

## Educational Needs of Nurses in Intensive Care Unit for Poisoned Patients

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ARTICLE INFO	ABSTRACT
<p><i>Article type:</i> Original Article</p> <hr/> <p><i>Article history:</i> Received: 19- Jul-2013 Accepted: 26-Aug-2013</p> <hr/> <p><i>Keywords:</i> Education Intensive care unit Nurses Poisoning</p>	<p><b>Objectives:</b> Poisoned patients are at risk of impaired ventilation in many situations. The purpose of this descriptive study was to investigate the impact of educational workshops on nurses' knowledge, confidence, and attitude in taking care of poisoned patients.</p> <p><b>Materials and Methods:</b> This descriptive study was performed on 60 nursing staff in the intensive care unit (ICU) for poisoned patients in Imam Reza (p) hospital, Mashhad, Iran. Data was gathered by a researcher-designed questionnaire. Studied scales included perceived importance and novelty of educational meeting, matching with professional and educational needs, illustration of practical and knowledge weaknesses and strength and finally satisfaction in holding regular workshops annually. Two, half day workshops were held and various items were taught with various methods. The knowledge of participants was assessed by pretests and post-tests consisting of 12 items related to workshop topics. The impact of these educational meetings was evaluated and the results were analyzed by the SPSS software.</p> <p><b>Results:</b> According to the results, workshops improved awareness of nurses about their weakness and strength points, professional knowledge and their interest and attention; likewise all participants had the same opinion about a strong need to hold similar workshops more than once and preferably 2 to 3 times annually.</p> <p><b>Conclusion:</b> It seems that short educational courses in small groups for reviewing the old data and recent findings in the context of critical care are useful in order to promote the knowledge and skills of ICU staff in taking care of poisoned patients.</p>

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### Introduction

Poisoned patients are characterized by two aspects: First, most patients are young, with no co-morbid disease and have normal liver, heart

and kidneys function; secondly, each drug or toxic substance has a definitive half life and would be diminished from the blood by time, so it

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is clear that if during the early phase of poisoning, intensive care is received, the risk of probable morbidity and mortality will be the least and acceptable life expectancy for these patients would be anticipated.

On the other hand, poisoned patients are at risk of impaired ventilation in many situations; some drugs and toxins lead to respiratory depression and hypercapnea; for example opioids and some pesticides such as organophosphates; some others may induce abundant respiratory secretion which might lead to airway obstruction for instance the muscarinic symptoms of organophosphate pesticides. Many toxins induce bronchospasm such as inhalation toxicity caused by caustics and household substances, and some warfare gases. The acute phase of some types of poisoning may cause cardiogenic or non-cardiogenic pulmonary edema, such as antihypertensive drugs and opioids, respectively. Loss of consciousness and seizure are common complications of many kinds of acute poisoning which might result in aspiration and related side effects. Poisoned patients benefit from airway management and assisted ventilation in all such conditions.

Studies over the past decades have displayed relevance between nursing care and patient outcomes. According to the international nursing community, it is accepted that good knowledge, skills and competence of nurses are vital to ensure the quality of patients' care. In particular, critically ill patients demand nurses who have specialized knowledge and proficiencies (1).

Educational meetings such as workshops are widely used for continuing medical education. Previous studies reported that interactive workshops lead to notable improvement in professional practice contrary to didactic sessions. Educational meetings alone or in combination with other interventions, can improve professional practice and healthcare outcomes for the patients (2, 3).

In this study, the viewpoints of nurses working in the toxicology ICU were analyzed regarding the continuation of educational workshops on these two major subjects: fundamentals of mechanical ventilation and airway management.

## Materials and Methods

This descriptive study was conducted at Mashhad University of Medical Sciences. It was performed in the first half of 2013 by holding two workshops on airway management and fundamentals of mechanical ventilation in the format of lecture, teamwork, practical demo, group discussions, and role modeling for nurses

of the toxicology ICU. The participants' current knowledge was measured by a pretest consisting on 12 items which was reassessed once again after holding the workshops.

17 topics were taught by experienced anesthesiologists including: Physiology and anatomy of airways, indications of intratracheal intubation, primary airway management, different kinds of airways, technique of intratracheal intubation, methods of oxygen therapy, LMA: indications and applying, indications of tracheotomy, practice for intratracheal intubation, indications of mechanical ventilation, all routine kinds of ventilation modes, volume modes, pressure modes, complications of mechanical ventilation, methods of weaning, and sedation in patients under mechanical ventilation.

At the end of each workshop, students' viewpoints were evaluated using a questionnaire prepared based on the Likert rating scale. Questionnaire's validity was reviewed and confirmed by experts at the Cardiac Anesthetic Research Centre and Clinical Toxicology Research Centre of MUMS. The questions were designed in a framework consisting of 2 parts: demographic characteristics and viewpoints of nurses. The questionnaire did not contain any name or title of the responder in order to prevent any possible bias. Scales included the matching with perceived importance and novelty, professional and educational needs, illustration of practical and theoretical knowledge weaknesses and strengths and satisfaction in holding such educational meetings.

