

# Setting the scene – Human Factors

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- Myth-busting human factors/ergonomics (HF/E)
- Faculty development
  - Do healthcare staff need to know about HF/E?
  - Who needs to know what?
- Some HF/E principles

# What human factors/ergonomics is not...

- It is ***not*** crew resource management and non-technical skills



HF/E  
CRM/NTS

Hi Dave...

“Just to let you know that the obstetric training team have just successfully undertaken a Train the Trainer course on Human Factors. The course lasted a week and was delivered by a company called.....”

“The company called...”

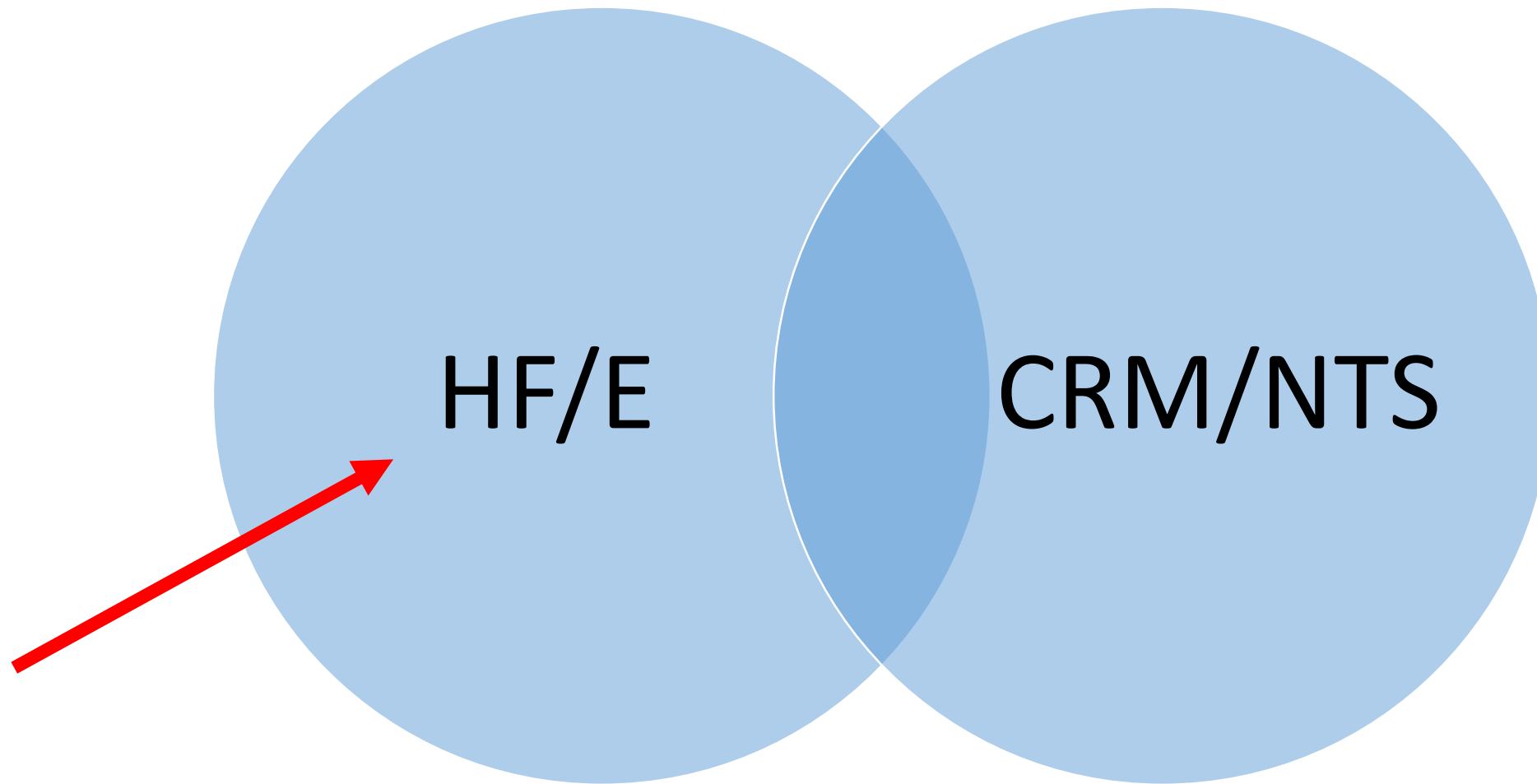
“Crew Resource Management training, also known as Human Factors training develops effective communication skills and a cohesive environment among team members...”

“The course was excellent....very hard work, loads of homework and continuous assessment on our facilitation skills etc.

“The course was excellent....very hard work, loads of homework and continuous assessment on our facilitation skills etc.

However, we are now able to become trainers in Human factors, as the company have granted us the license to use all their training material.

We are planning to deliver training for all staff groups within the maternity service ”





I've told you what it isn't...

...so what is HF/E?

It makes it easier to do the right thing, and harder to do the wrong thing.

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It brings together a variety of different scientific disciplines (e.g. psychology, anatomy, biomechanics, engineering) that provide an explanation of how humans function.

