

Research Article

Turkish Nurses Awareness of Ventilator Bundle

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Submitted: 31 August 2016

Accepted: 20 September 2016

Published: 22 September 2016

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OPEN ACCESS**Keywords**

- Ventilator bundle
- Nurse
- Awareness
- Ventilator associated pneumonia

Abstract

Background: Care bundle is defined as implementation of a couple of interventions together that when each one of all executed individually, effect patients recovery process and outcomes positively; when executed all together providing better outcomes than implemented individually. This study is performed to show the nurses awareness about the ventilator bundle.

Materials and methods: This descriptive study was conducted between September and November 2015. The sample consisted 286 nurses who agreed to take part in the study. An online questionnaire form was developed by the researchers for data collection in order to investigate the level of the nurse's awareness of the ventilator bundle.

Results: It was found that 80.4% (n: 230) of the nurses included in the study had never heard of the term "ventilator bundle". Only 8.7% (n: 25) of the nurses in the study stated that their knowledge of the ventilator bundle was adequate.

Conclusion: Our data indicated that Turkish nurses' awareness about ventilator bundle is inadequate. There is need of in service education about ventilator bundle and it's implication into current practice.

INTRODUCTION

In the literature, there are many evidence-based practice guidelines on the prevention of healthcare-associated infections [1-3]. In spite of this, it is known that only half of patients are able to obtain the medical care recommended in line with the current scientific evidence. This is because the provision of health care is dependent on the level of knowledge of individual clinicians, their state of motivation and their skills [4-6]. Also, recent studies have shown that the application of a single approach to the prevention of healthcare-associated infections is insufficient [6-8]. Therefore, the concept of a care bundle was introduced in 2001 by the Health Care Improvement Institute with the purpose of achieving the desired results in health care and increasing conformity to procedures which should always be carried out in the same way [6-11].

The care bundle is defined as the implementation of a couple of interventions together that when each one of all executed individually, effect patients recovery process and outcomes positively; when executed all together providing better outcomes than implemented individually. It is recommended that care bundles should contain from three to five practices with proven effectiveness but which cannot be put into practice each time and in a stable and consistent way. The care bundle is formed by bringing these practices together and is applied to each patient

who meets the criteria in a determined time slice [3,9,10].

The first two care bundle approaches developed by the Institute for Healthcare Improvement were applications on ventilator associated pneumonia and central line associated bloodstream infections [10,11].

The care bundle approach is an effective method for reducing ventilator associated pneumonia in intensive care units. Ventilator care bundle developed by Institute for Healthcare Improvement consists five interventions on the brink of 35-45° head of bed elevation, daily sedative interruption and daily assessment of readiness to extubate, peptic ulcer prophylaxis, deep vein thrombosis prophylaxis and daily oral care with chlorhexidine. Recent studies show that implementation of ventilator care bundle comes through better patient and clinic outcomes with evidence based, safe and multidisciplinary approach [10,11].

According to previous studies especially showing current status (without any intervention to improve compliance); the poor compliance rates with ventilator bundle are reported [12-15]. Health care improvements are growing every day. One of them care bundle is new topic for patient care. The lack of awareness may be a barrier towards compliance with ventilator bundle. The nurses' awareness about ventilator bundle is lacking. Thus this study is performed to determine the nurses' awareness about the ventilator bundle.

MATERIALS AND METHODS

This descriptive study was performed to determine the nurse's awareness about the ventilator bundle. We hypothesized that the Turkish nurses are aware of ventilator bundle.

The research was conducted between September and November 2015. An online survey was developed by the researchers for data collection in order to investigate the level of the nurses' awareness of the ventilator bundle. A pilot application was conducted with 10 nurses to test the clarity, comprehensibility, and functionality of the questions. Any necessary changes were then made and the form was then updated. After all the survey consisted of a total of 14 questions including the nurses' socio-demographic characteristics and their thoughts on ventilator bundle.

The survey was published on the internet on September 1st 2015 at <http://www.surveey.com/SurveyStart.aspx?lang=1&surv=40fb306c51ef4c05a44d10723a5aeb8e>. The e-mail invitation containing the aim and the link of the study was sent to nurses in September 2015. The reminder mails were sent to nurses to enhance participation. Approximately 1,500 registered nurses were invited to participate in study via mail. In total only 286 (19.07%) nurses responded the survey. The nurses were asked to respond the survey at a convenient time. Completing the survey took approximately 5-7 minutes. The questionnaires completed by the nurses online were backed up on a daily basis.

Before the study was conducted, the study was approved by the Scientific Ethics Committee of Ege University, Nursing Faculty. In addition, the nurses were informed about the details of the study and completion of the survey was considered as consent to participate study.

The data was analyzed using the SPSS for Windows version 16.0 software program (SPSS Inc., Chicago, IL, USA). Descriptive statistics were presented as number, percentage, and mean. For numerical variables, the fit to the normal distribution of the data was assessed using the Kolmogorov-Smirnov test. For variables that did not exhibit a normal distribution, the Mann-Whitney U test and Kruskal-Wallis test was performed. Chi-square tests were used to examine the association between the responses and each demographic variable. For these results, a p value < .05 was considered statistically significant.

RESULTS AND DISCUSSION

Results

Of the 286 nurses, 92.7% (n = 265) were women and 7.3% (n = 21) were men; 3.5% (n=10) had vocational school of health degree, 4.2% (n=12) had 2-year degree, 71.3% (n=2014) had a bachelor's degree and 21.0% (n=60) had a postgraduate degree; 5.2% (n=15) were working at a public hospital, 5.9 (n=17) were working at a private hospital, 5.9 (n=17) were working at a family/community health center and 82.9% (n=237) were working at an education and research hospital. The average age of the nurses included in the study was 34.55 ± 8.04 years (range, 20-61). The nurse's average length of service in the profession was 12.18 ± 8.47 years (range, 1-40 years).

