

**Dissertation
Study**

**At
Burjeel
Hospital,
Abu Dhabi,
UAE**

Training Need Analysis of ICU Nurses

**Presented by:
Dr Vijay Desai**

**Under Guidance of
Brig Dr S K Puri,
Advisor,
IIHMR, Jaipur**



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Introduction

Training Need Analysis

A training needs analysis is the *method* of determining if a training need exists and if it does, what training is required to fill the gap.

Identification of Training Needs

DESIRED PERFORMANCE (Optimal)

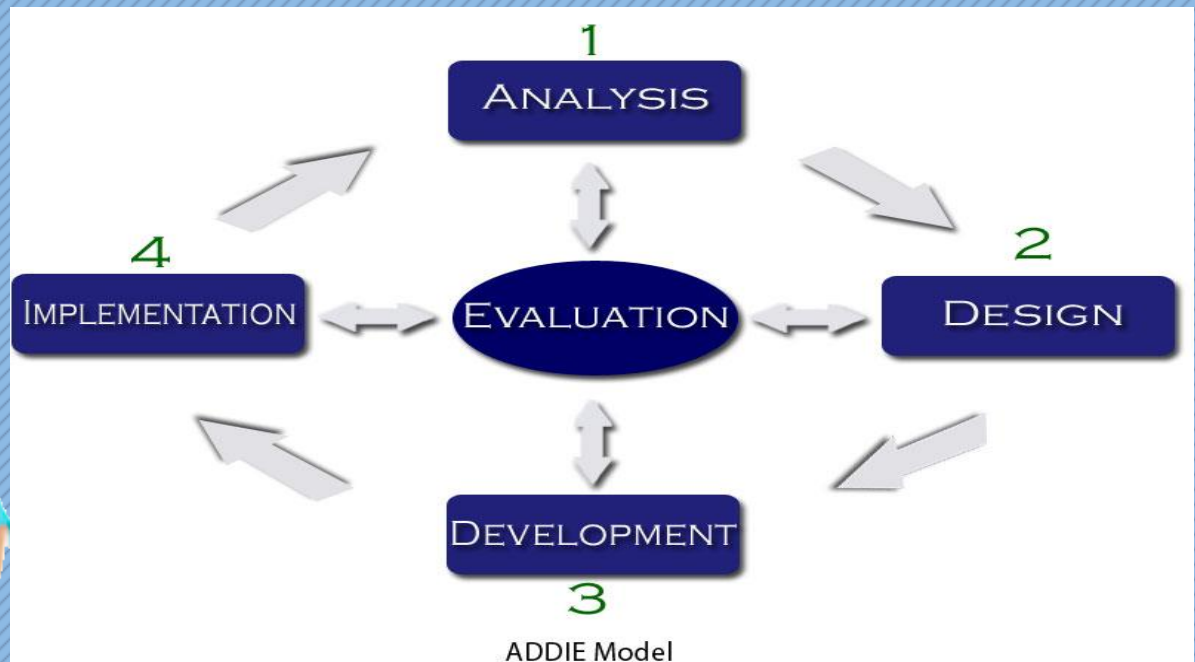
- ACTUAL PERFORMANCE (Actual)

= POSSIBLE TRAINING NEED



Role of TNA in the Training Process

- A TNA is the first step in the training process model.
- TNA assessment involves:
 - Organization analysis.
 - Task analysis.
 - Person/learner analysis.



Three Types of TNA Analyses

- **Organizational Analysis**
 - To align training with business strategy and to ensure there are resources and managerial support for training.
- **Task Analysis**
 - To identify the important work-related tasks and knowledge, skills, behaviors, abilities (KSBAs); determine if the content and activities are consistent with trainee on-the-job experience; and to develop measurable and relevant content, objectives and methods.
- **Person Analysis**
 - To ensure that trainees have the basic skills, motivation, prerequisite skills or confidence.



Need of the TNA Study of ICU Nurses

- Intensive care provides severe medical treatment to the most ill or injured patients in the hospital.
- ICU nurse is integral part of ICU team
- ICU nurses provides continuous monitoring and sophisticated medical treatment.
- Provide and maintain quality healthcare delivery
- Staff development



Aim of Study

To suggest training program based on training needs of ICU Nurses.



