Effects of introducing MEWS on nursing staff in mental health inpatient settings

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The Modified Early Warning Score (MEWS) is now commonly used in the assessment of physically unwell patients in non-acute hospital wards. The effect of the introduction of MEWS on the confidence of inpatient psychiatric nurses in identifying the severity of a physically deteriorating patient, and taking appropriate clinical action, has not been reported previously. The authors undertook a cross sectional survey looking at the level of confidence of qualified mental health nurses, and their ability to make correct clinical decisions, before and after introduction of the MEWS tool.

Available literature indicates that patients suffering from mental disorders are at increased risk of premature death. Furthermore, those suffering from schizophrenia have much higher standardised mortality ratios from circulatory, respiratory, endocrine and nervous system diseases compared with the general population.1-3 It has been highlighted that individuals suffering with severe mental illnesses, such as schizophrenia and bipolar affective disorder, not only have higher rates of ischemic heart disease, stroke, high blood pressure and diabetes compared to the general population, but are also more likely to suffer from these conditions at a younger age than the general population.4 Several causes for these health inequalities have been put forward, including poor lifestyle choices, poor dietary choices,5 substantially higher prevalence of smoking compared with the general population,6 and a high prevalence of obesity.5

There are no statistics on the number of patients needing referral to accident and emergency departments from mental health services. The National Patient Safety Agency (NPSA) reported that 5 per cent of claims (32 out of 605 claims in 2005) concerning the quality of care come from unexpected death following referrals made by mental health trusts to accident and emergency.7 This could potentially be a significant source of anxiety for staff and a financial burden for mental health trusts.

In addition, there is increasing evidence of disparities in access to adequate physical health care in patients with severe mental illness. Systematic barriers such as the separation of mental health services from other medical services, and healthcare provider issues, including the pervasive stigma associated with mental illness, are potential reasons for the delay in receiving adequate care in the case of physical health issues.8 The difficulties faced by mentally unwell patients to communicate their complaints, due to primary or secondary cognitive impairments such as intellectual disability, dementia or chronic psychotic illness, is another factor that interferes with providing physical healthcare in our service users.

The identification of physical health deterioration in patients with mental health problems has been recognised as an important challenge. Areas of particular concern include rapid tranquilisation, use of physical restraint, infections, and the consumption of alcohol and illicit drugs, which all have the potential to result in sudden deterioration.9 However, patients who physically deteriorate have abnormalities detectable by physiological observations in advance10-15 and can be identified by vigilant nursing staff. A National Patient Safety Agency (NPSA) report into care for acutely physically ill patients concluded that: ‘by identifying patients who are deteriorating and by acting early, staff and their organisations can make a real difference’.7

Modified Early Warning Score

The Modified Early Warning Score (MEWS) is now commonly used for the assessment of physically unwell patients in general hospitals.16 MEWS is a simple guide used by hospital nursing and medical staff, as well as emergency medical services, to quickly determine the deterioration of a patient’s condition before it becomes critical. It is based on data derived from four physiological readings: systolic blood pressure, heart rate, respiratory rate and body temperature;
and on one observation: level of consciousness. The AVPU scale is used for measuring the level of consciousness from Alert through to Voice, Pain and, eventually, Unconscious. The resulting observations are compared to a normal range to generate a single composite score. A total score of five or more is statistically linked to an increased likelihood of death or admission to an intensive care unit (ICU). Studies have shown that respiratory rate and temperature are key physiological variables in predicting clinical deterioration but unfortunately respiratory rate is not usually monitored and recorded, even in general hospitals.

The use of MEWS has been shown to be effective in reducing the mortality and morbidity of deteriorating patients as well as preventing ICU admissions. Studies have suggested that clinical judgment alone has a low sensitivity for recognising a deteriorating patient and adding MEWS score can improve the sensitivity. Also some studies have demonstrated the validity of MEWS on the prediction of outcome measures such as ICU admission and the prediction of mortality rate within 30 days of an episode of deterioration in physical health.

The benefits of introducing MEWS in psychiatric inpatient wards have not been thoroughly studied. Given the benefits of using MEWS in acute hospital settings, it seems logical to conclude that the introduction of MEWS on psychiatric inpatient wards would improve the safety and welfare of patients by enabling the better prediction of impending physical deterioration and also encouraging nursing staff to measure and record respiratory rate and temperature in a more systematic way.