It was found that 80.4% (n: 230) of the nurses included in the

study had never heard of the term "ventilator bundle". Only 8.7% (n: 25) of the nurses in the study stated that their knowledge about the ventilator bundle was adequate, 7.3% (n: 21) stated that it was partially adequate, and 83.9% (n: 240) stated that it was inadequate. It was established that 33.9% (n: 19) of the nurses who had knowledge of the ventilator bundle had obtained it from the internet, 32.1% (n: 18) from in-service training, 30.4% (n: 17) from scientific articles, 21.4% (n: 12) from congresses or scientific meetings, and 16.1% (n: 9) from clinical practicals. Of the nurses in our study, 7.3% (n: 21) stated that the ventilator bundle in the clinic where they worked was used, and 7.7% (n: 22) said that it was not used. Also, 85.0% of the nurses (n: 243) stated that they did not know whether the ventilator bundle in the clinic where they worked was used or not.

It was found that the potential confounder variables like education status, average length of service in the profession, type of hospital did not affect the hearing of ventilator bundle term, knowledge perception about ventilator bundle, usage of ventilator bundle rates. Table (1) shows the percentages of nurses' perceptions about ventilator bundle.

Discussion

Ventilator-associated pneumonia, occurring more than 48 hours following endotracheal intubation, is one of the most common healthcare associated infection that promote morbidity and mortality [1-3]. It was reported that the ventilator-associated pneumonia rates vary between 0.0-14.5/10³ ventilator days in Turkish critical care units in 2015 [16]. The ventilator bundle is a structured approach for implementing evidence based interventions for reducing/eliminating ventilator-associated pneumonia [6,8,11,17,18]. Our data indicated that majority of the nurses participated in this study had never heard of the term "ventilator bundle". And also a majority of the nurses stated that their knowledge about ventilator bundle was inadequate. It can be said that they did not implement current recommendations related with ventilator associated pneumonia prevention. This means Turkish nurses have education requirements about

| Purposes of the ventilator bundle usage | Number | Percentage |
|---|--------|------------|
| Prevention of ventilator-associated pneumonia | 44 | 15.4 |
| Morbidity and mortality reduction | 26 | 9.1 |
| Reducing length of stay in hospital | 30 | 10.5 |
| Implementing evidence-based practice | 28 | 9.8 |
| Ensuring standardization of care | 27 | 9.4 |
| Best care giving | 21 | 7.3 |
| Enhancing of care quality | 31 | 10.8 |
| I don't know | 224 | 78.3 |
| Number of ventilator bundle elements | | |
| 1-2 | 3 | 1.0 |
| 3-5 | 21 | 7.3 |
| 6-8 | 8 | 2.8 |
| 9-12 | 4 | 1.4 |
| I don't know | 250 | 87.4 |

ventilator bundle. It is thought that achieving high rates of ventilator bundle awareness contributes increasing ventilator bundle compliance and decreasing ventilator-associated pneumonia rates.

We did not find other studies about nurse's awareness care bundles. So our results are compared with the studies about nurse's knowledge related with ventilator associated pneumonia bundle. According to the previous studies the average knowledge level of nurses about ventilator associated pneumonia prevention guidelines was poor [12-15]. Ali (2013) stated that critical care nurses had unexpectedly unsatisfactory knowledge scores about ventilator associated pneumonia and ventilator bundle [15]. Jansson et al., (2013) reported poor knowledge level of critical care nurses towards evidence-based guidelines for the prevention of ventilator-associated pneumonia [12]. Similarly Blot et al., (2007) and Gomes (2010) stated that intensive care nurses knowledge level about evidence-based guidelines for the prevention of ventilator-associated pneumonia were poor [13,14]. Besides it is reported by the researchers who studied ventilator bundle worldwide reported poor compliance rates [8,17,18]. According to a research conducted in Turkey 10.8% compliance with ventilator bundle among critical nurses was reported [8]. Talbot et al., (2015) reported a baseline ventilator bundle compliance of 23.0% [17]. Eom et al., (2014) stated that compliance with ventilator bundle in adult intensive care units of 6 university hospitals was 41.1% [18].

The essential aim of ventilator bundle is prevention of ventilator associated pneumonia. Furthermore it helps reducing of morbidity and mortality rates; reducing length of stay in hospital; implementing evidence based practices; ensuring standardization of care; giving best care and enhancing of care quality [8,10,11]. In this study, we determined that most of the participating Turkish nurses do not know the purpose of the ventilator bundle usage.

Institute for Healthcare Improvement recommended that the bundle consists of three to five interventions with strong clinician agreement. For bundles consisting more than five interventions; it is difficult to achieve high compliance [10,11]. In this study nearly all of the nurses do not know the number of ventilator bundle elements.

CONCLUSION

Our data indicated that Turkish nurses' awareness about ventilator bundle is inadequate. It can be said that they did not implement the ventilator bundle in their current practices as recommended by Institute for Healthcare Improvement. There is need of in service education about ventilator bundle and it's implication into current practice. Implementing continuous educational strategies including a reminder and audit, and feedback system is recommended.

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Cite this article

Alcan AO, van Giersbergen MY, Yoltay HE, Geçkil ÖS, Solak M (2016) Turkish Nurses Awareness of Ventilator Bundle. *JSM Allergy Asthma* 1(1): 1004.