

The Good NEWS *for* Wales

Implementation by NHS Wales
of the National Early Warning Score (NEWS)



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Foreword

A fundamental aspect of practice every clinician must grasp is how to recognise changes in the condition of their patient and most importantly what to do should they determine their condition is deteriorating. Without this fundamental practice being understood by all with clinical responsibilities, patients may well suffer and even die as a consequence.

The introduction of the National Early Warning Score (NEWS) to clinical areas throughout Wales is an important milestone as for the first time there is a common language and approach to assessment of a patient's condition. Application of this common approach should eradicate variation in practice and reduce harm to patients and I am delighted that Wales is taking the lead in this area.

One of the strengths we have in Wales is our ability to come together as a health community to work collaboratively to make service and patient care improvements. The introduction and rapid rollout of NEWS across Wales is a testament to the commitment of the staff in leading the change and embedding the practice. I thank you all for this dedication and drive to make a difference to the care of all sick and vulnerable people who access our health services everyday.



Professor Jean White
Chief Nursing Officer for Wales / Nurse Director NHS Wales

A First for Wales

NHS Wales has become the first healthcare system in the world to implement the National Early Warning Score (NEWS) as the standard in all secondary and tertiary hospitals.

NEWS was launched by the Royal College of Physicians (RCP) working group in July 2012 with the recommendation that it be spread to acute hospital settings throughout the UK. In Wales, NEWS has already been adopted and implemented in all 17 acute hospitals, Velindre Cancer Centre and in approximately half of the community hospitals.

In addition to this success, NEWS is also being evaluated by the Welsh Ambulance Service for use in the pre-hospital setting and testing of the score is taking place in mental health, maternity and prison services in Wales.

Speaking a Common Language

NEWS enables clinicians to calculate and articulate the level of risk of a patient's physical condition deteriorating in a standardised and now universally understood way. The score is calculated from the patient observations that are routinely carried out in healthcare settings and determines a minimum level at which the patient may be said to be at low, medium or high risk of becoming acutely unwell.

NEWS was developed by the RCP National Early Warning Score Development and Implementation Group (NEWSDIG) based upon evaluation of electronic capture of a large number of patient observations and has been demonstrated to be superior to any other score in prediction of patient deterioration¹.

Physiological Parameters		3	2	1	0	1	2	3
A	Respiratory rate (bpm)	≤8		9-11	12-20		21-24	≥25
	O ₂ Saturations (%)	≤91	92-93	94-95	≥96			
B	Any supplemental Oxygen		Yes		None			
C	Systolic BP (mmHg)	≤90	91-100	101-110	111-219			≥220
	Pulse (bpm)	≤40		41-50	51-90	91-110		≥131
D	AVPU score				Alert			VPU
E	Temperature (°C)	≤35.0		35.1-36.0	36.1-38.0	38.1-39.0	≥39.1	

Concern about a patient should lead to escalation, regardless of the score.

¹ Prytherch DR, Smith GP, Schmidt PE, Featherstone PI. 2010. ViEWS - towards a national Early Warning Score for detecting adult inpatient deterioration. Resuscitation 81. 932-937.

Working Together as Wales

In November 2010 Christopher Jones, Deputy Chief Medical Officer for Wales and Professor Jean White, Chief Nursing Officer for Wales secured agreement from the Welsh Medical and Nursing directors groups on the feasibility and desirability of the adoption in all NHS Wales organisations of a single standardised 'patient at risk of deterioration' early warning score for Wales.

It was further agreed that this system should be the most effective available and so the EWS which was then under development by NEWSDIG was adopted. Dr Philip Kloer accepted the chair of the implementation steering group and Dr Chris Subbe and Chris Hancock were appointed as clinical and management leads respectively.

Implementation Steering Group

In order to ensure engagement from all NHS Wales organisations medical and nursing representation was sought from each health board and trust. Also represented on the steering group were the Welsh Government, Welsh Intensive Care Society, Consultant Nurses and the Royal College of Nursing.

The Terms of Reference for the group included monitoring implementation of NEWS against the milestones, leading on escalation planning and addressing issues on an All Wales basis such as Oxygen and Antibiotic administration.

RRAILS – A National Learning Set

The implementation of NEWS was initiated and rolled out through participation of all NHS Wales organisations in the Rapid Response to Acute Illness Learning Set (RRAILS) as part of 1000 Lives Plus quality improvement programme.

The purpose of this programme is to support organisations in the reliable implementation of NICE clinical guidance (CG50) on the deteriorating patient and to enable clinical teams to detect and respond to sepsis quickly.

