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Selberg, Hanne; Madsen, Trine Stougaard

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Right patient, Right Blood
Simulation-based training in blood transfusion practice in nursing education

Hanne Selberg, Trine Stougaard Madsen
Department of Nursing, Metropolitan University College, Copenhagen Denmark

Background
In spite of strict checking procedures for handling blood transfusions, severe adverse reactions are likely to happen and the major cause of morbidity occurrences is attributed to human error. Nursing students have limited opportunity to practice safe blood transfusion during clinical placements. We introduced simulation-based workshops to reinforce safe transfusion practice and not only increase patient safety but equally importantly, to bridge the gap between theory and practice.

Objectives
The objective of the current study was to test workshops focusing on procedures for safe blood transfusion by combining theory and practice and integrating current guidelines on safe blood transfusion, hereby helping students to better recognize and handle errors and adverse reactions.

Methods
372 third year students were offered three theoretical lessons and an e-learning session on safe transfusion practice, followed by a simulation workshop consisting of a reflection session based on study questions and a scenario dealing with safe blood transfusion. The students acted correspondingly as a patient and ward nurses in scenarios using fake blood, IV trainer hands and original transfusion documents. A subsequent debriefing session concluded the workshop. Learning outcomes were evaluated using an anonymous self-assessment questionnaire based on a 1-5 Likert scale and open-ended questions (response rate 71.8%).

Results
The students assessed their main learning outcomes related to patient safety as enhanced awareness of adverse reactions with a mean score of 3.73 (SD 1.45), enhanced knowledge of observations during transfusion mean 3.87 (SD 0.99), identification of complications mean 3.58 (SD 0.99), knowledge of interventions of adverse reactions mean 3.62 (SD 1.38). Furthermore the students assessed their outcome of the workshop as enhanced practical skills related to blood transfusion mean 4.30 (SD 0.90) and impact on bridging the gap between theory and practice mean 4.25 (SD 0.78).

Practical hands on skills were highlighted from the qualitative perspective, as well as the transfer of theory to practice, increased awareness of adverse events and the capacity to intervene in complications.

Conclusions
The study demonstrates that simulation-based training in safe blood transfusions can contribute to improved skills and thus potentially improving patient safety in blood transfusion practice.

Examples of statements:
“The workshop has highlighted the preparations for transfusion and the importance of ensuring that the right blood goes to the right patient. There are many things to keep track of!!!”

“The workshop made it clear that it is easy to make fatal mistakes if you don’t pay attention”

“Great to have hands on practice, now that I have tried the practical procedures, I can link it to the theory and the syllabus taught in class”

Contact info:
Hanne Selberg, Senior Lecturer, hase@phmetropol.dk
Trine Stougaard Madsen, Senior Lecturer, tsma@phmetropol.dk

Score 5
Score 4
Score 3
Score 2
Score 1
0 20 40 60 80 100 120

Participation in the workshop has enhanced:
- awareness of adverse reactions
- knowledge of observations
- identification of complications
- knowledge of interventions
- practical skills
- the possibility to bridge the theory-practice gap

Fig.: Results of questionnaire using a 5 point scale
1= lowest level, 5= highest level. N = 266.

Study questions
* serology
* disease pathology
* administration of blood components
* documentation
* information and management of transfused patient

Simulated Scenarios
* serology
* adverse reactions
* safe transfusion practice
* transfused patient

Debriefing

E-learning
* safe transfusion practice

Theoretical lectures
* serology
* disease pathology