

# Effects of Guidelines for Accessing Services in Asthma and COPD Clinic by Using a Network Empowerment Process

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**Abstract:-** This is a participatory action research combined with the implementation of Gibson empowerment process. The objectives are 1) to create asthma and Chronic Obstructive Pulmonary Disease [COPD] networks in primary care units 2) to develop guidelines for accessing services in the clinic using the empowerment process 3) to compare the results before and after implementing the guidelines. The studied group consisted of 120 healthcare network members and 100 patients with asthma and COPD. Research showed that the network consisted of health workers, community leaders, village health volunteers, and patients with asthma and COPD. The guideline is that the network plays the role in locating patients, providing knowledge about diseases and treatments, monitoring medication/appointments, public relations for clinic, accompanying patients in examinations, and creating a linked patient database by integrating with other chronic diseases care in the area. There are 4 aspects regarding the development of hospital guidelines 1) Public relations 2) Service system 3) Participation in associate network 4) Personnel / equipment / locations. Subsequent to the research, it appeared that the number of patients treated at the clinic increased by 49.14% and clinic appointments increased 45.93%. When comparing with Paired t-test statistics, it was found that the average number of ER-Visit patients and missed appointments were decreased; Patients had better lung capacity and more accurate medication usage; and the hospital incurred significantly less expenses for emergency room treatments which is statically reduced at 05.

This shows that building and strengthening the primary care unit network promote cooperation within community and asthma and COPD patients so a practical and sustainable guideline can be formulated with positive outcome by integrating the work with other chronic

disease care in the area. This research can also be a model for solving the problem of patients missing their appointments or not attending clinics for other diseases both inside and outside the hospital.

**Keywords:-** Aaccessibility, Empowerment, Network.

## I. INTRODUCTION

Chronic Obstructive Pulmonary Disease is a disease caused by ventilative obstructions in the lungs and it is the cause of increased chronic illnesses, disabilities and deaths among world population. The World Health Organization has reported the incidence of chronic obstructive pulmonary disease, with a total of 210 million people with chronic obstructive pulmonary disease worldwide in 2007 and is expected to be the 3<sup>rd</sup> biggest cause of death worldwide in 2030. <sup>[1]</sup>In developed countries, such as the United States, there were 11 million people with chronic obstructive pulmonary disease and it is the 3<sup>rd</sup> biggest cause of death in America <sup>[2]</sup> In Thailand, number of deaths caused by chronic obstructive pulmonary disease increased from 4.81% in 2012 to 5.12%, 5.14% and 6.93% in the year 2013 - 2015 respectively.<sup>[7]</sup>Asthma is a public health problem that has a severe impact on patients, and it is a major cause of hospital admissions. In addition, the incidence is increasing worldwide<sup>[19]</sup>. According to GBD Asthma Report, it was estimated that the number of asthma patients worldwide had increased from 235 million people in 2000 -2002 to 334 million people in 2008 -2010 (GBD, 2014). In Thailand, the incidence of asthma was 6.9%<sup>[6]</sup>. According to statics from the Bureau of Non-Communicable Diseases, Department of Disease Control, mortality rate per hundred thousand asthmatic patients increased from 4.85% in 2013 to 8.04% in 2014 and then 10.93% in 2015. Moreover, hospital admissions due to asthma per hundred thousand people also increased from 219.10 patients in 2012 to 240.09 patients in 2013 and it

was likely to decrease to 214.30 in 2014<sup>[8]</sup>. Asthma disease affects quality of life of patients. The survey on asthmatic patients within community found that 23.60% of them could not perform activities like normal healthy people and 21.7% of them had been absent from work at least once in the past year<sup>[6]</sup>. From the study of RuangsakSrisupha<sup>[18]</sup> found that 4.11% of the asthmatic patients returned to Emergency Room within 48 hours and 2.53% of the patients returned without appointment within 28 days with recurrent asthma symptoms after being discharged from the hospital<sup>[18]</sup>. In addition to the impact on their health, it also affects patients financially. There is not a great deal of study about expenses in asthma treatments. Majority of it are medical and room expenses charged by hospital. According to studies, the average cost for children is approximately 8,278 baht per case, while the average cost for adult patients is 5,809 - 6,587 baht per case<sup>[21]</sup>.

