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Hard Work and Vigilance: Necessary but Insufficient

The Role of Human Factors in General
Practice

Dr Richard Jenkins

Tuesday 21st September 2009



Sit up, pay attention:

NHS

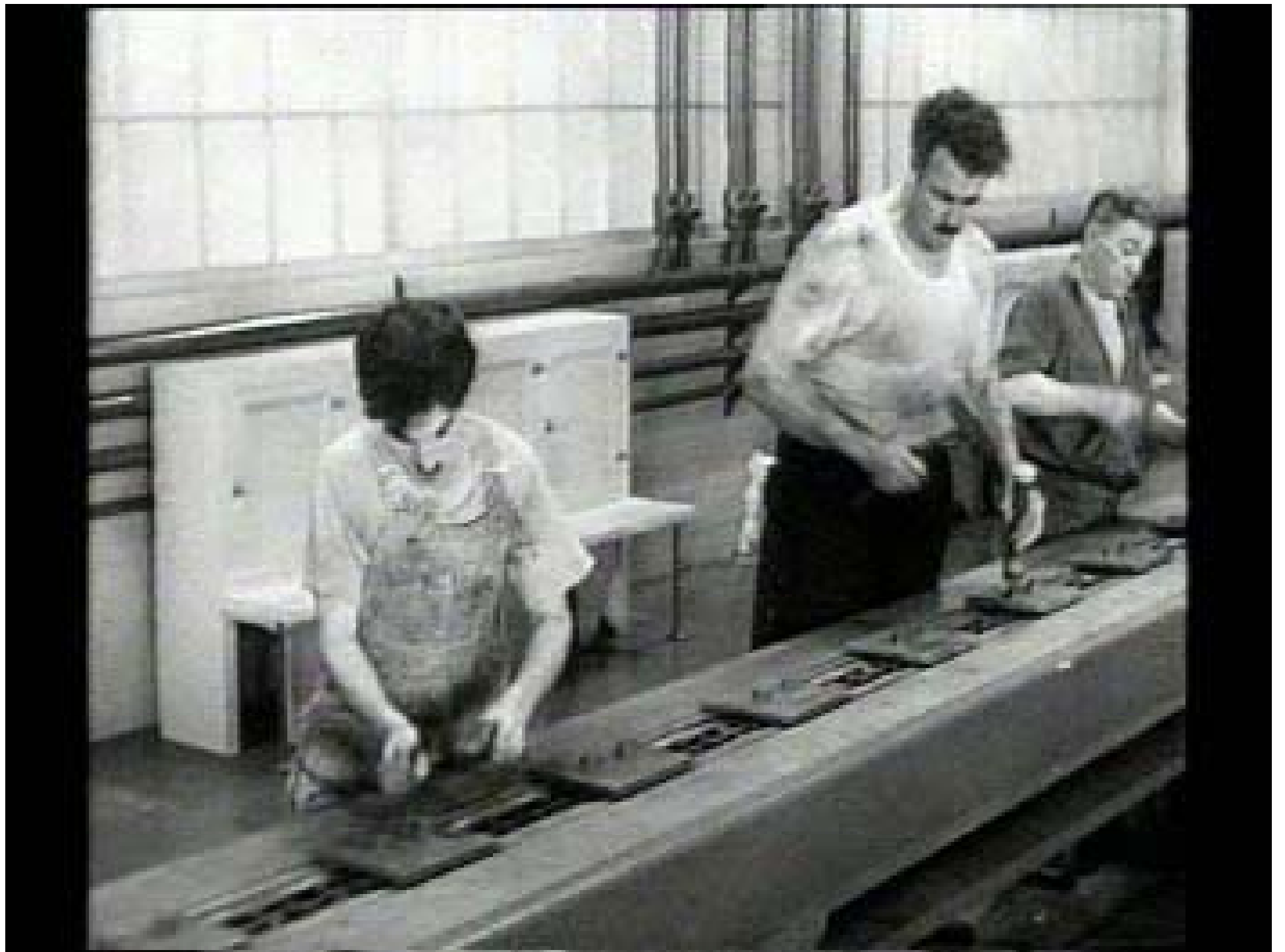
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The Amazing Colour Changing Card Trick





