# Developing nursing care standards for patients with bronchial asthma

**Asmaa A Hassan, Samia M Teleb, Samia Y Sayed & Hamdy A Mohamaden.**

Medical-Surgical Nursing, Faculty of Nursing, Sohag University Egypt.
Medical-Surgical Nursing, Faculty of Nursing, Assiut University Egypt.
Faculty of Medicine, Sohag University Egypt.

## Abstract

Asthma is a chronic inflammatory disorder of the airways in which many cells and cellular elements play a role, the chronic inflammation is associated with air way hyperresponsiveness that leads to recurrent episodes of wheezing, breathlessness, chest tightness and coughing particularly at night or in the early morning. A Standard defined as benchmark of achievement which is based on a desired level of excellence, it reflects a desired and achievable level of performance against which actual performance can be compared and provides a guide to the knowledge, skills, judgment & attitudes that are needed to practice safely and help to ensure high quality care. (Arun, 2009).The aim of this study is to develop nursing care standards for patients with bronchial asthma. A Descriptive research design was utilized in this study on a convenient sample of 30 nurses, the majority of the nurses 90% their age ranged from 20 -40 years .The most period of working experiences in chest department (60 %) of nurses was 5- 10 years. This study was conducted at Sohag university hospitals. Tools utilized for data collection were a) Nurse's Knowledge Questionnaire sheet. b) Observational Checklist. C) Construction of standard nursing care booklet. Results: show that; 40 **%** of nurses had knowledge regarding bronchial asthma at satisfactory level while 30 % & 30 % of nurses had knowledge regarding nursing care standards of bronchial asthma at unsatisfactory and good level respectively and also had practice regarding applying suctioning at high percentage with **Mean ± SD** 18.73 ± 1.94 In addition to the result showed that nurses had practice regarding applying pulse oximetry at low percentage of score with **Mean ± SD** 6.90 ± 3.34, The result showed that nurses had zero percentage in Measuring peak expiratory because it is not applicable to nurses. It was concluded that nurses' practice in the nursing care standard regarding bronchial asthma were unsatisfactory. It was needed to be improved through implementation of proposed nursing care standards of bronchial asthma.

*Key words: Standards Nursing, Patients & Bronchial Asthma.*

## Introduction

bronchial asthma is a chronic inflammatory disease of the airways that causes airway hyper responsiveness, mucosal edema, and mucous production. For most patients, asthma is a disruptive disease, affecting school and work attendance, occupational choices, physical activity, and general quality of life [1].

The prevalence of asthma has increased significantly since the 1970s, **As of 2010, 300** million people were affected worldwide**. In 2009** asthma caused 250,000 deaths globally [2]**.** Asthma now affects 7% of the population, or 17 million adults and children in the United States. Asthma accounts for 2 million emergency department visits, 500,000 hospital admissions, and 5,000 deaths annually in the United States [3] http://en.wikipedia.org/wiki/Asthma - cite_note-gina2009p2-11#cite_note-gina2009p2-11**.** The statistics indicate that the proportion of the disease in Egypt is 14 % according to the latest statistics in 2004 [1].

Although asthma is a chronic obstructive condition, it is not considered as a part of chronic obstructive pulmonary disease as this term refers specifically to combinations of disease that are irreversible such as bronchiectasis, chronic bronchitis, and emphysema.

Unlike these diseases, the airway obstruction in asthma is usually reversible; however, if left untreated, the chronic inflammation of the lungs during asthma can become irreversible obstruction due to airway remodeling. In contrast to emphysema, asthma affects the bronchi, not the alveoli [5]**.**

A trigger is anything that irritates the airways and causes the symptoms of asthma. An important aspect of controlling asthma is avoiding triggers. It can be difficult to identify exactly what triggers cause asthma. Triggers as : viral respiratory infection, exercise, emotions, medication and environmental allergens e.g. (tobacco smoke, perfume, pollen and mold) [3].

People with asthma experience symptoms when the airways tighten, inflame, or fill with mucus. Common asthma symptoms include coughing, especially at night, wheezing, shortness of breath, Chest tightness, and pain, or pressure. Unusual asthma symptoms may include rapid breathing, sighing, fatigue; inability to exercise properly, difficulty-sleeping, anxiety; difficulty concentrating and chronic cough without wheezing. Asthma begins most frequently in childhood and adolescence, but it can develop at any time in life [6].

Complication of asthma may include status asthmaticus, respiratory failure, pneumonia, and atelectasis. Airway obstruction, particularly during acute asthmatic episodes, often results in hypoxemia, requiring the administration of oxygen and the monitoring of pulse oximetry and arterial blood gases [1].

Standards of nursing care enable nurses to promote safe, competent and ethical practice. Standards provide a method to assure that clients are receiving high-quality care. Standards of care provide the required knowledge and skills that can be use to orient new staff and guide nurses in clinical practice. Moreover, standards form a basis for monitoring, evaluating and improving quality of care [7].

The nurse plays a major role in airway management by improving breathing patterns and gas exchange, monitor blood gas results carefully, demonstrate activities to control anxiety response to symptoms, describe strategies for avoiding asthma triggers. Nurses also should explain home medication program, demonstrate how to take inhaled medication, use of inhaler, also use of peak flow meter to determine change in medication regimen and when to call a health professional [6].

