

The problem with being human...how do
we make decisions?

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Scenario

65 year old man presents with a sudden onset collapse. He is sweaty, pale, confused, moving all four limbs. He complained of chest pain prior to his collapse. Physical examination is unremarkable

BP 80/63 Pulse 55 T 36.4 GCS 14

ECG 2 mm ST elevation in leads II and III, no reciprocal changes

Differential Diagnosis

Acute MI

Aortic Dissection

Leaking aortic aneurysm

Massive pulmonary embolism

Oesophageal rupture

Scenario

The first year SpR diagnosed an inferior MI.

A portable chest x-ray was normal.

Thrombolysis and aspirin were promptly provided.

The patient arrested 30 minutes later.

A post mortem identified a dissection, pericardial tamponade and an occluded right coronary artery.

The problem with being human...how do we make decisions?

Aims:

Medical error context

Understanding decision making needs

Understanding of cognition

Thinking skills

Decision making methods

Limitations

Cognition errors

Types of mistakes that we make

What affects cognition error

Recent studies of adverse events

- are errors of decision execution – slips/lapses
- errors in decision making process

25% death/ permanent disability due to decision error

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How we make decisions

Cognition

Conscious

Slow 5 - 9

Lot of effort

Uses working/ short term memory

Used in tasks

Novel

Critical

Overriding routine

Prioritising

How we make decisions

Cognition

- Automatic
 - Fast
 - Effortless
 - subconscious
 - Well practiced
 - Pattern recognition
 - Long term memory
- Multi tasking
 - Switching from one task to another very rapidly

Pattern recognition

According to a research at Cambridge University, it doesn't matter in what order the letters in a word are, the only important thing is that the first and last letter be at the right place. The rest can be a total mess and you can still read it without problem. This is because the human mind does not read every letter by itself, but the word as a whole.

Memory linkage

- Short term memory
 - Decay
 - Displacement
 - 20 – 30 seconds
 - Rehearsal transfers into long term memory
- Long term memory
 - Unlimited capacity
 - Unlimited duration
 - Pattern recognition
 - Visual and auditory input
 - Interplay with short term memory

How we make decisions

Cognition

Diagnosis needs acquisition of knowledge

Hx & Ex

Data input into mental maps

Contextualised subconsciously

Clinically meaningful

Abstract link

Transforms into clinical syndrome

Trigger diagnosis

How we make decisions

Assess situation

Generate and consider options

Select option and implement

Review

Situation awareness

Mental maps/pattern recognition

Correct implementation

Check

How we make decisions

Experienced Clinician

Repeated encounters

Non analytical

Pattern recognition

Best match from medical library

Confirm selection by questions

How we make decisions

Decision making methods

Examples

Recognition primed

Meningococcal rash

Option appraisal

Chest pain

Rule based

Arrhythmia

Solution needs generation

New solution from knowledge
eg drug research/new disease

Understanding Cognitive Error

How many clinicians admit to error?

10%

Being older does not guarantee a lower risk of decision error

Experience =

Making the same mistakes with ever greater confidence, precision, efficiency and authority'

How we make decisions

Cognitive error

‘We do not see what is missing because concentrating on what is being done’

Sydney Dekker

Hearing goes first

Tunnel vision

Cognitive errors

“Men willingly believe what they wish”

Gaius Julius Caesar

Internal Bias

Over attachment to a diagnosis

Failure to consider alternative diagnosis

Error in prevalence perception or estimation

Error involving patient characteristics or presentation Error associated with physician affect

External Bias

Error due to inheriting a diagnosis – peer opinion

Fixation Error

‘Persistent inability to revise plans in light of emerging or readily available data’

This and only this

Everything but this

Everything is ok

Types of cognitive error

Intended action: error in execution/knowledge/skills stored

–Slip: execution

- Omission
- Intrusion
- Repetition
- Misordering
- Mistiming
- Wrong objects

–Lapse: knowledge

- omission/delay
- forget place/person
- Forget what doing



'Shock' as wrong kidney removed

How we make decisions

Types of cognitive error

- Rule based: wrong/bad/no rule
- Knowledge based/ no pattern/rule
- Violation: SOP not followed