Luangphorpern Hospital, Nakhon Chaisi, Nakhon Pathom is a 30-bed community hospital of the Ministry of Public Health. The hospital has established an Easy Asthma Clinic (EAC) (asthma and chronic obstructive pulmonary disease service) with the aim to develop care for the patients according to the standard. The treatment results were improved between 2010 and 2016. 4.75% of patients returned to Emergency room in 2010 decreased to 0.31% in 2016. Hospital admission rate also decreased from 4.43% in 2010 to 1.15% in 2016<sup>[3]</sup>. Upon reviewing information of patients who missed their appointments, their quality of life must have declined due to discontinuous treatments. As an advance practice nurse in community nurse practitioner (APN / NP) with the core competencies to manage/arrange service systems for patients with complicated problems and high medical treatment expenses in 2012 -2014, the researcher used the process to solve issues for the patient by applying Chronic Care Model and participation of stakeholders. Network partners analyzed the cause of discontinuous treatment and identified a guideline to eliminate the problem. Average number of missed appointment and emergency visits from asthmatic attack decreased after implementation of the guideline with statistical significance. (p-value .01) This research recommends improving quality of health care by forming network partners to establish a guideline to achieve a positive result<sup>[17]</sup>. From continuous development of patient care, asthmatic patients and chronic obstructive pulmonary disease patients who attend specific disease clinic had better treatment results. However, 44.49% of the patients were treated outside the clinic according to the record of asthmatic and chronic obstructive pulmonary disease patients who received services at outpatient department, emergency department and inpatient department<sup>[3]</sup>. Additionally, we learnt from the community that some of the asthmatic and COPD patients purchased medication from pharmacy or visited private medical occasionally. These patients do not have access to asthma clinic service in the hospital. Especially patients with COPD who do not receive appropriate continuous treatments will deteriorate and suffer a life-long

condition until they pass away. The researcher is an advanced nurse practitioner who is responsible for establishing a care system for all asthma and COPD patients in the Contracting Unit for Primary Care (CUP) To comply with the healthcare Service Development Plan (Service Plan), Non-communicable Diseases and Chronic Obstructive Pulmonary Disease (NCD: COPD), we conducted a research project on "Effectiveness of developing guidelines to access the service in asthma and COPD clinic by empowerment process of primary care network", which we believe that the empowerment of various networks in the community, including the collaboration of patients / families with the healthcare team, will lead to practical and effective guidelines to service access for asthma and COPD clinic at Luangphorpern Hospital. The knowledge gained from the research will lead to a change/formation of a clear directions or guidelines to provide a constant access to standard services at the clinic so they can have a better quality of life and prevent pulmonary function loss and premature death.

## II. RESEARCH PROCESSES

### A. Research objective

1. To create a network of asthma and COPD in primary care units
2. To develop guidelines for service access to asthma and COPD clinics by using the empowerment process in the primary care unit network
3. To evaluate the results before and after implementation of the guidelines for service access to asthma and COPD clinics

### B. Empowerment concept

This action research applied empowerment concept of Gibson [13] to empower primary care network by 1) Informing the network members of the actual condition of asthma and COPD patients in communities who do not receive standard treatment causing symptoms to become uncontrollable. 2) Allowing members of the network to reflect their critical thinking in order to express their opinions or determine their roles in solving the problems. 3) Network members collaboratively develop guidelines for service access to asthma and obstructive pulmonary clinic. 4) Applying the established service access guidelines and making appropriate adjustment for the best result. It suffices to say that empowering the Primary Care Network means empowering the asthma and COPD network members within primary care unit (network) to think collaboratively and make independent decisions without being forced or dominated in order to attain good cooperation and a sense of ownership of the problem. The researchers then applied the above concept to develop a framework for studying the effectiveness of the development of access to services in chronic asthma and obstructive pulmonary clinic by using the empowerment process in the primary care unit network as follows.