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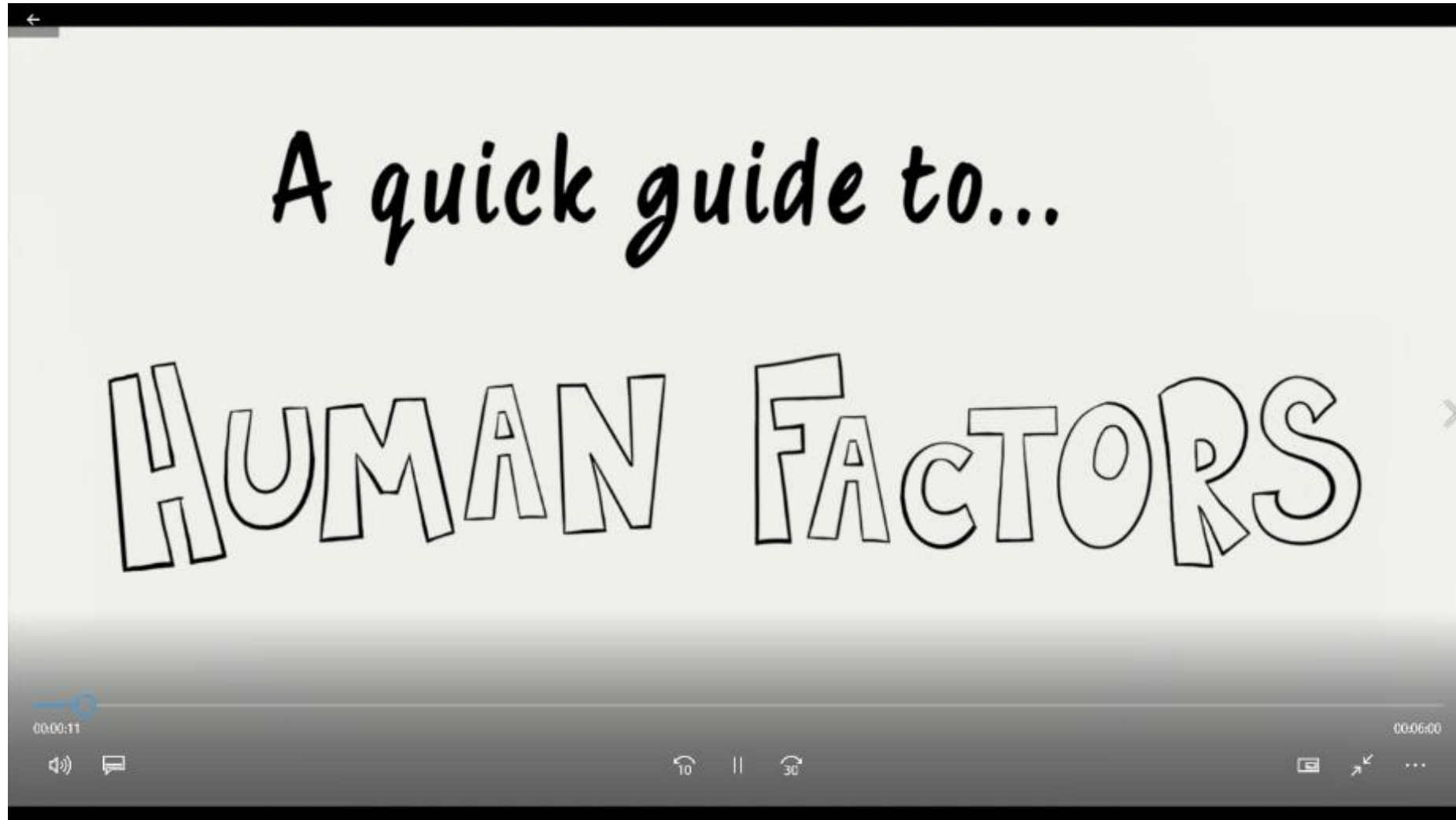
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“Enhancing clinical performance through an understanding of the effects of teamwork, tasks, equipment, workspace, culture, organisation on human behaviour and abilities, and application of that knowledge in clinical settings.”

Dr Ken Catchpole



<https://vimeo.com/250281561>

<https://youtu.be/aGZz3w5Hy8Y>



*Health Education England*

<https://vimeo.com/250281561>

<https://youtu.be/aGZz3w5Hy8Y>

(What) do you need to know about HF/E?

## **GMC generic professional capabilities**

### Domain 6: Capabilities in patient safety and quality improvement

Raise safety concerns appropriately through clinical governance systems

#### **Understand basic Human Factors principles and practice at individual, team, organisational and system levels**

Understand the **importance of non-technical skills and crisis resource management**

Demonstrate **effective multidisciplinary, interprofessional teamworking**

Understand risk and its management or mitigation

#### **Understanding fixation error, unconscious and cognitive biases**

Reflect on their personal behaviour and practice

Effectively pre-brief, debrief and learn from their own performance and that of others

Make changes to their practice in response to learning opportunities

- What are you going to teach your trainee?
- What are you going to ask to be taught?



## **CCT in Anaesthetics**

Annex G

Teaching and Training, Academic  
and Research (including Audit),  
Quality Improvement, and  
Management for Anaesthesia,  
Critical Care and Pain Medicine

- Understands and demonstrates importance of safety, team work and human factors in anaesthetic practice
- Explains the importance of human factors when designing or evaluating system safety or reliability
- Demonstrates ability to analyse a real critical incident from a human factors perspective.
- Performs one observation of where environment, equipment and other factors make it difficult to do the right thing.

# Post graduate schools

- Would like to provide HF training
- Nothing explicit in curriculum
- If trainees are supposed to demonstrate this...

...can the trainers teach and assess it?

# HF Educational Framework

	<i><b>Awareness</b></i>	<i><b>Practitioner</b></i>	<i><b>Facilitator</b></i>	<i><b>Expert</b></i>
<b>People –individual &amp; teamwork</b>				
<b>Environment - physical aspects of a workspace</b>				
<b>Equipment &amp; technology</b>				
<b>Tasks &amp; processes</b>				
<b>Organisation</b>				
<b>Ergonomics and research methods</b>				

Example within the “Environment” domain:

***Awareness***

(awareness of basic principles of HFE and can recognise how these apply in performing their own role)

**Behaviour:**

Demonstrates awareness of how human performance is affected by the physical environment such as heat, light, noise, layout.

## Example within the “Environment” domain:

### ***Awareness***

(awareness of basic principles of HFE and can recognise how these apply in performing their own role)

### **Behaviour:**

Demonstrates awareness of how human performance is affected by the physical environment such as heat, light, noise, layout.

