

NCEC National Clinical Guideline No. 1. INEWS V2 *(September 2020)* – *Changes and updates*



Deteriorating
Patient
Improvement
Programme



Clinical Design
& Innovation

Person-centred, co-ordinated care



An Roinn Sláinte
Department of Health

Irish National Early Warning System (INEWS) V2
(previously NEWS)

National Clinical Guideline No. 1

September 2020



**NATIONAL
CLINICAL
EFFECTIVENESS
COMMITTEE**

Irish Early Warning Systems

An Roinn Sláinte
Department of Health

Irish Maternity Early Warning System (IMEWS) V2
National Clinical Guideline No. 4

February 2019

National Patient Safety Office
NATIONAL CLINICAL EFFECTIVENESS COMMITTEE

An Roinn Sláinte
Department of Health

Irish National Early Warning System (INEWS) V2 (previously NEWS)
National Clinical Guideline No. 1

September 2020

NATIONAL CLINICAL EFFECTIVENESS COMMITTEE

NICE

The Role of Simulation in Other Patient Safety Tools

Sepsis Management
National Clinical Guideline No. 6

An Roinn Sláinte
DEPARTMENT OF HEALTH

November 2014

An Roinn Sláinte
Department of Health

Emergency Medicine Early Warning System (EMEWS)
National Clinical Guideline No. 18

October 2018

NATIONAL CLINICAL EFFECTIVENESS COMMITTEE

National Patient Safety Office

The Irish Paediatric Early Warning System (PEWS)
National Clinical Guideline No. 12

National Patient Safety Office

An Roinn Sláinte
DEPARTMENT OF HEALTH

November 2015
Updated November 2016, version 2



What is INEWS?



Irish National Early Warning System (INEWS) ADULT PATIENT OBSERVATION CHART

INEWS should be used as an aid to clinical judgement and decision making

INEWS Escalation & Response Protocol

INEWS Score	Minimum Observation Frequency	Escalation	Response
Bedside Response Healthcare worker / patient / family concern As indicated by patient condition Nurse at the bedside / Nurse in Charge (NIC)			
0 - 1	6 hourly (first 24 hours following admission) then 12 hourly minimum	NIC	<ul style="list-style-type: none"> NIC to review if concern and escalate as appropriate NIC to review if new score 1
2	6 hourly	NIC	<ul style="list-style-type: none"> NIC to review
For INEWS scores of 0 - 2 an Urgent Response (SHO or ANP Service) can be called if there is clinical concern			
Urgent Response 3 4 hourly NIC and Team / On-call SHO SHO or ANP service to review within 1 hour			
4 - 6 1 hourly NIC and Team / On-call SHO SHO or ANP service to review within 15 hour Screen for Sepsis If no response to treatment within 1 hour, contact Registrar and/or ANP service Consider continuous patient monitoring Consider transfer to higher level of care			
Emergency Response ≥7 ½ hourly NIC and Team / On-call Registrar Inform Team / On-call Consultant Registrar / Consultant / ANP service to review immediately Continuous patient monitoring recommended Plan to transfer to higher level of care Activate Emergency Response System (as appropriate to hospital mode)			
Score of 3 in any single parameter or Score of 2 for HR <40 ½ hourly or as indicated by patient condition NIC and Team / On-call SHO SHO or ANP service to review immediately If no response to treatment or if still concerned, contact Registrar/Consultant Consider activating Emergency Response System			

If response does not occur as per protocol the CHM/NIC should contact the Registrar or Consultant

CAUTION

- Increasing O₂ requirements to maintain SpO₂ levels
- Patient located outside of specialist ward
- Patient receiving high-risk / unfamiliar therapies
- Communication concerns between staff and/or patient
- Nurse intuition / 'gut-feeling'

***THINK SEPSIS**
(Use clinical judgement)

INEWS ≥4 (or ≥5 on Oxygen) and suspicion of infection

Older people or those immunocompromised may present with sepsis with an INEWS <4 (<5 if on Oxygen)



Irish National Early Warning System (INEWS) V2 (previously NEWS)

National Clinical Guideline No. 1

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INEWS is an **early warning** system to assist staff to recognise and respond to clinical deterioration.

Early recognition of deterioration can prevent:

- Unanticipated cardiac arrest
- Unplanned ICU admission/readmission
- Delayed care resulting in prolonged length of stay, patient or family distress, or more complex interventions
- Requirement for more complex interventions

- INEWS education is **mandatory** for all relevant HCPs.
- HCPs should be familiar with their hospitals INEWS Escalation and Response Protocol.
- INEWS education is to be included in most clinical undergraduate programmes.

INEWS V2



INEWS IS OF
BENEFIT IN
CLINICAL
PRACTICE
FOR THE
FOLLOWING
REASONS:

INEWS provides a single **standardised** early warning system for the early detection of acute deterioration in the non-pregnant adult (≥ 16 years) patient

It provides a **common language** to aid communication between health care providers

It provides an **adjunct to clinical judgement** in the anticipation, recognition, escalation and response to clinical deterioration

It provides a **standardised score** to determine illness severity to support clinical decision making and an appropriate clinical response

It **supports an anticipatory care** approach to the management of the acutely unwell patient

It can help to **improve** the timely recognition and response to deteriorating patients

What's **new** in INEWS V2?



UPDATE

NEWS to INEWS

System versus Score

Emphasis on clinical
judgement

Recognition of healthcare
worker, patient and family
concern as a key indicator
of deterioration

Increased emphasis on
changes in respiratory rate
as a key early indicator of
deterioration



What's **new** in INEWS V2?

‘Cues for Caution’
as prompts for staff to
consider when monitoring
patients

Irish National Early Warning System (INEWS)
ADULT PATIENT OBSERVATION CHART
INEWS should be used as an aid to clinical judgement and decision making

INEWS Escalation & Response Protocol

INEWS Score	Minimum Observation Frequency	Escalation	Response
Bedside Response			
Healthcare worker / patient / family concern	As indicated by patient condition	Nurse at the bedside / Nurse in Charge (NIC)	• NIC to review if concern and escalate as appropriate
0 - 1	8 hourly (for 24 hours following admission) then 12 hourly minimum	NIC	• NIC to review if new score 1
2	8 hourly	NIC	• NIC to review
For INEWS scores of 0 - 2 an Urgent Response (SHO or ANP Service) can be called if there is clinical concern			
Urgent Response			
3	4 hourly	NIC and Team / On-call SHO	• SHO or ANP service to review within 1 hour
4 - 6 THINK SEPSIS*	1 hourly	NIC and Team / On-call SHO	• SHO or ANP service to review within 15 hour • Screen for Sepsis* • If no response to treatment within 1 hour, contact Registrar and/or ANP service • Consider continuous patient monitoring • Consider transfer to higher level of care
Emergency Response			
≥7	½ hourly	NIC and Team / On-call Registrar Inform Team / On-call Consultant	• Registrar / Consultant / ANP service to review immediately • Continuous patient monitoring recommended • Plan to transfer to higher level of care • Activate Emergency Response System (as appropriate to hospital mode)
Score of 3 in any single parameter or Score of 2 for HR and	½ hourly as indicated by patient condition	NIC and Team / On-call SHO	• SHO or ANP service to review immediately • If no response to treatment or if still concerned, contact Registrar/Consultant • Consider activating Emergency Response System

If response to treatment as per protocol the CHMNC should contact the Registrar or Consultant

CUES FOR CAUTION

- ! Increasing O₂ requirements to maintain SpO₂ levels
- ! Patient located outside of specialist ward
- ! Patient receiving high-risk / unfamiliar therapies
- ! Communication concerns between staff and/or patient
- ! Nurse intuition / 'gut-feeling'

***THINK SEPSIS**
(See clinical judgement)

INEWS ≥4 (or ≥5 on Oxygen) and suspicion of infection

Older people or those immunocompromised may present with sepsis with an INEWS <4 (<5 if on Oxygen)



CUES FOR CAUTION

- ! Increasing O₂ requirements to maintain SpO₂ levels
- ! Patient located outside of specialist ward
- ! Patient receiving high-risk / unfamiliar therapies
- ! Communication concerns between staff and/or patient
- ! Nurse intuition / 'gut-feeling'



What's **new** in INEWS V2?