### C. Research Framework

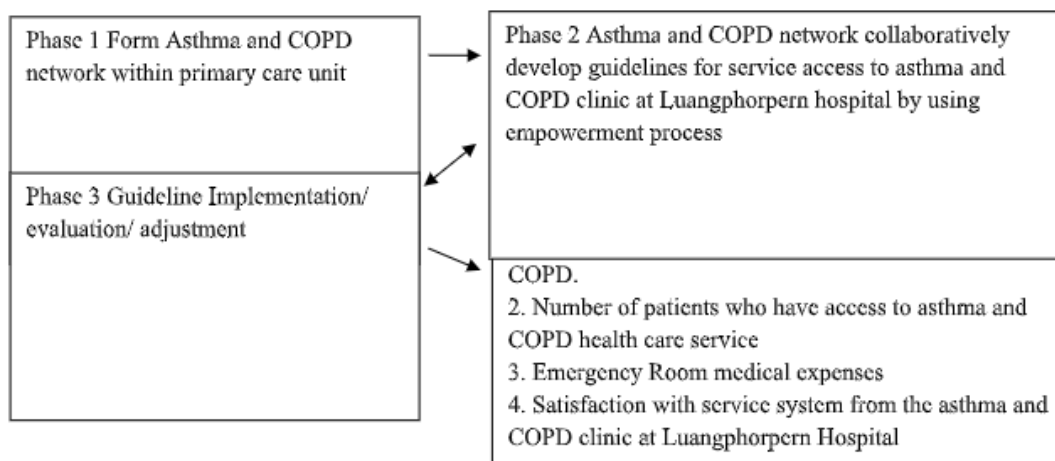


Chart 1 Applied framework from Gibson's empowerment concept (Gibson, 1995)

### D. Research methodology

**Phase 1 Building relationships and forming networks:** The research team conducted 1<sup>st</sup> fieldwork by group meeting to provide knowledge about asthma and COPD and recruit on a voluntary network according to the criteria of the sample group. Network meetings were arranged for all 7 locations.

**Phase 2 Planning:** The research team made appointments with network members and patients / families to come to the Primary Care Unit Network. Cycle 1, the research team conducted 2<sup>nd</sup> fieldwork by group meeting to explain purpose and procedure of the research with 120 participants. When sample group agreed to participate and signed consent form, it took approximately 10 minutes to interview and collect personal information before proceeding with the meeting. The network members were free to share their views and opinions regarding the role of network on 4 assigned topics. Network empowerment process was then applied during this stage. A guideline to clinical service access was achieved as an outcome. All the participants had brainstormed and outlined each subject on flipcharts before summarizing and reviewing at the end of the meeting. This meeting was arranged for all 7 locations. Additionally, healthcare network members also participated in the meeting to exchange knowledge in order to lay out an operational guideline and improve service system at the hospital according to suggestions from the meeting.

**Phase 3 Action:** Cycle 2, The network group imposed the guidelines for accessing services in clinic, evaluated and analyzed the outcome. Cycle 3, making adjustments and putting the improved guidelines to action.

**Phase 4 Research Conclusion:** Summary the qualitative results of the research from the network meeting and summary quantitative results of the research from the clinical

performance report, hospital's Hos-XP program database and patient satisfaction evaluation.

#### ➤ Population

There are two groups of targeted population;

- 1) The primary care unit network which consists of 21 members from multidisciplinary team in subdistrict health promoting hospital, 226 members of village health volunteers and 39 community/local leaders
- 2) 128 asthmatic and COPD patients. Total 414 persons.

#### ➤ Sample group

There were 2 selected sample groups in this research.

- 1) Primary care unit network - 120 network members who met research criteria and worked/lived in the area for at least 1 year.
  - 2) Participated asthma and COPD patients - 100 patients who attended the clinic during the research period and met the criteria.
- (Inclusion criteria) sample groups were
- 1) willing to participate in voluntary research
  - 2) over 18 years old
  - 3) able to listen, speak, read and write Thai
  - 4) contactable by phone.
- (Exclusion criteria) were
- 1) inability to participate throughout the period of research
  - 2) becoming stressed when completing a questionnaire or during group meeting
  - 3) requesting to be excluded from the research for any reason.

### E. Research tools

1. Personal information questionnaire, including gender, age, marital status, address, healthcare benefits, occupation, education and information about asthma and COPD
2. Discussion topics - 4 open-ended questions were discussed in group meeting.
3. Stationery material for taking notes such as flipcharts and marker pens.