### ***Practitioner***

(integrated and developed HFE principles into their everyday role)

### **Behaviour:**

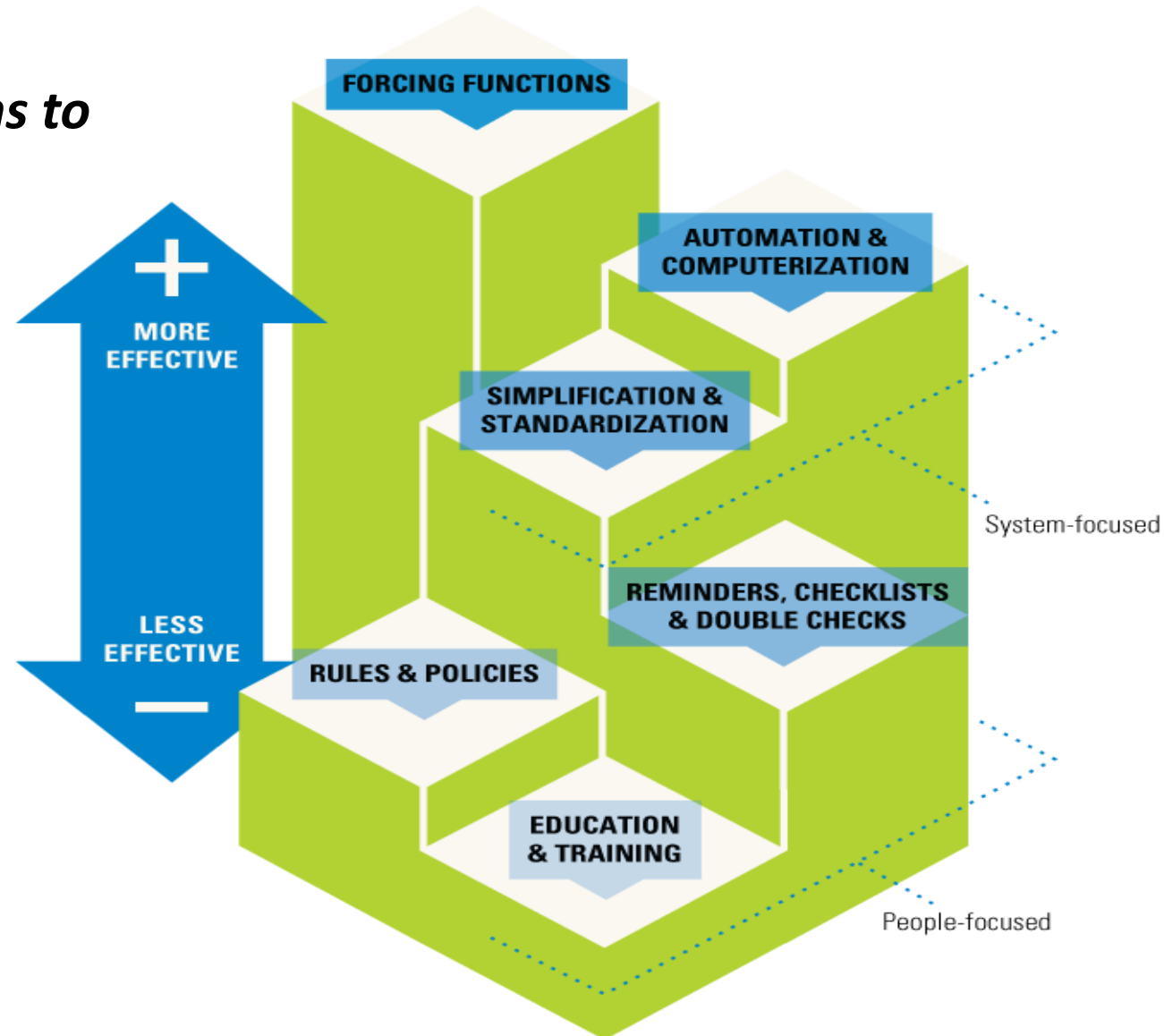
Sets up own workspace to optimise performance of a task, taking account of environmental conditions. Has strategies to use in noisy environments.