Errors



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1. Errors are common
2. The causes of errors are known
3. Errors are by-products of useful cognitive functions
4. Many errors are caused by activities that rely on weak aspects of cognition
5. Errors can be prevented by designing tasks and processes that minimize dependence on weak cognitive functions
6. Systems failures are the “root causes” of most errors

Lucian Leape, “Error in Medicine” *JAMA*, 1994



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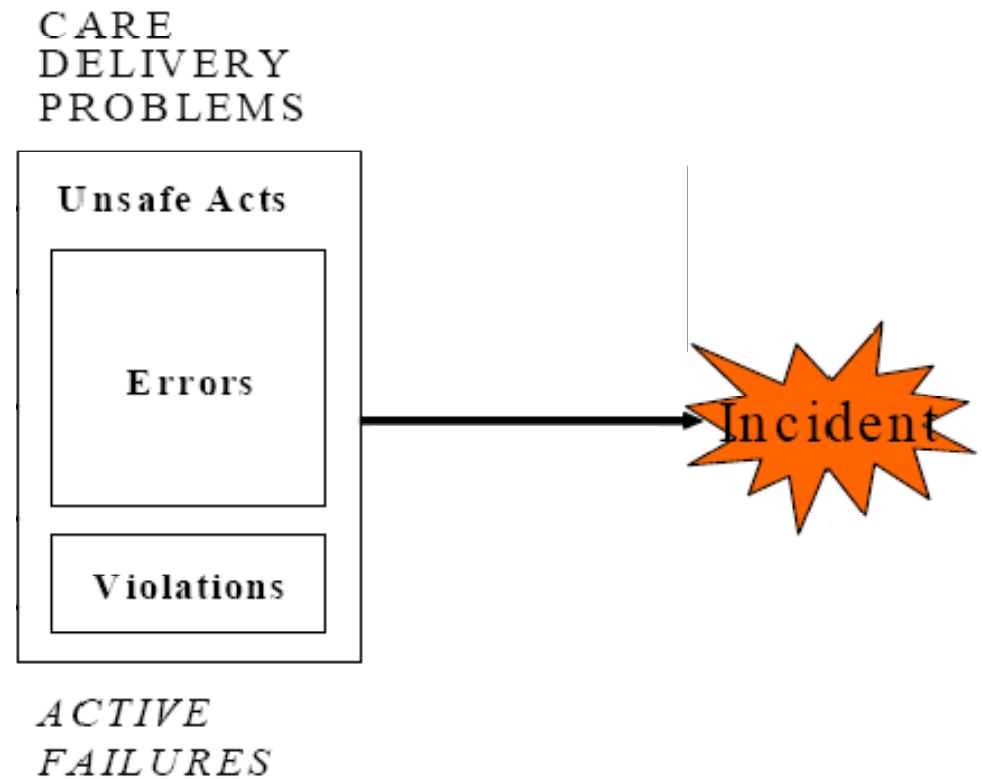
“We can’t change the human condition,
but we can change the conditions
under which humans work”