Objectives

- To assess the training needs of Registered Nurses (RN) and Practical Nurses (PN) working in Intensive Care Unit (ICU).
- To prioritize training needs.
- To customize training as per needs.
- To suggest training program for based on the training need.



Methodology

Problem Statement

ICU Nurses of hospital are required to undergo training on clinical and technical knowledge.

Research Questions

- Are nurses working in ICU clinically and technically competent to deliver quality and standardized care?
- What kind of knowledge and skills do ICU nurses have?
- Who are the nurses to be trained?
- Which training techniques should be employed for nurses?



Methodology

- Study design and methods
 - Type of study: Analytical Study
 - Location of study: ICU of Burjeel Hospital, Abu Dhabi (UAE)
 - Study Population: ICU Nurses (Registered Nurses and Practical Nurses)
 - Sample Size: 30*
- *(All nurses working in ICU were chosen for study, out of which 20 are Registered Nurses and 10 are Practical Nurses)
- Data collection tools:
Primary Data Collection: Self-assessment questionnaire for Assessment of Nurse's training need. (Hennessy-Hicks Training Needs Analysis Questionnaire)



Questionnaire

Self-assessment questionnaire for
Assessment of Nurse's training need.
(Hennessy-Hicks Training Needs
Analysis Questionnaire)

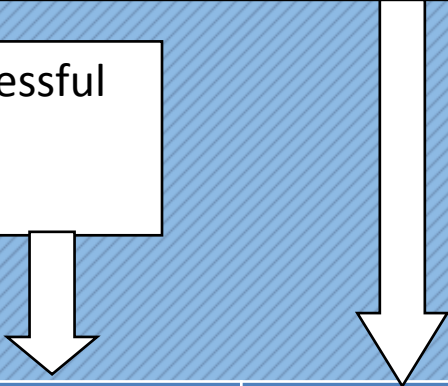


B: How well do you consider that you currently perform this activity?

Rating of 1- 7: Not well = 1; Very well = 7

A: How important is this activity to the successful performance of your job? Rating of 1- 7:

Not at all important = 1; Very important = 7



Task/ Skill	A	B
Observation and monitoring of the patient requiring respiratory care		
Actions you would take to restore respiratory function in response to observations including oxygen therapy		
Safely perform ABG sampling and report results to appropriate team member, Offer basic interpretation		
Assemble relevant equipment and administer oxygen therapy via: simple face mask, Venturi system, Nasal cannulae, Reservoir mask		
Provide appropriate intervention for patients experiencing airway problems: Position, Head tilt/chin lift/jaw thrust, Insertion of airway, Manual ventilation		
Care and management of the patient requiring Non-Invasive ventilation (NIV): Indications, Contraindications, Modes/settings used		

Task/ Skill	A	B
Process of intubation, including equipment and drugs required		
Care and management of a patient requiring Mechanical ventilation		
Management of Secretions		
Under supervision and with appropriate support, manage the patient who requires: Non-invasive ventilation, Intubation, Invasive ventilation, Suctioning		
Tracheostomy Care		
Pharmacology associated with respiratory system		
Assess and monitor the patient requiring cardiovascular support		
Prepare for and assist in the safe insertion of an arterial line		
Safely prepare for and assist with the insertion of a central line		
Managing Fluid Replacement (Knowledge of Clinical indications that necessitate fluid intervention, Differences between colloids, crystalloids and blood products)		
Knowledge of Cardiac Rhythms (Monitoring and interpretation of basic 3 or 5 lead ECG)		
Correctly identify and follow BLS/ILS guidelines where appropriate		
Prepare and administer medications used to support the cardiovascular system		
Methods of measuring and recording fluid output (e.g. Urine output)		
Nutrition in Critical Illness - assessment of the patient's nutritional status using an appropriate tool		
Different types of feeding and the indications for use		
GCS (Glasgow Coma Scale) Assessment		

Task/ Skill	A	B
Management of the Spinal Injured Patient		
Caring for the Neurologically Compromised Patient		
Practice required to prevent pressure damage (Skin Bed Sores)		
Health & Safety regulations relevant to medicines administration in critical care		
Bio Medical Waste Management		
Process of administration in critical care		
Practices used in critical care to minimize the risk of harm to the individual or reduce the risk of error in medication and fluid administration		
Knowledge of Indications and rationale for patient admission to the critical care setting		
The nursing responsibilities related to patient admission processes		
Initial patient physical and psychological assessments		
Referral process		
Prepare and complete appropriate documentation in electronic and paper formats		
Protocols and guidelines in relation to the discharge of patients from a critical care area		
Current national and local policies, protocols and guidelines in relation to End of Life care		
Knowledge of Rehabilitation Initial Assessment and Referral		
Knowledge of Communicating with Critical Care Patients		
Knowledge of Patient and Family Rights		