**Significance of the study**
Bronchial asthma is a disruptive disease, affecting school and work attendance, occupational choices, physical activity, and general quality of life**.** Asthma now affects 7% of the population, or 17 million adults and children in the United States.  The statistics indicated that the proportion of the disease in Egypt is 14% according to the latest statistics in 2004 [4].

**Aim of the study**
The aim of the present study was to develop nursing care standards for patient with bronchial asthma

**Subjects and method**
**Research design**
A descriptive research design was been utilized in this study

**Technical design**
**Setting of the study**
The study was conducted at Chest Department and Emergency Unit, Sohag University Hospital.

 **Study Subjects**
The study including all available nurses (30 nurses) who working in Chest Department & Emergency Unit.

**Study Tools:**
Three tools were developed by the researcher to collect the necessary data for this study

**Tool I- Nurse's Knowledge Questionnaire sheet (Annex I):**
**Nurse's Knowledge Questionnaire sheet** was developed by researcher based on the review of

current related literature to assess nurse's knowledge regarding bronchial asthma patients in Sohag University Hospitals. It included two parts:

**Part one : Nurses socio-demographic data**
Includes socio-demographic characteristics (e.g., age, gender, marital status, educational level, years of experiences, and previous training,… etc). It includes 6 items (Questions from 1 to 6).

**Part two : Assessment of Nurse's Knowledge**
Used to assess nurse's of knowledge about bronchial asthma it include;  definition, causes, complications and management of asthma. The total number of questions was 43 .

**Scoring system**
The total number of questions was (43). The total scores were (160) Those who obtained less than (60%) were considered unsatisfactory (60%-75%) were considered having satisfactory level. While those who obtained more than (75%) were considered having good level.

**Tool II- Observational Checklist for Assessment of Nurse's Performance**
This tool was developed by the researcher  to assess nurses' performances based on review of related nursing and medical literature in order to identify the level of procedures actually carried out by nursing staff  in the form of procedure steps. It included the following items:
- Monitoring vital signs
- Administration of oxygenation
- Administering pulse oximetry.
- Perform Suctioning
- Perform deep breathing exercise
- Administering of nebulized medication
- Assessing invasive procedures.
- Obtaining arterial blood sample.
- Measuring peak expiratory flow rates.

**Scoring system**
Each right answer was given two score (done correctly), one score (done incorrectly), and Zero if not done. The scores for each items are summed to create a total score 206.

**Tool III- Construction of standard nursing care**
Standard of nursing care will be developed by the researcher based on current national and international literature in order to help nurses in provision of a safe and effective care for patients who have bronchial asthma.

This tool covered 7 major broad competencies which were further subdivided into sub competencies:
1. Ensure that the chest and emergency unit are ready to receive the bronchial asthma patient.
2. Ensure that the chest and emergency environment are safe to receive bronchial asthma patient.
3. Ensure that all infection control measures are properly followed in all procedures.

4. Ensure safety and comfort for each patient throughout all procedures.
5. Ensure that competent nursing care is provided for each patient throughout all procedures
6. Ensure that all staff (heath team) follows ethics and protect patient's rights in the chest and emergency units.
7. Ensure that the patient is properly educated for bronchial asthma.

**Operational Designs**

**1-Administrative design**

   Permission to carry out the study was obtained from the administrative

   personnel of the chosen setting after explanation of the aim of the study.

2-**Technique for data collection**:

   This study was carried out in two phases:-

**Phase I : Preparatory Phase**

**1.** The study tools was formulated after review of literature using books, articles, periodicals and magazine.
**2.** The proposed study setting was assessed for the number of nurses in Chest Department at Sohag University Hospital.
**3.** A pilot study was conducted for purpose to test clarity, completeness, feasibility and practicability of the study tools on 5 nurses. Also to determine the time involvement and to show the possibility and effectiveness of using the observation checklist. Necessary changes were carried out after completing the pilot study.
**4.** Validity was established by panel of five expertise who reviewed
**5.** the instruments for clarity, relevance, comprehensive, understanding, applicability and easiness for application. Minor modifications were required.

**Phase II: Implementation Phase**

1. The data collection was carried out from December 2011 until March 2012.
2. The researcher introduced himself to initiate line of communication.
3. Oral permission for voluntary participation was obtained from nurses.
4. The purpose, steps and benefits of study were explained to nurses. Confidentiality and anonymity of data was ensured.
5. The knowledge of each nurse involved in the study was assessed by questionnaire sheet through semi structured interview.
6. The observation checklist was carried out by the researcher while the nurses were on duty during morning.

**Ethical considerations**

Each nurse was informed with the purpose of the study. The investigator emphasized that the participation is voluntary and confidentially and anonymity of subjects will be assured through coding of all data, and protection of the patient from hazard. Verbal consent was obtained from each nurse prior to his/her contribution in the present study. Confidentiality of any obtained information was secured

**Data Analysis**

Data collected and analyzed by computer program SPSS" ver. 17" Chicago. USA. Data expressed as mean, Standard deviation and number, percentage. Student T test was used to determine significant for numeric variable. Chi. Square was used to determine significance for categorical variable. Person's correlation was used for correlations between groups.
N.S  $P > 0.05$ not significant
 *  $P < 0.05$ significant

**Limitations of the study**

- A lot of barriers during collecting data concerning the thesis about assessment of nurse's knowledge and practice related to bronchial asthma at Sohag University Hospital.
- Barriers such as some nurses saying what the benefit of this study is. Filling in the observation sheet took a long time.
- Some procedures won't carry out as peak expiratory flow meter.
- Shortage numbers of nurses due to all of them are female in which five nurses have child care leave.

