Reflections on the use of track and trigger scores for recognising clinical deterioration

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- Irina Angyal has no conflict-of interest

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Suboptimal care
or adverse events (AE's)

- Evidence of suboptimal care has existed internationally since 1990's (Ludikhuize et al, 2014; Tait 2010)

- Proposed solutions have included:

  - Measuring levels of acuity (Mark and Harless, 2011)

  - Physiological track and trigger and weighted response systems (Early Warning Scores / Sepsis screening (Royal College of Physicians, 2017, 2012; NIVEL, 2013)

  - Communication tools (SBAR) (Ludikhuize, 2011; Merten et al, 2017)

  - Critical care outreach or medical emergency teams (MET) (Ludikhuize, 2011; Tirkkonen et al, 2017)

- Rapid Response Systems (RRS)

Track and trigger score (TTS)

MEWS score	3	2	1	0	1	2	3
Heart rate		<40	40-50	51-100	101-110	111-130	>130
Systolic blood pressure	<70	70-80	81-100	101-200		>200	
Respiratory rate		<9		9-14	15-20	21-30	>30
Temperature		<35.1	35.1-36.5	36.6-37.5	>37.5		
AVPU score				A (Alert)	V (response to Voice)	P (reacting to Pain)	U (Unresponsive)
Worried about patient's condition: 1 point							
Urine production below 75 ml during previous 4 hours: 1 point							
Saturation below 90% despite adequate oxygen therapy: 3 points							

Upon reaching 3 or more points → call resident in charge

Tabel 1: MEWS (Ludikhuize, 2014 in Subbe et al., 2001)

Difficulties of TTS

- The sensitivity and clinical effectiveness has been difficult to validate due to:

    1. Lack of standardisation of the tools (Downey et al, 2017; Ludikhuize et al, 2014 Mulligan, 2010)

    2. The impact on patient outcomes difficult to determine. (Churpek et al, 2017; Downey et al, 2017; Smith et al, 2013)

    3. Roles and responsibilities remain blurred (Dalton et al, 2018; Ludin et al, 2018)

    4. The challenge of recognising deterioration in specific client groups

The Netherlands & The UK

- The Netherlands
  - Research
  - Use of Rapid Response Systems

- Research UK
 - conditions
  - Professional gaze and model

The conditions:

- Clinical experience general and related to the specialist practice area

- Knowledge: situational, historical, theoretical, clinical

- Ability to perceive and utilise cues, pattern recognition, tacit knowing

- Emotional intelligence

- Professional practice skills

- Feeling in control: human and technical resources, self

- Mutual respect and support for colleagues

The professional gaze

- Professional practice of recognizing clinical deterioration.

- Professionals use complex decision making processes (Clinical gaze) that can be *supported* by track and trigger, weighted response and acuity assessment, MEWS, Sepsis Screening etc. RRS (White and Tait, 2019; Tait, 2009)

Model of professional gaze (Tait 2009)
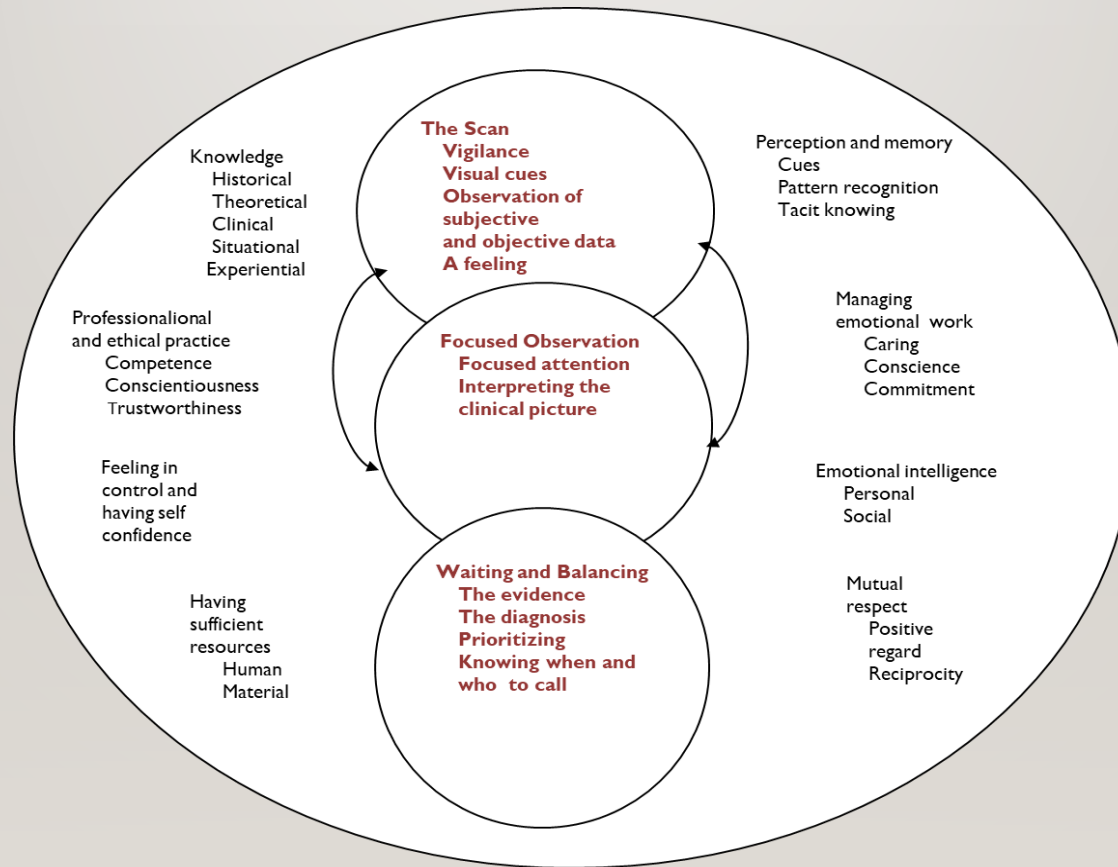
Developments

- NEWS:
  - Reviewed system: specific client groups and "New Confusion" to the ACVPU

Chart 1: The NEWS scoring system

Physiological parameter	Score						
	3	2	1	0	1	2	3
Respiration rate (per minute)	≤8		9–11	12–20		21–24	≥25
SpO$_2$ Scale 1 (%)	≤91	92–93	94–95	≥96			
SpO$_2$ Scale 2 (%)	≤83	84–85	86–87	88–92 ≥93 on air	93–94 on oxygen	95–96 on oxygen	≥97 on oxygen
Air or oxygen?		Oxygen		Air			
Systolic blood pressure (mmHg)	≤90	91–100	101–110	111–219			≥220
Pulse (per minute)	≤40		41–50	51–90	91–110	111–130	≥131
Consciousness				Alert			CVPU
Temperature (˚C)	≤35.0		35.1–36.0	36.1–38.0	38.1–39.0	≥39.1	

- Systematic Review 2017

Way forward

- International standardisation of a TTS

- Stronger focus on developing rapid clinical decision making skills and education.

- Address other cultural and origination problems

- Economic evaluation of the use and effectiveness of:
  - TTS
  - SBAR
  - Rapid response teams

- More research

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