4. Performance report from Hos-xp program database of Luang Pho Pern Hospital
5. Satisfactory questionnaire was designed by the researchers with 5 rating scales from 1 to 5; 1 being the lowest satisfactory score and 5 being highest satisfactory score. Score interpretation was based on basic statistics by finding class interval = highest point - lowest point / number of scales =  $5-1 / 5 = 0.80$  points. 4.21 - 5.00 points being extremely satisfied, 3.41 - 4.20 being very satisfied, 2.61 - 3.40 being moderately satisfied, 1.81 - 2.60 being slightly satisfied and 1.00 - 1.80 being least satisfied.

#### F. Validation of the research tools

- 1) The range of questions was brought to 3 experts to check content accuracy. The accuracy and analyze the consistency index between the question list and the research objectives using the Index of Item Objective Congruence (IOC) with the average of the consistency index (IOC) at 0.8.
- 2) Take the satisfaction questionnaire to try out with 30 patients who met the same criteria as the sample group. The Cronbach's alpha coefficient was 0.92

Rights protection of Sample Group Researchers has received approval and funding for the research by the director of Luangphorpern Hospital and through the Human Research Ethics Committee from the Department of Health Ministry of Public Health (Meeting No. 44-4 / 2017, March 20, 2017, Research Project Code 119). Rights of participants were protected according to research ethics in human procedure.

#### G. Data analysis

1. Use descriptive statistics to analyze personal data with average values, standard deviation and percentage
2. Information from group meetings was used in content analysis and writing of descriptive framework according to objectives: 1) To create asthma and COPD networks in primary care units 2) To develop guidelines for service access to asthma and COPD clinics by using the empowerment process in the primary care unit network
3. In response to objective number 3 - to evaluate treatment outcome on patients before and after implementation of clinical service access guidelines such as overall treatment outcome (Number of patients who missed appointments, number of patients who visited the emergency room with a recurrent asthma attack, percentage of lung function (% Predict)} Percentage of correct medication), number of patients with access to clinical services, satisfaction with clinical services and the expenses for emergency room treatments. The guidelines were implemented and adjusted between April 2017 - June 2017. The evaluation prior to research was done between July 2016 - February 2017 and the evaluation after conducting research was done between July 2017 - February 2018 using Paired t-test set the statistical significance at p-value = .05

### III. RESEARCH RESULTS

#### Phase 1 Establishing relationship and Asthma and COPD network within primary care unit

The research has founded 7 networks consist of 7 members of Healthcare team in subdistrict health promoting hospital (5.83%), 20 community leaders (16.67%), 38 asthmatic and COPD patients (31.67%), 55 members of village health volunteer (45.83%), totaling 120 members. There were 78 male members (65%) and 42 female members (35%). 57% of the members were between age of 41-60 years old, 55.8% of them had primary school education and 48.3% of them worked in Agricultural section.

#### Phase 2 Developing guidelines for service access to asthma and COPD clinic by using empowerment process within primary care unit network

Cycle 1 From second group meeting within 7 networks, it has been concluded that Guidelines for network members within community 1) Participate in patients related meetings and activities 2) Locating high risk people and patients in the area to bring into the treatment system 3) Gathering patients information and creating a network database for the benefit of monitoring and treatment following up 4) Cooperating with the hospital to track patients who missed hospital appointments 5) Promoting the clinic to the public. 6) Caring for chronic patients at home by integrating with other chronic diseases or other activities in the community. 7) Providing knowledge and advice to patients within community such as continuous treatments, correct and regular use of medicine, avoiding various stimuli, how to keep their house and environment clean, smoking cessation, appreciate exercise and symptoms that require emergency medical attention.

Guidelines for community hospital (district hospital) to promote patient access to clinical services

- 1) Public relations and media production by producing banners and leaflets for network to promote the clinic within the community
- 2) Service system 2.1) Improving service as a specialized clinic to reduce service process. Extending the service from twice per month to every Thursday and arranging more convenient appointment system for patients such as making appointments for students between 15.30 - 16.00 hrs. so they could go to school before appointments. Appointments would be made 2-3 months in advance where it is inconvenient to visit or there is no recurrence of the disease, including patients who use social security office insurance who have to take a day off work, patients who live far or are difficult to travel. Patients with other diseases can make more than one appointment on the same day. Reminder calls are made to patients who have a tendency to forget appointments. Appointments for patients who do not have transportation can be made on the same day with patients who lives nearby. 2.2) Creating Focal Point to provide consultant to other departments within the hospital and care for patients from other departments such as OPD patients, asthmatic recurrent

patients from emergency room, all patients with asthmatic attack during out of hours service must be referred to the clinic. 2.3) Improving patient care procedure to improve healthcare service in hospital 2.4) Organizing Asthma and COPD Home Care Service to visit patients at home according to the specified criteria from multidisciplinary team and community network 2.5) Expanding clinical service at adequate subdistrict health promoting hospital. to provide easier and faster access for patients .