**Result**

**Table (1): Frequency and percentage distribution of Socio-demographic characteristics of the studied nurses (n=30).**

| Nurses' characteristics | Frequency | |
|---|---|---|
| | **No** | **%** |
| **Age:** | | |
| < 20 years | 3 | 10.0 |
| 20 – 40 years. | 27 | 90.0 |
| Mean ± SD | 24.67±3.69 | |
| **Marital status:** | | |
| Single | 12 | 40.0 |
| Married | 18 | 60.0 |
| **Education:** | | |
| Diploma of nursing | 30 | 100 |
| **Years of experience:** | | |
| < 5 years. | 9 | 30.0 |
| 5 - 10 years. | 18 | 60.0 |
| >10 years. | 3 | 10.0 |
| Mean ± SD | 7.83 ± 2.51 | |
| **Previous training about respiratory disorders** | | |
| Yes | 13 | 43.3 |
| No | 17 | 56.7 |

**Table ( 2 ): Frequency  and percentage distribution of nurse's knowledge  levels regarding bronchial asthma.**

| knowledge score levels | No | Percent |
|---|---|---|
| **Unsatisfactory** | **9** | **30.0%** |
| **Satisfactory** | **12** | **40.0%** |
| **Good** | **9** | **30.0%** |

**Table (3): Mean, standard deviation of the total and subtotal mean score of Nurses' practice scores regarding bronchial asthma.**

| Nurses' practice items | Mean ± SD |
|---|---|
| • Perform suctioning "23" | 18.73 ± 1.94 |
| • Monitoring respiration "14" | 10.76 ± 1.61 |
| • Measuring temperature "19" | 13.76 ± 3.07 |
| •  Count pulse rate "12" | 14.86 ± 3.78 |
| •  Measuring blood pressure "24" | 16.36 ± 9.89 |
| • Administration of  Oxygen "18" | 13.06 ± 3.20 |
| • Perform deep breathing  exercise "16" | 7.80 ± 3.45 |
| • Administering nebulized medication "23" | 15.26 ± 5.36 |
| • Assessing invasive procedure (I.v line) "17" | 13.93 ± 1.92 |
| • Applying pulse oximetry "11" | 6.90 ± 3.34 |
| • Measuring peak expiratory flow rates "14" | 0.0 ± 0.0 |
| • Obtaining Arterial blood sample. "15" | 13.20± 1.68 |
| • Total practice score  "206" | 135.96±24.29 |

**Table (4): The relationship between nurses' knowledge score level & practice regarding nursing care standards of bronchial asthma.**

| Knowledge score level | Practice score level | | P-value |
|---|---|---|---|
| | Unsatisfactory (n=13) | Satisfactory (n=17) | |
| Knowledge level <br> • Unsatisfactory <br> • Satisfactory <br> • Good | 5 (38.5%) <br> 7 (53.8%) <br> 1 (7.7%) | 4 (23.5%) <br> 5 (29.4%) <br> 8 (47.1%) | P<0.04* |

• *mean significance*

**Table (5) : Relation between knowledge & years of experience of studied nurses.**

| Knowledge score level: | Experience | | | P-value |
|---|---|---|---|---|
| | < 5 years. | 5-10 years. | ≥ 10 years. | |
| - Unsatisfactory <br> - Satisfactory <br> - Good | 0.0 <br> 3 (33.3%) <br> 6 (66.7%) | 6 (33.3%) <br> 9 (50.0%) <br> 3 (16.7%) | 3 (100%) <br> 0.0 <br> 0.0 | P<0.004** |

** mean highly significance

**Table (6): Relation between knowledge score level & nurse's  previous training about bronchial asthma.**

| Knowledge Score level | Previous Training | | P-value |
|---|---|---|---|
| | No training (n=17) | Training  (n=13) | |
| **Knowledge level** <br> - Unsatisfactory <br> - Satisfactory <br> - Good | 6 (35.29%) <br> 8 (47.05%) <br> 3 (17.64%) | 3 (23.1%) <br> 4 (30.8%) <br> 6 (46.2%) | P<0.03* |

**Table (7) :Relation between studied nurses' practice & their experience about bronchial asthma.**

| Practice score level | Experience | | | P-value |
|---|---|---|---|---|
| | < 5 years. | 5-10 years. | ≥ 10 years. | |
| **Practice  level:** <br> - Unsatisfactory <br> - Satisfactory <br> - Good | 3 (33.3%) <br> 6 (66.7%) <br> 0.0 | 8 (44.4%) <br> 10 (55.6%) <br> 0.0 | 2 (66.7%) <br> 1 (33.3%) <br> 0.0 | P=0.593 <br> n.s |

