

## SITUATION OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE MANAGEMENT IN THAI NGUYEN HOSPITAL OF TUBERCULOSIS AND LUNG DISEASES PHASE 2014 - 2018

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### ABSTRACT

Chronic obstructive pulmonary disease is a chronic disease leading cause of death and disability. The aim of our study was to describe the current situation of management and management of chronic obstructive pulmonary disease at Thai Nguyen Hospital of Tuberculosis and Lung Diseases in 2014–2018. This is descriptive study. The study found out prevalence of chronic obstructive pulmonary disease in male patients accounted for 89.24%, 60–69 years old account for 40.18%. The patients had some related diseases including hypertension (63.29%), bronchitis (58.22%) and diabetes (51.64%). The degree of airflow obstruction according to Global Initiative for Chronic Obstructive Lung Disease - GOLD 2018 phase 2 was 46.4%. Human resources and resources at the Chronic pulmonary disease Management Unit meet the standards. Good treatment results accounted for the largest proportion with 80.04%. In summary, the model of Chronic pulmonary disease Management Unit at Thai Nguyen Hospital of Tuberculosis and Lung Disease in 2014-2018 finds that treatment management is stable, sustained, and sustainable.

**Keywords:** *Chronic obstructive pulmonary disease; Chronic pulmonary disease Management Unit; Jam; Chronic; Thai Nguyen.*

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## THỰC TRẠNG QUẢN LÝ BỆNH PHỔI TẮC NGHỀN MẠN TÍNH TẠI BỆNH VIỆN LAO VÀ BỆNH PHỔI THÁI NGUYÊN GIAI ĐOẠN 2014 – 2018

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### TÓM TẮT

Bệnh phổi tắc nghẽn mạn tính là bệnh có khả năng gây tàn phế và tử vong cao. Mục tiêu của nghiên cứu này nhằm mô tả thực trạng phát hiện quản lý điều trị bệnh phổi tắc nghẽn mạn tính tại Bệnh viện Lao và Bệnh phổi Thái Nguyên giai đoạn 2014–2018. Đây là nghiên cứu mô tả. Nghiên cứu đã tìm ra tỷ lệ bệnh nhân phổi tắc nghẽn mạn tính nam chiếm 89,24%. Nhóm 60–69 tuổi chiếm 40,18%. Tiền sử bệnh liên quan gồm tăng huyết áp chiếm 63,29%; viêm phế quản chiếm 58,22% và đái tháo đường chiếm 51,64%. Mức độ tắc nghẽn đường thở theo Sáng kiến toàn cầu cho Bệnh phổi tắc nghẽn mạn tính - GOLD 2018 giai đoạn 2 với 46,4%. Nhân lực, nguồn lực, vật lực tại Đơn vị Quản lý bệnh phổi mãn tính đạt tiêu chuẩn. Kết quả điều trị tốt chiếm tỷ lệ lớn nhất với 80,04%. Tóm lại mô hình Đơn vị Quản lý bệnh phổi mãn tính tại Bệnh viện Lao và Bệnh phổi Thái Nguyên giai đoạn 2014-2018 phát hiện quản lý điều trị ổn định, duy trì, và bền vững.

**Từ khóa:** *Bệnh phổi tắc nghẽn mạn tính; Đơn vị Quản lý bệnh phổi mãn tính; Tắc nghẽn; Mạn tính; Thái Nguyên.*

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## 1. Introduction

Chronic obstructive pulmonary disease (COPD) is a chronic disease, very common and has a high mortality rate in most countries of the world. The disease is the fourth leading cause of death and will be the third leading cause by 2020. Around the world, there are about 600 million people with COPD, with the prevalence in each country ranging from 2-11% of the population and causing about 3.1 million deaths each year [1].

In Vietnam, according to the national survey results for the years 2006-2009, the prevalence of COPD was 4.2% in those 40 years old and 9.2% in people 65 years of age [2]. COPD is a great burden for Vietnam's economy. COPD patients often account for 25% of the beds in the respiratory departments and in intensive care units with COPD patients always on mechanical ventilation. The application of Global Initiative for Chronic Obstructive Lung Disease (GOLD) at the beginning of 2002 and the Ministry of Health treatment guidelines in 2006 has increased the attention of the early detection and management of COPD patients in a stable period.

