



## The Impact of A Structured Mechanical Ventilation Workshop on Pretest and Post Test Assessment – A Prospective Observational Study

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### ABSTRACT

**Aim** - To determine the impact of practical application of mechanical ventilation workshop among various categories of participants. **Methods** - A prospective observational study of 70 participants. The total program duration was 9 h including lectures and workshop sessions. Pre-test and post test was conducted. The data was analyzed using standard statistical methods. **Results**- The overall percentage increase in post marks test was 22% but the absolute increase was 37.93 %. The Consultants had absolute increase by 87.8% which is the highest in the overall group. The other participants were Post graduates under training, Post MD with no ICU experience, Post MD with less than 1 year ICU experience, Post MD with more than 1 year ICU experience and Respiratory therapists. **CONCLUSIONS**- Mechanical ventilation Workshop improved knowledge base for all participants. The more senior the participant, the greater the benefit. Evidence based training is mandatory for everyone working in the ICU to improve knowledge and improve best outcomes for the patients.

### KEYWORDS :

### INTRODUCTION.

Continuing medical education is required for all physicians to remain abreast of the rapid advances in medicine. Simulation and workshops based medical education has been growing rapidly and becomes one of the most popular teaching methods for improving patient safety and patient care<sup>2</sup>. An educational matrix was used to link specific case scenarios with individual teaching objectives<sup>1</sup>. Intensive care medicine practitioners need to have a thorough working knowledge of mechanical ventilation. We conducted an evidence based and hands-on workshop on mechanical ventilation with evaluation of participants.

### OBJECTIVES.

To determine the impact on knowledge retention and practical application of attending the mechanical ventilation educational activity among various categories of participants.

### METHODS.

A prospective observational study was done as a part of APCRITICON (Andhra Pradesh Critical Care Conference) at Visakhapatnam, Andhra Pradesh, India.

70 participants comprised of ICU Consultants, Post graduates under training, Post MD with no ICU experience, Post MD with less than 1 year ICU experience, Post MD with more than 1 year ICU experience and Respiratory therapists. The total program duration was 9 hours including lectures and workshop sessions. Pre-test was conducted just before the program and post test was conducted after completion of the workshop. Total of 15 questions were given. The fifteen questions on the test were the same pre and post test. These 15 questions were discussed after the post test. Feedback forms were given to all the delegates on registration and they were asked to mark their evaluation once each talk or workshop was done. The feedback forms were collected at the end of the workshop.

Participants were grouped as a) ICU Consultants b) Post MD with no ICU experience c) Post MD with less than 1 year ICU experience d) Post MD with more than 1 year ICU experience e) Respiratory therapists. The data was analyzed using standard statistical methods.

### RESULTS.

Of the total participants 70, Complete data was available for 64 participants only. The total Cumulative marks of all the participants were 960. The cumulative pretest marks was 558 and post test 774. The percentage increase in post test was 22 % but the absolute increase was 37.93 %. for all the participants shown in table 1.

**Table 1**

**Cumulative Pre Test and Post test results of all the participants. (n=64).**

Pre test / Total Marks	Pre test %	Post Test/ Total Marks	Post Test %	% Absolute Increase
558/ 960	58.12	774/960	80.62	37.93

**Table 2**

**Pre test and Post test of the study group**

Group	Total Number	Pretest marks / Total Marks	Pretest %	Post test Marks	Post Test %	% absolute Increase
ICU Consultants	6	41/90	45.6	77/90	85.6	87.8
Post MD with no ICU experience	3	31/45	69	41/45	91	32.26
Post MD with less than 1 year ICU experience	19	183/285	64.21	232/285	81.4	26.78
Post MD with more than 1 year ICU experience	13	98/195	50.2	155/195	79.48	58.16
Post Graduates under training	20	185/300	61.7	241/300	80.3	30.27
Respiratory therapists	3	20/45	44.45	28/45	62.22	40

In the ICU Consultants group had the least marks in the Pre test and had highest marks in the post test with the absolute % increase of 87.8.

The Post MD doctors with > 1 year ICU experience had post test absolute increase of 58.16%.

Post MD doctors with < 1 year ICU experience, Post MD doctors with no ICU experience, Post graduate doctors in training and Respiratory technicians the absolute increases were 26.78 %, 32.26 %, 30.27 % and 40% respectively.

The feedback given by the participants as an overall score of 8.5 over 10. The feedback was collected for the content, speaker, venue, duration and cost.

**DISCUSSION-** The overall absolute % increase of the marks is 37.93%. The percentage increase is good. The overall group consists of Doctors and non doctors. In Doctors group, the doctors working in the ICU and not working in the ICU. The doctors working in the ICU are having varied experiences anywhere between less than 1 year to 10 years .

In the ICU Consultants group had the least marks Pre test and had highest marks in the post test with the absolute % increase of 87.8. The ICU Consultants needs to have frequent training programmes to recollect and improve their knowledge.

The post MD doctors without ICU experience scored highest in the pretest and also the post test but the absolute increase was only 40 %. The absolute increase was less as they got highest marks in the pre test. Post MD doctors with 1 year ICU experience got the least absolute increase at 26.78 % but they got a good score pretest and post test the absolute rise was less. The respiratory therapists had least pre and post test marks. The absolute increase was 40%. They need more frequent training to improve their knowledge.

#### **CONCLUSIONS.**

CME improved knowledge base for all the participants. The more senior the participant, the greater the benefit. Absolute scores increased less for juniors likely because of pre-existing high baseline. The cumulative increase in scores can be used to assess the overall impact of the educational program. Evidence based training is mandatory for everyone working in the ICU to improve knowledge and improve outcomes for the patients.

#### **Reference**

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