Task/ Skill	A	B
Knowledge of Informed Consent		
Knowledge of Patient and Family Education		
Fire Safety skills		
Hospital Emergency Codes (e.g. code blue, red, etc)		
Legal responsibilities of written documentation		
Knowledge, understanding and skills to contribute to Infection Prevention and Control in critical care.		
International Patient Safety Goals		

Part IV

Specific training needs

Please specify the areas of your job in which you would like to receive further training or instruction.

List these in order of importance:

- 1.
- 2.
- 3.
- 4.
- 5.



Interpreting the ratings

- Where a task gets a high rating on A but a low rating on B, the training need is high and should be the top priority for training (important task, not well performed).
- Where the task is rated low on A and low on B, then the task could be considered for training, but as a lower priority (unimportant task, not well performed)
- Where the task is rated high on A and high on B then there is no training need (important task, well performed)
- Where the task is rated low on A and high on B there is no training need (unimportant task, well performed).



- The first step of analysis was subtracting the performance score (Rating B) from the importance score (Rating A) to obtain the difference, or training need for every respondent and each task in turn.
- The second step was to calculate the average difference score for each item, giving us an average score for each of the 47 items. The bigger the average difference score, the greater the group's training need; these averaged difference scores then ranked in order to establish what the training priorities are for the RN's and PN's.



Results

- Training Needs of Registered Nurses (RN):
 - I. Average difference score {Ave (Section A – Section B)} for each of 47 tasks was calculated and it was found that scores recorded were ranging from 0 to 1.7. The greater is the score; greater is training need for that task.