The Division of Chronic Lung Disease Management (CMU) of Tuberculosis and Thai Nguyen Lung Disease Hospital has been deployed since October 2014, now more than 5 years of organizing, managing and receiving patients with lung disease Chronic obstruction from the city and neighboring districts. There is currently no study on management and treatment of EP in here and Thai Nguyen province.

Therefore, in order to understand the process of management and treatment of chronic obstructive pulmonary disease we conducted research with the goal to *describe the current situation of chronic obstructive pulmonary disease management in Thai Nguyen Tuberculosis and Lung Hospital 2014-2018.*

## 2. Subjects and research methods

### 2.1. Subject, time, place of research

- Medical records (MR), books, archived data on management and treatment of COPD

patients at CMU unit of Tuberculosis and Thai Nguyen Lung Disease Hospital from October 10, 2014 to October 10, 2018.

- Selection criteria:

+ COPD patients were managed and treated at CMU unit from October 2014 to October 2018 according to the medical records.

+ From the age of 18 or older.

+ Having MR to record all information content as prescribed by the CMU unit on the management of MR of the patient.

- Exclusion criteria: not meeting the above selection criteria.

### 2.2. Research method

- Descriptive research method Cross-sectional design.

### 2.3. Sample size and sampling technique

- Sample size: Complete

+ Intentional sampling: selection of all medical records, records, books, and data on management and treatment of COPD patients at Thai Nguyen Tuberculosis and Lung Disease Hospital from 2014-2018.

### 2.4. Research targets

- General characteristics of COPD patients.

- The human and material resources of CMU.

- Indicators on detection and management.

- Indicators of treatment results.

### 2.5. Some concepts used in research

#### 2.5.1. History of related illness

- Related diseases of COPD patients have been published from previous domestic and foreign scientific research results.

- Related diseases include: Hypertension, diabetes, bronchitis, bronchial asthma, tuberculosis, stomach ulcers, osteoarthritis, kidney failure, cancer, ...

- Sources of information about related diseases: Information from the patient's medical records.

### 2.5.2. Distribution of airflow obstruction according to GOLD 2018 (See Table 1)

**Table 1.** Distribution of airflow obstruction according to GOLD 2018

GOLD stage	FEV1 value after bronchodilator rehabilitation test
Phase 1	FEV1 $\geq$ 80% of the theoretical value
Phase 2	50% $\leq$ FEV1 < 80% of the theoretical value
Phase 3	30% $\leq$ FEV1 < 50% of the theoretical value
Phase 4	FEV1 < 30% of theoretical value

### 2.5.3. A general treatment regimen at CMU can be expressed as following:

- Stop contact with risk factors
- Withdrawal from tobacco, pipe tobacco
- Vaccination against respiratory infections
- Rehabilitation of respiratory function
- Other treatments
- Medicines to treat chronic obstructive pulmonary disease are being used at CMU.

Drug class	Abbreviations	Active
Intensive beta 2 adrenergic effect is short	SABA	Salbutamol, Terbutaline
Intensive beta 2 adrenergic effect	LABA	Indacaterol, Bambuterol
Short-acting anticholinergics	SAMA	Ipratropium
Long-acting anticholinergics	LAMA	Tiotropium
Intensive beta 2 adrenergic short-acting + short-acting anticholinergic	SABA+SAMA	Ipratropium/salbutamol Ipratropium/fenoterol
Intensive beta 2 long acting adrenergic + long acting anticholinergic	LABA/LAMA	Indacaterol/Glycopyrronium Olodaterol/Tiotropium Vilanterol/Umeclidinium
Inhaled corticosteroid + beta adrenergic beta 2 long acting	ICS+LABA	Budesonid/Formoterol Fluticasone/Vilanterol Fluticasone/Salmeterol
Antibiotics, anti-inflammatory	Macrolide Anti PDE4	Erythromycin Roflumilast
The short/ long acting xanthine group	Xanthine	Theophyllin/Theostat

### 2.5.4. Treatment results

- The good and bad treatment results of COPD patients have been published from domestic and foreign scientific research results.
- Good treatment results include: Stable disease stage, reduced dyspnea, good response to treatment, ...
- Bad treatment results include: Increasing the stage; including mechanical ventilation; referral, unresponsive to treatment, ...
- Source of information on treatment results: Information from the patient's medical records.