Teams from all NHS Wales organisations attended bi-monthly study days and webex meetings and then applied the shared learning in the clinical area. RRAILS gives clinical teams the tools to demonstrate reliability with evidence-based care bundles and processes and to show improvements in patient outcomes.

For more information about RRAILS, please visit www.1000livesplus.wales.nhs.uk/rrails

Transition from Existing Scores

Timeline

It was recognised at an early stage that implementation of NEWS would necessitate the re evaluation of systems around escalation and response and that this could be costly, complex and time consuming if attempted at the same time. Therefore a staged approach was taken and milestones were agreed:

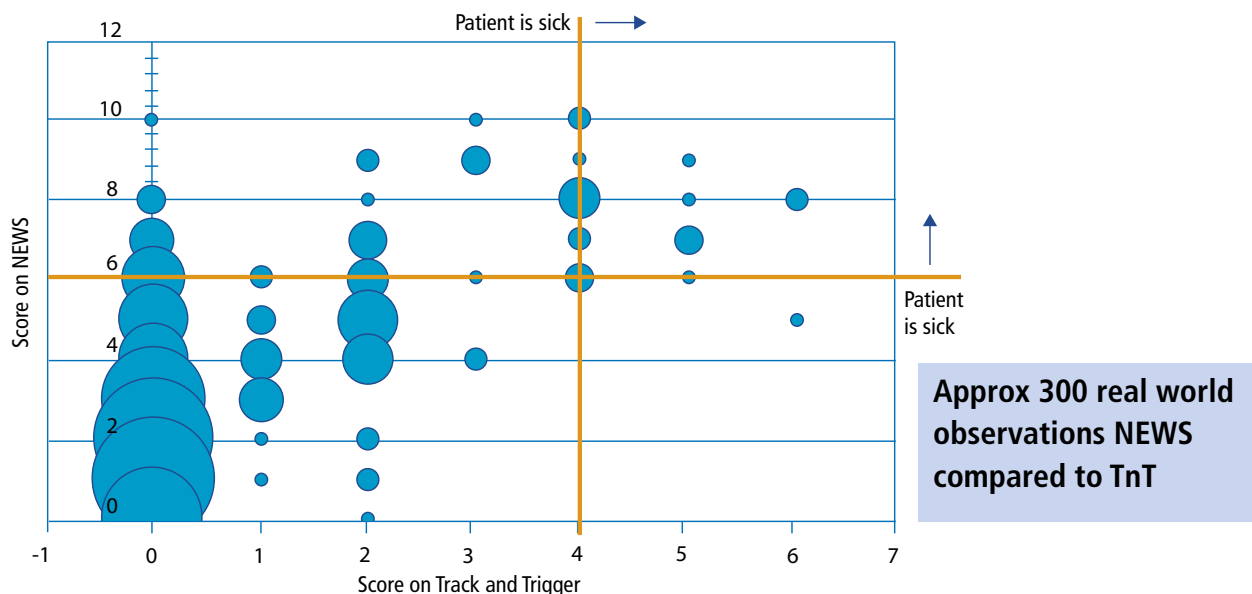
- **April 2012** – replacement on observation charts of the existing EWS with NEWS.
- **April 2013** – >95% compliance with the RRAILS bundles, demonstrating effective use of NEWS, in all acute clinical areas.
- **April 2014** – improvements in patient outcomes including a reduction in sepsis mortality

The Steering Group and Learning Set meetings were used to report on achievement against these milestones.

Comparison with Existing Scores

Prior to making the transition to NEWS, organisations were encouraged to compare the NEWS score to their existing score. A sample of patient observations was taken and the two scores plotted on vertical and horizontal axes. The subsequent chart identified patients who would have been undetected by the previous system and identified the point at which both scores identified a medium risk patient.

A score of 4 in existing systems such as MEWS and PAR was repeatedly demonstrated as being equal to a score of 6 in NEWS and a score of 9 was largely agreed as being the trigger point at which the cardiac arrest or rapid response team would be called.



Setting the National Trigger Points

Thus in the acute hospital setting the trigger points for low, medium and high risk across Wales were set at a NEWS score of 3, 6 and 9 respectively.

The mnemonic used to remember this was:

THREE = Threat
 SIX = Sick
 NINE = Now



And was tied in with relevant prompts to action:

3-5 Could this patient have an acute illness or an unstable chronic disease?
 6-8 The patient is likely to deteriorate rapidly
 9 or greater This patient has an immediately life threatening critical illness

This agreement between all NHS Wales organisations means that for the first time all organisations are able to communicate about the level of deterioration risk using the same language.