3) The participation with network partners The researcher is a mentor providing knowledge about diseases and practices to the network, and organized a communication system between patients and networks via the Line Application called "Asthma network" or 24 hours telephone hotline "Hotline for emergency attack" at Tel: 08-6166-1594 or Tel: 1669 to arrange hospital emergency unit to pick up patients with dyspnea in community.

4) Personnel/Equipment/Locations: the patient’s database for the network to provide continual care and cooperating with community to screen and send new patients to the system

Cycle 2 The network implemented guidelines to service access in the clinic, then followed up, reflected on the performance and improved the plan.

Cycle 3 Adjustments were made on the guidelines. As for community hospital (district hospital), they were unable to serve in subdistrict health promoting hospital due to limitations on equipment and personnel. In addition, 1669 service in some areas was not fast enough for severe dyspnea and local emergency service would be faster.

**Phase 3 Comparing number of patients before and after implementing the guidelines to service access in the clinic.**

It was found that 126 patients received services in the clinic before the research and 173 patients after the research, total increase of 57 persons (49.24%). The number of visits to the clinic was 627 times before the research and 915 times after the research with the increase of 288 times (59.93%).

It was found from analyzing information of patients who attended the clinic that amongst the 100 research participants, there were 77.80% female patients and 22.20 male patients. the age ranges from 19 to 86 years old with the average of 55.49 years old (SD=14.93). 66% of participants were married and 36% of them had primary school level education. 83% of the patients lived in the hospital responsibility area and 70% of them used social security office insurance. Majority of participants were freelance worker at 49%, followed by unemployed/homemaker at 21%. It was found that 86.7% of sample group knew about the clinic and the average time the patients have had asthma or COPD was 14.93 years (SD=13.59). The patients have been receiving treatments at Luangphorpern Hospital between 1-36 years, the average at 8.09 years (SD=6.40). 64% of them have received continuous treatments.

When comparing treatment outcomes before and after the research, it was found that the average number of visits to the emergency room from asthma attack was 0.97 times (SD= 0.48) before the research and the average after the research was 0.57 times (SD= 0.54). The average number of missed appointments was 1.72 times (SD= 0.98) before the research and the average after the research was 1.21 times (SD= 0.77). The hospital spent the average of 582.05 Baht (SD=322.46) for emergency room treatment before the research and the average of 321.48 Baht (SD= 336.04) after the research. When comparing with Paired t-test statistics, it was found that after the research, all the average values decreased significantly at the level of .05. As for the percentage of lung function, the average was 72.43 (SD= 20.85) before the research and 77.29 (SD= 20.70) after the research. The rate of correct medication usage was 95.19 (SD= 8.53) before the research and 98.74 (SD= 2.50) after the research. Comparing with paired t-test statistics, it was found that the percentage of lung function and the rate of correct medication usage were increased significantly at .05 (see table 1)

| Description                                | Before (Jul 16 - Feb 17) |        | After (Jul 17 - Feb 18) |        | t-test  | P- value |
|--------------------------------------------|--------------------------|--------|-------------------------|--------|---------|----------|
|                                            | Mean                     | SD     | Mean                    | SD     |         |          |
| Visits to emergency room from acute attack | 0.97                     | 0.48   | 0.57                    | 0.54   | 7.266*  | .000     |
| Missed appointments                        | 1.72                     | 0.98   | 1.21                    | 0.79   | 5.262*  | .000     |
| Correct medication usage                   | 95.19                    | 8.53   | 98.74                   | 2.50   | -4.328* | .000     |
| Percentage of lung function                | 72.43                    | 20.85  | 77.29                   | 20.70  | -6.132* | .000     |
| Emergency room treatment expenses          | 582.05                   | 322.46 | 321.48                  | 336.04 | 7.653*  | .000     |

