

Supplementary Materials:

Figure 1.

Cut-off levels due to vital signs (VS), according to RETTS©, example: *Chest pain, algorithm*

no. 5, free translation after description in Widgren (6).

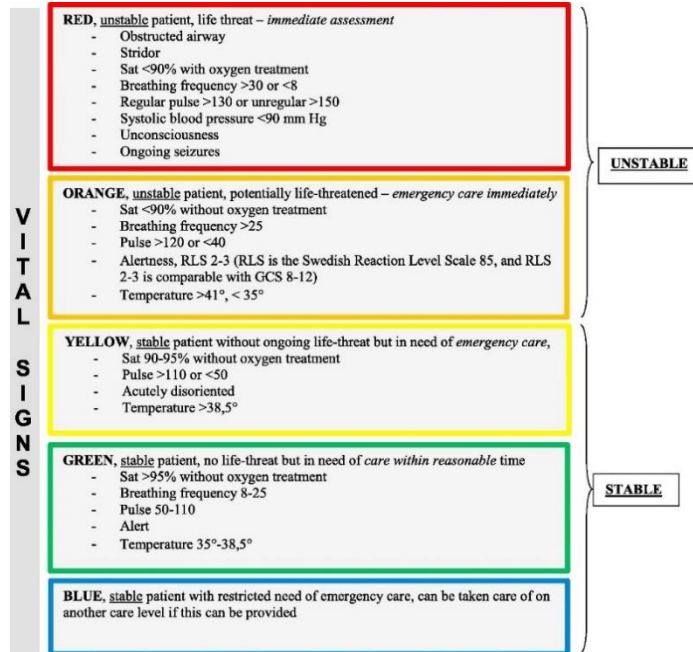


Figure 2a. The NEWS scoring system (14).

| 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 | |

Figure 2b. NEWS thresholds and triggers (14).

| NEWS score | Clinical risk | Response |
|---|---------------|------------------------------------|
| Aggregate score 0–4 | Low | Ward-based response |
| Red score Score of 3 in any individual parameter | Low–medium | Urgent ward-based response* |
| Aggregate score 5–6 | Medium | Key threshold for urgent response* |
| Aggregate score 7 or more | High | Urgent or emergency response** |

* Response by a clinician or team with competence in the assessment and treatment of acutely ill patients and in recognising when the escalation of care to a critical care team is appropriate.

**The response team must also include staff with critical care skills, including airway management.

| NEWS score | Frequency of monitoring | Clinical response |
|---|--------------------------------------|--|
| 0 | Minimum 12 hourly | <ul style="list-style-type: none"> Continue routine NEWS monitoring |
| Total 1–4 | Minimum 4–6 hourly | <ul style="list-style-type: none"> Inform registered nurse, who must assess the patient Registered nurse decides whether increased frequency of monitoring and/or escalation of care is required |
| 3 in single parameter | Minimum 1 hourly | <ul style="list-style-type: none"> Registered nurse to inform medical team caring for the patient, who will review and decide whether escalation of care is necessary |
| Total 5 or more Urgent response threshold | Minimum 1 hourly | <ul style="list-style-type: none"> Registered nurse to immediately inform the medical team caring for the patient Registered nurse to request urgent assessment by a clinician or team with core competencies in the care of acutely ill patients Provide clinical care in an environment with monitoring facilities |
| Total 7 or more Emergency response threshold | Continuous monitoring of vital signs | <ul style="list-style-type: none"> Registered nurse to immediately inform the medical team caring for the patient – this should be at least at specialist registrar level Emergency assessment by a team with critical care competencies, including practitioner(s) with advanced airway management skills Consider transfer of care to a level 2 or 3 clinical care facility, ie higher-dependency unit or ICU Clinical care in an environment with monitoring facilities |

Table 1. Binary regression analyses for associations of age, gender, vital signs, NEWS, RETTS and biomarkers with admission to a ward.