**Table (8) : Relation between studied nurses' practice & their previous training about bronchial asthma.**

| Practice score level | Training | | P-value |
|---|---|---|---|
| | No training (n=17) | Training (n=13) | |
| **Practice  level:** <br> - Unsatisfactory <br> - Satisfactory <br> - Good | 8 (47.0%) <br> 9 (52.94%) <br> 0.0 | 5 (38.5%) <br> 8 (61.5%) <br> 0.0 | P=0.778 <br> n.s |

**Tool III: Nursing Care Standards for Bronchial Asthma Patients**
**Table (9): Percentage distribution to opinions of nurses as regard Ensure that the chest and emergency unit are ready to receive the bronchial asthma patient.**

| Nursing Competency | Skills | Agree | | Disagree | |
|---|---|---|---|---|---|
| | | No. | % | No. | % |
| **1. Ensure that the chest and emergency unit are ready to receive the bronchial asthma patient.** | **A-Prepare the chest and emergency unit with the necessary equipment :** | | | | |
| | Oxygen connecter tubing. | 30 | 100 | - | - |
| | Oxygen Masks. | 30 | 100 | | |
| | Nasal canulas. | 30 | 100 | | |
| | Oxygen humidifier. | 30 | 100 | | |
| | Fixed oxygen system. | 30 | 100 | | |
| | Pulse oximetry. | 20 | 66.7 | 10 | 33.3 |
| | Tracheotomy supplies. | 10 | 33.3 | 20 | 66.6 |
| | A portable suction unit with wide bore tubing and a pharyngeal suction tip. | 25 | 83.3 | 5 | 16.7 |
| | Wheel chair. | 30 | 100 | - | - |
| | ECG set. | 30 | 100 | - | - |
| | Emergency medications. | 30 | 100 | - | - |
| | Resustation equipments. | 30 | 100 | - | - |
| | Different types of intravenous solutions. | 30 | 100 | - | - |
| | Thermometer. | 30 | 100 | - | - |
| | Tourniquet. | 10 | 33.3 | 20 | 66.7 |
| | Intravenous sets. | 25 | 83.3 | 5 | 16.7 |
| | Sterile syringe and needles. | 30 | 100 | - | - |
| | Antiseptic solutions. | 30 | 100 | - | - |
| | Medications as bronchodilators. | 30 | 100 | - | - |
| | **B-Prepare patient room:** | | | | |
| | The patient's room should be well ventilated, clean and quiet. | 30 | 100 | - | - |
| | Room furniture should be arranged in away to facilitate the transfer of patient. | 30 | 100 | - | - |
| | Room capacity should be two patients with a maximum of four patients. | 17 | 56.6 | 13 | 43.4 |
| | In multiple bed rooms, a clearance of 4 feet should be available at the foot of each bed to permit the passage of equipments and beds. | 25 | 83.3 | 5 | 16.7 |
| | Each patient room should have a window. | 30 | 100 | - | - |
| | Each patient should have access to a toilet room. | 30 | 100 | - | - |
| | Place bed facing windows. | 30 | 100 | - | - |
| | Provide aside –table near the bed for placing items required by patient so that they are within reach. | 30 | 100 | - | - |
| | Use a private room for respiratory isolated patients. | 30 | 100 | - | - |
| | **C-The chest and emergency unit temperature and humidity:** | | | | |
| | A centralized cooling device to control the temperature and humidity inside the department. | 20 | 66.6 | 10 | 33.4 |
| | **D-The chest and emergency unit should contain the following:** | | | | |
| | Administrative center of nurse station. | 30 | 100 | - | - |
| | Nurse or supervisor office | 15 | 50 | 15 | 50 |
| | Hand washing station. | 15 | 50 | 15 | 50 |
| | Toilet room for health team. | 30 | 100 | - | - |
| | Examination / treatment room. | 15 | 50 | 15 | 50 |
| | Equipment storage room. | 30 | 100 | - | - |
| | Storage space wheelchairs. | - | - | 30 | 100 |
| | Emergency equipment storage. | 30 | 100 | - | - |

**Table (10) : Percentage distribution to opinions of nurses as regard Ensure that the chest and emergency environment are safe to receive bronchial asthma patient.**

| Nursing competency | Skills | Agree | | Disagree | |
|---|---|---|---|---|---|
| | | No. | % | No. | % |
| 2.  Ensure that the chest and emergency environment are safe to receive bronchial asthma patient. | **A- Identifing patient** | 30 | 100 | - | - |
| | **B- Maintain safety measures:** | | | | |
| | Preventing patient falls by Side rails | 10 | 33.3 | 20 | 66.7 |
| | Keeps the patient's bed in the lowest horizontal position, except when giving bedside nursing care. | 10 | 33.3 | 20 | 66.7 |
| | Have a night- light on the patient's room. | 23 | 76.7 | 7 | 23.3 |
| | Keep floors free of spills and excess furniture. | 30 | 100 | - | - |
| | Have patients wear non skid shoes or slippers when up rather than soft bed room slippers. | 15 | 50 | 15 | 50 |
| | Make sure the patient's signal light is within reach at all times. | - | - | 30 | 100 |
| | Lock the wheels of beds, wheel chairs, and when transferring patients to or from them. | 10 | 33.3 | 20 | 66.7 |
| | **C- Reporting accidents and errors** | | | | |
| | Fire safety | 30 | 100 | - | - |
| | Follow the fire safety precautions involved in the use of oxygen. | 15 | 50 | 15 | 50 |
| | Smoking never permitted. | 30 | 100 | 30 | 100 |
| | Follow the safety practices necessary when using electrical equipment. | 9 | 30 | 21 | 70 |
| | **D- Maintaining safe environment in administration of medication** | | | | |
| | Correct storage of all drugs. | 7 | 23.3 | 23 | 76.7 |
| | Correct administration and documentation of a prescribed drug. | 30 | 100 | - | - |