'New confusion' a key early sign of deterioration...AVPU becomes **AC**VPVU where '**C**' = 'new confusion/altered mental status/delirium'



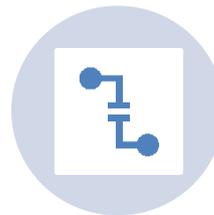
Adjustments of INEWS parameters or score not permitted



Option for a short period of escalation deferral by an RGN



Minimum 6 hourly observations x 24 hours following admission



Modified Escalation and Response Protocol (Consultant or Registrar)

Anticipate

The use of **clinical judgement** combined with **situation awareness** using

- 'cues for caution',
 - staff, patient and/or family concern
- &
- safety huddles
- to anticipate and manage the potential for deterioration in hospitalised patients.





SAFETY HUDDLES AND/OR SAFETY PAUSES



Deteriorating
Patient
Improvement
Programme



Safety huddles/pauses using trend data and INEWs score to determine next steps of treatment/care



Using clinical judgement identify patients who may deteriorate and communicate this information to all staff



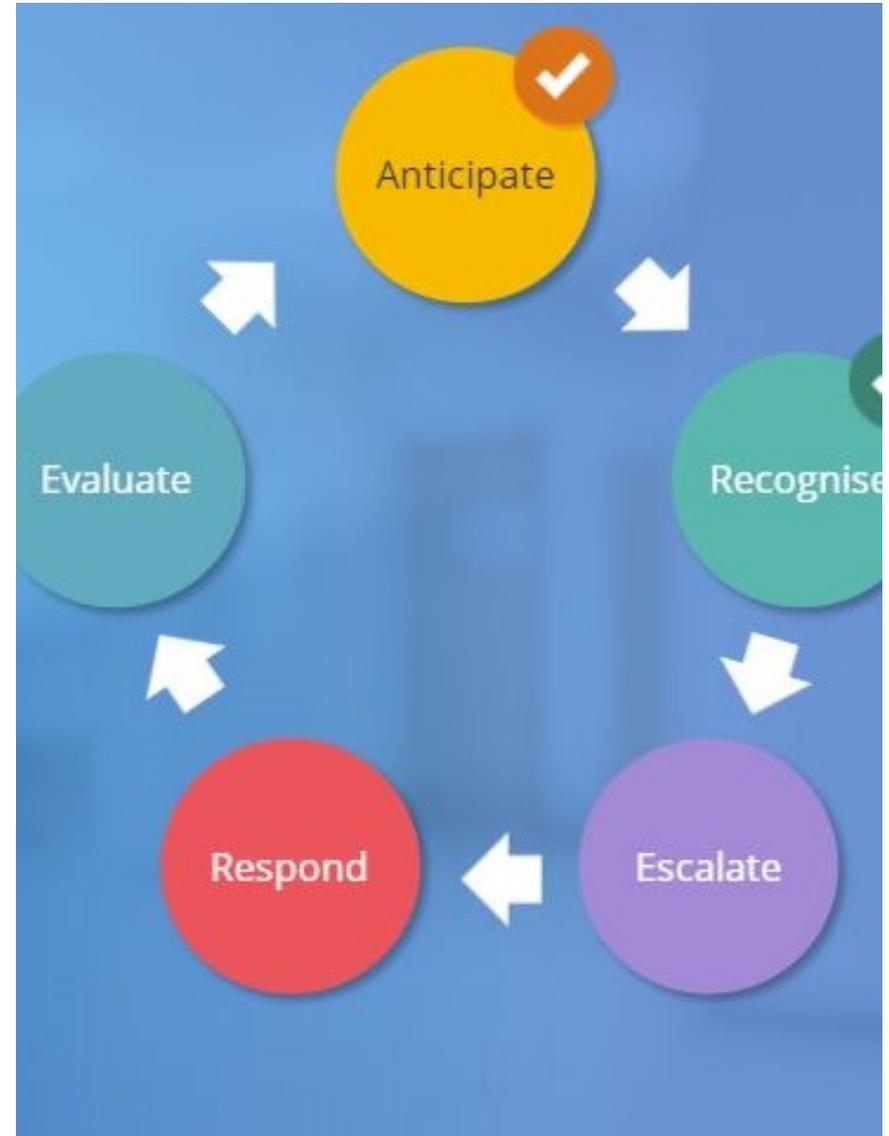
Identify clinical context-specific 'cues for caution' e.g. patient with known medical co-morbidities; patients on complex medication regimens

Recognise

Clinical judgment plus...

1. Patient assessment

2. Supported by the bedside track-and-trigger tool i.e. the **INEWS patient observation chart**



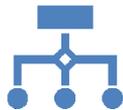
Escalate & Respond



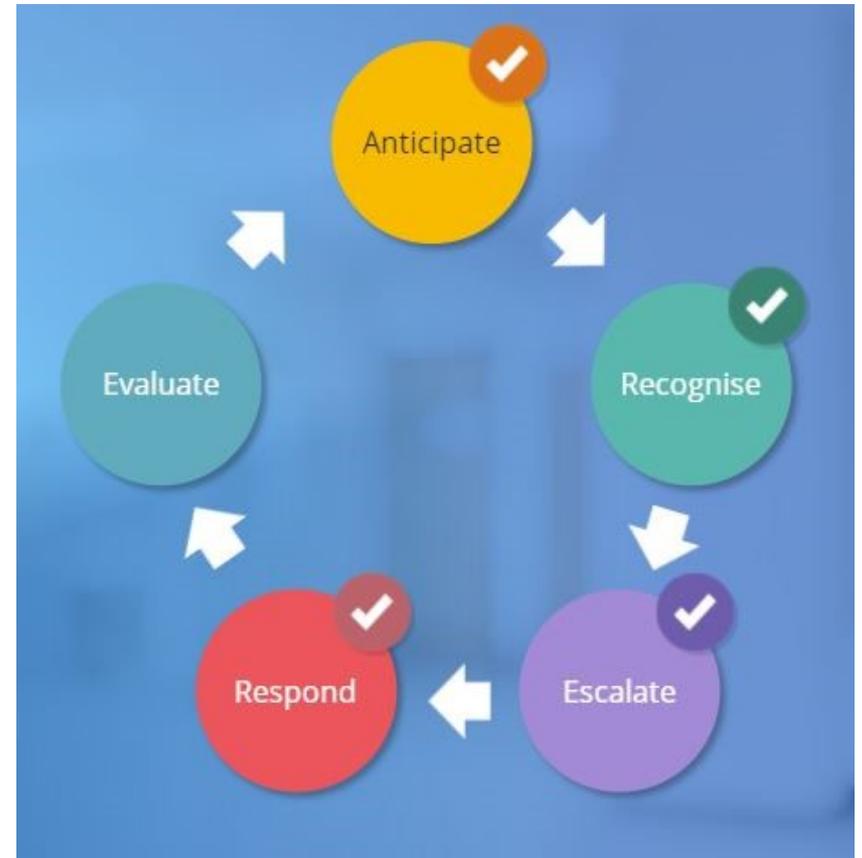
INEWS Escalation and Response Protocol to guide decisions on escalation for nursing or medical review