Table 1:- Comparing the difference of the average visits to emergency room from asthma attack, missed appointments, correct medication usage, percentage of lung function and emergency room treatment expenses before and after the research. (n=100)  
\* statistically significance at .05

From the results of the satisfaction evaluation of the clinical service system after the research, it was found that the satisfaction is at the highest level in 3 aspects; the convenience and the speed of service (Mean = 4.34, SD = 0.73), interpersonal relations of personnel (Mean = 4.39, SD = 0.62) and information received from service (Mean = 4.30, SD = 0.66). The satisfaction from healthcare quality was at high level (Mean = 4.20, SD = 0.69) The level of satisfaction in all 4 aspects was at the highest level (Mean = 4.31 SD = 0.67).

#### IV. CONCLUSION AND DISCUSSION

This is a participatory action research combined with the implementation of Gibson [13] empowerment process. It has been summarized and discussed as following;

##### *A. Establishing relationship and Asthma and COPD network within primary care unit*

By establishing networks of primary care units, it was found that they covered all areas of responsibility. Majority of the network members were village health volunteers (55 persons, 45.83%), followed by asthmatic and COPD patients (38 persons, 31.67%). It showed that local village health volunteer team recognized the importance of their role to help taking care of patients and people in the area. This was consistent with the research about “Roles of public health village volunteers in performing their work for Nonthon sub-district Public Health Promotion Hospital, MuangKhonKaen district, KhonKaen province”. Overall, village health volunteer had a significant role in promoting healthcare, medical treatments and rehabilitation [18]. The patients also participated in various activities with community and healthcare personnel to improve and maintain their good health.

##### *B. Developing guidelines for service access to asthma and COPD clinic by using empowerment process within primary care unit network*

Network establishment created synergy and problem ownership amongst network members. After integrating empowerment process during 14 meetings, organizing educational activities and receiving feedback from the team members, we assessed the process, trialed, reflected and made adjustments in 3 cycles. We eventually were able to develop 2 guidelines for clinical service access for the main roles within the network.

1) Guidelines for network members within the community to promote clinical service access the network was divided into areas of responsibility to care for patients. They integrated asthmatic and COPD care with other chronic diseases into community activities for the most beneficial results without taking too much of patients' time. The activities included locating risk group and patients in the area to create a network database and to bring them into the clinical healthcare system. This was achieved by promoting asthma and COPD clinic to the community, providing education about the diseases and

self-management/environmental management to control the symptoms, following up on patients who missed their appointments and locating patients who didn't get access to standard healthcare within the community. In addition, they participated in activities at Luangphorperhospital to improve healthcare services for the patients which corresponded to SompongChanowas and Co.'s research [9]. It showed that by forming a crew and network with access to targeted group, it would lead to a better understanding of chronic disease management in the community. They would be able to organize successful communal activities which they were able to solve any presented problems during the process. By actively resolving problems and overcoming obstacles as a group, they would be able to improve their own and the network's performance to create a better cooperation within the community to care for chronic disease patients.

2) Guidelines for community hospital (District hospital) to promote patient access to clinical services

From network meeting, we were able to conclude 4 areas of responsibility as a guideline for community hospital (District hospital) as following;

2.1) Public relations and media production within the hospital and community to encourage patients to visit the clinic.

2.2) Service system Ponnassorn's research (2015)[17] explained that patients tend to skip their appointments because of the hospital service process such as lengthy steps, long waiting time or insufficient service days. To solve these problems, we reorganized the service as a specialized clinic to reduce service process. The service hours were extended and the appointment system was improved. For example, students would get appointments between 15.30 - 16.00 hrs.; Appointments would be made 2-3 months in advance if it was inconvenient for patients to visit or there was no recurrence of the disease; reminder calls would be made to patients who had a tendency to forget their appointments; appointments for patients who did not have transportation would be made on the same day with patients who lived nearby. Appointments could be made on the same day if patients had other appointments. Hotline number was given in case of emergency. The focal point center was set up to provide consultant. Patients treatments and healthcare were improved and standardized. A system of home visits was arranged with multidisciplinary team and community networks.