**Table ( 11 ) : Percentage distribution to opinions of nurses as regard ensure that all infection control measures are properly followed in all procedures.**

| Nursing competency | Skills | Agree | | Disagree | |
|---|---|---|---|---|---|
| | | No. | % | No. | % |
| 3. Ensure that all infection control measures are properly followed in all procedures. | **A- Hand washing** | | | | |
| | Hands are washed at the start and end of the daily work, before and after glove use, after touching body fluids. | 21 | 70 | 9 | 30 |
| | **B-Masking( Wearing and Removing):** | | | | |
| | Place the mask over mouth and nose before contact with patient | 9 | 30 | 23 | 70 |
| | **C-Gloving ( Wearing and Removing):** | 23 | 70 | 9 | 30 |
| | **D-Handling laboratory specimen:** | | | | |
| | Keep the laboratory specimen technique correctly. | 12 | 40 | 18 | 60 |
| | **E- Environment hygiene:** Identify methods of disinfecting the following: | | | | |
| | Floor. | 13 | 43.3 | 17 | 56.7 |
| | Wall. | 15 | 50 | 15 | 50 |
| | Chairs | - | - | 30 | 100 |
| | Tables. | 15 | 50 | 15 | 50 |
| | contaminated equipment. | 18 | 60 | 12 | 40 |
| | Check that proper ways of waste disposal are carried. | 30 | 100 | - | - |

**Table (12): Percentage distribution to opinions of nurses as regard ensure that safety and comfort for each patient throughout all procedures.**

| Nursing competency | Skills | Agree | | Disagree | |
|---|---|---|---|---|---|
| | | No. | % | No. | % |
| **4. Ensure safety  and comfort for each patient throughout all procedures.** | Take adequate period of rest | 21 | 70 | 9 | 30 |
| | Look that the wheels of the patient trolley in position. | 30 | 100 | - | - |
| | Ensure that the patient's head is safely supported on the stretcher. | - | - | 30 | 100 |
| | Check the canula, tubes, any drainage bags during transfer. | 30 | 100 | - | - |
| | Raise the side rails. | 23 | 76.7 | 7 | 23.3 |
| | Supervise and assist in the transfer of the patient to protect him from the dangerous of sudden movements. | 15 | 50 | 15 | 50 |
| | The patient must be moved slowly and carefully to prevent arterial hypotension that may occur when a patient moved from one position to another. | 30 | 100 | - | - |

**Table (13): Percentage distribution to opinions of nurses as regard ensure that competent nursing care is provided for each patient throughout all procedures.**

| Nursing competency | Skills | Agree | | Disagree | |
|---|---|---|---|---|---|
| | | No. | % | No. | % |
| **5. Ensure that competent nursing care is provided for each patient throughout all procedures** | Measuring respiratory rate | 15 | 50 | 15 | 50 |
| | Measuring body temperature | 30 | 100 | - | - |
| | Count pulse Rate | 30 | 100 | - | - |
| | Measuring blood Pressure | 17 | 56.7 | 13 | 43.3 |
| | Administration of Oxygen | 30 | 100 | - | - |
| | Administering pulse oximetry | 15 | 50 | 15 | 50 |
| | Perform Suctioning | 15 | 50 | 15 | 50 |
| | Perform Breathing and coughing exercise | 12 | 40 | 18 | 60 |
| | Administering of nebulized medication: | 30 | 100 | | |
| | Assessing invasive procedures: | 30 | 100 | - | - |
| | Measuring Arterial blood gases | 30 | 100 | - | - |
| | Measuring peak expiratory flow rates: | - | - | 30 | 100 |

**Table (14): Percentage distribution to opinions of nurses as regard ensure that the patient is properly educated for bronchial asthma.**