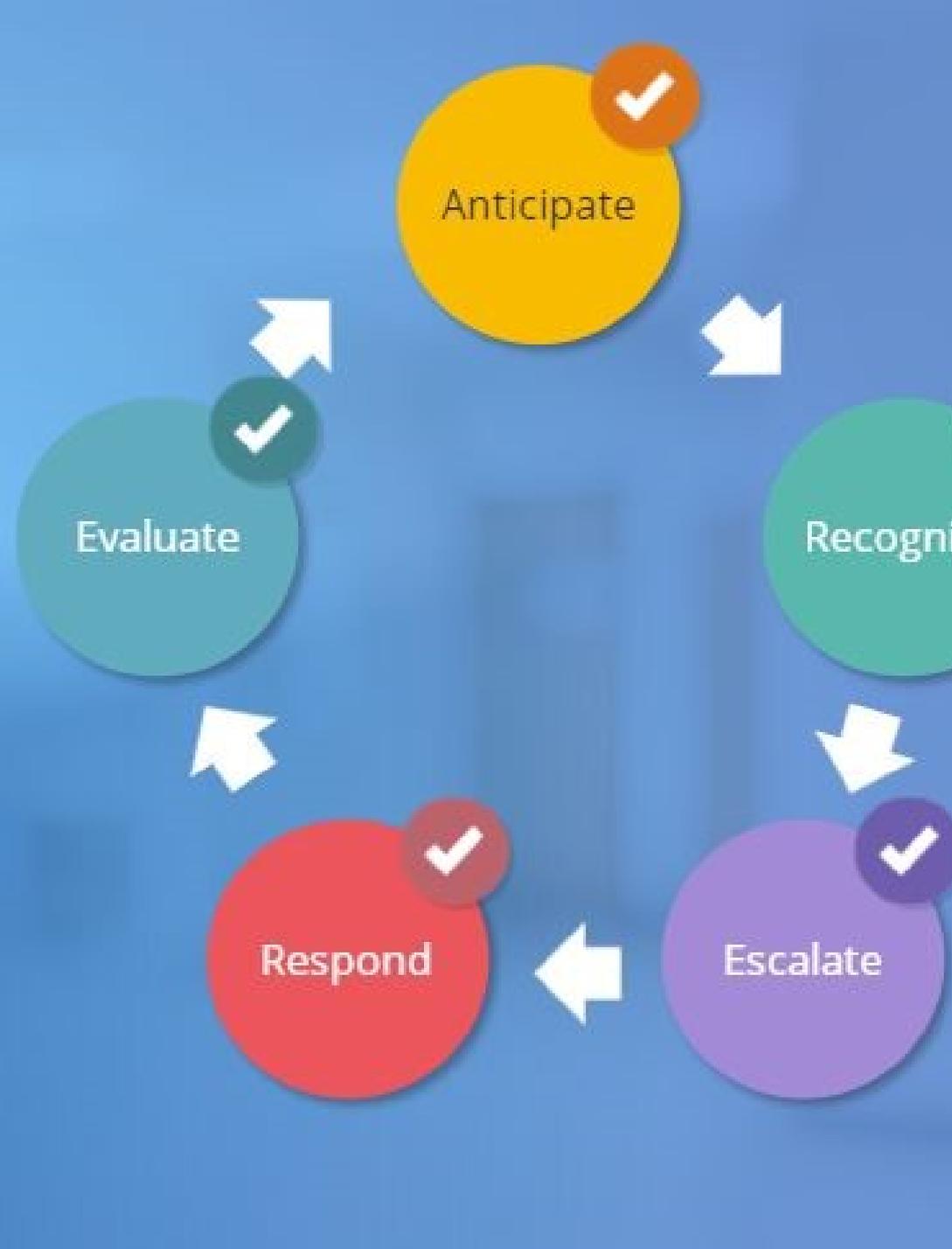


Provision of a structured mechanism for a tiered clinical response - bedside, urgent or emergency response



A move towards an ANP-response service





Evaluate

INEWS V2 supports a **closed loop governance system** involving:

- Bedside clinical evaluation of the **effectiveness of treatment** interventions
- System-wide evaluation of the management of patient deterioration e.g after-action review, cycles of audit and improvement

The INEWS physiological observations are:

IRISH NATIONAL EARLY WARNING SYSTEM (INEWS) Scoring Key

Score	0	1	2	3	4
Respiratory Rate	12-20	21-24	25-30	31-35	36-40
SpO ₂	94-100	92-93	90-91	88-89	86-87
FiO ₂	21	24	28	32	36
Heart Rate	50-100	101-110	111-130	131-150	151-180
Blood Pressure	90/60	91/61	92/62	93/63	94/64
Temperature	36.1-37.5	37.6-38.0	38.1-38.5	38.6-39.0	39.1-40.0

AB (Airway & Breathing)

- Respiratory Rate: 21-24 (2), 25-30 (3), 31-35 (4), 36-40 (5)
- SpO₂: 94-100 (1), 92-93 (2), 90-91 (3), 88-89 (4), 86-87 (5)
- FiO₂: 21 (1), 24 (2), 28 (3), 32 (4), 36 (5)
- Peripheral Oxygen Saturation (SpO₂): 94-100 (1), 92-93 (2), 90-91 (3), 88-89 (4), 86-87 (5)
- Room Air or Supplemental O₂: Room Air (1), Room Air or Supplemental O₂ (2), Room Air or Supplemental O₂ (3), Room Air or Supplemental O₂ (4), Room Air or Supplemental O₂ (5)

C (Circulation)

- Heart Rate: 50-100 (1), 101-110 (2), 111-130 (3), 131-150 (4), 151-180 (5)
- Blood Pressure: 90/60 (1), 91/61 (2), 92/62 (3), 93/63 (4), 94/64 (5)
- Systolic BP: 90 (1), 91 (2), 92 (3), 93 (4), 94 (5)
- Diastolic BP: 60 (1), 61 (2), 62 (3), 63 (4), 64 (5)

D (Disability)

- ACVPU: Alert (1), Alert (2), Alert (3), Alert (4), Alert (5)
- CPFP: 0 (1), 1 (2), 2 (3), 3 (4), 4 (5)

E (Exposure)

- Temperature (°C): 36.1-37.5 (1), 37.6-38.0 (2), 38.1-38.5 (3), 38.6-39.0 (4), 39.1-40.0 (5)

Additional Information:

- Consider Oxygen if INEWS ≥ 4 (or ≥ 3 in O₂)
- Notify Doctor if urine output is < 0.5 ml/kg/hr
- INEWS Score: 0-5
- Staircase/MCA Initiation: Blood Glucose, Fluid Score, Blood Urea/Creatinine, Staircase/MCA Initiation, RGN Initiation

- Respiratory rate
- SpO₂
- FiO₂ (Room air or supplemental O₂)
- Heart rate
- Blood pressure
- Neurological response (or ACVPU, where C = new confusion)
- Temperature

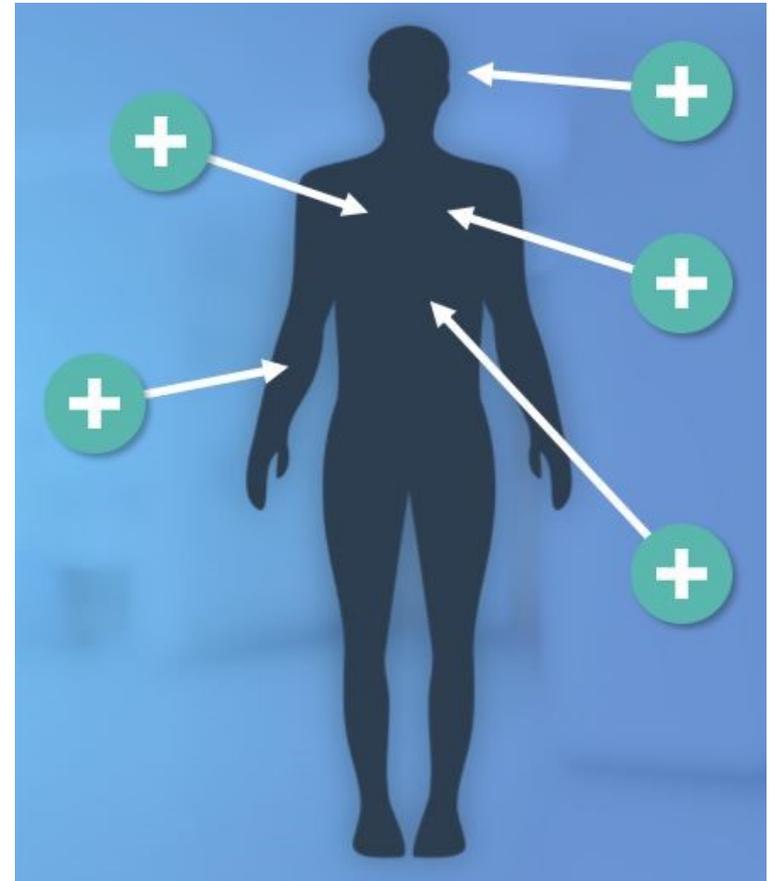
The INEWS Scoring Key

- INEWS allocates 0-3 points to measurements of each of the 7 physiological parameters.
- A score of 0 represents least risk while a score of 3 represents highest risk
- **About recognising small changes**
- Documentation of observations over time demonstrates the patient's individual baseline and trends, which assist in the recognition of the small changes that may signal early deterioration.