James Reason



A systems perspective

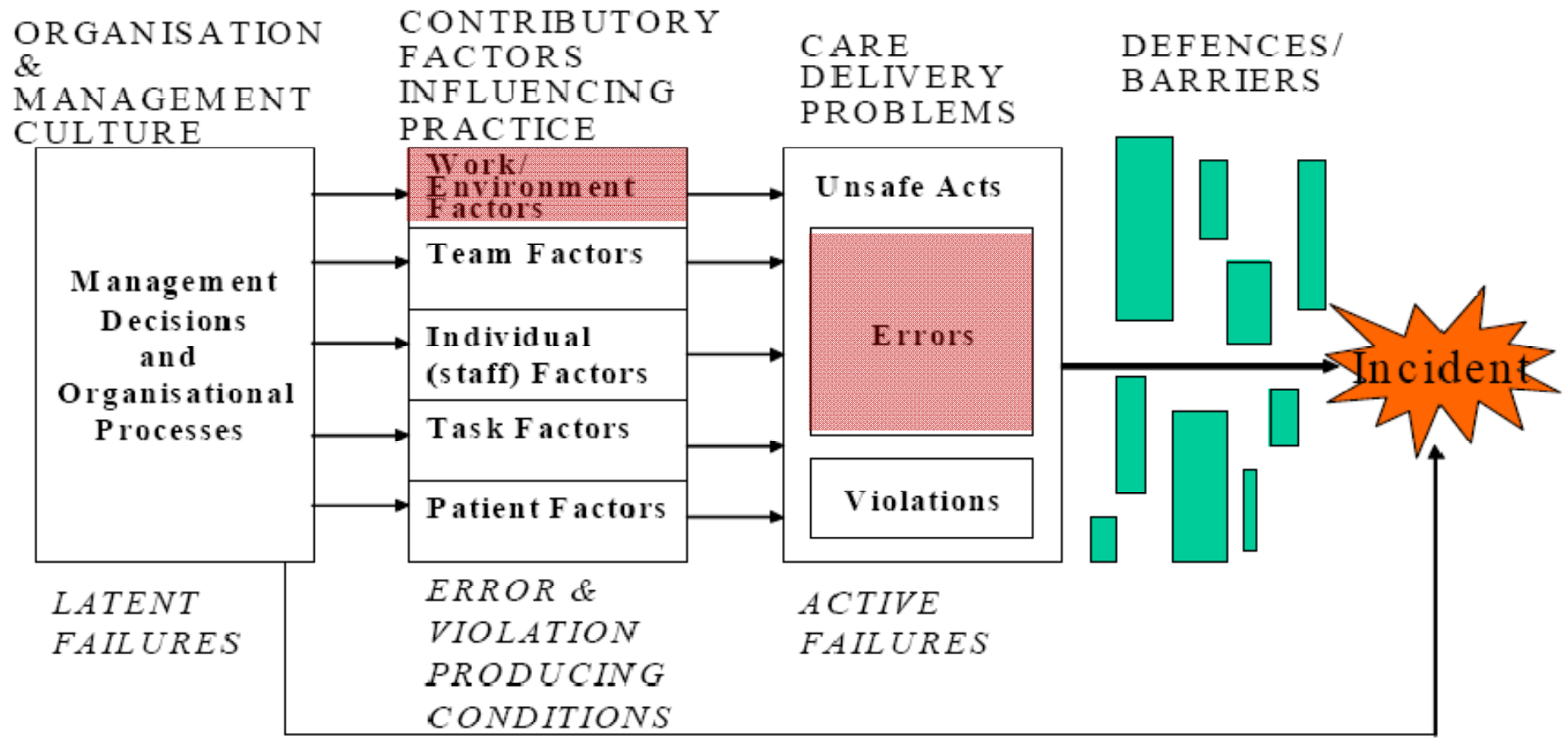
From Vincent et al





Personal & environmental factors

From Vincent et al





Personal & environmental factors



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Personal Factors

Fatigue

Lack of sleep

Illness

Irregular work patterns

Drugs or alcohol

Boredom

Frustration

Fear

Shift work

Reliance on memory

Reliance on vigilance

Environmental Factors

Distractions

– Noise

– Heat

– Clutter

– Motion

– Lighting

Too many handovers

– Unnatural workflow

Poorly designed procedures or devices

Inadequate training and skills



Human factors engineering

Examines a particular activity in terms of its component tasks and then considers each task in terms of:

physical demands,
skill demands,
mental workload and other
such factors

adequate lighting,
limited noise, or other
distractions
device design, and
team dynamics

