Introduction:

The Acute Illness Management (AIM) course was devised by the Greater Manchester Critical Care Skills Institute to address the concerns and recommendations highlighted in 'Comprehensive Critical Care' (DH 2000). Initially, the course was devised for Registered nurses within the acute National Health Service (NHS) Trusts. However, this has evolved into a multi-professional course for all health care professionals. The one- day course consists of lectures and theoretical workshops that provide the underpinning anatomy, physiology and pathophysiology linked to patient scenarios. The Airway, Breathing, Circulation, Disability and Exposure (A-E) acronym (Brunker 2010) is an assessment and management tool used throughout the course for the assessment of acutely ill patients. The rationale for the introduction of the AIM course in 2008, within the Higher Education Institution (HEI) was to equip student nurses with the knowledge and skills required to recognise and respond to acutely ill patients. The AIM course was chosen as this is a nationally approved course that has been implemented in the clinical placement areas linked to the HEI. This is in line with recommendations advocated by the Department of Health (2009) who specify that all healthcare professionals should attend a recognised acute illness course. The AIM course is delivered to third year student nurses, this is to consolidate their knowledge and skills which have been developed in the acute illness module. This course is intended to assist the transition from student to registered nurse.

Previous studies have identified that student nurses may lack confidence and experience to make clinical decisions when caring for acutely unwell patients (Steen and Costello 2008, Bucknall et al 2013, Rushton 2015). Equally newly qualified nurses also felt they lacked confidence and clinical knowledge on how to care for acutely unwell patients (Mooney, 2007).

Insufficient experience and a lack of confidence may create a stressful experience for newly qualified nurses who feel they are unprepared for the complexities of clinical practice (Duchscher 2008). Anecdotal feedback suggests that the opportunity to care for acutely ill patients various, and is dependent on the students clinical experience and therefore some students cannot consolidate their knowledge and skills. Education and training has been advocated as an important factor in how student nurses manage patients who become acutely unwell (Tiwari et al 2005, Rushton 2015). Odell et al (2009) suggest that a didactic approach to teaching does not adequately prepare students for clinical practice. The AIM course includes simulated practice which is a pedagogical strategy that provides a safe and realistic learning environment for student nurses (Cioffe et al 2005, Buykx et al 2011).The Nursing and Midwifery Council (2010) (NMC) identify that student nurses need to be prepared to meet the challenges of care delivery with the knowledge, skills required in a changing healthcare environment.

The aim of the study was to establish if there was an increase in the student nurses' confidence levels when using the AIM course structured A-E assessment framework in a simulated environment.

Background literature:

Seminal research by McQuillan et al (1998) and Goldhill et al (1999), highlighted the poor assessment, recognition and management skills of healthcare professionals when caring for acutely ill patients. McQuillan et al (1998) advocates that this may ultimately result in patients receiving suboptimal care. Suboptimal care refers to acutely unwell patients who exhibit abnormal vital signs, that are unrecognised and sometimes treated inappropriately (Quirke, Coombs and McEldowney, 2011, Cherry and Jones 2015). It is argued that suboptimal care is

not only a National problem but also an International problem and therefore a significant issue in patient safety (Massey et al 2008, Quirke et al 2011). Further research over the last two decades suggests that a failure to recognise and respond to a patients vital signs is still prevalent (Massey et al 2008, Quirke et al 2011, NCEPOD 2012).

The National Confidential Enquiry into Patient Outcomes and Deaths (2005, 2012) highlights the unreliability of healthcare professionals in recognising, responding and ensuring a timely review for acutely unwell patients. A lack of recognition, appropriate action and communication by healthcare professionals was identified as factors that impacted on the assessment of deteriorating patients (NPSA 2007). To address the issues raised the National Institute for Health and Care Excellence (NICE 2007) recommended a Track and Trigger scoring system, also known as Early Warning Scoring Tools (EWS) within all acute NHS Trusts, to alert healthcare professionals that the patients' vital signs were deteriorating.