Irish National Early Warning System (INEWS) Scoring Key							
SCORE	3	2	1	0	1	2	3
Respiratory Rate (bpm)	≤ 8		9 - 11	12 - 20		21 - 24	≥ 25
SpO ₂ (%)	≤ 91	92 - 93	94 - 95	≥ 96			
Inspired O ₂ (Fi O ₂)				Air			Any O ₂
Heart Rate (BPM)		≤ 40	41 - 50	51 - 90	91 - 110	111 - 130	≥ 131
Systolic BP (mmHg)	≤ 90	91 - 100	101 - 110	111 - 249	≥ 250		
ACVPU/CNS Response				Alert (A)			Confusion (new) (C), Voice (V), Pain (P), Unresponsive (U)
Temp (°C)	≤ 35.0		35.1 - 36.0	36.1 - 38.0	38.1 - 39.0	≥ 39.1	

Quick review of physiological changes during deterioration

- A systems approach to patient assessment helps ensure that you don't miss any of the subtle changes associated with deterioration
- **INEWS V2 emphasises changes in respiratory rate and new confusion/altered mental status/delirium as key early signs of deterioration**



Respiratory Rate (RR)



- Most **neglected** vital sign
- Often *estimated* by clinicians rather than counted
- Any change may be an **early sign of deterioration**
- Changes can be seen up to **24 hrs prior** to cardiac arrest
- During early stages of deterioration SpO₂ may remain within normal range while RR may change

RR may be affected by

- Some medications (e.g. opiates)
- Altered level of consciousness





Thermoregulation system

- Both pyrexia and hypothermia are significant
- Immunocompromised and older persons may not produce a fever
- Patients with sepsis can present with any temperature
- Caution if anti-pyretic medication is given as it can mask signs of infection



Renal system



- Decreasing urine output ($<0.5\text{mL/kg/hr}$) is a sign of deterioration
- Monitor renal profile blood results

Knowledge check

Which of these observations are the best predictors of deterioration?

- Altered mental state, such as new confusion or delirium
- Increase or decrease in temperature
- Altered respiratory rate
- Change in urine output



Determinants for escalating care:

Clinical judgement

Healthcare worker, patient or family concern

Intuition/gut-feeling

INEWS score

Escalation and Response Protocol

INEWS Escalation & Response Protocol

INEWS Score		Minimum Observation Frequency	Escalation	Response
Bedside Response	Healthcare worker / patient / family concern	As indicated by patient condition	Nurse at the bedside / Nurse in Charge (NiC)	<ul style="list-style-type: none"> NiC to review if concern and escalate as appropriate
	0 – 1	6 hourly (first 24 hours following admission) then 12 hourly minimum	NiC	<ul style="list-style-type: none"> NiC to review if new score 1
	2	6 hourly	NiC	<ul style="list-style-type: none"> NiC to review
For INEWS scores of 0 – 2 an Urgent Response (SHO or ANP Service) can be called if there is clinical concern				
Urgent Response	3	4 hourly	NiC and Team / On-call SHO	<ul style="list-style-type: none"> SHO or ANP service to review within 1 hour
	4 - 6  THINK SEPSIS*	1 hourly	NiC and Team / On-call SHO	<ul style="list-style-type: none"> SHO or ANP service to review within ½ hour Screen for Sepsis*  If no response to treatment within 1 hour, contact Registrar and/or ANP service Consider continuous patient monitoring Consider transfer to higher level of care
Emergency Response	≥7	½ hourly	NiC and Team / On-call Registrar Inform Team / On-call Consultant	<ul style="list-style-type: none"> Registrar / Consultant / ANP service to review immediately Continuous patient monitoring recommended Plan to transfer to higher level of care Activate Emergency Response System (as appropriate to hospital model)
	Score of 3 in any single parameter or Score of 2 for HR ≤40	½ hourly or as indicated by patient condition	NiC and Team / On-call SHO	<ul style="list-style-type: none"> SHO or ANP service to review immediately If no response to treatment or if still concerned, contact Registrar/Consultant Consider activating Emergency Response System

If response does not occur as per protocol the CNM/NiC should contact the Registrar or Consultant

Healthcare worker (HCW), patient, family or carer concern

New in INEWS V2

The image shows a screenshot of the INEWS V2 form. A red circle highlights the 'Healthcare worker (HCW)/Patient(P)/Family(F) concern' field. The form includes fields for Year, Ward, and Consultant. Below these are columns for Date and Time. The main body of the form is a grid with colored rows representing different vital signs and scores. The rows are: Respiratory Rate (3, 2, 0, 1, 3), Resp. Score (0, 1, 2, 3), and Peripheral Oxygen Saturation (0, 1, 2, 3). The grid is divided into four columns: ≥ 25, 21-24, 12-20, 9-11, ≤ 8, ≥ 96, 94-95, 92-93, and ≤ 91. On the left side, there is a section for 'AB (Airway & Breathing)' with a small line graph showing a trend line with values 16, 22, 18, 20, 15. Below the graph is the text 'Record as rate, dot and trend line'. At the bottom left, there is a section for 'Mode of O₂ delivery' with 'Room Air' selected.

- Concern is not scored but triggers patient review by a nurse or escalation for medical review, regardless of a low or no INEWS score. *Insert 'HCW' or 'H', 'P' or 'F' as appropriate*
- If a HCW, patient, family or carer reports concern, a full assessment and a complete set of INEWS observations should be undertaken

Respiratory rate (RR)

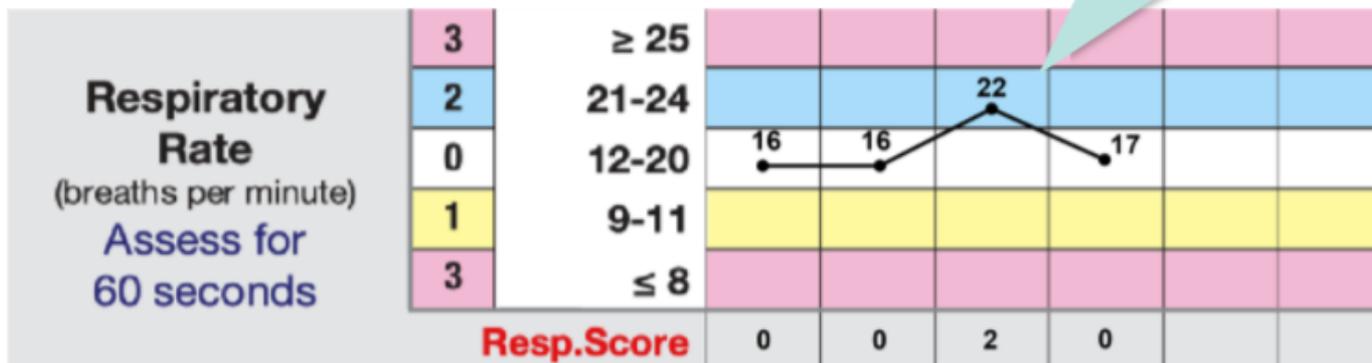
Changes in RR are the earliest sign of deterioration:

- Consider affect of patient position on respiration
- Count the RR for ***a full 60 seconds***
- Assess work of breathing including use of accessory muscles
- Is the chest moving bilaterally?
- Look at trends in RR
- Know the patient's baseline rate



What is the normal rate?

Apply RR as a number and a dot and join with trend line.



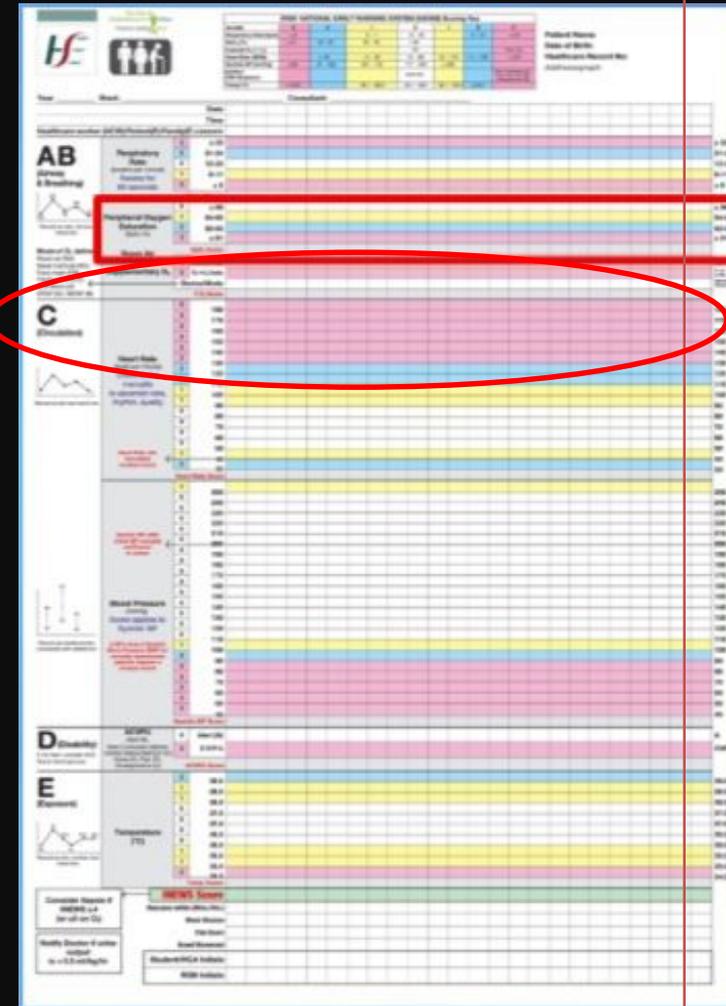
Apply the INEWs score for RR as per the INEWs scoring key.

