



How we think in a crisis The basis for training in RRS's

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Copenhagen

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Learning Objectives

- To briefly review how we think
- To propose strategies to improve our thinking in times of crisis

Human Brain

- One of the most complex system in the universe
- 100 billions neurons, 100 trillions connections
- As many neurons as we have stars in our galaxy
- We understand very little about it still

How do we think?

1. Pattern recognition
2. Schema induction
3. Hypothetico-deductive reasoning



Pattern recognition

- Appears effortless, even mindless
- It's how the expert think
- But expert thinking is limited to the area of specialty

...but how accurate is our brain?

Perception

- Objects are incompletely scanned
- Hypothesis with the highest probability of success is generated
- An expectation is formed about what ought to be seen

Pattern recognition

- Our brain excel at it
- However, we sacrifice accuracy over efficiency
- Our brain
 - Incompletely scan a perception (visual or other)
 - Construct an image based on rules in order to give it a meaning
 - Fills the blanks

Case

- 82 year old lady with multiple myeloma admitted with hypercalcemia and renal failure
- Ready to be discharged but falls and brakes a vertebra
- Three days later
 - Found to have decreased LOC
- On arrival of RRT
 - ABC OK
- Ward nurse informs you that
 - Gaze top left
 - Incontinent of urine
 - Woke up within 5 to 10 minutes
- Thinking processes
 - Listen for clues – Schema induction
 - Recognize that patient looks well but is hypotensive – Pattern recognition

Hypothetico-deductive reasoning

Patient's sign and symptoms

**Metabolic/toxic/
systemic**

Structural

Seizure

Decreased level of consciousness

+

+

+

Gaze to the left

-

+

+

Incontinent of urine

+/-

+/-

+

Rapid improvement

-

-

+

Which one is the best?

Pattern
Recognition

Schema
Induction

Hypothetico
deductive
reasoning

We probably need to use all three in most situations

Stress – Physiological effects

- Catecholamine are flowing
- Can't think straight
- Fight or flight response

...bad form to fight with patient or run away

Case 1

- 44 year old female
- Admitted to floor with a mild pneumonia
- Confused and combative
- Respiratory distress
- Pale and diaphoretic
- HR 110 bpm BP 85/45 RR 36

Case 1

- Multiple Issues:
 - Respiratory distress
 - Cardiovascular compromise
 - Limited assistance / multiple tasks
 - Lot of emotions

Management of Patient

- Traditional Approach (sequential)
- History \Rightarrow Physical \Rightarrow Investigations \Rightarrow Therapy

Challenges in Times of Crisis

- Multiple problems occurring at the same time
- Each problem potentially lethal
- Lack of information
- Interventions are short-acting and not definitive
- Hard to know what to do first
- Emotions and stress clouds your thinking

Early versus on-going resuscitation

- Early Resuscitation – Undifferentiated patient
 - Goal is to support the patient
 - Must deal with multiple problems
 - No time nor need for deep thinking
 - Challenge is managing a situation that evolves rapidly and optimizing your use of resources
- On-going Resuscitation – ABCs have been done
 - Goals are to:
 - understand the cause(s) of the crisis
 - get more information and think
 - institute definitive therapy

Crisis Resource Management (CRM)

Essential Components

1. Problem-solving
2. Situational awareness
3. Resource utilization
4. Communication
5. Leadership

Strategy #1 – Use time-honored shortcuts

- No time for deep thinking
- Once a problem is identified, treat
- Examples:
 - Patient appears to be in respiratory distress, apply O₂ by non-rebreathing mask at 100%
 - Apply O₂ sat monitor
 - Oxygen saturation remains low, start bagging
 - Oxygen saturation still low, add PEEP valve

Strategy #2 - Re-assess & re-evaluate

- Patient condition changes rapidly
- Interventions not definitive
- Interventions short-acting...
- Therefore, you need to re-assess your patient and re-evaluate therapy
- Background check

On-going resuscitation

- For the expert
 - Easy – mostly all pattern recognition and quick and dirty classification
 - If a procedure needs to be done
 - Effortlessly
 - Smoothly
- For the non-expert
 - More difficult
 - May resort to hypothetico-deductive reasoning
 - Use of schema
 - Use of checklists
 - Call for help

Avoid premature closure

Strategy #3

- Keep your mind opened
 - whether you are an expert or a novice
 - especially if you are an expert
- Review all facts carefully trying to prove your self wrong

Scientific theories are falsifiable

Summary

- Our brains are wonderful
- Cognitive processes
 - Pattern recognition
 - Schema induction
 - Hypothetico-deductive reasoning
- Use all of these processes when you see a patient
- Use them wisely
 - Right time
 - Be aware of their associated biases
 - Premature closure
- These principles were used to develop our courses



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<< <<< May 2009 >>> >>

S	M	T	W	T	F	S
26	27	28	29	30	1	2
3	4	5	6	7	8	9
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

ACES

Acute Critical Events Simulation

- For Physicians
- Crisis resource management (CRM)
- Technical skills workshops
- Manage a patient in respiratory failure
- Assess, diagnose, & manage shock
- High-fidelity simulation training

LEARN MORE

CCRT

08:00 AM - 06:00 PM @ Interns Residence Corporation Building, Ottawa, ON, PCRT - MOH

- For nurses
- For respiratory therapist
- CCRT for adult and pediatric populations
- Primary ABC assessment
- Learn rapid triage decision making
- Develop care plans
- Ethics

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2009 Alan Blizzard Award Recipients

2009-04-09 Patti O'Brien, Tim Willett and Brad Genereaux are members of the collaborative team receiving the STLHE award

Acute Care Medicine Management

End Of Life Communications Skills Course

THANK YOU

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