# Other principles of HF/E

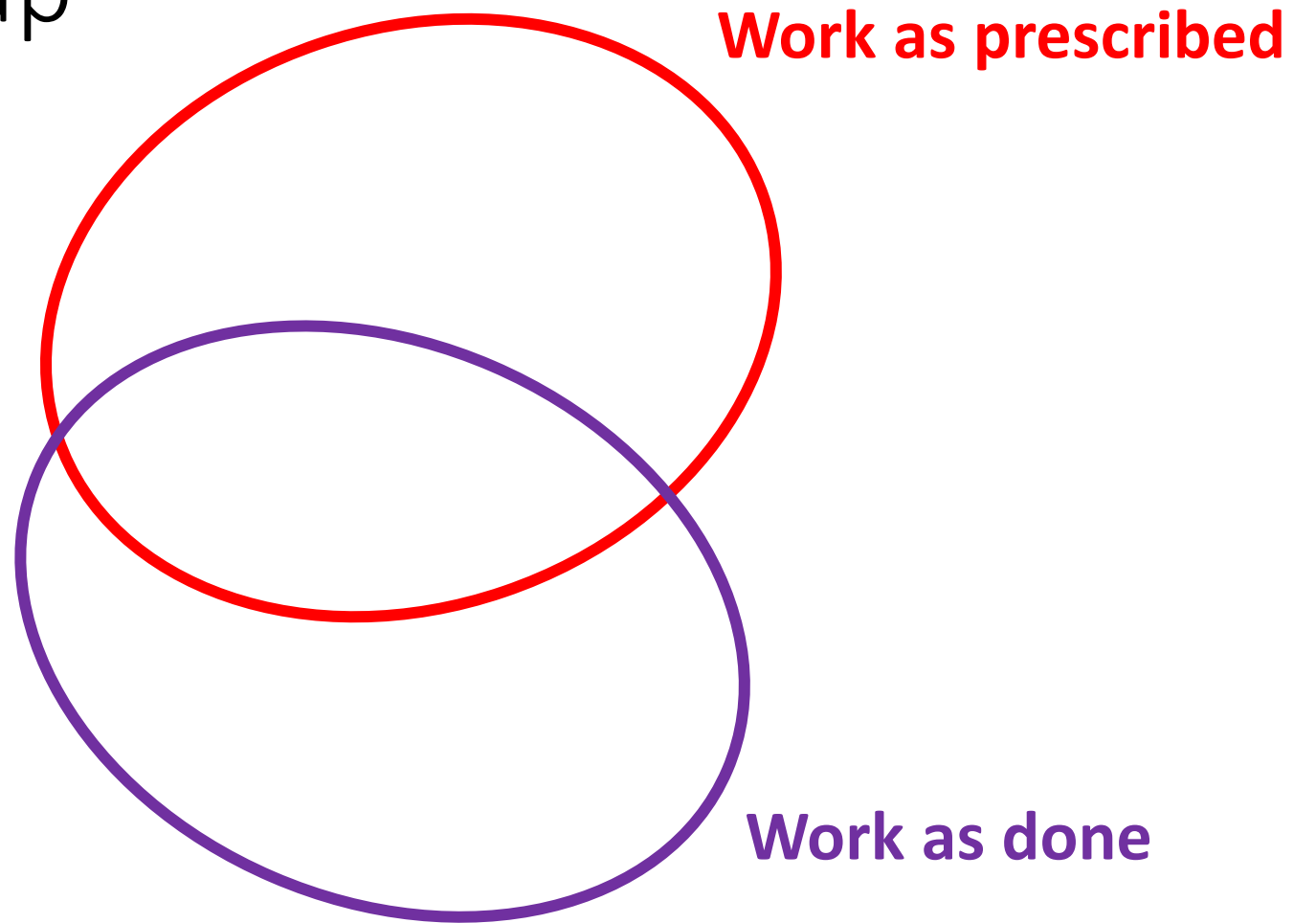
- Hierarchy of interventions
- Policy - Practice gap  
(aka – no plan survives contact with the enemy)
- Safety II vs Safety I  
understand the variation, not the violation