The normal respiratory rate in adults (as per INEWs parameter ranges) is 12-20 breaths per minute. Some patients with a confirmed diagnosis of chronic respiratory conditions may have a higher baseline respiratory rate.

SpO₂

O₂ saturation (SpO₂) is recorded here

- SpO₂ is the '5th vital sign' and should be checked by trained staff using pulse oximetry in all breathless and acutely ill patients
- Increasing supplemental O₂ to maintain targeted SpO₂ indicates deterioration and should be escalated without delay



Recording the SpO₂

Peripheral Oxygen Saturation
(SpO₂ %)

0	≥ 96	97	96		97	
1	94-95			95		
2	92-93					
3	≤ 91					
SpO₂ Score		0	0	1	0	

Apply SpO₂ as a number (%).

Apply INEWS score for SpO₂ value.

- INEWS parameters identify normal SpO₂ as ≥96%
- Some patients with confirmed diagnosis of chronic respiratory conditions may have lower baseline SpO₂ levels and a specific plan of care may be required

Room Air/Supplemental O₂

Room air/Supplemental O₂ is recorded here.

The chart is a multi-sectioned medical form. Section AB is at the top, followed by C, D, and E. Each section contains a grid for recording data over time. A red box highlights a specific area in the middle of the chart, which corresponds to the 'Mode of O₂ delivery' section of the table below.

Oxygen delivery devices are included in the chart.

Mode of O₂ delivery Room air (RA) Nasal Cannula (NC) Face mask (FM) Tracheostomy (T) HHF/Airvo (H) CPAP (C) / BIPAP (B)	Room Air	0	0	0		
	Supplementary O ₂	3	% or L/min	2L/min		
	Device/Mode			NC		
	F _i O ₂ Score	0	0	3	0	

- All deteriorating patients should receive supplemental oxygen
- INEWS assigns a score of '3' to 'any O₂'
- The mode of O₂ delivery is documented
- When O₂ is prescribed the target SpO₂ should also be prescribed on the drug chart.

Measuring the heart rate

Count for 60 seconds.

Consider factors such as:

- Rhythm
- Volume
- Pulse quality (irregular, bounding or weak)
- Skin condition (dry, sweaty or clammy)





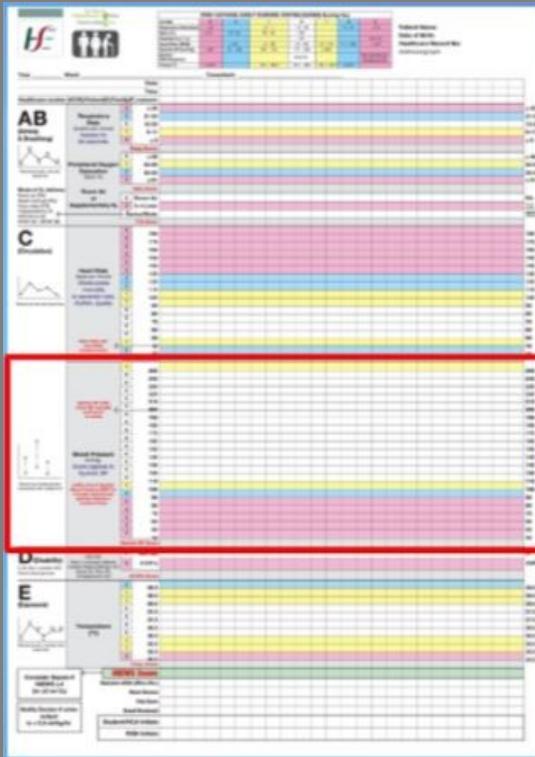
Measuring the heart rate

- Bradycardia of ≤ 40 requires immediate medical review and more frequent monitoring
- Patients being monitored electronically should have their HR checked manually on a regular basis to determine amplitude and volume (as well as rate and rhythm)



Heart rate

Heart rate is recorded here



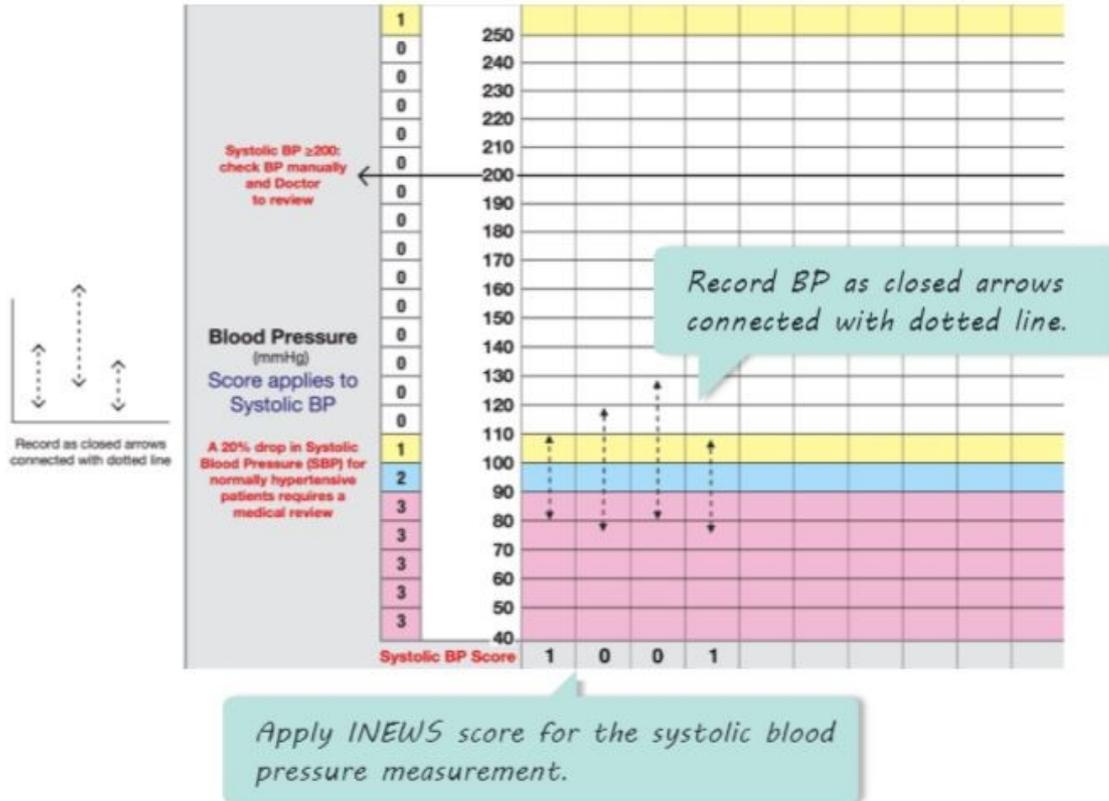
- **BP is recorded here**
- Establish baseline and identify trends over time
- A normally hypertensive patient may be relatively hypotensive even if their SBP is within normal INEWS parameters
- If systolic BP is ≥ 200 mmHg, urgent medical review is needed

Blood Pressure



Blood Pressure

- Patients having BP measured electronically should have BP checked manually on a regular basis
- Refer to primary physician for guidance on response to lying and standing BP recordings
- Following two failed attempts at electronic BP measurement, a manual BP should be measured
- Ensure correct cuff size



Blood Pressure

Disability (Neurological response)

New in INEWS V2

ACVPU (C = new confusion)

Neurological response is measured here.