Cognitive error- high risk situations

External

Interruption/ distractions

Task required out of
sequence

Unanticipated new task

Interleaving multiple tasks

Internal

Ill health

Fatigue

Stress

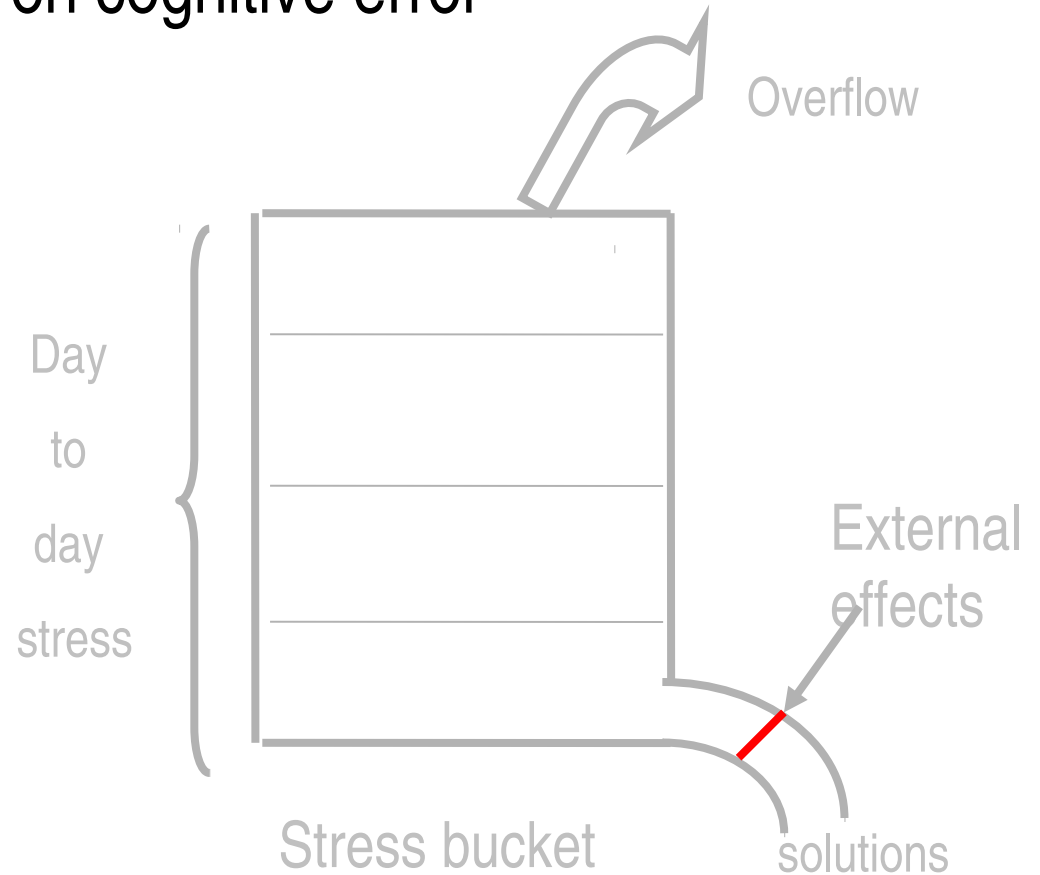
Overload

Inexperience

complacency

How we make decisions: Effects on cognitive error

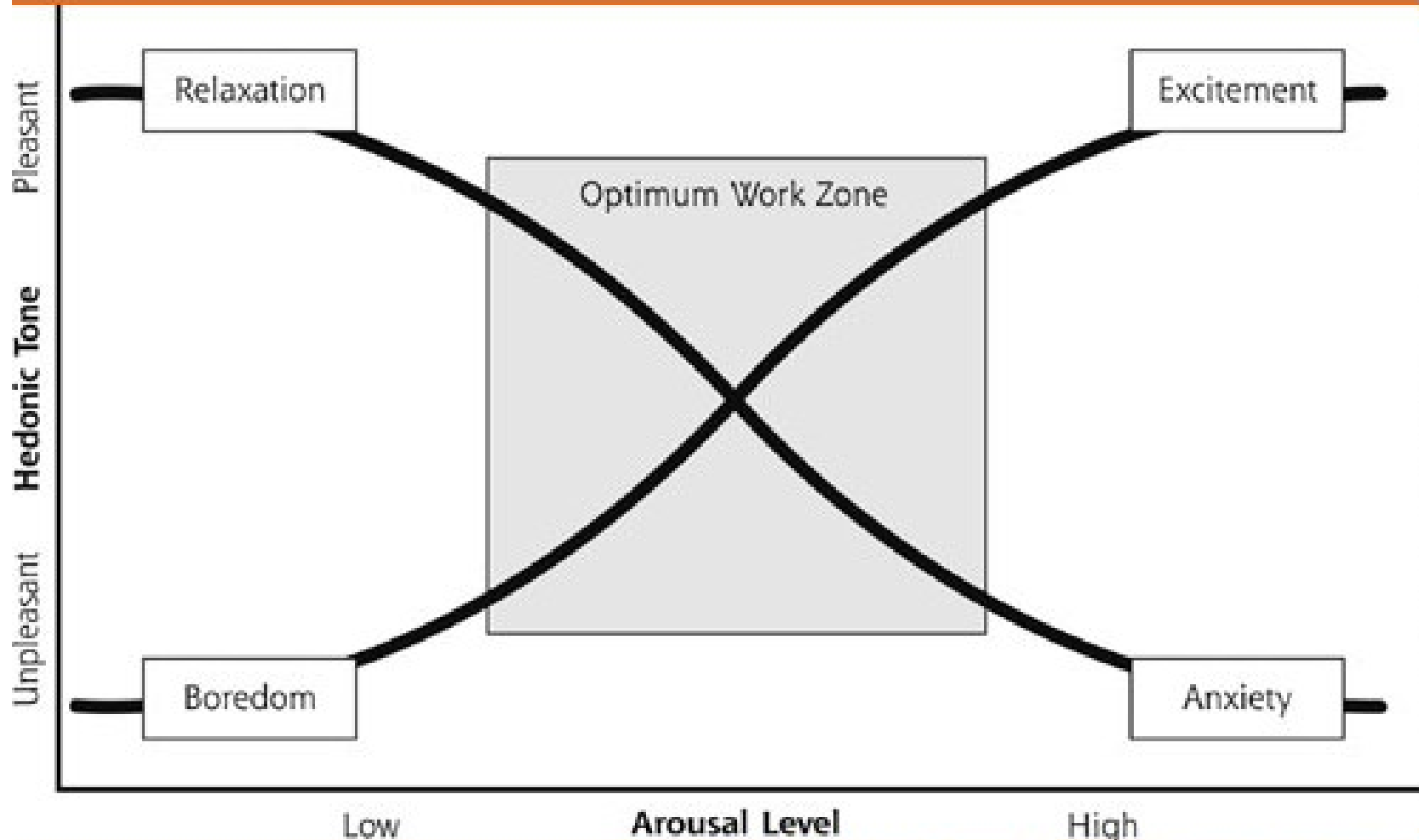
- H** hungry
- A** anxious/ angry
- L** late
- T** tired



Apter's Theory

Medscape®

www.medscape.com



Source: Ann Fam Med © 2004 Annals of Family Medicine, Inc.

How we make decisions: How do we open the tap on the stress bucket?

Good training/ professional development

Seek second opinion

Clinical decision support systems

Robust handover

Good information systems

Feedback

- Audit

- Morbidity/ mortality

- Peers

Understand basic error theory

Human factor recognition

Basic Cognitive Error - prevention

Critique own reasoning – be reflective

High risk circumstances – situational awareness

Activate thought processes to ↓ decision making error (de-biasing strategies)

Basic cognitive error - prevention

De-biasing strategies

Aware common clinical scenarios with ↑ risk

Management error

Think beyond the favoured diagnosis

Reassess when new information occurs think STARR

STOP

REVIEW

THINK

STARR

RESPOND

ASSESS