# The Hierarchy of Intervention Effectiveness

*Safe effective systems to  
deliver healthcare*



Policy – practice gap

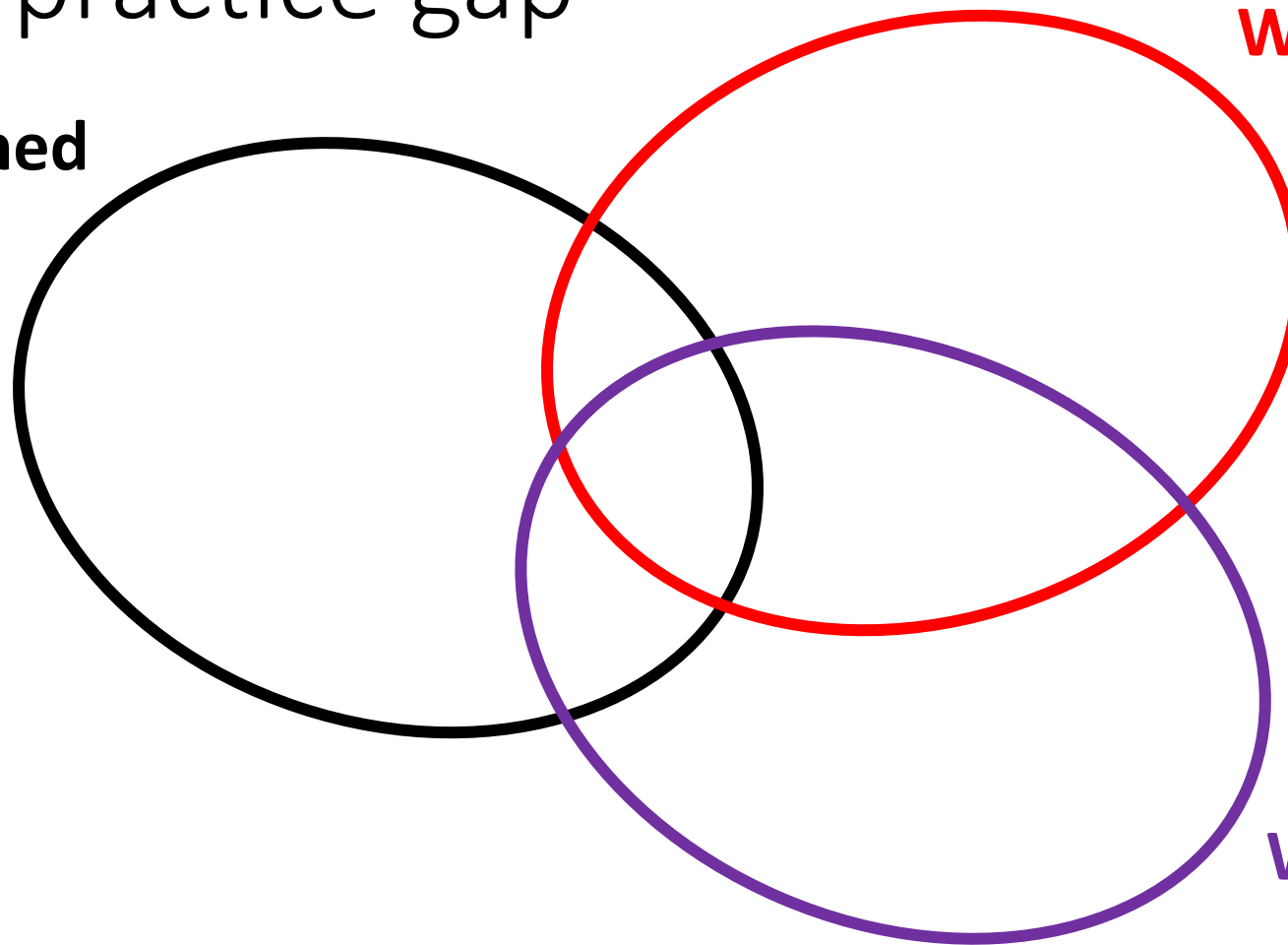




# Policy – practice gap

**Work as