- 'New' confusion, altered mental status or delirium is a common finding in acute illness
- Hypoxia can cause confusion or depressed level of consciousness
- Check blood glucose
- Think Sepsis

Use ACVPU scale to assess neurological response. If ACVPU scores 3 complete the Glasgow Coma Scale

The image shows a complex medical chart with multiple columns and rows. The chart is divided into sections labeled AB, C, D, and E. A red box highlights the 'D' section, which is the ACVPU scale. The chart includes a legend at the top, a grid for data entry, and a summary section at the bottom right. The chart is a grid with various colored bands (pink, yellow, blue) representing different physiological parameters. The 'D' section is highlighted with a red box, indicating the ACVPU scale. The chart also includes a legend at the top and a summary section at the bottom right.

Disability (Neurological response)

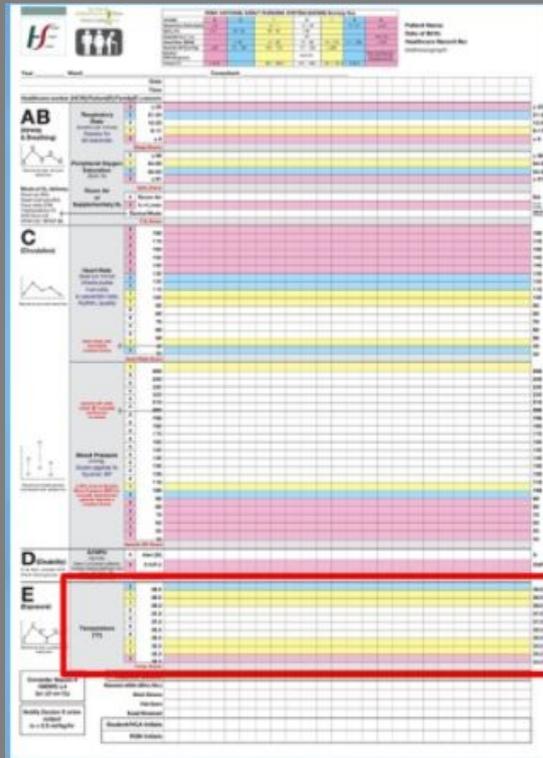
ACVPU Alert (A), New Confusion/altered mental status/delirium (C) Voice (V), Pain (P), Unresponsive (U)	0	Alert (A)	A	A	A				
	3	C VPU				C			
	ACVPU Score		0	0	0	3			

Apply INEWS score for AVCPU measurement.

Apply response using A, C, V, P or U.

Notes about neurological response:

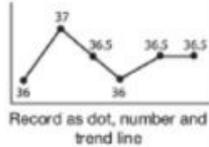
- **A (Alert):** Patient is alert and oriented to person, place, time and event.
- **C:** New confusion or altered mental status or delirium has been identified as an early sign of deterioration and is thus now included as 'C' in ACVPU. Consult family to establish the patient's baseline and assume the patient has new confusion until proven otherwise. A patient may respond to questions coherently, i.e., they may be orientated in person, place and time, but may still be confused or have altered mental status and/or agitation. If a patient's baseline is confirmed as 'confusion' (pre-existing/persistent) this is taken as their normal status and they are scored accordingly.
- **V (Voice):** The patient responds to verbal stimuli only.
- **P (Pain):** The patient responds to painful stimuli only with a purposeful or non-purposeful movement.
- **U (Unresponsive):** The patient does not respond to stimuli.



Temperature

- Temperature is recorded here.
- INEWS temperature parameter ranges are as follows
 - **Normal range** is 36.1°C - 38°C
 - **Hypothermia:** Core temperature of <35°C
 - **Hyperthermia** extends from low grade pyrexia (38.1°C) to hyperpyrexia (≥40°C)

E (Exposure)



	2	39.0	38.2	38.2		
	1	38.5				
	1	38.0				
	0	37.5				
	0	37.0				
	0	36.5				
	0	36.0				
	1	35.5				
	1	35.0				
	3	34.5				
Temp. Score			2	2	1	0

Apply temperature measurement, dot and trend line.

Apply INEWS score for temperature.

Temperatures should be recorded at the appropriate site (e.g tympanic, axillary etc) according to your local hospital/acute setting guidelines. Ideally the same site should be used to allow for comparison.

Temperature

Record as dot, number and trend line

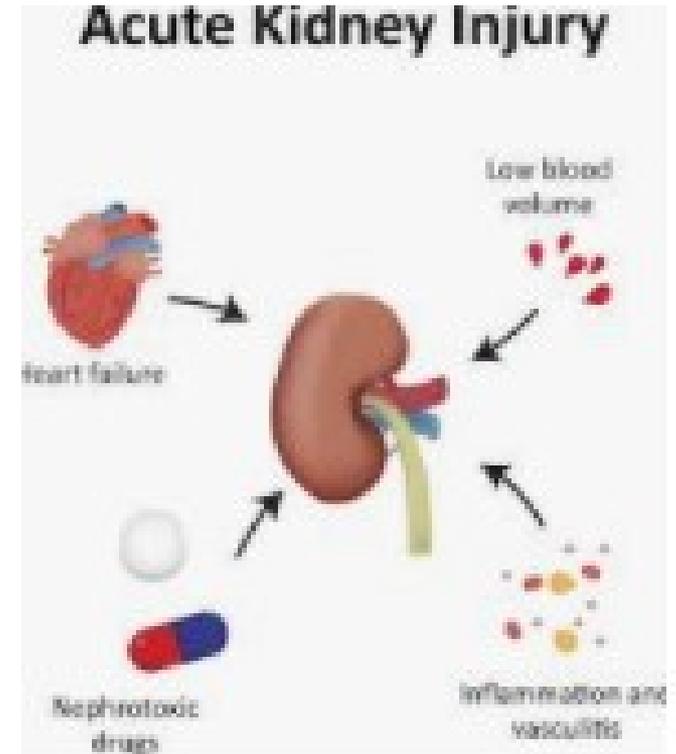
(°C)	0	36.0
	1	35.5
	1	35.0
	3	34.5
	Temp. Score	

INEWS Score

Consider Sepsis if INEWS ≥ 4 (or ≥ 5 on O₂)

Notify Doctor if urine output is < 0.5 mL/kg/hr

Reassess within (Mins./Hrs.)
Blood Glucose
Pain Score
Bowel Movement
Student/HCA Initials
RGN Initials



Urine Output

- Small window of opportunity to recognise Acute Kidney Injury (AKI) to prevent acute renal failure
- Monitor fluid balance accurately

Reassess within (Mins/Hrs)

Frequency of patient monitoring is determined by:

- Patient's clinical condition
- Clinical judgement
- INEWS score

Document:

- When the next patient assessment is due

INEWS Score	3	2	7	4		
Reassess within (Mins./Hrs.)						
Blood Glucose						
Pain Score						
Bowel Movement						
Student/HCA Initials						
RGN Initials						



Knowledge check

- Which of the following statements are true?
 - a. Normal respiratory rate in adults as per INEWS is 12-20 breaths per minute
 - b. Normal SpO₂ is ≥96%
 - c. For FiO₂ if a patient is on any inspired oxygen, a score of 1 is inserted
 - d. When measuring heart rate, count for 30 seconds
 - e. If systolic BP is ≥ 200 mmHg, an urgent medical review is required
 - f. Normal temperature range is 36.1°C - 38°C

Record as dot, number and trend line

Temperature (°C)	Score
0	36.5
0	36.0
1	35.5
1	35.0
3	34.5

INEWS Score

Consider Sepsis if INEWs ≥ 4 (or ≥ 5 on O_2)

Reassess within (Mins./Hrs.)