### 2.6. Data collection techniques

- Collect secondary data from medical records, books, and data on management and treatment of COPD patients in prepared survey questionnaires that meet the research criteria.

### 2.7. Methods of data processing

- Medical statistics: coding and inputting data into computers and processing on SPSS 16.0 software.

### 2.8. Ethical research

- The study was approved by Thai Nguyen Tuberculosis and Lung Disease Hospital and

approved by the ethics council of Thai Nguyen University of Medicine and Pharmacy.

### 3. Results and discussion

#### 3.1. Some common features of COPD patients at CMU from 2014-2018

**Table 2.** Some common features of COPD patients

	Characteristics	Amount (n = 1125)	Ratio (%)
<b>Sex</b>	Male	1004	89.24
	Female	121	10.76
<b>Age group</b>	18-39	6	0.54
	40-49	257	22.84
	50-59	311	27.64
	60-69	452	40.18
	≥ 70	99	8.80
<b>History of related illness</b>	Asthma	253	22.48
	Bronchitis	655	58.22
	Tuberculosis	72	6.40
	Diabetes	581	51.64
	Hypertension	712	63.29

Table 2 presents some common features of COPD patients as below.

**Gender characteristics:** The ratio of male/female COPD patients was 1004/121. Our results are higher than the results of some domestic authors. For instance, the study of Dinh Ngoc Sy in 2011 revealed that COPD patients were 7.1% male and 1.9% female [3]; Tran Thi Ly (2019) stated that the proportion of men accounted for 76.6% and women accounted for 23.4% [4]. Studies have shown that COPD is more common in men.

**Age group characteristics:** Our study of 1125 patients showed that the average age of patients was 61.8 (95% CI = [58.1 - 65.9]) Our results are similar to the results by some domestic authors such as Vu Duy Thuong (2008) with an average age of 67.7±6.8 [5].

**History of related illness:** COPD patients in this study had some related diseases such as bronchitis, diabetes and hypertension. Domestic studies mainly mention comorbidities on COPD patients. For example, in the study of Tran Thi Ly (2019), the incidence of hypertension was 40.3% [4]; Luong Quang Thai (2014) found the incidence of hypertension accounted for 67.94% [6]; Nguyen Hoai Bac (2019) revealed the incidence of bronchitis was 55.6% [7].

The study results in Table 3 show that patients were primarily identified in stage 2

with 46.4% and stage 3 with 23.5%. Phase 1 accounts for 19.7%. This result is similar to many domestic studies such as Nguyen Hoai Bac (2019) with phase 2 of 30.4% and phase 3 of 29.2% [7]; Le Van Anh et al (2006) subjects of stage 2 accounted for 55.9% and phase 3 accounted for 32.8% [8].

**Table 3.** Distribution of airflow obstruction rates according to GOLD 2018

	Patient	Amount	Ratio (%)
Stage			
Phase 1		211	19.7
Phase 2		522	46.4
Phase 3		265	23.5
Phase 4		117	10.4
Total		1125	100

This result shows that people need to be cared more about their health. When abnormal health signs appear, especially respiratory abnormalities, it is necessary to have health check in order to detect diseases in time, in early stage in order to be prevented and treated effectively.

#### 3.2. Actual situation of human resources, resources and material resources of CMU

The results of the study in Table 4 show that the CMU at Thai Nguyen Hospital of Tuberculosis and Lung Diseases meets the criteria set out according. The important equipment such as respiratory function meter,

X-ray machine, biochemical and hematology tests, nebulizer, etc. have been fully ensured and helped to well operate medical examination and treatment activities. Along with regular training for medical examination and treatment activities is always the best, human resources always meet the requirements of professional knowledge. With human resources, material resources on CMU over 5 years of effective operation have met the functions of management and treatment tasks appropriate to the number of patients.

