



ISSN: 0976-3031

Available Online at <http://www.recentscientific.com>

International Journal of Recent Scientific Research  
Vol. 7, Issue, 9, pp. 13238-13239, September, 2016

**International Journal of  
Recent Scientific  
Research**

## Research Article

### VENTILATOR ASSOCIATED PNEUMONIA PREVENTION: CYPRIOT ICU NURSES KNOWLEDGE

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#### ARTICLE INFO

##### Article History:

Received 15<sup>th</sup> June, 2016

Received in revised form 25<sup>th</sup> July, 2016

Accepted 23<sup>rd</sup> August, 2016

Published online 28<sup>th</sup> September, 2016

##### Key Words:

VAP, hospital-acquired pneumonia, VAP prevention

#### ABSTRACT

Ventilator Associated Pneumonia is pneumonia which occurs in patients receiving mechanical ventilation. The aim of the study was to explore knowledge of 200 Cypriot Intensive Care Nurses working in 7 public Hospitals across Cyprus, regarding its prevention through a validated questionnaire. The pass rate on the questionnaire was 6% and the fail rate 94%. The majority of the nurses admitted that they do not have sufficient knowledge regarding the VAP prevention.

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## INTRODUCTION

Ventilator-associated pneumonia (VAP) is a type of pneumonia which occurs in patients receiving mechanical ventilation, and which was not present or was in its incubation period at admission to the hospital and develops 48 hours after intubation and mechanical ventilation of the patient (Hixson *et al.* 1998; American Thoracic Society & Infectious Diseases Society of America 2005; Chastre & Fagon 2002).

It constitutes a problem for Intensive Care Units (ICUs) throughout the world and it dramatically increases fatality and mortality in mechanically ventilated patients. Moreover, it is the most common hospital-acquired infection in patients admitted to ICUs (Cason *et al.* 2007).

The application of international protocols and evidenced-based practices regarding VAP prevention has led to the decrease of its emergence among ICU patients throughout the world. This was obtained through training and broadening of knowledge of health professionals working in this field.

The **aim** of the study is to explore ICU nurses' knowledge regarding prevention of ventilator-associated pneumonia in Cyprus public infirmaries.

## MATERIALS AND METHODS

The sample of the study consisted of 311 nurses working in 7 intensive care units of public Hospitals throughout Cyprus, in the districts of Limassol, Nicosia, Larnaca and Paphos. The

data were collected using Sonia Labeau's questionnaire translated into Greek, which was adapted by the researcher himself, in order to be used in Cyprus (Labeau *et al.* 2007).

Translation and use of the questionnaire were obtained after permission by the author-researcher Sonia Labeau. Translation in Greek was performed according to the process suggested by the "Trust Scientific Advisory Committee" SAC (Medical Outcomes Trust 1998).

The author of the questionnaire Sonia Labeau specifies 70% as passing mark. A grade <70% in a questionnaire is considered as "fail", while grades ≥ 70% are considered as "pass" (Labeau *et al.* 2007).

### Statistical analysis

Descriptive and inferential statistics (parametric tests and correlations) were used, which were conducted with the Statistical Package for Social Sciences – SPSS. The level of statistical significance was set to 95% ( $\alpha = 5\%$ ),  $t^2$  test, Anova, Tukey post-Hoc and Pearson's correlation index was used.

## CONCLUSIONS

Approximately half of the nurses (Table 1) do not believe that they are efficiently informed on prevention measures for ventilator-associated pneumonia and, as the sole reason for it; they demonstrate the lack of training courses.

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**Table 1** Do you believe that you are sufficiently informed on the prevention of pneumonia in mechanically supported patients?

Information	N	%
Yes	83	41.5
No	117	58.5
Total	200	100.0

The statistical analysis showed that age ( $p=0.1$ ) gender (Male SD 1.679, Female SD 1.952,  $p=0.1$ ) and years of work in an ICU environment are not correlated with the correct responses ( $p = 0.299$ ). A statistically significant difference was detected between holders and not holders of specialization in intensive care nursing, with the second, strangely enough, giving a better mean of correct responses ( $p=0.026$ ). Also, a statistically significant difference was detected in the comparison between the two ICU types, the nurses of closed type ICUs having a correct responses in relation with their colleagues who work in open type ICUs ( $p<0.05$ ).

The author of the questionnaire Sonia Labeauspecifies 70% as passing mark. A grade<70% in a questionnaire is considered as “fail”, while grades  $\geq 70\%$  are considered as “pass”.

Relatively to the pass rate, those who passed were 12, a rate of 6%, while those who failed were 188 (94%) (Table 2).

**Table 2** Pass Rate 70%

Pass rate	N	%
Fail	188	94%
Pass	12	6%
Total	200	100.0

The lack of knowledge that was discovered with the present study relatively to the prevention measures of ventilator-associated pneumonia has implications on the safety of patients and on the quality of the provided nursing care. It simper ativetostartatraining course addressed to ICU nurses, which will aim at acquiring knowledge and skills on prevention measures of ventilator-associated pneumonia. Intra-clinic training during which there is a discussion of all contemporary data regarding directives and protocols for the prevention of ventilator-associated pneumonia is also important. Information of nurses may also be significantly facilitated by their easy access to magazines, books, libraries, as well as to electronic sources (computers and the internet).

The participants’ responses show that there is no organized, structured and updated training course for the prevention of ventilator-associated pneumonia, which would provide nurses with knowledge and abilities relative to this specific subject. On the contrary, information is fragmentary and received by various sources, thus favoring the implementation of prevention measures that are often mistaken.

As for the reason, they believe they are not sufficiently informed, all of those (100%) who answered negatively stated that there are no training courses. That is they acknowledge the fact that they are not informed on the prevention of ventilator-associated pneumonia and they attribute that to the lack of coordinated training courses.

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### How to cite this article:

Jordanou S and Athanasiou M.2016, Ventilator Associated Pneumonia Prevention: Cypriot ICU Nurses Knowledge. *Int J Recent Sci Res.* 7(9), pp. 13238-13239.