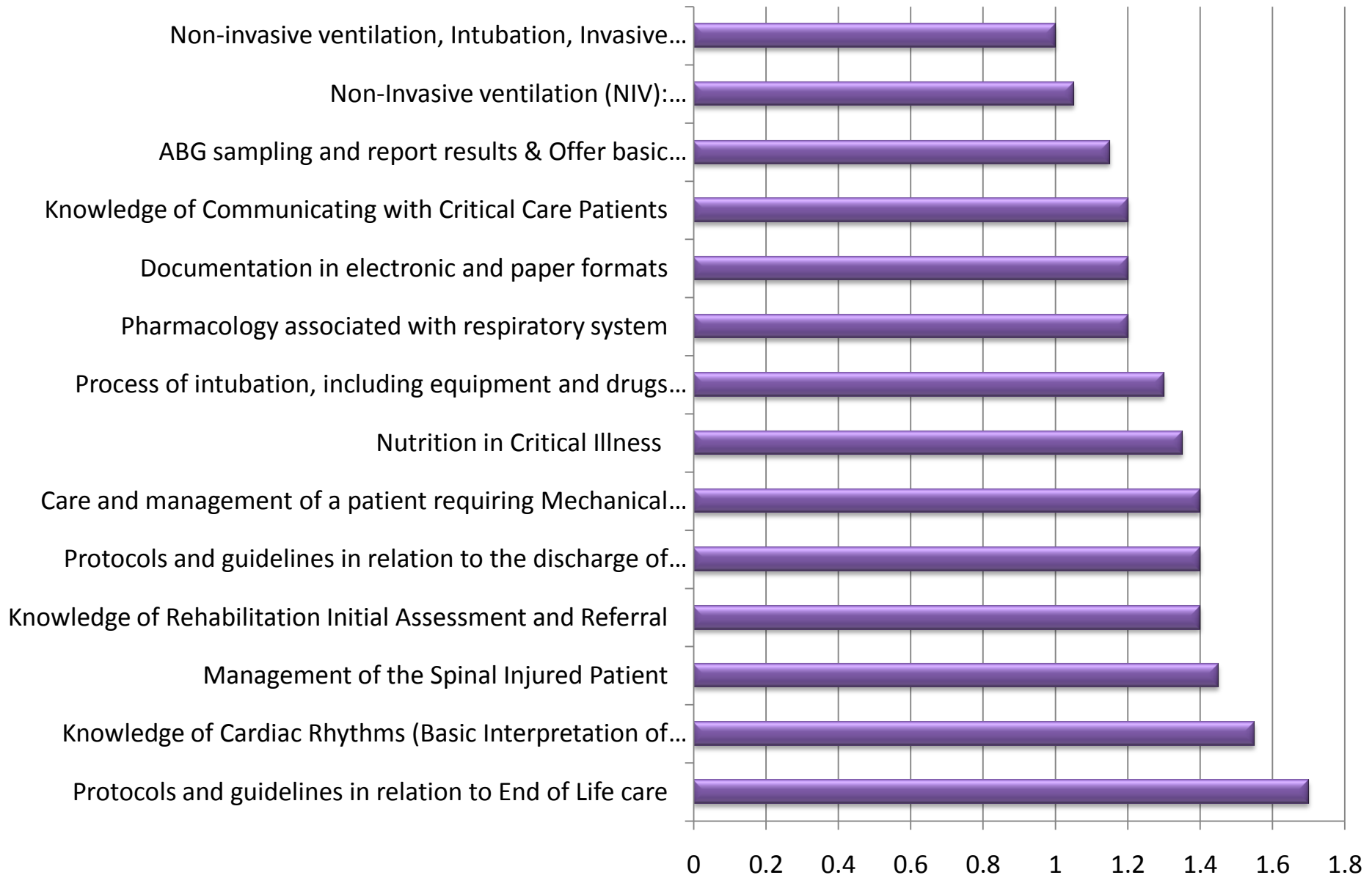


Training Needs of Registered Nurses (RN):

S No	Task/ Skill	Average Difference Score
1	Current national and local policies, protocols and guidelines in relation to End of Life care	1.7
2	Knowledge of Cardiac Rhythms (Monitoring and interpretation of basic 3 or 5 lead ECG)	1.5
3	Management of the Spinal Injured Patient	1.4
4	Knowledge of Rehabilitation Initial Assessment and Referral	1.4
5	Protocols and guidelines in relation to the discharge of patients from a critical care area	1.4
6	Care and management of a patient requiring Mechanical ventilation	1.4
7	Nutrition in Critical Illness - assessment of the patient's nutritional status using an appropriate tool	1.3
8	Process of intubation, including equipment and drugs required	1.3
9	Pharmacology associated with respiratory system	1.2
10	Prepare and complete appropriate documentation in electronic and paper formats	1.2
11	Knowledge of Communicating with Critical Care Patients	1.2
12	Safely perform ABG sampling and report results to appropriate team member, Offer basic interpretation	1.1
13	Care and management of the patient requiring Non-Invasive ventilation (NIV): Indications, Contraindications, Modes/settings used	1.0
14	Non-invasive ventilation, Intubation, Invasive ventilation, Suctioning	1.0

Training Needs of Registered Nurses (RN):

Average Difference Score



II. Quality of work performance (RN):

Nurse (RN)	Very Good	Good	Average	Fair	Poor	Total
Number	3	14	3	0	0	20
Percentage	15%	70%	15%	0%	0%	100%

III. Competence to carry out current job (RN):

Nurse (RN)	Very Good	Good	Average	Fair	Poor	Total
Number	3	17	0	0	0	20
Percentage	15%	85%	0%	0%	0%	100%



IV. Satisfaction with current performance (RN):

Nurse (RN)	Highly satisfied	Satisfied	To some extent	Very little	Not at all	Total
Number	0	16	2	2	0	20
Percentage	0%	80%	10%	10%	0%	100%



V. Specific Training Needs for RN:

- ECG Interpretation (40%)
- Ventilator Modes & Settings (25%)
- Critical care management course (15%)
- BLS & ACLS (15%)
- Wound care management (15%)
- Learn Arabic language (5%)
- ABG Interpretation (5%)
- Cardiac anatomy and physiology (5%)
- Pharmacology of commonly used medicines (5%)
- Protocol for end of life care (5%)
- Knowledge of communicating with critical care patient (5%)
- Time & Stress management (5%)
- Leadership training program (5%)



Training Needs of Practical Nurses (PN):

- I. Average difference score {Ave (Section A – Section B)} for each of 47 tasks was calculated and it was found that scores recorded were ranging from 0 to 0.8. The greater is the score; greater is training need for that task.

