Situational awareness on the delivery suite

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Aims of this presentation

Promote awareness of the concept of situational awareness and how it applies to the delivery suite

- A basic description of SA
- Examples of loss of SA on the delivery suite
- Examples of simple interventions to promote SA
Why do safety incidents happen?
Illustrative cases

Case 1
Maternal collapse following postpartum haemorrhage

Case 2
Intrapartum stillbirth at term following abnormal CTG

Case 3
Medication administration error
Stillbirth due to failure to act

- Alleged:
  0215 hours CTG showed deep decelerations.
  At 0300 hours meconium was passed. Registrar was called but no steps were taken to effect prompt delivery.
- Liability admitted
- Mum £30,000
- Partner £8,000
Admitted to the labour ward at 41 weeks

14.00  CTG looked abnormal. Midwife called SpR. Did not attend.

15.06  Meconium stained amniotic fluid. SSpR called but was too busy to attend.

17.10  CTG reviewed by SpR – ‘satisfactory’, review in two hours. Failed to recognise that the CTG was abnormal.

18.00  Reviewed by Coordinator --- decision for CS

18.55  CS.

Baby died 15 days later.
Common threads

- Deterioration not recognised or acted on
- No one flying the aircraft
- Cognitive factors
- Technical performance v. Behavioural performance

Situational awareness
The ‘Swiss cheese’ model of accident causation
System plus person

Cognitive skills

People at the sharp end can thwart sequence
Situational awareness is...

...being aware of what is happening around you

...understanding how things happening around you will affect your goals and objectives

...the ability to maintain the 'big picture' and think ahead
"I rely on my Sat Nav. I couldn't do without it for my job, and this is the first time anything like this has ever happened”.

"It kept insisting the path was a road, even as it was getting narrower and steeper".
HA HA!! YOU'RE FUCKED NOW!

SITUATIONAL AWARENESS
Look around before you start shit
Factors impacting on situational awareness

- Environmental cues
- Communication
- Coordination
- Workload
- Fatigue
- Memory
- Adherence to protocol
- Experience

- Briefing/Debriefing
- Expectations
- Task saturation
- Attention/Mindfulness
- Time pressure
- Complex case-mix
- Involuntary automaticity

Watch for Red Flags

incident
The importance of situational awareness (SA)

- Environmental cues
- Situational awareness
- Decision-making
- Performance
- Automaticity
- Error
Understanding SA

Working memory

Mental model
For situational awareness, key information has to be maintained in working memory, and some information has to be retrieved from long term memory and stored in short term memory.
The limits of attention

• Our attention capacity is limited.

• In a complex and dynamic environment, this limited attention capacity can quickly be consumed and exhausted -- by information overload, task complexity, and multiple tasks.

• Because the supply of attention is limited, more attention to some elements may mean a loss of SA on other elements.
Mental model

- Internal representation of what is happening externally
- What a person thinks is true, not necessarily what is actually true
Mental model

- Goals
- Preconceptions
- Expectations
- Automaticity
System Faults \rightarrow Operator \rightarrow Happenstance \rightarrow Wrong Mental Model \rightarrow error
Importance of SA

Individuals and teams that have lost situational awareness may be

- slower to detect problems (deterioration not recognised)
- slower in determining the significance of observed abnormalities, and
- slower in taking remedial action (deterioration recognised but not acted on).

If we are aware of its importance, we could employ deliberate behaviours to enhance and maintain it.
Levels of SA

- Level 1 – Perception of the environment
- Level 2 – Comprehension of what this means
- Level 3 – Projection into the future
Level 1 failures

- Data not available
- Data difficult to interpret
- Failure to observe data
- Failure to scan
Level 2 failures

• Incorrect mental model
  Confirmation bias

• Memory failure
Level 3 failures

- Failure of level 2
- Leadership
- Involuntary automaticity
Routes to situational awareness

• Data driven
  Perception (data) - Comprehension - Projection
  Less effective approach in a complex system

• Goal driven
Team SA

- There should be shared mental models for the tasks.
- How is the common goal created and shared?
- Team members can all too easily add to their members' cognitive workload rather than reducing it.
Maintaining situational awareness

- Coordination
- Handover
- Data-search behaviours: regular review; scanning
- Minimise distractions
- Checklists
- Cross-checks
- Mutual support
- Mental and physical fitness
- Knowledge deficits
- Perceptual deficits
- Attention deficits
- Communication problems
Identify threats
Identify available resources
Determine courses of action/tactics
Apply lessons learned
Plan for contingencies

‘the brief is the mission, the mission is the brief’
<table>
<thead>
<tr>
<th>CMMC NHS Trust</th>
<th>Reassuring</th>
<th>Non-Reassuring</th>
<th>Abnormal</th>
<th>Comments:</th>
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<tbody>
<tr>
<td>Baseline rate (bpm)</td>
<td>110 - 160</td>
<td>100 - 109</td>
<td>&lt;100</td>
<td>Comments:</td>
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<td></td>
<td>161 - 180</td>
<td>&gt;180</td>
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<tr>
<td>Variability (bpm)</td>
<td>5 bpm or more</td>
<td>&lt;5 for 40 mins or more but &lt;90 mins</td>
<td>&lt;5 for 90 mins or more</td>
<td>Comments:</td>
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<tr>
<td>Accelerations</td>
<td>Present</td>
<td>None</td>
<td></td>
<td>Comments:</td>
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<tr>
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<td>None</td>
<td>Early Variable</td>
<td>Atypical variable Late</td>
<td>Comments:</td>
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<tr>
<td></td>
<td></td>
<td>Single prolonged deceleration up to 3 mins</td>
<td>Single prolonged deceleration &gt;3 mins</td>
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<tr>
<td>Opinion</td>
<td>Normal CTG (All four features reassuring)</td>
<td>Suspicious CTG (One non-reassuring feature)</td>
<td>Pathological CTG (Two or more non-reassuring or one or more abnormal features)</td>
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<tr>
<td>Dilatation</td>
<td>Cont’s</td>
<td>:10</td>
<td>Liquor colour</td>
<td>Maternal pulse</td>
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<tr>
<td>Action</td>
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Date Time Signature Status
CENTRAL MANCHESTER UNIVERSITY HOSPITALS NHS FOUNDATION TRUST

CDU WARD ROUND

TIME: 08:30/13:00/17:00/21:30/01:00/05:00

If late: time and reason why -

Present on ward round:-

<table>
<thead>
<tr>
<th>Co-ordinator</th>
<th>Consultant Anaes</th>
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<tr>
<td>Consultant</td>
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<td>Senior SpR</td>
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<td>Junior SpR</td>
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<tr>
<th>Room 1</th>
<th>HDU CARE</th>
<th>NAME/HOSPITAL NUMBER</th>
<th>BRIEF HISTORY AND PLAN</th>
<th>S/B Dr/MW</th>
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...as the game goes on, the game plan means less and less, and the scoreboard becomes more and more significant.

John C Maxwell, 2001
Buddy system

Cross-checks

Mutual support
Improving SA through training

• Lectures discussion
• Video clips
• Individual and group exercises
• Development of assessment tools
• Facilitated group
‘training regularly simulates "instant-onset failures"
.... but devotes far less effort to detecting gradual
deterioration of one data index amongst many’

Conclusion

• Loss of situational awareness is a common but often unrecognised factor in clinical safety incidents

• Situational awareness is an essential skill for staff on the delivery suite

• Simple interventions could facilitate maintenance of SA

• SA should be included in multidisciplinary training