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RESEARCH ARTICLE

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## ENDOTRACHEAL TUBE SUCTIONING PROCESS: EFFECTIVENESS OF HANDS ON TRAINING ON ADHERENCE IN PRACTICE AMONG ICU NURSES

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### ABSTRACT

**Background:** Endotracheal suctioning (ETS) is one of the most common procedure performed in patients with artificial airways. It is a component of bronchial hygiene therapy and mechanical ventilation that involves the mechanical aspiration of pulmonary secretions from a patient's artificial airway to prevent its obstruction the procedure includes patient preparation, the suctioning event, post procedure care. Tracheobronchial suctioning using the closed suctioning system has physiological benefits for critically ill patients. Because micro-aspiration of secretions is a risk factor for VAP, assessment of practices related to oral suctioning, oral care, and management of endotracheal tube is important. **Materials and Methods:** Research design used for the study was quasi-experimental with one group pre-test post-test design. The investigator has adopted non probability convenient sampling technique to select 30 samples of Staff nurses working in ICUs in selected hospital of Ahmedabad. The Questionnaire and checklist was selected to assess the level of knowledge and practice among staff nurses before and after giving hands on training on ET tube suctioning. **Results:** The mean pre-test score was 7.66 and the mean post-test score was 11.25. Thus, the mean difference of 4.6. The standard deviation of pre-test score was 1.35 and of post-test score was 1.12. The calculated "t" value was 12.75 and the tabulated "t" value was 1.69 at 0.05 level of significance for 29 df. **Conclusion:** The findings of present study indicate that hands on training have good effectiveness on improving knowledge and adherence in practice regarding ET tube suctioning among staff nurses.

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## INTRODUCTION

For maintaining a patent airway in those who are unconscious or unable to maintain their airway for other reasons, Endotracheal intubation is the placement of a tube into the trachea. Compared to the use of pharyngeal airways (oropharyngeal or nasopharyngeal), benefits of an endotracheal airway include: Protection against aspiration and gastric insufflation, more effective ventilation and oxygenation, facilitation of suctioning, delivery of anaesthetic, and other drugs via the endotracheal tube (ETT).<sup>1</sup> Endotracheal suctioning (ETS) is the removal of secretions from the tracheobronchial tree through an endotracheal tube with the help of mechanical suction device. It is a component of bronchial hygiene therapy and mechanical ventilation that involves the mechanical aspiration of pulmonary secretions from a patient's artificial airway to prevent its obstruction, the procedure includes patient preparation, the suctioning event, post procedure care.<sup>2</sup> An obstructed airway leads to the deprivation of oxygen in the body or blood. Deprived ventilation leads to the death of brain within few minutes. So, the purpose of artificial airway is to provide continuous oxygen to the brain. When the patient gets intubated or critically ill, he/she requires an artificial airway. There are many types of artificial airways are used like endotracheal tube, tracheostomy tube, oropharyngeal tube, nasopharyngeal tube, etc.

Which can be used for protecting and maintaining the airway, facilitating the artificial ventilation and removal of secretions from the lungs.<sup>3</sup> Hence, there was a need felt by the researcher to review the existing practices and knowledge of nurses related to ETS practices and thus recommending guidelines related to effective and safe practice. These guidelines and focused practice-based education would further have a positive impact on improving patient's outcomes, reduce healthcare costs, and promote safe patient care.

### Objectives

- To assess the pre and post training compliance of endotracheal suctioning practice.
- To find out the association of post- test knowledge and practice compliance of endotracheal suctioning practice with the selected demographic variables.

## MATERIALS AND METHODS

**Research approach:** Quantitative Research Approach.

**Research design:** Quasi experimental one group pre- test post – testdesign. The variables used

**Demographic variables:** Demographic variables of study are age, Qualification of the staff nurse, experience in ICU.

**Dependent variable:** Dependent variables of the study is knowledge and adherence in practice regarding endotracheal tube suctioning process.

**Independent variable:** Independent variable of this study is hands on training on practice regarding endotracheal tube suctioning process.

- Settings of the study- ICUs of selected hospital of Ahmedabad.
- Duration of the study- 2 Months.
- Data collection method – The Selected Questionnaire
- Target population: Staff nurses working in ICUs
- Sample Size – 30
- Sampling Method- non probability convenient sampling technique.

In relation to experience in ICU 66.66% of samples have less than 5 years of experience, 33.33% of samples have 5-10 years of experience. The below table depicts the information about existing practice where as 46.66% have poor practice and 53.33% have fair practice. The below table depicts the information about practice after hands-on training where as 60% have fair practice and 40% have good practice.

The following table depicts the mean, standard deviation and mean difference values and t-test is applied at  $p < 0.005$  level of significance. The tabulated value for  $df_{29}$  was 1.69. The calculated t value was 12.75 which is much higher than the tabulated value at  $p < 0.005$  level of significance for. Hence, it has been statistically interpreted than hands on training was an effective tool for improving the practice regarding endotracheal suctioning. Hence,  $H_1$  was accepted.

**Frequency and Percentage Distribution of study subjects According to Demographic variables**

N=30

Sl No	Demographic variables	Categories	Frequency	Percentage
1	Age	21-25	4	13.33
		26-30	16	53.33
		31-35	10	33.33
		Above 35	0	0
2	Educational qualification	Diploma	16	53.33
		Bachelor	14	46.66
		Master	0	0
3	Experience in ICU	Less than 5 years	20	66.66
		6-10 years	10	33.33
		More than 10 years	0	0

**Frequency and percentage distribution in relation to existing practice before training**

N=30

Level of practice	Poor		Fair		Good	
	Frequency	%	Frequency	%	Frequency	%
Pretest	14	46.67%	16	53.33%	0	0

**Frequency and percentage distribution in relation to existing practice after training**

N=30

Level of practice	Poor		Fair		Good	
	Frequency	%	Frequency	%	Frequency	%
Pretest	0	0	18	60	12	40

**Mean, SD and mean difference and paired t –test**

N=30

Overall	Mean	SD	Mean difference	t-value	P value
Pretest	7.66	1.35	4.6	12.75	P<0.005
Posttest	11.25	1.12			

**Inclusion criteria:** Staff nurses posted in ICUs.

**Tool used for data collection:** (Description of the tool and sample of the tool with evaluation criteria)

The tool was divided into two sections as following:

- **Section 1:** Demographic variables which includes age, Qualification of the staff nurse, experience in ICU
- **Section 2:** Consist of structured questionnaire and checklist.

**RESULTS**

The below table depicts the distribution in number and percentage of study subjects according to their demographic variables. It shows that 13.33% of samples were in the age group of 21-25 years, 53.33% of samples were in the age group of 26-30 years, 33.33 % of samples were in the age group of 31-35 years, 0% of samples of the age group of more than 35 years. In relation to educational qualification 53.33% of samples have Diploma, 46.66% of samples have Bachelor degree.

**CONCLUSION**

The present study implies hands-on training to be the effective strategy to improve the practice regarding endotracheal suctioning. The findings of the present study emphasis on hands-on training regarding endotracheal suctioning which can be put into nursing practice to enhance the practice of staff nurses and provide appropriate nursing care to the clients.

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