| Nursing competency | Skills | Agree | | Disagree | |
|---|---|---|---|---|---|
| | | No. | % | No. | % |
| **6. Ensure that the patient is properly educated for bronchial asthma.** | **A- Teach patient how to prevent asthma attacks:** | | | | |
| | Taking any asthma medications as directed | 30 | 100 | - | - |
| | Drink plenty of water (1 glass of water every 2 hours while awake). | 10 | 33.3 | 20 | 66.7 |
| | Measure your peak flow regularly to assess level of asthma control | 14 | 46.7 | 16 | 53.3 |
| | Avoiding triggers | 12 | 40 | 18 | 60 |
| | **B-Teach patient what can do  during asthma attack** | | | | |
| | Act fast if an asthma attack starts | 10 | 33.3 | 20 | 66.7 |
| | Know that coughing, wheezing, tight chest, and waking up at night are signs of an asthma attack. | 14 | 46.7 | 16 | 53.3 |
| | Move away from the thing that started the attack. | 15 | 50 | 15 | 50 |
| | Take a quick-relief asthma medicine. | 12 | 40 | 18 | 60 |
| | Stay calm for 1 hour to be sure breathing gets better. | 10 | 33.3 | 20 | 66.7 |
| | **C-Teaching how to use inhalers** | 5 | 16.7 | 25 | 83.3 |
| | **D-Instruction about diet:** | | | | |
| | Increase omega-3 intake, relying on extra-virgin olive oil as a main source of fat. | - | - | 30 | 100 |
| | Apples, carrots, leafy vegetables and tomatoes have all demonstrated beneficial effects for preventing asthma attack. | - | - | 30 | 100 |
| | Increase vitamin C, E and magnesium in diet. | - | - | 30 | 100 |
| | Avoid certain foods as milk products, animal protein and fried foods. | 15 | 50 | 15 | 50 |
| | Drink a lot of water (2-3 litters daily). | 15 | 50 | 15 | 50 |
| | **E- Follow up instructions** | | | | |
| | Tell the patient importance of follow up to complete treatment of bronchial asthma. | 17 | 56.7 | 13 | 43.3 |
| | Ensure that the patient is comfortable with the plan of care and is able to follow written instructions for medication and follow-up visits. | 30 | 100 | - | - |
| | Tell the patient importance of regular check of his peak flow measurements | - | - | 30 | 100 |
| | Discuss plans for possible emergencies at home or work. | 10 | 33.3 | 20 | 66.7 |
| | Tell the patient to be aware to any triggers that cause bronchospasm or exacerbations. | 12 | 40 | 18 | 60 |
| | Instruct the patient to take his medication regularly. | 18 | 60 | 12 | 40 |

**Table (15) :  Percentage distribution to opinions of nurses as regard ensure that all staff (heath team) follows   ethics and protect patient's rights in the chest and emergency units.**

| Nursing competency | Skills | Agree | | Disagree | |
|---|---|---|---|---|---|
| | | No. | % | No. | % |
| 7.  Ensure that all staff (heath team) follows ethics and protect patient's rights in the chest and emergency units. | Inform the patient about physicians, nurses and others involved in the care | 10 | 33.3 | 20 | 66.7 |
| | Inform the patient about anything that may influence his care and treatment | 18 | 60 | 12 | 40 |
| | Inform the patient about any studies or researches that is done and may affect his condition | 30 | 100 | - | - |
| | Inform the patient about the hospital rules and policies that related to his care if asked | 30 | 100 | - | - |
| | **Following professionalism:** | | | | |
| | Aware of personal limitations and open to constrictive criticism | 15 | 50 | 15 | 50 |
| | Constantly seeks to improve | 18 | 60 | 12 | 40 |
| | Responds to patient requests with promptness and empathy | 5 | 16.7 | 25 | 83.3 |
| | Consults and collaborates with other clinical disciplines/ services in planning and providing patient care | 5 | 16.7 | 25 | 83.3 |
| | Honest | 30 | 100 | - | - |
| | Physically and mentally well | 30 | 100 | | |
| | Leadership ability | 5 | 16.7 | 25 | 83.3 |
| | Continuous attending educational training program | 17 | 56.7 | 13 | 43.3 |
| | Implement orientation programs for new staff and demonstrate ability to reach other | 20 | 66.7 | 10 | 33.3 |

**Table (1):** Shows that;  the majority of the nurses 90%  their age ranged from 20 -40 years with Mean ± SD  24.67±3.69,  40 % of them were single and  60 % were married. All of them had diploma degree, The most period of working experiences in chest department  (60 %) of nurses was  5- 10 years with Mean ± SD 7.83 ± 2.51 and near half of the nurses were having   previous training   in7.83 ± 2.51 respiratory disorders.

**Table (2)**: Illustrates frequency and percentage of nurses' knowledge  regarding bronchial asthma. The results show that; 40% of nurses had knowledge regarding bronchial asthma at satisfactory level while 30 % & 30 % of nurses had knowledge regarding nursing care standards of bronchial asthma at unsatisfactory and good level respectively

**Table (3):** Shows that; nurses had practice regarding applying suctioning at high percentage with **Mean ± SD** 18.73 ± 1.94 In addition to the result showed that nurses had practice regarding applying pulse oximetry at low percentage of score with **Mean ± SD** 6.90 ± 3.34, The result showed that nurses had zero percentage in Measuring peak expiratory because it is not applicable to nurses.

**Table (4)**: Shows that; statistical significant difference between nurses' knowledge and practice regarding nursing care standards of bronchial asthma at P < 0.04

**Table (5):** Shows that; statistical significant difference between knowledge & years of experience of studied nurses

**Table (6)**: Shows that; the relation between nurses' knowledge & their previous training about bronchial asthma   with   statistical   significant   significance difference at (P < 0.05).

**Table (7):** shows that; the relation between nurses 'practice  &  their  experience  with  no  statistical significance difference at P=0.593

**Table (8)**: shows that; the relation between nurses' practice & their previous training about bronchial asthma with no statistical significance difference at P=0.778

**Table (9):** shows that; the majority of nurses agreed as ensure that the chest and emergency unit are ready to receive the bronchial asthma patient.