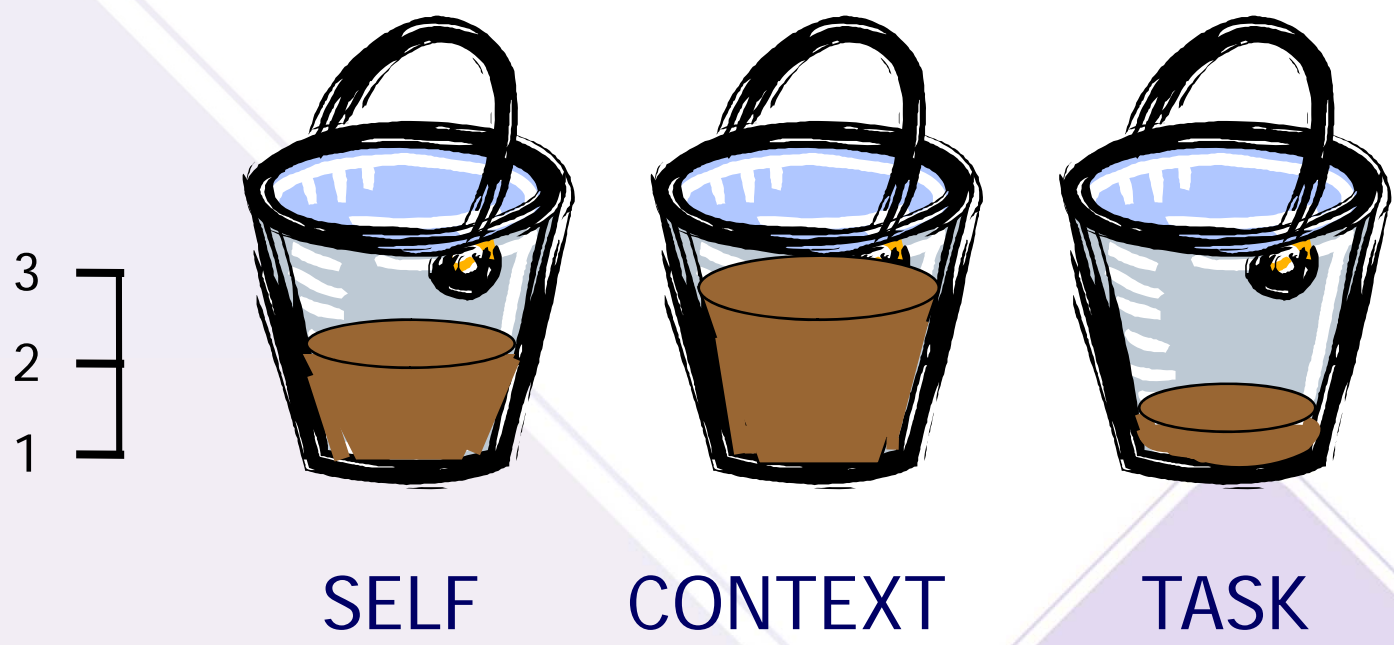
p4

Awaiting better definition from Mark AS

nc2400 User, 27/06/2008



'Three bucket' model for assessing risky situations (Reason, 2004)



The fuller your buckets, the more likely something will go wrong ... but your buckets are never empty.



What impacts our performance?



