

Developing Competency in Post Graduate Anesthesia Students for Difficult Airway Management

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Abstract: Introduction: Anaesthesiologists are recognized as experts in difficult airway management. And anaesthesiology residents are not exposed enough to a difficult or failed airway during the course of their three years of clinical training .In order to attain “expert” status in difficult or failed airway management, a competency in advanced airway management educational program as a part of an anaesthesiology residency program is necessary. Objectives: This study was undertaken to improve the knowledge of anatomy of head and neck necessary for endotracheal intubation to develop competency in airway management in post graduate anaesthesia students. Methodology: All 17 postgraduate Anaesthesia residents working in Anaesthesia department for more than 2 months of intervention participated. Lecture and training was taken to ensure that they have some basic concepts of anatomy and physiology, and were assessed by pre- post test questionnaire and DOPS (direct observational procedural skills) respectively. Results: Gain % of pre-post test for knowledge was 70.52 and 85.32, DOPS mean score was 5.5+/-0.72 and 8.9+/- 0.20 in Junior and Senior Residents respectively .DOPS score was similar to their self assessed score. Conclusion: Students’ knowledge improved on various aspects of Intubation and difficult intubation after lecture DOPS practical assessment score suggested that there is still need of exposures of unpredicted difficult airways with increase in difficulty levels to improve competency in airway management. [U Bhatia Natl J Integr Res Med, 2018; 9(1):62-64]

Key Words: Lecture; pre-post test; training on mannequin; DOPS

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Introduction: Anesthesiologists are recognized as experts in difficult airway management¹. Post Graduate Residents are not exposed to a difficult airway during the course of their three years of clinical training in order to attain “expert” status. The American Society of Anesthesiologists (ASA) Practice Guidelines for Management of Difficult Airway suggests that when conventional intubation techniques fail after three attempts, advanced airway management devices or techniques should be utilized and should be immediately available. A competency in advanced airway management educational program as a part of an anaesthesiology residency program is necessary to help anaesthesiology residents to earn the status of expert in difficult airway management and should be able to use successfully advanced airway management devices or techniques when faced with a difficult airway².

Competency-based assessments provide insight in what the students knows, still needs to learn, has learned, and where the facilitator can improve. It is an approach to teaching and learning which is more often used in learning concrete skills than abstract learning. It differs from other non-related approaches in that the unit of learning is extremely fine grained. Learners work on one competency at a time, which is likely a small component of a larger learning goal. The student

can be evaluated on the individual competency, and only once they have mastered it, they can move on to others. After that, higher or more complex competencies are learned to a degree of mastery.³

Competency Based Education and Training can help the post graduate students to avoid the mishaps during anesthesia as airway plays prime importance and is of first priority and sole responsibility of anaesthesiologist. Competency-based learning is learner focused and works naturally with independent study and with the facilitator. Post graduate student often finds different individual skills more difficult than others. This learning method allows a post graduate student to learn those individual skills they find challenging at their own pace, practicing and refining as much as they like. Then, they can move rapidly to difficult levels. .^{4, 5}

The Aim of my study was that all Anesthesia Post graduate Students should be:

1. Competent with the anatomy of head and neck with the advantages and disadvantages of endotracheal intubation and different anomalies affecting upper airway.
2. Able to assess airway and evaluate for Difficult Mask Ventilation and find out Individual indices for difficult airway

3. Able to Evaluate Difficult Laryngoscopy & tracheal intubation⁶ necessary for prediction of difficult airway.

IRB approval for the educational research was obtained. All post graduate students of anesthesiology department were included for the research work, who worked for more than 3 months of intervention thus making sample size 17 post graduate students: 11 Junior including 1st yr and 2nd year and 6 senior residents, 3rd year in 2014-2015 and informed consent was taken from the residents to enroll them for the research work.

Lectures and hands on training on difficult airway management on Airway mannequins and different equipments was carried on with post graduate Anesthesia students who had completed 3 months in department, in order to ensure that they have some basic concepts regarding anatomy and physiology. Before the training, the students were assessed for their knowledge, and attitude regarding airway

management with pre test questionnaire. And the students were assessed

- In the form of pre and post test questionnaire- for cognitive domain
- Acquisition of skills was checked by directly observed procedural skills (DOPS) by splitting the procedure into several steps on Airway mannequins

Study Limitation: As all the students of anesthesia were not assessed at one time and training and the hands on workshop on mannequin was organized at different time.

Sample size was small since the numbers of post graduate students are less in our set up.