imagined**

**Work as prescribed**



**Work as done**

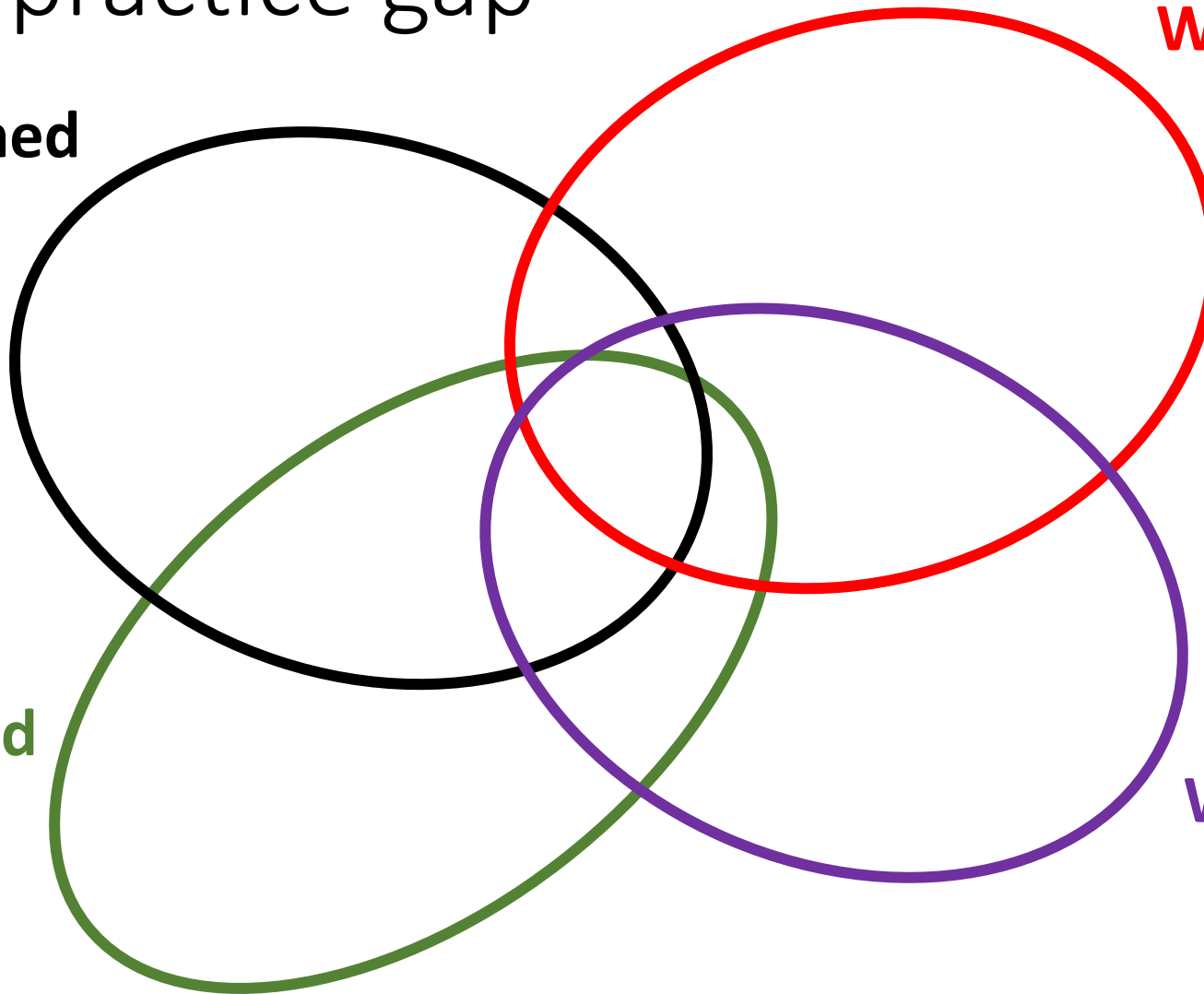
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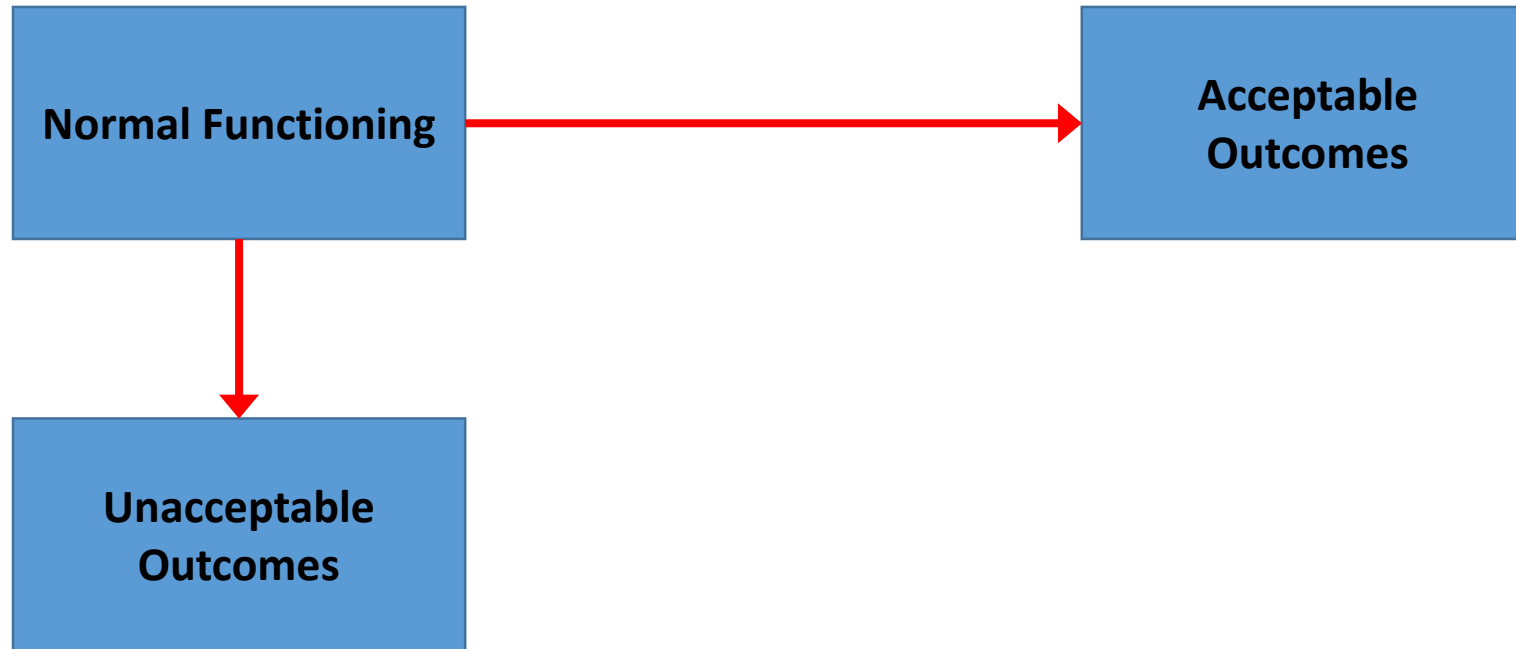
**Work as reported**