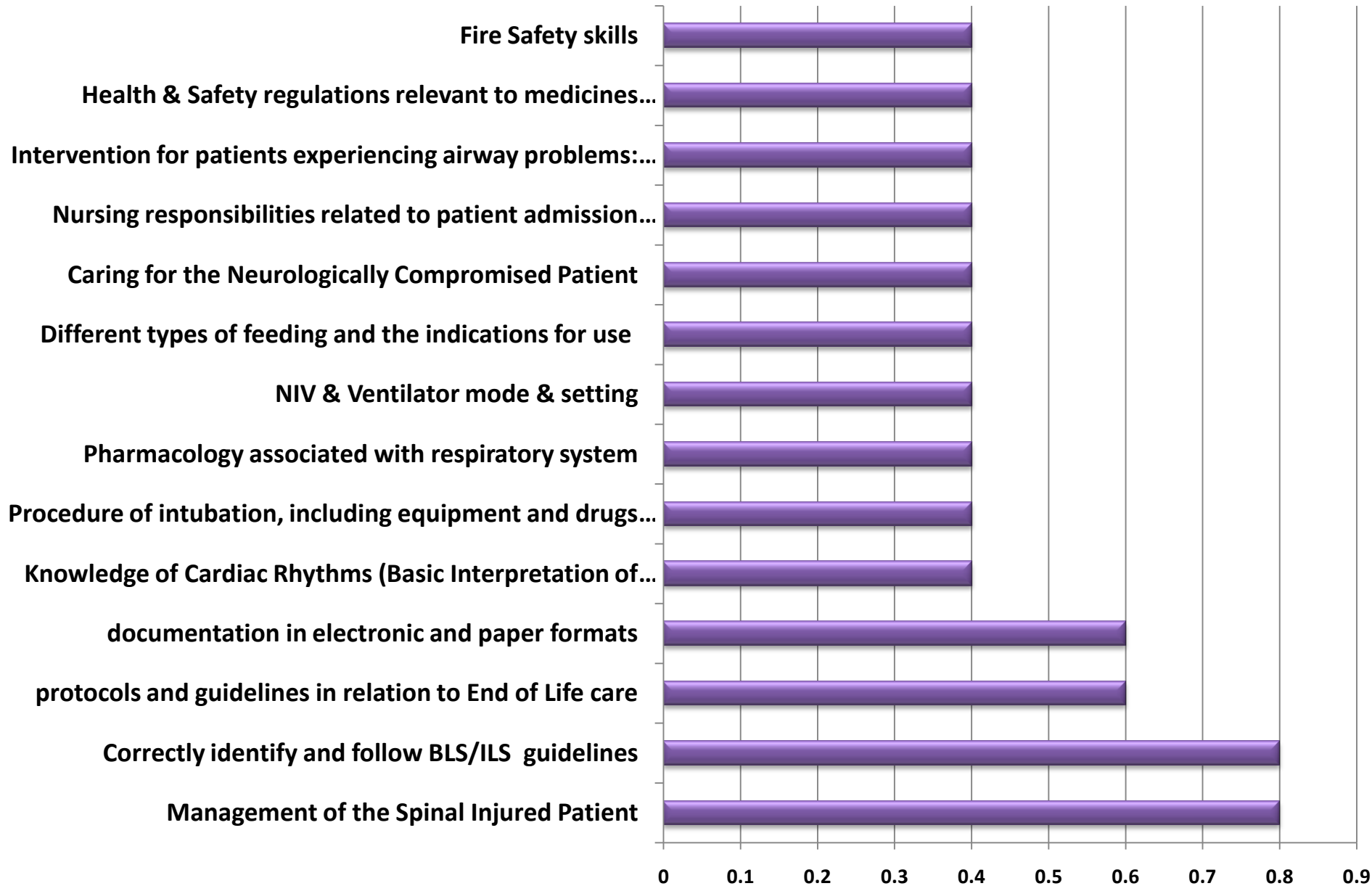


Training Needs of Practical Nurses (PN):

