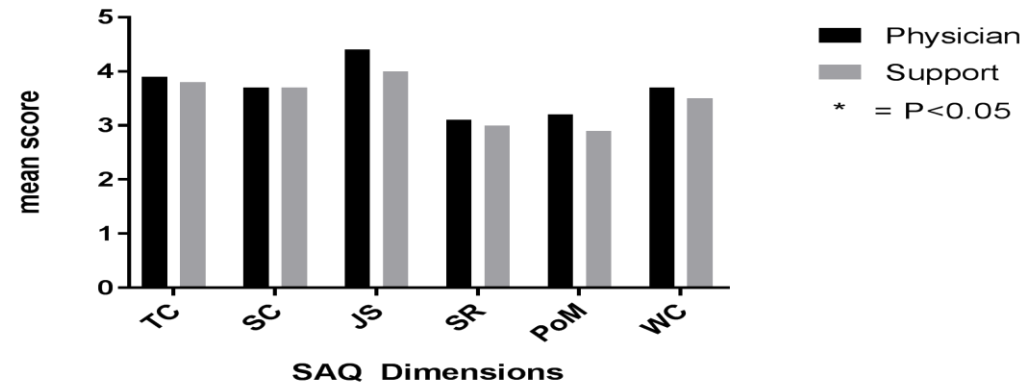
# Results



### Mean SAQ-NL: Physician vs Support ETT



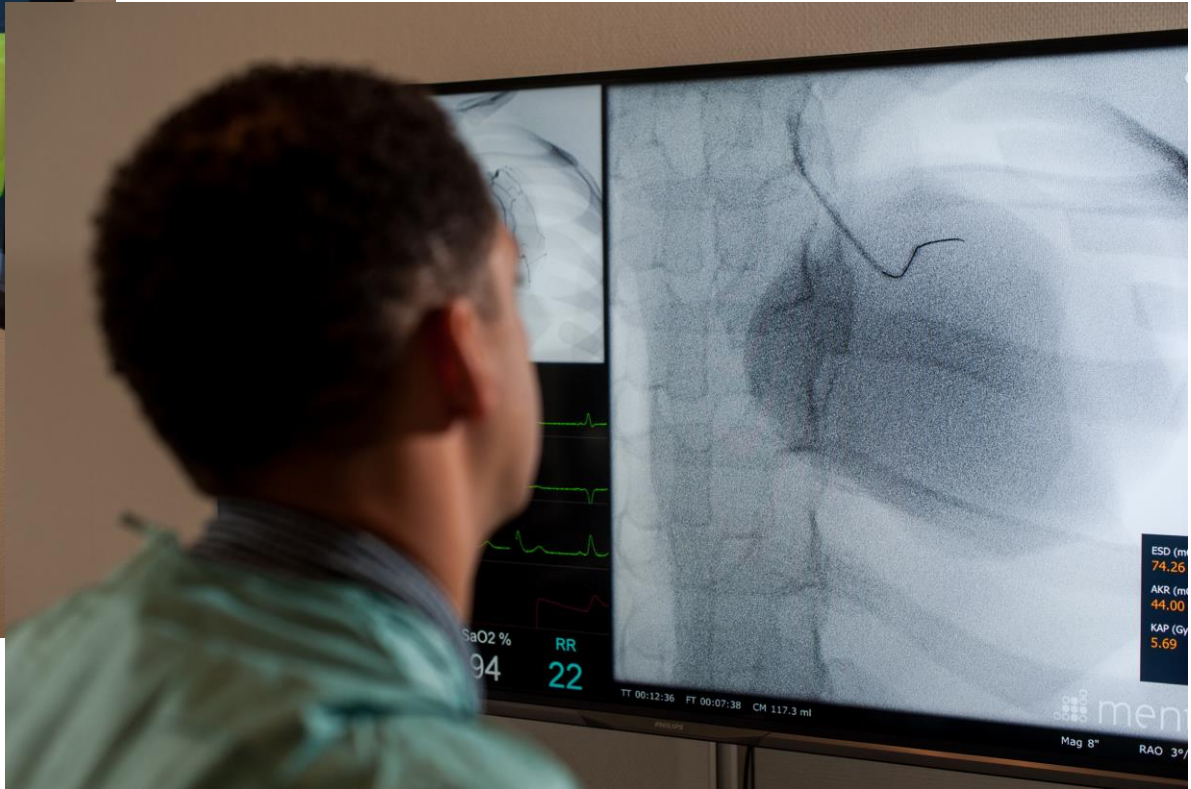
### Mean SAQ-NL: Physician vs Support OTT



## Example (3)

- Teamwork in the cardiovascular domain
  - “Simulations and teamtraining.”





# Conclusions

- HF science and principles in cardiology/cardiovascular medicine regarding teamwork is new, but promising.
- ‘ Better well stolen than badly invented’ - HF principles from other domains are crucial
- Meaningfulness is created by ourselves.

# Discussion / Future perspectives

- Local research: how extrapolatable is this research on a national level? (cultural aspects of work).
- Beware of abstractness – meaningfulness is crucial.
- Leadership – mobilizing troops.
- Collaborations for the future – ‘Hybrid hospitals’/ Hybrid workspaces.

- Thank you for your attention!

email: [A.D.Hilt@lumc.nl](mailto:A.D.Hilt@lumc.nl)

tel: +31-715264682

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