In 2012 the National Early Warning Scoring Tool (NEWS) was developed with the intention to standardise the tools across the National Health Service (RCP 2012). Conversely, according to Perkins and Kisiel (2013) the introduction of Track and Trigger tools may also have a negative impact. They suggest it may take away the need to analyse the data which ultimately leads to a lack of development of key nursing skills. Their study also found that students in their final year of the programme struggled to link theory to practice when assessing acutely unwell patients. Alarmingly an overreliance on the track and trigger system prevented the student nurses applying theoretical knowledge.

A reported difficulty in relation to applying theoretical knowledge has been linked to clinical decision making. Clinical decision making has been highlighted as an area where student nurses lack confidence (Lauder et al 2008). Yet self-confidence is fundamental to effective decision making (Taylor et al 2010).Alternative methods of preparing student nurses through

simulation to develop their clinical skills is advocated by the NMC (2010). Research has suggested that simulation provides an opportunity for students to develop not only their clinical decision making skills, but also team-work and communication skills in a safe environment (Wilfred and Doyle 2006, Preston and Flynn 2010). Therefore, effective education is essential and provides students with the ability to identify acutely unwell patients, recognise deterioration and escalate concerns, thus increasing their confidence in providing patient care (Hope, Garside and Prescott 2011).

Aim of the Study:

The aim of the study was to establish if there was an increase in the student nurses' confidence levels when using the AIM course structured A-E assessment framework in a simulated environment.

Methods:

A quantitative approach was adopted as this was the most appropriate for analysing trends (Watson 2015) in confidence levels. The study was carried in the HEI using purposive sampling which is a deliberate non - random method which aims to sample a specific group of people (Bowling 2002). Participants were given the opportunity to provide additional comments therefore enhancing the opportunity to capture rich data (Driscoll et al 2007).The study was undertaken in a six month framework. Ethical considerations were adhered to and institutional ethical approval was granted by the Research and Ethics committee at the University. Informed consent was obtained prior to inclusion in the study and the participants were made aware of

their right to withdraw at any time (Coughlan and Brannick, 2005). Participant information sheets were provided for the students, which discussed the nature, purpose and methods of the study, students were also assured of confidentiality and anonymity.

Sample:

Permission was granted from the Head of School to access the study population. A Purposive sampling method (Moule 2015) was adopted as this was the most suitable for the objective of the study as the students were all attending the AIM course. A hundred and ninety two, final year adult nursing students were invited to participate as they were attending the AIM course. The pre - course questionnaire was completed by 181 student nurses and the post course questionnaire was completed by192 student nurses

Questionnaire:

The format of the questionnaire was adapted from the pre-validated confidence tool designed by Arnold et al (2009). To test the validity and reliability of the questionnaire for the purpose of the research, a pilot study was undertaken. Twenty students took part in the pilot study which enabled the researchers to check the design and make any necessary amendments.

The questionnaire provided quantitative data with the opportunity to include additional comments. The data from the project was anonymised by numbers and stored in a locked cupboard. The format of the questionnaire was a five point Likert scale ranging from no confidence (0%) to totally confident (100%) The questionnaire consisted of fifteen items exploring areas such as the ability to recognise a critically ill patient and the ability to recall the full A-E assessment of the patient. The questions were devised in line with the aims, outcomes and assessment strategies from the AIM course. There was also the opportunity for

participants to add further comments which provide additional data for the study. The additional comments provided valuable data (Boynton and Greenhalgh, 2004).

Data Analysis:

The quantitative data was analysed using Statistical Package for Social Sciences (SPSS version 23).Ordinal data provided comparisons of participant's confidence levels. The responses from the open –ended questions on the post course questionnaire were thematically analysed and manually coded (Parahoo 2006) the themes that emerged included confidence, recognition of acutely unwell patients, managing acutely unwell patients, and confidence in using the A-E assessment. During this process the research team referred back to the aim of the study to ensure focus remained.

Results

A total of 192 student nurses attended the AIM Course. 94% of the students completed the pre-course questionnaire and 100% completed the post course questionnaire. The quantitative data correlated with the thematic analysis of the qualitative data obtained from the completed questionnaires.