| a. | Univariable | | Multivariable | |
|----------------------------|----------------------|----------------|----------------------|----------------|
| | OR (95%CI) | p-value | OR (95%CI) | p-value |
| Age | 1.051 (1.035-1.067) | <0.001 | 1.023 (0.991-1.057) | 0.161 |
| Male | 1.702 (1.103-2.625) | 0.016 | 1.885 (0.842-4.217) | 0.123 |
| Systolic blood pressure | 1.003 (0.994-1.012) | 0.497 | 1.001 (0.986-1.016) | 0.873 |
| Temperature | 0.746 (0.537-1.037) | 0.081 | 0.525 (0.274-1.006) | 0.052 |
| Saturation | 0.781 (0.712-0.856) | <0.001 | 0.888 (0.780-1.012) | 0.074 |
| Respiratory rate | 1.049 (1.001-1.100) | 0.045 | 1.049 (0.951-1.156) | 0.339 |
| Heart rate | 1.023 (1.011-1.035) | <0.001 | 1.015 (0.995-1.036) | 0.152 |
| Creatinine | 1.013 (1.003-1.024) | 0.009 | 1.000 (0.982-1.019) | 0.997 |
| Troponin T | 1.051 (1.025-1.077) | <0.001 | 1.013 (0.991-1.035) | 0.256 |
| Copeptin>10 nmol/L | 4.569 (2.668-7.826) | <0.001 | 2.662 (1.064-6.657) | 0.036 |
| MR-proADM>0.75 pmol/L | 2.500 (1.553-4.023) | <0.001 | 0.770 (0.272-2.179) | 0.623 |
| MR-proANP>120 nmol/L | 3.513 (2.149-5.741) | <0.001 | 0.977 (0.366-2.607) | 0.964 |
| b. | Univariable | | Multivariable | |
| | OR (95%CI) | p-value | OR (95%CI) | p-value |
| Age | 1.051 (1.035-1.067) | <0.001 | 1.025 (0.994-1.057) | 0.109 |
| Male | 1.702 (1.103-2.625) | 0.016 | 1.801 (0.829-3.914) | 0.137 |
| NEWS high+moderate vs. low | 6.993 (2.385-20.502) | <0.001 | 1.754 (0.415-7.413) | 0.445 |
| Creatinine | 1.013 (1.003-1.024) | 0.009 | 0.999 (0.981-1.017) | 0.881 |
| Troponin T | 1.051 (1.025-1.077) | <0.001 | 1.016 (0.988-1.045) | 0.262 |
| Copeptin>10 nmol/L | 4.569 (2.698-11.416) | <0.001 | 2.795 (1.150-6.792) | 0.023 |
| MR-proADM>0.75 pmol/L | 2.500 (1.553-4.023) | 0.005 | 0.752 (0.286-1.975) | 0.563 |
| MR-proANP>120 nmol/L | 3.513 (2.149-5.741) | <0.001 | 1.321 (0.517-3.375) | 0.560 |

| c. | Univariable | p-value | Multivariable | p-value |
|-----------------------|---------------------|---------|---------------------|---------|
| | OR (95%CI) | | OR (95%CI) | |
| Age | 1.051 (1.035-1.067) | <0.001 | 1.034 (1.001-1.068) | 0.045 |
| Male | 1.702 (1.103-2.625) | 0.016 | 2.362 (1.053-5.296) | 0.037 |
| RETTS high vs. low | 1.832 (1.113-3.017) | 0.017 | 0.971 (0.459-2.051) | 0.938 |
| Creatinine | 1.013 (1.003-1.024) | 0.009 | 0.998 (0.981-1.015) | 0.799 |
| Troponin T | 1.051 (1.025-1.077) | <0.001 | 1.013 (0.984-1.043) | 0.385 |
| Copeptin>10 nmol/L | 4.569 (2.668-7.826) | <0.001 | 3.792 (1.444-9.954) | 0.007 |
| MR-proADM>0.75 pmol/L | 2.500 (1.553-4.023) | 0.005 | 0.358 (0.122-1.052) | 0.062 |
| MR-proANP>120 nmol/L | 3.513 (2.149-5.741) | <0.001 | 1.572 (0.588-4.201) | 0.367 |

Notes: ED = emergency department, BP = blood pressure, MR-proADM = midregional proadrenomedullin, MR-proANP = midregional proatrial natriuretic peptide, CRP = C-reactive protein, RETTS = Rapid Emergency Triage and Treatment System, NEWS = National Early Warning Score, OR = odds ratio, CI = confidence interval.