**Table (10)**: shows that; the majority of nurses not agreed as ensure that the chest and emergency environment are safe to receive bronchial asthma patient.

**Table (11):** shows that; the majority of nurses agreed as ensure that all infection control measures are properly followed in all procedures.

**Table (12)**: shows that; the majority of nurses agreed as ensure that safety and comfort for each patient throughout all procedures.

**Table (13)**: shows that; the majority of nurses agreed as ensure that competent nursing care is provided for each patient throughout all procedures

**Table (14)**: shows that; the majority of nurses not agreed as ensure that the patient is properly educated for bronchial asthma.

**Table (15)**: shows that; the majority of nurses agreed as ensure that all staff (heath team) follows ethics and protect patient's rights in the chest and emergency units.

## Discussion

The aim of this study was to develop nursing care standards for patient with bronchial asthma.

Bronchial asthma is a chronic inflammatory disease of the airways that causes airway hyperresponsiveness, mucosal edema, and mucous production. For most patients, asthma is a disruptive disease, affecting school and work attendance, occupational choices, physical activity, and general quality of life [8] .

The nurse is responsible and accountable for the quality of nursing care given to patients. The single most important protective strategy for the nurse is to be a knowledgeable and safe practitioner of nursing and to meet the standards of care with all patients. Nurses are empowered by the standards of care and the trust of the physician and the patient to ensure quality care. Today's practicing nurse must be aware of nursing standards, legal issues in nursing, legal limits of nursing and legal liabilities. Otherwise, he or she could be the first person to be penalized from a legal standpoint [9].

Some studies considered that minimum standards should be written (establishing the lowest acceptable standards); others believe that standards reflect what happens in practice. A third approach is considered that the standard should define the optimum level to be attained. Thus, standards ought to be set to provide no less than minimum acceptable level of care or performance according to the available resources [10]. Therefore, the standard must include a clear identification of skills and knowledge required by nurses caring for bronchial asthma patients.

Standards of care is one approach to the challenges experienced by the health care delivery system has been the move toward standardization of care. Nursing standards have been developed by the profession in an attempt to describe what nurses do

and what nurses are accountable for in practice. They provide a guide to the knowledge, skills, judgments and attitudes that are needed to practice safely [11].

The discussion will cover the main result findings as follow:

Socio-demographic characteristics of nurses:

Based on the results of the present study, the majority of the nurses their ages ranged from 20-40 years , married , female , have diploma of nursing and their experiences more than 5-10 years, this finding in the line with study by [12]"entitled "nursing care standards for cancer patients undergoing chemotherapy of Assiut University Hospital" reported the majority of nurses aged from 20-40 years, female, have diploma in nursing. Also the result supported by [13] finding. More than half of them have no in-service training courses related to bronchial asthma and chest disease. [13]; in the same line with the current study findings conducted a study in Neurosurgery Department of Assiut University Hospital, entitled developing postoperative care standards for patients who had drainage of chronic subdural hematoma which revealed that; the majority of nurses were aged from 20 - 40 years. The majority of nurses were female and nursing diploma was the highest proportion, less than half of them have an experience more than ten years and all of them have no in service training courses related to chronic subdural hematoma.

[14]: stated that; education and training are two components of staff development that occur after an employees' indoctrination (which refers to planned, guided adjustment of employee to the organization and work environment). The staffs' knowledge level and capabilities are a major factor in determining the number of staff required to carry out unit goals. The better trained and more competent the staff, the fewer staff required, which in turn saves the organization money and rise reproductively.

Nurses' knowledge regarding nursing care standards of bronchial asthma

The result of this study revealed that; more than half of nurses had satisfactory level of knowledge as regarding bronchial asthma. Minority of nurses had unsatisfactory level of knowledge as regarding bronchial asthma. This result agrees with [14]: who found that, high level of knowledge regarding blood borne infection, especially HIV& AIDs. In a more recent study exploring nurse's knowledge of universal precautions [14]: reported that knowledge was good and agreed with [15] who found that the level of knowledge among nurses was fair regarding universal infection control precautions.

The result of this study revealed that, more than two third of nurses who had less than three years and also from three to seven years of experience had satisfactory and good level of knowledge but all

nurses who had more than seven years of experience had unsatisfactory level of knowledge . This finding supported by [16] who found that, a lower level of knowledge among nurses with many years of work experience was due to a lack of present educational status.

In the same line a study was conducted in orthopedic department of Assiut University Hospital [17] , entitled as " Impact of training program on the quality of nursing care to old patients in orthopedic department of Assiut University Hospital" on all nurses working in orthopedic departments which revealed that a statistically significant relation between nurses` knowledge scores with their duration of experience.

Nurses' practice regarding nursing care standards for patient with bronchial asthma

The finding showed that; (43.3%) & (56.7%) of nurses had unsatisfactory and satisfactory level of practice respectively about nursing care standards for patient with bronchial asthma.

We can't ignore the big percent of unsatisfactory level that may be attributed to insufficient courses related to standards nursing care for patients with bronchial asthma in their curriculum of nursing education and also decreasing of in-service training in the hospital.