Blood Glucose

Bowel Movement

Student/HCA Initials

RGN Initials

Notify Doctor if urine output is < 0.5 ml/kg/hr

***THINK SEPSIS**
(Use clinical judgement)

INEWS ≥ 4 (or ≥ 5 on Oxygen) and suspicion of infection

Older people or those immunocompromised may present with sepsis with an INEWs < 4 (< 5 if on Oxygen)



When to think Sepsis

- Think sepsis if there is an INEWs score ≥ 4 (or ≥ 5 if on O_2) and a suspicion of infection
- Use clinical judgement, particularly for older patients or immunocompromised patients as they can have sepsis despite an INEWs of < 4 (or < 5 if on O_2)



Summary

Healthcare worker/patient/family/carer concern is an important indicator of patient deterioration

Early indicators of deterioration are changes in respiratory rate and new confusion/altered mental status/delirium

An increasing requirement for supplemental oxygen to maintain target SpO₂ levels is a clear sign of deterioration and requires immediate medical review

There is a small window of opportunity to recognise Acute Kidney Injury (AKI) to prevent acute renal failure; monitor urine output accurately

Accurate measurement and calculation of the INEWS score are critical to improving patient outcomes



Patient Name: _____
 Date of Birth: _____
 Healthcare Record No: _____

Irish National Early Warning System (INEWS) ADULT PATIENT OBSERVATION CHART

INEWS should be used as an aid to clinical judgement and decision making

INEWS Escalation & Response Protocol

INEWS Score	Minimum Observation Frequency	Escalation	Response
Bedside Response	Healthcare worker / patient / family concern	Nurse at the bedside / Nurse in Charge (NIC)	• NIC to review if concern and escalate as appropriate
	0 – 1	NIC	• NIC to review if new score 1
	2	NIC	• NIC to review
For INEWS scores of 0 – 2 an Urgent Response (SHO or ANP Service) can be called if there is clinical concern			
Urgent Response	3	NIC and Team / On-call SHO	• SHO or ANP service to review within 1 hour
	4 – 6 THINK SEPSIS*	NIC and Team / On-call SHO	<ul style="list-style-type: none"> • SHO or ANP service to review within 1/2 hour • Screen for Sepsis* • If no response to treatment w contact Registrar and/or ANP • Consider continuous patient • Consider transfer to higher
Emergency Response	≥7	NIC and Team / On-call Registrar Inform Team / On-call Consultant	<ul style="list-style-type: none"> • Registrar / Consultant / to review immediately • Continuous patient m recommended • Plan to transfer to h • Activate Emergency (as appropriate tr
	Score of 3 in any single parameter or Score of 2 for HR ≤40	NIC and Team / On-call SHO	<ul style="list-style-type: none"> • SHO or ANP review immediate • If no response concern • Consider Response

If response does not occur as per protocol the CNM/NIC should contact!

- CUES FOR CAUTION**
- ! Increasing O₂ requirements to maintain SpO₂ levels
 - ! Patient located outside of specialist ward
 - ! Patient receiving high-risk / unfamiliar therapies
 - ! Communication concerns between staff and/or patient
 - ! Nurse intuition / 'gut-fe

asCOOa

INEWS Escalation and Response

INEWS Escalation & Response Protocol

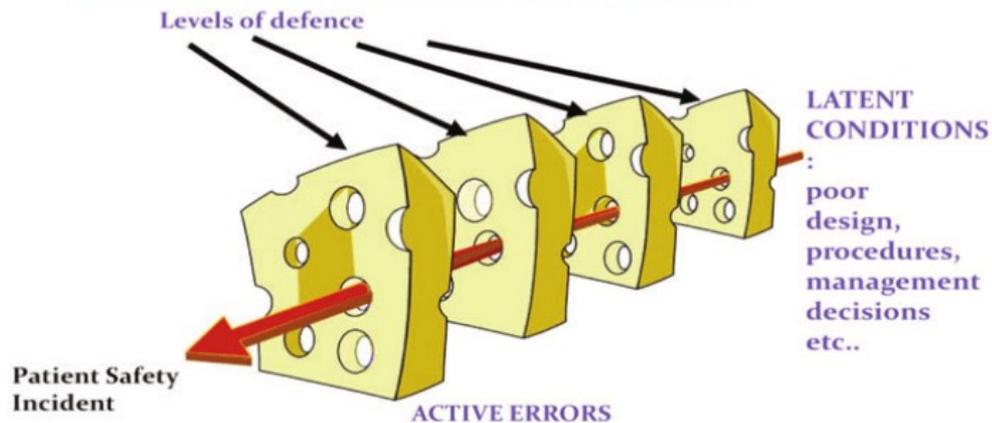
INEWS Score		Minimum Observation Frequency	Escalation	Response
Bedside Response	Healthcare worker / patient / family concern	As indicated by patient condition	Nurse at the bedside / Nurse in Charge (NiC)	<ul style="list-style-type: none"> NiC to review if concern and escalate as appropriate
	0 – 1	6 hourly (first 24 hours following admission) then 12 hourly minimum	NiC	<ul style="list-style-type: none"> NiC to review if new score 1
	2	6 hourly	NiC	<ul style="list-style-type: none"> NiC to review
For INEWS scores of 0 – 2 an Urgent Response (SHO or ANP Service) can be called if there is clinical concern				
Urgent Response	3	4 hourly	NiC and Team / On-call SHO	<ul style="list-style-type: none"> SHO or ANP service to review within 1 hour
	4 - 6  THINK SEPSIS*	1 hourly	NiC and Team / On-call SHO	<ul style="list-style-type: none"> SHO or ANP service to review within ½ hour Screen for Sepsis*  If no response to treatment within 1 hour, contact Registrar and/or ANP service Consider continuous patient monitoring Consider transfer to higher level of care
Emergency Response	≥7	½ hourly	NiC and Team / On-call Registrar Inform Team / On-call Consultant	<ul style="list-style-type: none"> Registrar / Consultant / ANP service to review immediately Continuous patient monitoring recommended Plan to transfer to higher level of care Activate Emergency Response System (as appropriate to hospital model)
	Score of 3 in any single parameter or Score of 2 for HR ≤40	½ hourly or as indicated by patient condition	NiC and Team / On-call SHO	<ul style="list-style-type: none"> SHO or ANP service to review immediately If no response to treatment or if still concerned, contact Registrar/Consultant Consider activating Emergency Response System

If response does not occur as per protocol the CNM/NiC should contact the Registrar or Consultant



CLOSED LOOP GOVERNANCE

Reason's Swiss cheese model



Swiss Cheese model of organizational accidents.

- **Bedside -**
 - Post-escalation/awaiting response team: maintain monitoring and surveillance of patient
 - Post-response: re-evaluate interventions to determine effectiveness
 - Avoid 'cycle of clinical futility' – escalate to more senior clinician if no or limited response to intervention(s)
- **Organisational -**
 - Consultant clinical champion to provide clinical leadership
 - Deteriorating Patient Committee reporting to Hospital Executive Management Team
 - Agree schedule of audit
 - Consider outcomes to be measured e.g. transfer to HLOC, cardiopulmonary arrest
 - Agree education and training schedule



Cycle of Clinical Futility

- A '*cycle of clinical futility*' is when a patient is deteriorating, and they are reviewed on a number of occasions but despite the patient not responding to interventions they are not escalated for senior medical review i.e. a lot of activity with no improvement - and even dis-improvement - in patient condition
- Hierarchical culture in hospitals can lead to reluctance of junior staff to escalate upwards to senior colleagues
- INEWS escalation and response protocol prompts escalation to Registrar or Consultant if patient does not respond to initial treatment

Modified Escalation and Response Protocol

Recommendation 7: A patient's INEWS score or the INEWS physiological parameter ranges must not be altered.

However, some patients' lived baseline observations will fall outside INEWS normal parameter ranges. To respond to these individuals' care needs INEWS V2 introduces the Modified Escalation and Response Protocol for use by a Consultant or Registrar once a patient has been admitted for 24 hours or longer ie has established a baseline observations trend.