Recognising acutely ill patients

Findings from the analysis of how confident students felt in recognising an acutely ill patient revealed that 65.6% (n= 118) of students had little or some confidence before attending the AIM course. Only 34.4% (n= 62) of students felt they were very confident or totally confident. However the post –questionnaire showed a significant improvement in the students' confidence as 57.6% (n=110) felt very confident and 20.9% (n=40) felt totally confident post course. This percentage increased following the course as 83.6% (n=159) either had some confidence or were very confident, 15.8% (n=30) were totally confident.

Verbatim comments below are supportive of the quantitative data.

'I felt the course has really helped me with my knowledge and confidence'

'*I have really enjoyed this course and feel that it has developed my knowledge and confidence in relation to caring for the acutely unwell'*

'I have really enjoyed the course and feel it has given me more confidence of my own knowledge'

Confidence at Managing a critically ill patient

One significant aspect of the AIM course is the management of a critically ill patient. It was clear from the analysis that only 13.4. % (n=24) students felt very confident or totally confident in having the experience to be able to care for an acutely ill patient. However following the course this increased to 52.6% of students (n=101) feeling very confident or totally confident

The analysis also showed that following the AIM course there was a significant increase in students' confidence when stabilizing a patient until help arrived. Pre course 12.3% (n=22) felt either very confident or totally confident in contrast to the post questionnaire where 61.1% (n=116) felt very confident or totally confident.

Verbatim comments below are supportive of the quantitative data.

'Confidence in dealing with an acutely ill patient markedly increased'

'The AIM course has increased my confidence in ABCDE assessment and how to manage a patient with critical illness until help arrives

Confidence using the A-E assessment-

Before the Aim course the majority of candidates 88.9% (n=161) felt that they had some confidence or were very confident at their ability to recall A-E assessment, with 58% (n=105) participants claiming some confidence and 30.9% (n=56) feeling very confident. Post course 23.4% (n= 45) reported some confidence, and 54.2% (n=104) were very confidence, showing a significant increase in confidence levels.

Similarly, adequate assessment using A-E was reported by 60.2% (n=109) students as having some confidence pre training and 24.6% (n=47) post training. A significant different 20.9% (n=40) of the participants felt totally confident at using the assessment following training as opposed to only 1.7% (n=3) before the course (See Graph 1).

Verbatim comments below are supportive of the quantitative data:

'I feel more confident using the A-E assessment in practice'

'I feel it is just experience that's will benefit me in increasing my confidence'

Insert Graph 1

The SBAR handover showed similar results with the majority of participants reporting either some confidence or feeling very confident, 71.2% (n=129) participants scoring themselves within this bracket pre training and 74.8% (n=143) post training. Before the training 2.2% (n=4) students felt 100% confident and post training this has risen significantly to 21.5% (n=41) with of the participants feeling 100% confident, showing a significant improvement overall. The majority of students 55.6% (n=99) felt 50% confident at using this form of assessment before the training sessions. However post training the majority of students 48.7% (n= 93) now felt 75% confident at using the assessment in practice, again a significant increase in confidence levels overall.

Confidence with the associated skills.

Confidence in the ability to perform associated skills were included in the questionnaire, for example, confidence to assess a patient's airway, assist to keep a patients airway patent using manoeuvres or adjuncts, select appropriate equipment depending on the patient's condition and request appropriate blood tests. (See Graph 2)

Graph 2

There was an overall significant increase in the confidence levels associated with the skills required during the assessment process. The majority of students 51.1% (n=92) pre course felt that they had some confidence at assessing an airway. Post course the majority 53.4% (n=102) felt very confident in their ability to perform this skill.

A similar pattern is noted in their confidence at their ability to keep an airway patent with 49.4% (n=89) reporting some confidence before and 55.2% (n=106) feeling very confident post training. The participants' confidence at being able to select equipment had similar findings with the majority 51.7% (n=93) having some confidence at pre and 50.8% (n=97) very confident post course. In these skills overall, between 19.4% (n=37) and 28.3% (n=54) candidates felt 100% confident post training. However, this is with the exception of requesting appropriate blood tests. Pre course 11.9% (n=21) rated themselves as having no confidence, post course15.8% (n=30) of the candidates reported feeling 100% confident. Despite the slight increase in confidence it would appear that blood tests remain an area that students lack confidence.