This result disagree with [18] who found that, total practice level regarding the nursing care standards of colostomy was at unsatisfactory level. [14] reported that; each organization and profession must set standards and objectives to guide individuals and practitioner in performing safe and effective care.

The Relationship between Knowledge and Practice Regarding nursing care standards of bronchial asthma

The finding shows that, the relation between knowledge & practice of studied nurses about bronchial asthma with statistical significance difference at (P < 0.05) between them with (53.8%) of unsatisfactory practice nurses were unsatisfactory in knowledge level vs. (29.4%) of nurses had unsatisfactory practice level were satisfactory in knowledge. These result agree with [18] who mentioned that, a weak, positive correlation was found between knowledge and practice regarding the nursing care standards of colostomy (r = 0.15, p =.3). This signified that knowledge did not influence practice regarding the nursing care standards of bronchial asthma. This may be due to that, the nurse may had knowledge in some area but are not applicable in their practice that may affect the scores for practice. These may not be the actual true scores of nursing care, but knowledge could be a representative of true cognitive ability.

The results of the present study revealed the majority of nurses at chest and emergency departments at Sohag university hospital were agreeing as regard ensure that the environment of department is safe to receive the asthmatic patient. [19] agree with the present study results which stated that" Recent attention in health care has been on the actual architectural design of a hospital facility, including its technology and equipment, and its effect on patient safety, In a review of more than 600 articles, researchers found that there was a link between the physical environment (i.e., single-bed or multiple-bed patient rooms) and patient and staff outcomes (e.g., reduced stress and fatigue and increased effectiveness in delivering care)(").

The present study revealed that less than half of nurses had agreed about ensuring that the emergency unit and chest department environment are safe to receive asthmatic patient. This competency include identifying your patient , Prevention patients falls by side rails , prevention patients falls by hand rails , restraints:, reporting accidents and errors , Maintaining safe environment They said that no available resources to maintain safety.

This is in contrast with [20] UVAHS structures ensure that nurses are working and caring for patients in a safe practice environment. Many of the activities to assure a safe and secure environment of care for patients also support a safe environment for our staff. The link between safe, competent practice, high-quality patient outcomes and a healthy productive work environment is well-established in the healthcare and business literature.

This result congruent with [21] who reported that,Infection control tasks were accepted by the majority of nurses. This can be due to attending in service training programs related to infection control measures. This competency included the following criteria principle of aseptic technique in all procedure, identify and supervise methods of disinfecting (walls, floor, chair, nursing room) and using universal precaution

This result congruent with [22] who reported that, "An effective facility-wide infection prevention and control program is composed of many components and interventions that can reduce the risk of infection in surgery patients. This includes an understanding of the surgical population and the associated risk factors, effective methods for case finding, expertise in the analysis of data, effective communication of outcomes, and implementation of evidenced-based strategies to improve outcomes. Central to this theme is collaboration. In order to ensure patient safety and optimum patient outcomes, surgeons, preoperative staff, nurses, and all members of the healthcare team must work together to implement evidence-based practices that minimize the risk of infection."

In this study the majority of nurses agreed as ensure that safety and comfort for each patient throughout all procedures in the same line with [14] who reported that each organization and profession must set standards and objectives to guide individuals and practitioners in performing safe and effective care. Also not only must standards exist, but leader and mangers also must see that subordinates know and understand the standards and employee must be aware that their performance will be measured in terms of their ability to meet the established standards.

Today's practicing nurse must be aware of nursing standards, legal issues in nursing, legal limits of nursing and legal liabilities. Otherwise, he or she could be the first person to be penalized from a legal standpoint. Legal responsibilities in nursing practice are growing in importance day by day. Legal accountability is an essential concept of professional nursing practice that can pose a threat to a nurse's career if he or she is uninformed of the law. Legal issues confronting practicing nurses today are legion. The nurse need not view the law not with apprehension but as a helpful adjunct to the practice of nursing. [23]

Finally, it can be concluded that, the developing of nursing care standards for bronchial asthma patients achieved it's objectives but also implementing of this standard will improve nurse's knowledge and practice. The chest nurses must constantly seek better ways to improve their care provided to the patient, through implementing the developed standards of practice to ensure quality of care and self-satisfaction in a way in which they can improve their profession and they should also update these standards frequently.

### Conclusions and Recommendations:

Based on the results of the present study, it can be concluded that, level of nurses' practice in Chest & Emergency Department at Sohag University Hospital are an unsatisfactory enough and need training to improve nurses' knowledge and practice regarding nursing care for patient with bronchial asthma
Recommendations:
For nurses:

- Nurses should be encouraged to attend specific meetings as workshop and seminars held for bronchial asthma management acquainted with the most recent advances and skills in the field.
- Clinical meetings should be planned periodically in order to present to all nurses new advances in this field.
- Periodic monitoring the level of nurse's knowledge and practice
For administration:

- Standards of care can reduce the risk of errors, increase efficiency, and provide a framework for best practice so it must be presents in all units.
- Orientation program for all newly nurses and in services training programme for experienced nurses about nursing care standards for patients with bronchial asthma.

### For further and research

- Replication of study on a larger sample obtained from different Geographical areas in Egypt
- Study should be done to evaluate the effect of implementation of the proposed nursing care standards of bronchial asthma care at chest &emergency department of Sohag University Hospital

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