The questionnaires were distributed at the end of each workshop and the participants were asked to fill them in. Thereafter, the students' viewpoints on each variable were defined as percentages. The data were collected and displayed in a table as frequency distribution of variables and were then analyzed by SPSS version 11.5 and the obtained results were discussed.

## Results

Of the 60 participants 84.2% were female, 63.2% aged 20-30 yrs, 26.3% had 30-40 yrs and the remaining 10.5% had more than 40 yrs with a mean of 5 years experience in nursing. 86.6% of the studied nurses worked in educational hospitals and the others in private hospitals. Viewpoints of nurses are shown in table 1.

**Table 1:** Status of viewpoints of critical care nurses about continuing educational workshops

Degree of agreement, % of respondents (n = 60)					
statement	Strongly agree	Agree	Neither agree or disagree	disagree	Strongly disagree
<b>Statement 1: Importance of workshops to viewpoint of ICU nurses</b>	89.5	10.5	0	0	0
<b>Statement 2: Are they educational needs</b>	89.5	10.5	0	0	0
<b>Statement 3: Novelty of teaching workshops</b>	42.1	47.4	0	10.5	0
<b>Statement 4: How many times annually is needed for these workshops in your opinion?</b>	three times 21.1	two times 47.4		one time 26.3	No need 5.3
<b>Statement 5: Is it appropriate with scientific level of learners?</b>	63.2	31.6	0	5.3	0
<b>Statement 6: Is it helpful to you for recognizing your weakness and strength in this context?</b>	52.6	36.8	0	10.5	0
<b>Statement 7: Are topics appropriate with your professional needs</b>	27.5	31.6	0	10.5	0
<b>Statement 8: Did it change your view about related subject?</b>	57.9	36.8	0	5.3	0

## Discussion

Strong dedicated nurses committed to quality process and care and practice improvement is an essential component for an effective ICU care (4). It has been proved that nurses in intensive care units should have regular access to appropriate education and possess an adequate level of knowledge and skills in order to be able to effectively and competently care for critically ill patients.

It seems that intensive care education must be implemented in both groups of undergraduate and postgraduate nurses (5, 6). In previous studies interactive workshops had led to significantly higher satisfaction rates in nursing students using this learning method compared to those solely reading contents (7).

Nurses need to cultivate and internalize a passion for learning throughout their career. They need to adopt a healthy work environment that gives merit to continuing education (8). Continuing education is essential for maintaining competency and for individual professional growth (9). As it has been reported in previous studies, nurses are ready to know more about anything related to their field of work, and enjoy activity in any area that could lead to competence development. They are also interested in attending continuing educational programs related to their workplace issues (3). Nurses working in Critical care units for poisoned patients in particular, need to earn and preserve the skills necessary for providing effective clinical care.

Poisoned patients need respiratory assistance in several situations. When is the tracheal intubation recommended? What other methods

for oxygen therapy may be helpful before intubation? When should we apply mechanical ventilation? How can we set the mechanical ventilation?

These are the most common questions which an ICU nurse has to pose an appropriate answer to and this is why being familiar with exact airway management and also having adequate knowledge about principles of mechanical ventilation is an undeniable need for toxicology ICU nurses. Therefore we selected these topics as the two necessary domains to be educated in the framework of educational workshops.

In a study on a Fundamental Critical Care Course in Kenya, ventilation, patient monitoring, and their related procedures were reported as the most common needed areas (10). In a cross sectional study among 20 European countries on the knowledge level of 1142 intensive care nurses, the respiration/ventilation category achieved a relatively low score and the authors suggested it as a prioritized area for education (1).

In this study 68.5 % of the participants stated that airway management workshops are required to be held more than once each year. This outcome confirms the need for repeated recalls for the management of acute respiratory problems in poisoned patients.

Familiarity with the mentioned subjects before these workshops were low to moderate in 79 % of the nurses which reached to approximately 95% after holding the workshops.

About 95% stated that this method is a novel method with favorable relevancy to the knowledge level of the participants. More than half of the participants expressed that this

method was quite helpful in recognizing their weakness and strength points in this respect.

90% stated that the presented topics were proportional to their professional needs and more than 90% strongly expressed that it changed their view about the studied subjects.

According to the findings of this study, toxicology ICU nurses need to regularly refresh their knowledge in the context of intensive care and particularly in airway management and mechanical ventilation. We emphasize that continuing to increase theoretical and practical knowledge in critical care medicine is essential for improving professional competence and most importantly better patient outcome.

### Conclusion

Continuing educational courses in small learning groups with a combination of various teaching methods, including practical and didactic approaches are effective and beneficial for improving nursing practice in clinical toxicology. It would be more valuable to have a follow-up assessment at a certain period of time after completion of the nursing educational course. Further investigation is recommended in this respect.

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