This study was on difficulty level one, since it included the students who was in the department for 3 months only and barely had the exposure of difficult levels.

Domain	Teaching learning method	Evaluation
Knowledge	Lecture. Group discussion of case studies.	Pre-post test by standardized validated MCQs
Affective and psychomotor (Skill)	Hands on workshop on Intubating Mannequin	DOPS with check list.

Results: Percentage gain of pre-post test for cognitive domain in junior residents was 70.52 and 85.32 in senior resident which is significant and can be explained on the basis of their lack of knowledge and exposure. Percentage gain of pre and post score for cognitive domain in senior residents was 85.32. Since the sample size of 6 was small and only single candidate performance impacted the result depicted in fig 1, 2 and 3 and table 1.

Mean score of junior residents. was 5.5 ± 0.72 and Senior residents was 8.9 ± 0.20 which was almost similar to their self assessed score as depicted in figure 4 and 5 and table 2.

Discussion: Competency profiles assist in effective learning and development by identifying the behaviors, knowledge, skills and abilities that are necessary for successful performance. When the post graduate student gets degree it will mean that student has mastered the essential skills and knowledge the workplace demands. In our traditional curriculum post graduate students when gets the

Degree he or she is not able to manage the airway during unpredictable difficult airways as very little attention is being paid to development of their clinical skills and attitude. The students finds difficult to correlate structure and function without clinical implementation and understand the purpose of what they are learning and finally leading to mishaps during anaesthesia^{3,4,5}.

Competency-based learning is learner focused and works naturally with independent study and with the facilitator. Learners often find different individual skills more difficult than others. This learning method allows a student to learn those individual skills they find challenging at their own pace, practicing and refining as much as they like. Then, they can move rapidly to difficult levels.^{3, 4, 5}

My Study included 11 junior post graduate students including 1st yr and 2nd year and 6 senior post graduate 3rd year residents.

Percentage gain of pre-post test for cognitive domain in junior residents was 70.52 which can be explained on the basis of their lack of knowledge and exposure. Percentage gain of pre post score for cognitive domain in senior residents was 85.32. Since the sample size of 6 is small and only single candidate performance can impact the result.

Hands on workshop, demonstration and prior knowledge of intubation and check list helped students in DOPS practical assessment as seen in mean score of Jr. residents was 5.5 ± 0.72 and Sr residents was 8.9 ± 0.20 which was almost similar to their self assessed score. A hands on workshop was considered as an effective learning tool for psychomotor skill by the students.

Conclusions: Students knowledge improved on various aspects of Intubation and difficult intubation after lecture and group discussion with cases as seen in the pre-post gain.

The mean of DOPS practical assessment score suggested that there is still need of exposures of unpredicted difficult airways as well as difficulty levels to improve competency in airway management.

Continuous hands on workshop with increase in the difficulty levels for intubation and knowledge on newer techniques for management of difficult airway is an important tool for Competency Based Education which can help the post graduate students to avoid the mishaps during anesthesia as airway plays prime importance and of first priority and sole responsibility of anesthesiologist.

Impact and Link to Health Improvement:

- Reduction in mishaps during anesthesia regarding airway management
- Reduction in morbidity and mortality
- Increase in the proficiency of post graduate students
- Boosting of self confidence of students

References:

1. Zana Borovacanic and Janine R. Shapiro., Design and Implementation of an Educational Program in Advanced Airway Management for Anesthesiology Residents”Anesthesiology Research and Practice ,Volume 2012 (2012)

2. C. A. Hagberg, J. Greger, J. E. Chelly, and H. E. Saad-Eddin, “Instruction of airway management skills during anaesthesiology residency training,” Journal of Clinical Anesthesia, vol. 15, no. 2, pp. 149–153, 2003.
3. Competency – based Learning or personalized learning / U.S. Department of Education , Retrieved 21 April 2014
4. Gene E. Hall (1976) Competency – Based Education : A process for the improvement of Education : Prentice- Hall
5. John Burke (1989) competency – Based Education and training. Routledge
6. S. Dunn, N. R. Connelly, and L. Robbins, “Resident training in advanced airway management,” Journal of Clinical Anesthesia,vol. 16, no. 6, pp. 472–476, 2004
7. C. Johnson and J. T. Roberts, “Clinical competence in the performance of fiberopt laryngoscopy and endotracheal intubation: a study of resident instruction,” Journal of Clinical Anesthesia, vol. 1, no. 5, pp. 344–349, 1989.

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