Modified INEWS Escalation and Response Protocol – minimum content

- Rationale for modification of escalation and response
 - Timeframe for review of patient and modified response protocol (minimum 24 hourly review)
 - Information about further action(s) and/or escalation.
- (Note: For the majority of patients the standard Escalation and Response Protocol will be appropriate)*

Modified INEWS Escalation and Response Protocol (to be completed by Consultant or Registrar only)
Not for use within first 24 hours of admission

	Date Year: 2020	Time (use 24hr clock)	Rationale and Instructions/Interventions	Next medical review	DOCTOR (Signature and MCRN)
Start	05 / 03	1800	Imp: Chest infection, admitted > 24 hours ago Stable with RR 20, SpO2 96%, O2 2L/min via nasal cannulae (INEWS score 3) Escalate if change in RR or increased O2 requirement to maintain SpO2 treatment target of $\geq 96\%^*$	First thing tomorrow morning or earlier if patient condition deteriorates (increase in RR or if requires an increase in supplemental O2 to maintain target SpO2) or if clinical concern.	Dr. A, Medical Registrar MCRN 1234567
End	/				
Start	/				
End	06 / 03	1000			
Start	/				
End	/				
Start	06 / 03	1000	Reviewed. Discontinue O2. Seek review by Medical Registrar or Consultant if change in RR or if O2 required again.	24 hours or sooner if concern	Dr. A, Medical Registrar MCRN 1234567
End	07 / 03	1000			
Start	/				
End	/				

**Text within sections above is provided as example only - please write over the watermark*

Example of a Modified Escalation and Response Protocol

Modified INEWs Escalation and Response Protocol (to be completed by Consultant or Registrar only)
Not for use within first 24 hours of admission

	Date Year: 2020	Time (use 24hr clock)	Rationale and Instructions/Interventions	Next medical review	Doctor (Signature and MCRN)
Start	05 / 03	1800	Imp: Chest infection, admitted > 24 hours ago Stable with RR 20, SpO2 96%, O2 2L/min via nasal cannulae (INEWS score 3) Escalate if change in RR or increased O2 requirement to maintain SpO2 treatment target of $\geq 96\%$ *	First thing tomorrow morning or earlier if patient condition deteriorates (increase in RR or if requires an increase in supplemental O2 to maintain target SpO2) or if clinical concern.	Dr. A, Medical Registrar MCRN 1234567
End	/				
Start	/				
End	06 / 03	1000			
Start	/				
End	/				
Start	06 / 03	1000	Reviewed. Discontinue O2. Seek review by Medical Registrar or Consultant if change in RR or if O2 required again.	24 hours or sooner if concern	Dr. A, Medical Registrar MCRN 1234567
End	07 / 03	1000			
Start	/				
End	/				

**Text within sections above is provided as example only - please write over the watermark*

Deferred escalation by an RGN

An RGN using their clinical judgement and working within their scope of professional practice may decide against immediate escalation...when they believe that immediate simple measures are likely to reduce the INEWS score over a short period of observation within or up to a maximum period of 30 minutes (Recommendation 11).

Deferred escalation should be followed by:

- Reassessment \leq 30 minutes, escalating if no improvement
- Documentation of decision to defer escalation on the INEWS chart

Deferred Escalation (to be completed by Registered General Nurse (RGN))

Date/Time <small>(use 24hr clock)</small>	Rationale and Interventions	Review at 30 minutes	Nurse <small>(Signature and NMBI PIN)</small>
25 / 05 / 20 @ 0400	Imp: Decrease in SpO2 to 94% on 2L/min O2 via n/prongs, patient lying flat, stated they feel okay. Intervention: patient repositioned and n/prongs adjusted. Repeat observations and review decision at 30 minutes. NIC informed.	0430 hours: SpO2 back to 96% on 2 L/min O2, no need for escalation.	Nurse Brown (PIN 12345)
/ / @			
/ / @			
/ / @			

**Text within sections above is provided as example only - please write over the watermark*

ISBAR Communication Tool

Identify

Situation

Background

Assessment

Recommendation

Modified Escalation and Response Protocol

Which of these statements in relation to the modified INEWS Escalation and Response protocol are correct?



The rationale for modification of the INEWS Escalation and Response Protocol must be documented.

Information about further action(s) and /or escalation must be detailed.

The fact that the patient is on a modified protocol should be included in ward clinical handovers and safety huddles.

There is no need to include a timeframe for review of the patient as the Modified INEWS Escalation and Response Protocol will be reviewed in 24 hours.

Nurse Slattery should use the information contained in the modified protocol to guide his nursing care and documentation.

While this modified INEWS Escalation & Response Protocol is still in place, there is no need to escalate the patient.

Summary

- INEWS is used to aid clinical judgement and clinical decision-making. If worried about a patient, escalate care regardless of the INEWS score
- When escalating care, use the ISBAR tool.
- Adhere to the INEWS Escalation & Response Protocol
- A Registered General Nurse may defer escalation for a short period if immediate simple measures are likely to resolve patient symptoms
- A Consultant or Registrar may decide to document a modified INEWS Escalation & Response Protocol



Summary



INEWS as a system

- encompasses the anticipation, recognition, escalation, response and evaluation of the deteriorating patient.

INEWS consists of:

- Clinical judgement (anticipation, recognition and assessment)
- A track and trigger tool (the revised INEWS patient observation chart)(recognition and assessment)
- An escalation and response protocol (escalation of care for nursing or medical review and structured appropriate clinical response mechanism)
- Closed loop governance (evaluation of patient and process)

Extend My Learning

Useful resources and additional reading to help you apply what you have learned to your practice

NCEC NCG No. 1 Irish National Early Warning System (INEWS) 2020 available at :

<https://www.gov.ie/en/collection/c9fa9a-national-clinical-guidelines/?referrer=/national-patient-safety-office/ncec/national-clinical-guidelines/#national-early-warning-score-news>

NCEC NCG No. 4 Irish Maternity Early Warning System (IMEWS) V2 available at:

<https://www.gov.ie/en/collection/517f60-irish-maternity-early-warning-system-imews-version-2/>

NCEC NCG No. 6 Sepsis Management 2020 available at:

<https://www.gov.ie/en/collection/c9fa9a-national-clinical-guidelines/?referrer=/national-patient-safety-office/ncec/national-clinical-guidelines/#sepsis-management>

NCEC NCG No. 11 Communication (Clinical Handover) in Acute and Children's Hospital Services available at:

<https://www.gov.ie/en/collection/006e63-clinical-handover-in-acute-and-childrens-hospital-services/>

NCEC NCG No. 12 Paediatric Early Warning System (PEWS) available at:

<https://www.gov.ie/en/collection/f14e5c-paediatric-early-warning-system-pews/>

NCEC NCG No. 18 Emergency Medicine Early Warning System (EMEWS) available at:

<https://www.gov.ie/en/collection/bd79b1-emergency-medicine-early-warning-system-emews/>

Additional reading



INEWS Systematic review of the literature (2019) HRB- CICER

<https://assets.gov.ie/87924/6c2bcd02-9abc-4a29-b0dc-033423a36e81.pdf>

Nurse worry/concern

- Douw, G., van Zanten, A.R., van der Hoeven, J.G. and Schoonhoven, L., 2016. Nurses worry as predictor of deteriorating surgical ward patients: a prospective cohort study of the Dutch-Early-Nurse-Worry-Indicator-Score. *International journal of nursing studies*, 59, pp.134-140.
- Romero-Brufau, S., Gaines, K., Nicolas, C.T., Johnson, M.G., Hickman, J. and Huddleston, J.M., 2019. The fifth vital sign? Nurse worry predicts inpatient deterioration within 24 hours. *JAMIA Open*.

Additional reading



Quality Improvement & Patient Safety

- Brady, P.W., Muething, S., Kotagal, U., Ashby, M., Gallagher, R., Hall, D., Goodfriend, M., White, C., Bracke, T.M., DeCastro, V. and Geiser, M., 2013. Improving situation awareness to reduce unrecognized clinical deterioration and serious safety events. *Pediatrics*, 131(1), pp.e298-e308.
- Fitzsimons, J. and Pentony, M., 2019. Paediatric Early Warning Systems in 2019: What We Know and What We've Yet to Learn. *Current Treatment Options in Pediatrics*, 5(4), pp.315-325.

Oxygen administration

- Irish Guidelines on the Administration of Oxygen Therapy in the Acute Clinical Setting in Adults 2017

Situation Awareness

- Team STEPPS: <https://www.ahrq.gov/teamstepps/index.html>

INEWS Resources

Education & Training Resources include

- INEWS National Clinical Guideline <https://www.gov.ie/en/collection/cc5faa-national-early-warning-score-news/>
- HRB-CICER systematic review of the literature for INEWS V2 <https://assets.gov.ie/87924/6c2bcd02-9abc-4a29-b0dc-033423a36e81.pdf>
- INEWS e-learning programme www.hseland.ie (located within the Clinical Skills catalogue)
- The revised INEWS patient observation chart <https://www.hse.ie/eng/about/who/cspd/ncps/deteriorating-patient-improvement-programme/inews-patient-observation-chart.pdf>
- Guidance on completing the INEWS patient observation chart <https://www.hse.ie/eng/about/who/cspd/ncps/deteriorating-patient-improvement-programme/how-to-use-the-inews-patient-observation-chart.pdf>
- INEWS/COMPASS User Manual <https://www.hse.ie/eng/about/who/cspd/deteriorating-patient-improvement-programme/inews-education-compress-training-manual.pdf>
- QI Tools and resources
- Facilitators slide-deck for local use