**Method**

The standard MEWS form was reproduced and customised for use in psychiatric wards (see Figure 1). The only modification was changing the emergency response (Advance Life Support) used in general hospitals to telephoning 999 and transferring the patient to accident and emergency from psychiatric wards as there is no medical emergency response service available.

Three samples were taken from qualified nursing staff working at one learning disability inpatient unit and two forensic medium secure wards. The samples consisted of all qualified nurses working in the assessment and treatment learning disability unit and all qualified nurses attending two randomly selected handover meetings on the two forensic psychiatric wards. Taking part in the study was voluntary and the collected data were anonymised.

A survey was conducted to determine the level of the nurses’ ability to identify a deteriorating patient and to then take the correct action. The survey was under-
Original research  MEWS in mental health

Band:  Years of experience:  Date:
Thank you for attending this short training session. I hope you will find it helpful and rewarding.

Please read through the two cases below carefully:
Take an example of two adult patients of similar age and gender, Patient A and Patient B. Patient B is perhaps a 'little confused' but other than that they appear similar at first glance!

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Patient A</th>
<th>Patient B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory rate</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>Heart rate</td>
<td>102</td>
<td>102</td>
</tr>
<tr>
<td>Systolic BP</td>
<td>160</td>
<td>155</td>
</tr>
<tr>
<td>Temperature</td>
<td>37</td>
<td>38.5</td>
</tr>
<tr>
<td>AVPU</td>
<td>Alert</td>
<td>Responsive when called</td>
</tr>
</tbody>
</table>

1. What would you do for patient A?
   A) Continue as usual  B) Repeat obs in 30 minutes  C) Call duty doctor  D) Call 999

2. What would you do for patient B?
   A) Continue as usual  B) Repeat obs in 30 minutes  C) Call duty doctor  D) Call 999

3. Rate your confidence level on soundness of your clinical judgment for your action (1 is not confident at all and 5 is fully confident)
   1  2  3  4  5

Now please use your MEWS form:

1. What would you do for patient A?
   A) Continue as usual  B) Repeat Obs in 30 minutes  C) Call duty doctor  D) Call 999

2. What would you do for patient B?
   A) Continue as usual  B) Repeat Obs in 30 minutes  C) Call duty doctor  D) Call 999

3. Rate your confidence level on soundness of your clinical judgment for your action (1 is not confident at all and 5 is fully confident)
   1  2  3  4  5

Figure 2. Survey to assess the confidence of nursing staff to seek help for physically unwell patients before and after the introduction of MEWS

of MEWS were tested using Wilcoxon signed-rank test to find any statistically significant change. The improvement in the accuracy of decisions made by nursing staff before and after the MEWS training was tested for statistical significance using the Chi-square test.

Results

Nineteen qualified nursing staff took part in the study with a wide range of experience from six months to 20 years (mean 9.6 years).

The mean level of nurses’ confidence in their clinical judgement before the introduction of MEWS was 3.73, which rose to 4.63 afterward. This improvement was statistically significant (Z=3.81, P=0.0001).

The correct MEWS score for Patient A was 3: ‘Repeat MEWS in 30 minutes’ and for Patient B the correct score was 6: ‘Call 999’. Nursing staff made the correct decision about the management of two cases in 42.1 per cent of occasions before using MEWS and in 92.1 per cent after using MEWS. The improvement in the validity of their decision making after the introduction of the MEWS system was also statistically significant (p<0.00001).

Conclusion

There is very limited literature on the use of MEWS on psychiatric inpatient units. Giving the limitations of our study, especially the modest sample size, our findings still indicate that the use of MEWS in mental health inpatient wards can increase the level of confidence of nursing staff and their ability to recognise and manage physically deteriorating patients, and thereby has potential for improving monitoring and care of clinically ill patients, and increasing their safety and survival rate.
We are of the opinion that there are good grounds for widespread use of MEWS in mental health inpatient settings. MEWS is widely used in general hospital settings to identify physically deteriorating patients and there is little extra cost and time associated with implementation of this tool.

Declaration of interests
None declared.

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References

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