Discussion:

Prior to attending the AIM course student nurses did not feel confident in recognising a patient who was becoming acutely unwell, equally they were not confident in their knowledge to interpret the signs of deterioration. This resonates with previous research by Endacott et al (2010) which alluded to students not fully understanding the pathophysiology when assessing patients and an inability to interpret trends in physiological parameters. Whilst there may be an overreliance by student nurses on the objective data from Track and Trigger systems, there is also the potential therefore to negate the need for an understanding of relevant pathophysiology (Perkins and Kiesel 2013). Fox and Elliot (2015) suggest that it is debatable if Track and Trigger systems alone detect patients at risk, as a failure to recognise and respond to clinical signs of deterioration still exists. Although the AIM course links the pathophysiology to the patients physiological parameters it also reinforces the importance of the nurses observation skills (Cox et al 2006, Cioffi et al 2009) by utilising the Look, Listen and Feel approach to the patients' assessment.

Equally a lack of confidence by student nurses in articulating their theoretical knowledge and clinical decisions may result in a delay in escalating concerns. According to Jahanpour et al (2010) newly qualified nurses were unable to demonstrate clinical decision making skills due to low levels of self-confidence. A lack of confidence could ultimately impact on the student's ability to make clinical decision and therefore compromise patient safety. The Francis Report (2013) advocated that patient safety was a priority of training and education and recommended that healthcare professionals should protect patients from avoidable harm.

It appears that the students' exposure in practice to caring for acutely unwell patients was variable and impacted on their confidence levels in managing and stabilising a patient until

help arrives. The AIM course provides simulation in a safe environment. The course utilises both low and medium fidelity simulation, these methods are familiar to students as they are used to teach skills in the undergraduate course. Furthermore Rushton (2015) identified that simulation helps students to acquire acute skills and increases their confidence. A quasi-experimental study by Martins et al (2014) of fifty nine student nurses found that despite having the knowledge and skills to recognise and respond to acutely unwell patients it was simulated practice that improved the student nurses confidence to intervene. The advantage of using multiple strategies throughout the one day course and the repeated exposure to the associated skills through simulated practice reinforced the students' knowledge and increased their confidence (Hope et al 2011). Similarly Gallagher and Traynor (2012) also highlighted the benefits of workshops, skills stations and communication skills in increasing the confidence of healthcare professionals.

Students also emphasised the practicality of using the structured approach of the A-E assessment tool. Interestingly a small scale study in Australia by Cooper et al (2011) involving thirty five registered nurses discovered that registered nurses failed to use a systematic approach to patient assessment, thus missing trends of clinical signs of deterioration. The study recommended that undergraduate education needs to incorporate links between pathophysiology, patient assessment information and the ability to identify clinical trends. Equally Endacott et al (2010) emphasised the importance of linking the pathophysiology with patient assessments in the nursing curricula.

A key finding from this study was a lack of knowledge by students prior to the course regarding which blood bottles were required to take a blood sample and limited understanding of various tests. It appears that there is a lack of exposure in clinical practice as venepuncture is often the role of dedicated staff and this impacts on the student's individual need to know. However this

will need to be addressed as the new Nursing and Midwifery Council Pre-Registration Standards list venepuncture as an essential skill (ref) . Therefore this will need to be embedded into the future Pre-registration nursing curriculum. The findings from this study suggest that the AIM course had a significant positive impact on student nurses confidence.

Conclusion:

This study has identified that the AIM course has had a significant impact on the student nurses confidence when assessing, responding and managing a patient who becomes acutely unwell. Clinical decision making has been highlighted as a complex process and simulation has allowed the application of theory to practice in a safe environment. It is evident that education which links theory to practice, is key in preparing students with the required skills to safely care for acutely unwell patients.

Recommendations:

The NMC (2017) draft proposal for the future Nurse Standards and Education Framework includes the recognition of signs of deterioration and how to take prompt action also the interpretation of a patients vital signs. The introduction of the AIM course within the HEI has been positively valued by the 3rd year student nurses and was consistently highlighted in the National Student Survey. The AIM course is now embedded in the undergraduate programme for all fields of nursing.

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