**Work as done**

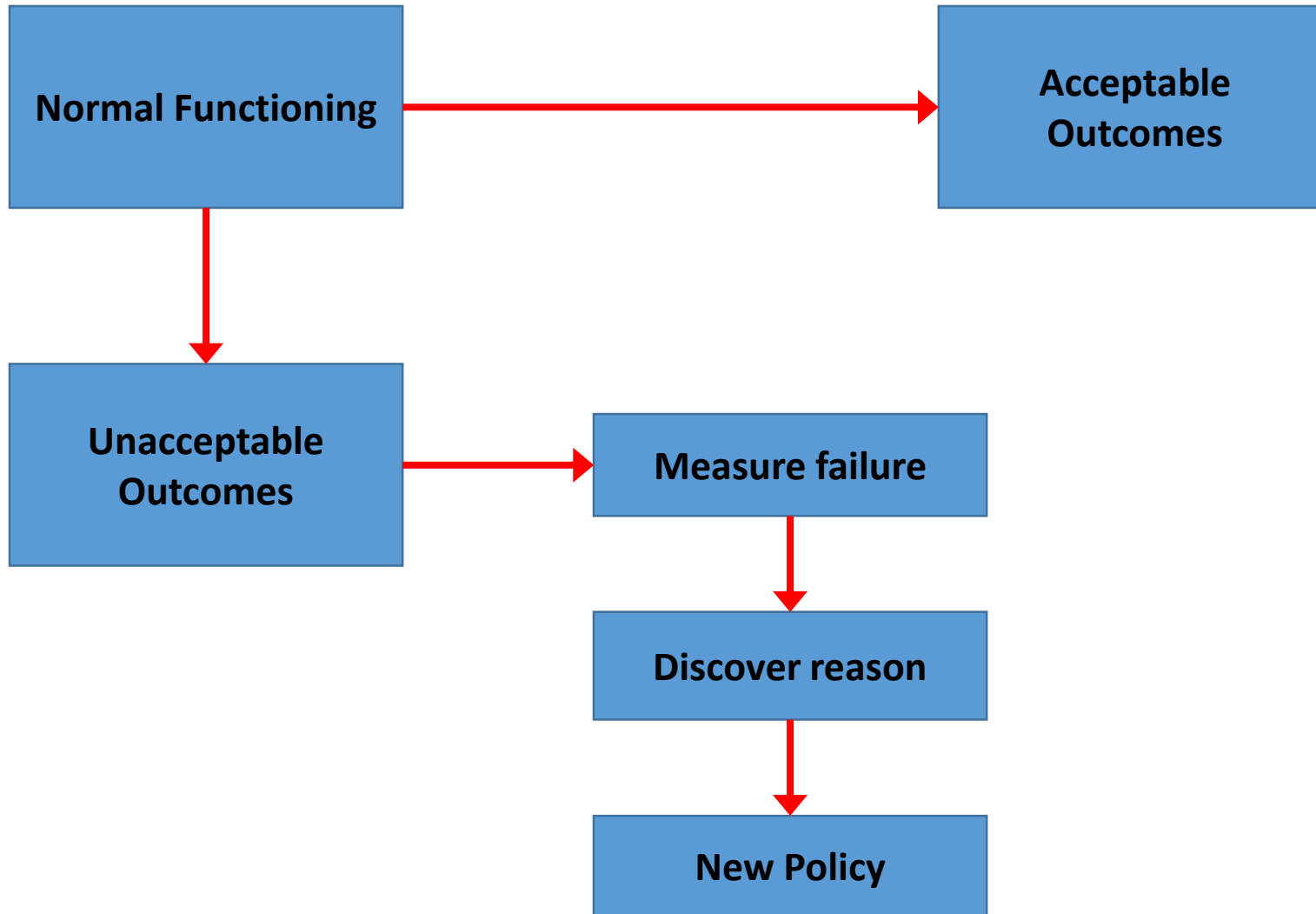




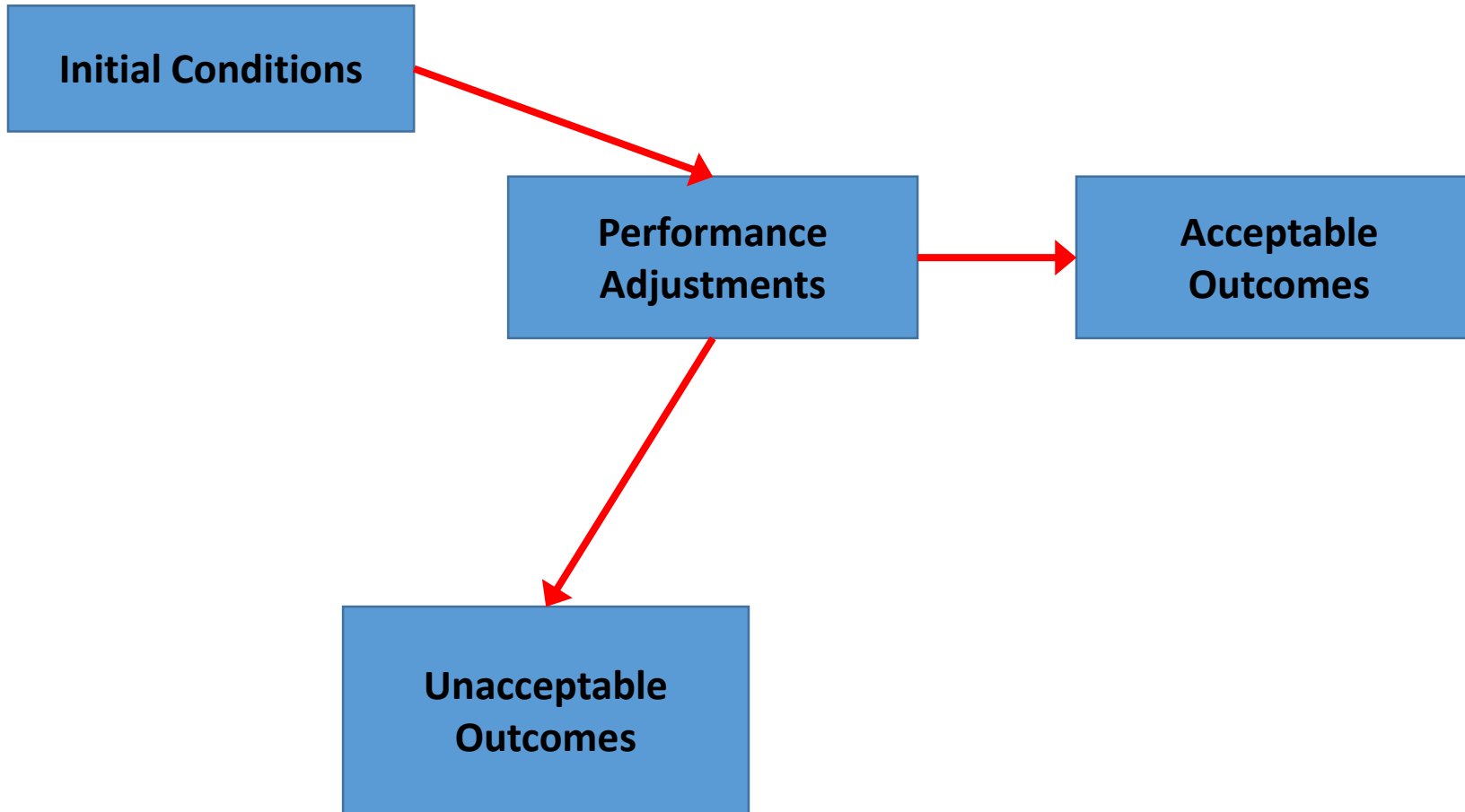
# Safety I



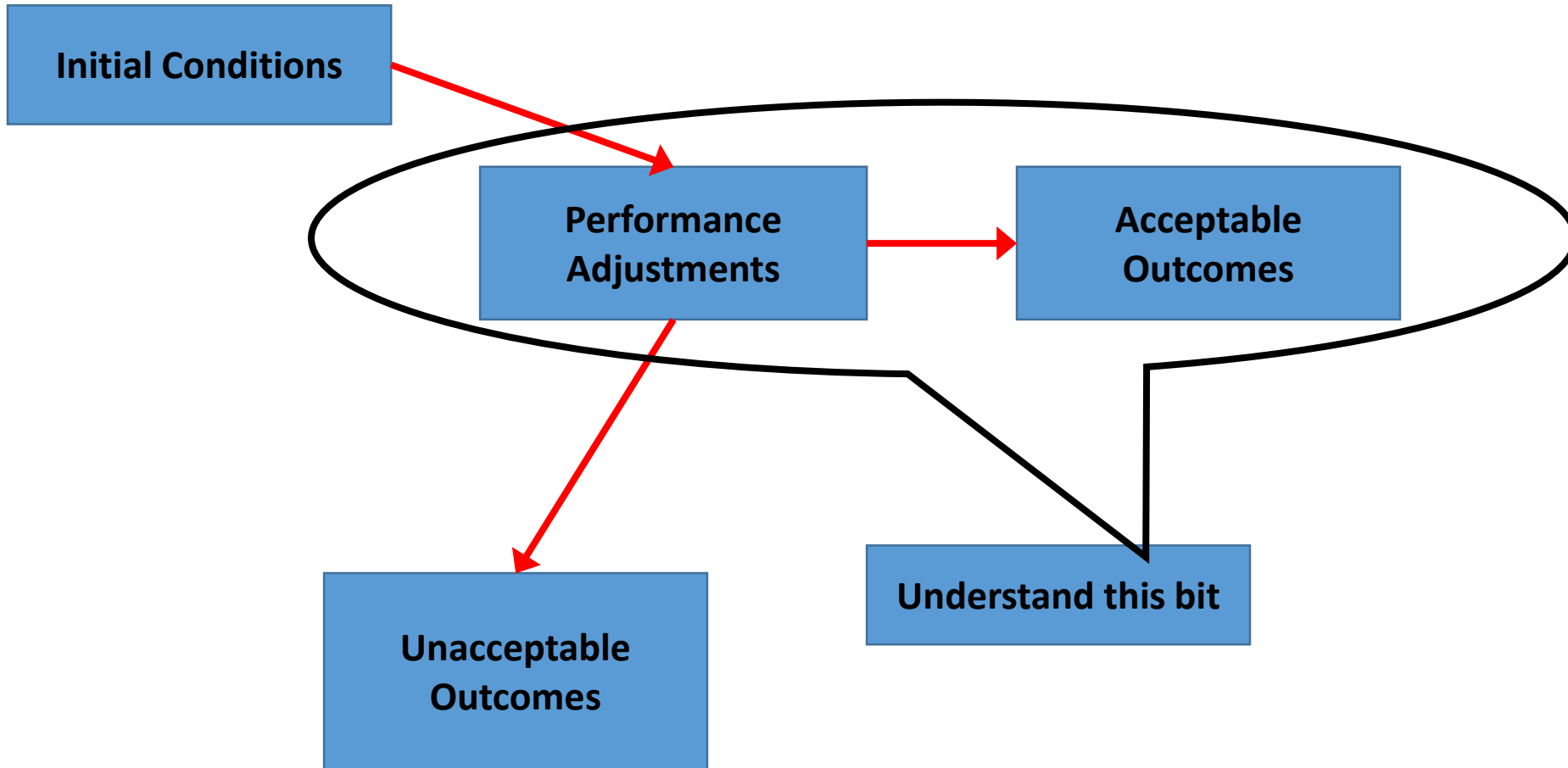
# Safety I



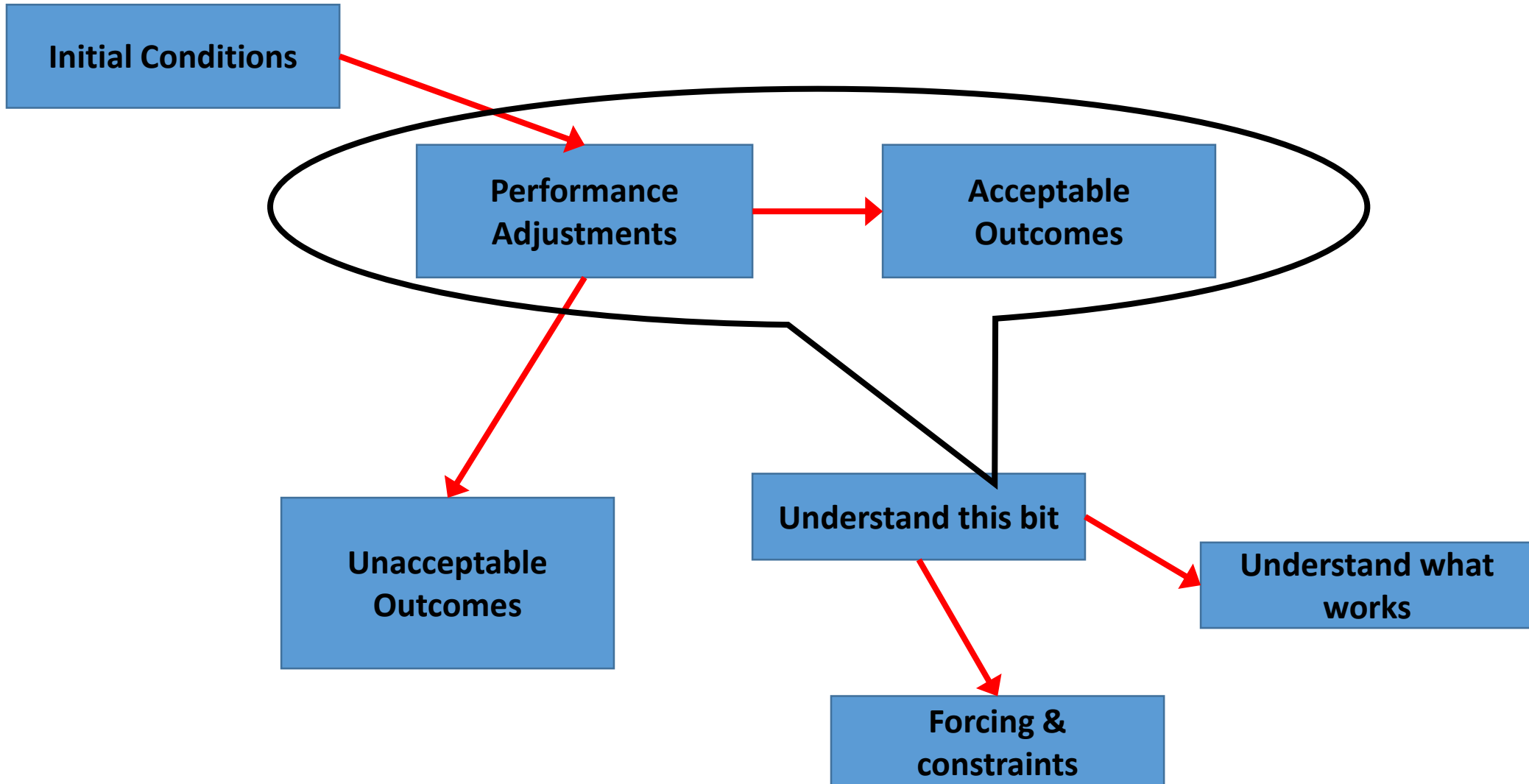
# Safety II



# Safety II



# Safety II





# Safety I vs Safety II

Safety I – count adverse incidents

Safety II – understand the situation

Enthusiastic  
amateurs?



Ergonomists?

Enthusiastic  
amateurs?



Ergonomists?



Patient safety specialists in every Trust (NHSI)

# Summary

- Its more than CRM/NTS
- Make HF/E explicit when its being “done”
- System focussed solutions, not people focussed solutions
- Ergonomists must be involved in order to understand the complexity.....  
.....but much of this is within our own grasp