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1. What we think

- Overloading our cognitive state

2. What we do

- Overloading our behavioural repertoire

3. What we feel

- Overloading our emotional state

- Overestimate abilities
- Underestimate limitations
- Noise
- Distractions
- Environmental conditions
- External stimuli
- Internal response to stress
- Release of stress hormones
- Anxiety
- Increased heart rate



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Error reduction strategies



Error reduction strategies



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Design for safety

avoid setting yourself up to fail

1. The way we think – (cognition strategies)

- Avoid reliance on memory
- Simplify
- Standardise
- Safer labels and signs

2. The things we do – (behavioural strategies)

- Use constraints/forcing functions
- Use protocols and checklists
- Improve information access

3. The way we feel about our work – (emotional strategies)

- Promote effective team functioning
- Reduce number of handovers
- Structured management of handovers



Design for safety



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Design for safety

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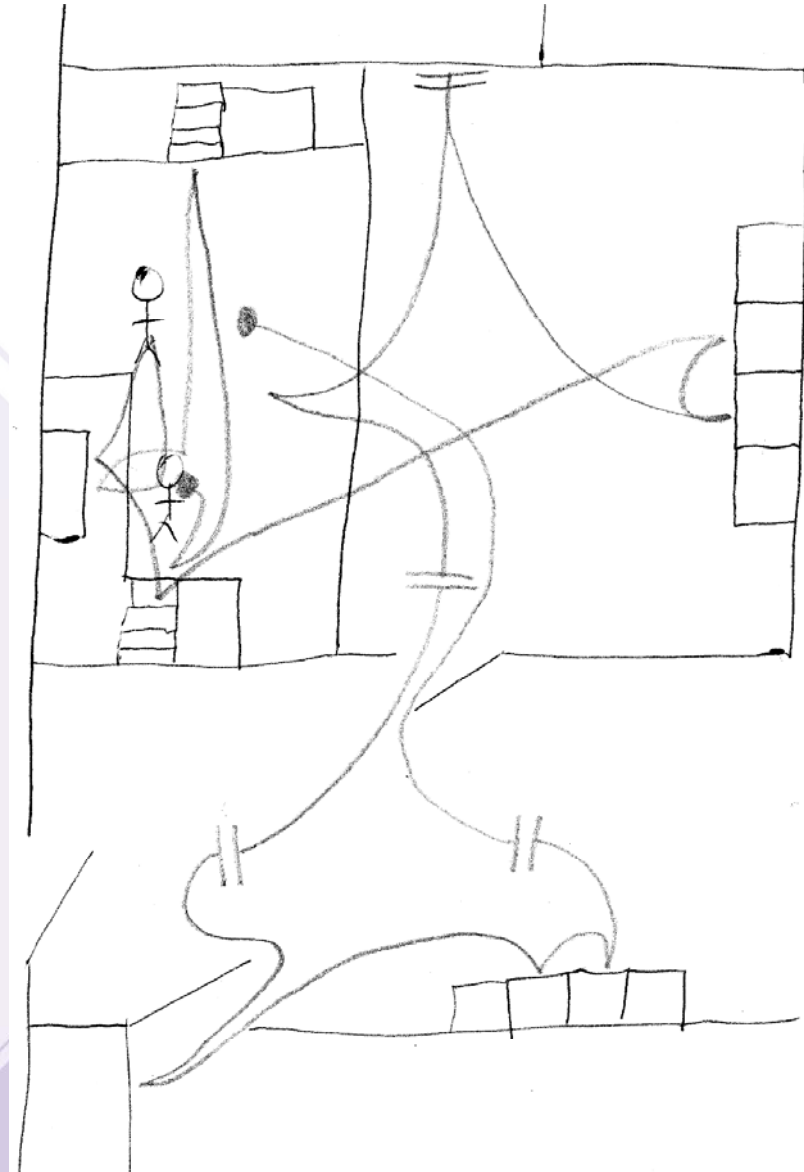




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KEEP OUT OF THE REACH OF CHILDREN

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Assess your environment



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Conduct review of organization

- Are processes simple and standardized?
- Are failure identification and mitigation systems in place?

Conduct a task analysis

- How many interruptions are there during the work shift?
- How complex are the tasks or instructions?

Conduct human factors audits

- Noise levels; distractions; design of workspace; label format; work hours and reviews

Train staff in human factors awareness



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www.institute.nhs.uk/safercare/GP