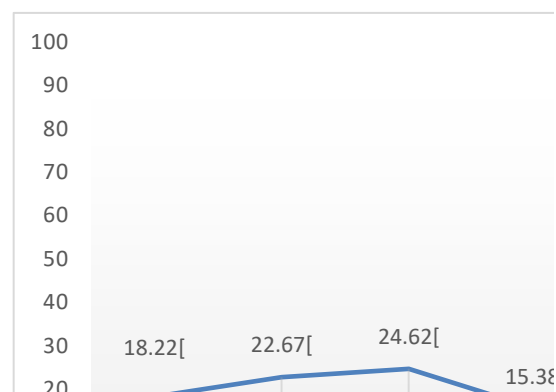
**Table 4.** *Description of human resources, resources and resources of CMU at the Sustainable Development and Development Department 2014-2018*

Element	Result	Amount
CMU unit		01
Doctors		01
Nursing		01
Test technician		11
Technician measure the machine		01
Medical table and chair		05 set
Medical examination kit		04 set
Means of clinical examination		Full
Respiratory function meter		04 set
Nebulizer		04 set
Essential medicine		Full
X-ray		02 machine
ECG		02 machine
CT-scanner		01 machine
Biochemical - hematology meter		01 set
Ultrasound machine		01 machine

### 3.3. Management results of CMU in the period of 2014-2018

From the results in Figure 1, we found that: The number of people with COPD over the years from 2014-2018 tended to decrease, particularly in 2018 compared to 2016, decreased by 5.51%, compared to 2015 was 3.56 %. The number of patients decreased due to the fact that in 2017 and 2018, the management of COPD treatment has been increased at Thai Nguyen Central Hospital, some districts in the province such as Phu

Binh, Phu Luong, Dong Hy... started implementing the CMU model, reduce the number of patients (2017 decreased 9.24% compared to 2016). However, the number of patients infected in 2018 increased by 3.73% compared to 2017. The increase and decrease here is not too big change.



**Figure 1.** *Discovering and managing COPD patients during 2014 - 2018*

The trend of COPD does not have any data showing that chronic obstructive pulmonary disease will decrease in the near future. In contrast, most studies and forecasts indicate that due to increased environmental pollution in the near future, COPD continues to tend to increase [4]. Looking at Figure 1, we can see that since the establishment of CMU in October 2014, the management of detection has been maintained continuously over the years, this is very necessary to promote. The stability shown by the number of patients over the years does not change, large fluctuations show the effectiveness of this management model, need to maintain this stability. The sustainability of the model reflected in the performance is maintained continuously. This is a strong point when synchronous management of COPD patients at CMU units, it is necessary to continue to promote and maintain the effectiveness as above at CMU Thai Nguyen.

Table 5 show the management results of COPD treatment. Accordingly, good treatment results (including stable stage of disease, reducing coughing, shortness of breath, respond well to treatment) got the highest rate of 80.04%. Bad results (including

mechanical ventilation, increased stage, referral, no response to treatment,...) accounted for 19.96%; severe accounted for 16.53% and death accounted for 3.43%.

**Table 5.** Management and treatment results of COPD at Thai Nguyen Tuberculosis and Lung Hospital period 2014-2018

Result	Evaluate	Amount	Ratio (%)
	Good	904	80.04
Bad	Heavy	186	16.53
	Dead	35	3.43

This result is similar to the studies on management and treatment of COPD in Vietnam according to the guidelines, followed by a short-tracked guideline (usually over 1 year) showing good treatment effect [9]. The results show that the management and treatment activities here were being implemented very well, the number of patients treated over 5 years accounts for the majority of good rates, this is a positive result of the management and treatment of the disease. Pulmonary congestion in Thai Nguyen need to continue to maintain, promote this effect.

#### 4. Conclusion

Researching the current situation of chronic obstructive pulmonary disease management at the Sustainable Development Center for the period 2014-2018 we draw some conclusions as follows:

- About general characteristics of patients with COPD: The majority of patients were male, accounting for 89.24%. Age was mainly from 60-69 years old accounted for 40.18%. The rate of stage 2 infection was 46.4%. History of related diseases was mainly hypertension (63.29%), bronchitis (58.22%), diabetes (51.64%).
- The reality of human resources and material resources of CMU met well the functions and tasks of detecting, managing and treating chronic lung diseases in the management area.
- About management findings: the CMU model shows the stability and sustainability of

management and treatment of patients with COPD, which should maintain the effectiveness of this model.

- About treatment management results: The rate of good results accounts for 80.04%, and bad results account for 19.96%.

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