NEWS	RISK	SUSPECT SEPSIS?
0-2		2 or more of these: Temperature < 36 or > 38.3°C Heart rate > 90 bpm Respiratory rate > 20/min WCC > 12 or < 4 x 10 ⁹ /l Acutely altered mental state Hyperglycaemia (>7.7 mmol/L) Plus new infection = SEPSIS!
3-5	3 = THREAT! Acute illness or unstable chronic disease?	
6-8	6 = SICK! Likely to deteriorate rapidly	
9	9 = NOW! Immediately life threatening critical illness	

Note of Caution: Frequency of observations can be increased at the discretion of the clinical team. Equally concern about a patient should lead to escalation, regardless of the score.

Suitability of NEWS for Other Settings

Powys Teaching Health Board is the only health board in Wales that does not have any secondary hospitals. It does have ten community hospitals and was keen to implement NEWS so as to ensure standardisation of communication and continuity of care when transferring patients in and out of the county.

Powys Teaching Health Board has done a considerable amount of work on evaluating the NEWS score in the community hospital setting and have found that whilst the scores of 6 and 9 still represent medium and high risk for patients in community hospitals there is considerable ambiguity around scores below 6.

Consequently, trigger points and the actions on these for scores of 3, 4 and 5 vary between the community and secondary care settings. This work has proved invaluable for the spread of NEWS to community hospitals and residential care homes in Wales.

Velindre Cancer Centre have implemented NEWS and use the same trigger points as the rest of the country. They have incorporated assessment using the Multinational Association for Supportive Care in Cancer (MASCC) prognostic tool to determine whether patients are at high or low risk of developing complications from neutropenic sepsis and the subsequent treatment they require.

Work is underway to evaluate the use of NEWS and associated trigger points by Mental Health Services, the Welsh Ambulance Service and in HMP Cardiff.

Demonstrating Improvement

Although the implementation of NEWS is a fairly recent innovation for all NHS Wales organisations there are already examples of how the work towards standardisation has led to associated improvements. These improvements are largely in the areas of:

- Quality assurance of safer care.
- Earlier identification of acutely ill patients.
- Effective recognition and treatment of sepsis.
- Improved patient outcomes.

Quality Assurance of Safer Care

Participants in RRAILS have long realised that effective detection of deterioration cannot rest solely with the simple action of taking observations and calculating a score but instead involves profound changes in complex systems.

The NICE guidance CG50 makes it clear that the score, once calculated, must be communicated, the potential for deterioration identified and escalated appropriately in order that a timely response can take place.

The RRAILS programme has therefore codified the recommendations of NICE CG 50 and the Surviving Sepsis Campaign Guidelines into four care bundles:

- **Admissions bundle** – patients admitted to the clinical area will have a full set of observations on admission and will have a plan for the frequency of observations which will be communicated to the clinical team.
- **Recognition bundle** – all patients will be regularly risk assessed using NEWS and will be routinely screened for sepsis if found to be at risk.
- **Response bundle** – all patients who are determined to be ‘at risk’ of deterioration will be escalated to a higher level of care using a communication tool such as SBAR and will be treated quickly and in accordance with their low, medium or high level of risk.
- **Sepsis Six** – all patients triggering as having sepsis will receive the ‘Sepsis Six’ bundle including antibiotics within 1 hour of diagnosis.



Demonstration of compliance with these bundles therefore gives a measurement of the use and communication of the NEWS score without the need to perform time and labour intensive post hoc audits.

Most participating teams have demonstrated improvements in reliability to >95% with the Admission and Recognition bundles. In many cases compliance has remained at 100% for extended periods of time.

This high compliance acts as a quality measure to demonstrate that clinical teams are reliably carrying out evidence based care and treatment. This ward level reliability data can now be uploaded directly to the electronic All Wales Nursing and Midwifery Dashboard spreadsheet for Quality Improvement utilisation at various levels within the healthcare organisation.

Earlier identification of acutely ill patients

The high compliance with the assessment and recognition bundles that has been achieved very quickly in many clinical areas demonstrates that teams are using NEWS effectively to spot deterioration at an early stage.

This has been aided by implementing innovations such as the Patient Safety at A Glance (PSAG) boards, the SBAR escalation tool and the 2 minute safety briefing.

Effective recognition and treatment of sepsis

In tackling sepsis it has long been acknowledged that reducing the time taken to recognise the disease and then to treat it is imperative.

NEWS provides a commonly agreed and easily identifiable point at which to screen for sepsis. In most organisations a score of more than 2 will prompt the question 'could this person have sepsis?' with the subsequent use of a sepsis screening tool if appropriate.