S No	Task/ Skill	Average Difference Score
1	Management of the Spinal Injured Patient	0.8
2	Correctly identify and follow BLS/ILS guidelines where appropriate	0.8
3	Current national and local policies, protocols and guidelines in relation to End of Life care	0.6
4	Prepare and complete appropriate documentation in electronic and paper formats	0.6
5	Knowledge of Cardiac Rhythms (Monitoring and interpretation of basic 3 or 5 lead ECG)	0.4
6	Procedure of intubation, including equipment and drugs required	0.4
7	Pharmacology associated with respiratory system	0.4
8	Care and management of the patient requiring Non-Invasive ventilation (NIV): Indications, Contraindications, Modes/settings used	0.4
9	Different types of feeding and the indications for use	0.4
10	Caring for the Neurologically Compromised Patient	0.4
11	The nursing responsibilities related to patient admission processes	0.4
12	Provide appropriate intervention for patients experiencing airway problems: Position, Head tilt/chin lift/jaw thrust, Insertion of airway, Manual ventilation	0.4
13	Health & Safety regulations relevant to medicines administration in critical care	0.4
14	Fire Safety drill	0.4

Training Needs of Practical Nurses (PN):

Average Difference Score



II. Quality of work performance (PN):

Nurse (PN)	Very Good	Good	Average	Fair	Poor	Total
Number	6	4	0	0	0	10
Percentage	60%	40%	0%	0%	0%	100%

III. Competence to carry out current job:

Nurse (PN)	Very Good	Good	Average	Fair	Poor	Total
Number	6	4	0	0	0	10
Percentage	60%	40%	0%	0%	0%	100%



Training Needs of Practical Nurses (PN):

IV. Satisfaction with current performance:

Nurse (PN)	Highly satisfied	Satisfied	To some extent	Very little	Not at all	Total
Number	0	10	0	0	0	10
Percentage	0%	100%	0%	0%	0%	100%



Training Needs of Practical Nurses (PN):

V. Specific Training Needs for PN:

- ECG Interpretation (20%)
- Critical care management course (20%)
- BLS & ACLS (20%)
- Learn Arabic language (20%)
- Time & Stress management (20%)



Conclusion

- The study revealed that the RN & PN nurses need to undergo training majorly for below mentioned clinical as well some administrative topics:
 - Cardiac Rhythms/ ECG Interpretation
 - Ventilator Modes and setting
 - Critical Care management
 - BLS & ACLS
 - Wound care management
 - ABG Interpretation
 - Pharmacology of commonly used medicines
 - Protocol for end of life care
- Most of registered nurses and practical nurses think that their quality of work performance is good and are satisfied with their work performance.



Proposed Training Program

Module No.	Module Name	Type of training	Trainer
1	Essentials of Anatomy and Physiology of : ➤ Cardiovascular System ➤ Endocrine System ➤ Respiratory System ➤ Central Nervous System ➤ Gastro Intestinal Tract ➤ Renal/ Urinary System	Classroom PowerPoint Presentation	Professor – Physiology
2	Orientation to terminology & diseases of: ➤ Cardiovascular System ➤ Endocrine System ➤ Respiratory System ➤ Central Nervous System ➤ Gastro Intestinal Tract ➤ Renal/ Urinary System	Classroom PowerPoint Presentation	Professor – Pathology or Specialist Internal Medicine
3	Basic ECG Interpretation	Classroom PowerPoint Presentation	Specialist - Cardiologist
4	Basic ABG Interpretation	Classroom PowerPoint Presentation	Intensivist

S No	Module Name	Type of training	Trainer
5	BLS & ACLS	Classroom PowerPoint Presentation & Practical on Manikin	Intensivist
6	Pharmacology of Essential & Emergency Medicines	Classroom PowerPoint Presentation	Professor – Pharmacology
7	Equipment used in ICU	Classroom PowerPoint Presentation & Practical on Manikin	Intensivist
8	Ventilator modes and settings	Patient Bedside	Intensivist
9	Clinical Procedures	Classroom PowerPoint Presentation	Nurse In Charge
10	Administrative Procedures	Classroom PowerPoint Presentation	Nurse In Charge
11	Time and Stress Management	Classroom PowerPoint Presentation	Director of Nursing

Study Limitations

- The small targeted population and sample size, attributed to the study's aim and subsequent design. To counteract this inherent limitation, participants were all nurses working in ICU and were from two different group registered nurse (RN) and practical nurse (PN)
- Self-reported biases were unavoidable because the TNA is an instrument of perceived job-related expectations (duties and responsibilities) and self-assessed competence. However, several studies have demonstrated its capacity to elicit reasonably objective data in a systematic way