2.3) The participation with network partners, the researcher is a mentor providing knowledge about diseases and practices to the network, and organized a fast communication system between patients and networks to arrange a swift transfer to hospital emergency unit.

2.4) Personnel/Equipment/Locations Hospital patients' database was created for the network members to provide continual care and work together with community. We increased the amount of personnel in accordance to the research of [16]. It was found that the role and function of the network was to work together to promote, support and coordinate network activities. Network coordination center

provided consultant between networks and various parties. Network's accomplishment was to achieve the set goals and targets through cooperation and relationship within the network. This would create learning and development progress, promote unity and determination to solve problems successfully.

### 3. Comparing results before and after the implementation of guidelines for service access in asthma and COPD clinic by using empowerment process in primary care units

After incorporating empowerment process in primary care units, it was found that the number of patients who had access to the clinic increased by 57 persons (49.14%) after the research and number of patients visits to the clinic increased 288 times (59.93%). This showed that the empowerment process within the network had been successful in order to bring more patients into clinic. Amongst the 100-sample group who participated in this research, the majority of them were female and their age range d from 19 - 86 years old with average age of 55.49 years old (SD=14.93). 83% of them loved with the hospital area of responsibility. 87.7% of the sample group had previously been aware of the clinic and 64% of them received a continuous treatment. From RuengsakSrisupa's<sup>[19]</sup> study in about continuous treatments in asthma and COPD patients at Khamcha-I hospital, Mukdahan province, it showed that only 76.20% of the asthmatic patients had exacerbation as a result of continuous treatments.

The results of establishing and empowering networks generated involvement in problem resolution. When comparing results before and after implementing the guidelines, it was found that the number of visits to the emergency room, number of missed appointments and average cost of treatment for patients in an emergency room were significantly reduced at level of .05 when compared with the Paired t-test statistics. The average percentage of correct medication usage and percentage of pulmonary function also increased significantly at the level of .05 after the research.<sup>[15]</sup> This is consistent with the results of the study to incorporate the participation of network partners in asthma patients. It showed that after the development, the number of exacerbations in asthma patients decreased with statistical significance at the level of .05<sup>[15]</sup> evaluating the satisfaction with the services of asthmatic and COPD patients who received treatment at the clinic, the overall satisfaction was at a high level. This is consistent with the study of the health team in Dan Khun Thot District who studied the integral health care model by using community participation as the development basis. It showed that patients had appropriate form of self care and were satisfied with the service system as such the activity should be continued for sustainability<sup>[12]</sup>. The research shows that engaging team members through network empowerment process created synergy and problem ownership within the community. This brought together a practical guideline to define their roles and responsibilities by integrating the asthmatic and COPD care with other chronic diseases in the area. They created work progress to provide

access to the clinic for patients. They were able to effectively share information within the network and provide consultation through Line group and "Hotline for emergency attack". In accordance to the study of WipharatBenchamas<sup>[4]</sup> it was found that Gibson empowerment process<sup>[13]</sup> combined with practical research could effectively resolve the problems because the community were involved in analyzing their own problems. They were able to identify the root of the problem, contemplate a resolution and follow up themselves until they received a good outcome. In addition, it was found that the guidelines to service access in the chronic asthma and COPD clinic by using the empowerment process in the primary care unit network resulted in an important output in which more patients can access public health services and healthcare network was established to look after patients in the community. The respective outcome was that the asthmatic and COPD patients received continual treatments, the asthmatic exacerbation rate was reduced, more patients had correct usage of their medication and pulmonary function of the patients were increased. These had a significant impact on hospital's and policies of the Ministry of Public Health because hospital was able to reduce the expenses for treatments and patients had access to comprehensive quality healthcare services in accordance with the Service Plan of Non communicable disease and Service Excellence of Ministry of public health.

## V. SUGGESTIONS AND RECOMMENDATIONS

1. Network establishment within community-initiated synergy and problem ownership amongst network members. We were able to create practical and sustainable guidelines by integrating the asthmatic and COPD care with other chronic diseases in the area and achieved good results. This research could be used as a model to resolve problems where patients with other diseases miss their appointments or do not get treated in clinic inside and outside of the hospital.
2. To apply the guidelines to access the service in asthma and COPD clinic by empowerment process of primary care network with continuous follow up will be most beneficial to patients and will keep the network operating and strong.

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