In those areas where measurement is possible, sepsis requiring treatment represents between 20 – 30% of all calls for rapid response. Since using NEWS one typical 400 bedded hospital has found there to be approximately 20 cases/month of sepsis requiring rapid treatment.



Implementation of NEWS has, for the first time, enabled clinicians to measure and demonstrate comparable rates of sepsis identification and treatment. In centres where it is measured delivery of the 'sepsis six' treatment bundle is being achieved within one hour in 60-70% of cases.

One innovation that has been introduced to tackle sepsis has been the sepsis response bag. This has been pioneered in Cwm Taf Health Board where the use of NEWS has provided a metric to demonstrate improvements in outcomes for patients treated with the sepsis six.

Improved Patient Outcomes

The use of NEWS and common trigger points has enabled Health Boards to quantify the proportion of patients at any time who are at risk of deterioration and to evaluate the delivery of services across several hospital sites.

The outcomes for those patients can be tracked using the RRAILS outcomes database and organisations have demonstrated improvements in outcomes including ICU admission and use of DNAR orders.

Challenges

Persistent triggering

A frequently expressed concern during the transition period was that certain patients, in particular those with respiratory problems, would keep triggering as being at risk and therefore substantially overload the capability to respond adequately. Whilst this has been found to be far less prevalent than expected, several organisations, in redesigning their observations charts have included a facility to specify acceptable observations for that patient.

What has actually been demonstrated is that NEWS functions to identify worsening chronic illness as well as acute instability. The concern that these patients are triggering 'inappropriately' has been somewhat dampened by work in Betsi Cadwaladr University Health Board, the preliminary results of which appear to demonstrate significantly increased mortality at 30 days in those respiratory patients scoring greater than 6 on NEWS.

Missed Deterioration

Of particular concern to many clinicians has been the absence of urine output from the NEWS score and the attendant possibility of missing Acute Kidney Injury (AKI).

The inclusion of urine output on the score was not possible partly because of the unreliability with which this observation is carried out in practice. It is worth noting that in the literature NEWS was evaluated better than any other score, including those with urine output included.

A possible solution has been suggested in the idea of an All Wales response bundle. Thus a score of 3 on NEWS could prompt the action of ensuring that a fluid balance chart is started amongst other actions.

Communications

One of the essential and significant elements of the programme to introduce NEWS has been the use of communications and publicity to ensure that the whole of NHS Wales has moved forward together.

The communications team has used social media, video and printed media to publicise and promote the work on implementing NEWS as well as creating the NEWS card and smartphone app.

To see the resources developed to promote NEWS, please visit www.1000livesplus.wales.nhs.uk/rails

NEWS Card

The NEWS card is, as the name suggests, a credit card sized plastic card that has printed on it the NEWS scoring matrix, the trigger points and prompts for 3, 6 and 9 and the early stages of the sepsis screening tool.

The card has been extremely effective both in cementing the use of NEWS into the clinical arena and in raising awareness of NEWS and sepsis beyond the borders of Wales.

The NEWS_Wales App



NEWS was adapted and again combined with the Sepsis Screening Tool in the iPhone App which was published on iTunes in 2012.

As with the card, the NEWS app is not intended to replace clinical judgement and expertise but is instead intended as an aide memoir to prompt risk assessment and the consideration of sepsis as a possible diagnosis.



The NEWS_Wales App was launched in July 2012 and since then has been downloaded almost 1000 times. Android and Blackberry compatible versions are under development.

The News_Wales App is available on the AppStore. More details are available on www.1000livesplus.wales.nhs.uk/rails

Interest from Around the World

There has been significant interest in the Welsh experience with NEWS, RRAILS and Sepsis from many countries. Members of the RRAILS collaborative programme have been invited to speak at a variety of forums in England and beyond and enquiries have been received from as far afield as Singapore and Australia.

Future Developments

NHS Wales has demonstrated that it can act effectively as a single entity and will be seeking to build upon this success with concerted actions in related fields such as:

- Sepsis recognition and treatment
- All Wales Observation Chart
- All Wales Life Support Training Course
- All Wales Response Bundle

Conclusion

The introduction of NEWS in NHS Wales has required a degree of cooperation and collective innovation that might perhaps be difficult to achieve in a larger healthcare system.

Nevertheless, this collaborative project has enabled clinical teams to improve and upgrade their systems so as to derive benefits for patients that are not restricted to the mere act of substituting one score for another.

Rather, NEWS is an ongoing part of the larger RRAILS and sepsis projects which will continue to reap rewards in coming years.

The overarching lesson to be drawn from the experience of implementing NEWS in NHS Wales is that using a standardised 'good enough' system now is better than waiting for perfection to arrive.

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