*Journal of Scientific Research & Reports*
*3(16): 2237-2244, 2014; Article no. JSRR.2014.16.010*

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# Clinician's Perspective on the Management of Asthma and Chronic Obstructive Pulmonary Disease (COPD) Care at Primary Health Care Settings in Pakistan; Context Analysis

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***Authors' contributions***

*This work was carried out in collaboration between all authors. Authors AT and HM designed the study and conducted context analysis. Authors SS and Sarah Saleem wrote the protocol and wrote the first draft of the manuscript. Author NK managed the literature searches. All authors read and approved the final manuscript.*

***Short Research Article***

***Received 9th June 2014***
***Accepted 25th June 2014***
***Published 8th July 2014***

## ABSTRACT

**Aim of the Study:** This study aimed to highlight the barriers in Asthma and Chronic Obstructive Pulmonary Disease (COPD) management in Pakistan.
**Place and Duration of Study:** Primary health care facilities (18 in total) of rural areas in Punjab province, conducted on January 2014.
**Methodology:** A cross sectional study is designed with a convenience sample of 18 primary health care facilities of rural areas in Pakistan. Structured interviews were conducted with health care providers and observational checklist of selected services was made for management of asthma and COPD care.
**Results:** It was observed that there were no proper standardized guidelines and protocols available for clinical assessment, diagnosis and treatment, life style counseling, follow up, recording and reporting system and referral for asthma and COPD management.
**Conclusions:** Provincial and district health departments should take initiatives to ensure

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the proper identification of asthma/COPD patients and uninterrupted drugs supply at public health facility. Life style counseling should be an integral part of Asthma/COPD management. There is a need for extensive research to develop the protocols for Asthma/COPD management in low resource health system like in Pakistan.

*Keywords: Primary health care; COPD; asthma; Pakistan; management.*

## 1. INTRODUCTION

Non-communicable diseases (NCDs), also known as chronic diseases, are a group of diseases that are not passed from one person to another. The four major groups of NCDs are cardiovascular diseases, cancers, diabetes and respiratory diseases including asthma and chronic obstructive pulmonary disease[1]. NCDs cause around 36 million deaths worldwide each year, out of these, 29 million (nearly 80%) occur in low and middle income countries [1]. Pakistan, being a developing country, is also facing a huge challenge of NCDs. Non-communicable diseases are among the top ten causes of mortality and morbidity in Pakistan [2], and contribute to a quarter of all deaths [3].

Respiratory diseases constitute the major chunk among all NCDs in Pakistan. A study done in the Pakistan's largest metropolis revealed that the respiratory diseases are the most predominant, affecting 26.5% of all the patients reporting to health centers [4]. Among these, asthma and chronic obstructive pulmonary diseases (COPD) are the most prevalent NCDs. The prevalence of chronic obstructive pulmonary disease is estimated to be 4% and that of asthma is 10-12% with an expected 5% annual increase [5,6]. The National Health Survey of Pakistan (NHSP) 1990 - 94 showed the prevalence of chronic bronchitis in patients over 65 as 14% and 6% in rural females and males, respectively [7].

The major risk factor of asthma and COPD is tobacco use particularly in the form of cigarette smoking. In Pakistan, cigarette smoking is quite prevalent and it is estimated that 36% of adult males, and 9% of females, smoke cigarettes; and the cigarette consumption per person per year in Pakistan is among the highest in South Asia. The high prevalence of smoking, leads to high incidence of asthma and COPD that in turn results in high mortality and morbidity. The estimated mortality rate from COPD is 71 deaths per 100,000; the fourth highest rate among the 25 most populous nations in the world [8,9].

The government of Pakistan is well aware of the importance of controlling NCDs and efforts are being put to limit the mortality and morbidity associated with them. In 2003, an integrated national action plan for prevention and control of non-communicable diseases was developed. The plan emphasized the building of national health systems capacity to deliver quality care for lung health, as a part of core health service package. In 2008, with the launch of Global Alliance against Chronic Respiratory Diseases (GARD), a task force was created and a national coordinator was designated for controlling asthma and allergy conditions. However, progress so far has been sub-optimal due to the dissolution of the ministry, lack of funding to GARD and lack of support from development and technical partners. The lung health care and prevention has not been effectively integrated into the core primary health care package, although a very well functioning TB program exists at primary health care (PHC) level.

In Pakistan, PHC facilities comprise of Rural Health Centers (RHCs) and Basic Health Units (BHUs). These primary health care services are connected to a network of secondary care

hospitals at Tehsil and District levels, for referrals. A rural health centre and sub-district hospital is a facility that serves a population of 160,000 or more. The facility staff includes: a) three or more doctors, b) a range of paramedics including lady health visitors, nurses, dispenser, laboratory technician, and c) support staff such as record clerk, store keeper, peon, cleaner etc. The facility offers diagnostic and treatment services for communicable diseases (TB, malaria, ARI, diarrhea etc.); basic emergency obstetric and neonatal care; and non-communicable diseases such as mal-nutrition, hypertension, diabetes mellitus, asthma and COPD. The current available lung health services include: a) clinical services – clinical consultation and drugs, and b) support services – investigation, education etc.

Inclusion of these diseases (Asthma and COPD) in the already existent TB program is expected to increase detection rates and care for asthma, COPD and pneumonia. The salient features of current care include: inadequate diagnostic practice, widely varied prescription practices for asthma and COPD, inadequate patient education, passive follow-up of the known cases, interruption in drugs (asthma and COPD) from district health office, and inadequate recording and reporting of case management outputs and outcomes. The district head quarter hospitals have relevant expertise in chest, internal medicine, cardiology, pathology and radiology. However, the current referral linkages between hospital and rural health centers are inadequate for continued and comprehensive care of asthma and COPD patients. In short the district health system currently has inadequate ability to plan, implement, monitor, and support an accessible quality care for asthma and COPD patients. The present study was planned to assess the quality of care for asthma and COPD at primary health care facilities in Pakistan. The knowledge of doctors for clinical assessment, diagnosis and prescription writing is assessed; also the available mechanism for follow up, referrals and data recording and reporting is evaluated.

## 2. MATERIALS AND METHODS

A cross sectional study was designed. A convenience sample of 18 primary health care facilities of rural areas in Punjab province was included in the study. Data were collected by structured interviews of health care practitioners about management of asthma/COPD and observation of selected services. The practitioners were identified as suitable for interview by staff profile provided by executive district officer Health, EDO (H) of Sargodha District, Punjab Pakistan. The practitioners have a reasonable experience of working in primary health settings and were familiar with the medical supplies and facilities each PHC provide. The interview with each practitioner was about 20-25 minutes long. They were asked open ended questions about the availability of essential facilities for suspecting, diagnosing, treating and for the follow up of asthma/COPD patients. The participants were not provided any incentive or compensation for their time. The study was conducted in January 2014. Interviews were transcribed verbatim in English. Data were organized by codes and themes identified.

## 3. RESULTS AND DISCUSSION

### 3.1 Results

#### 3.1.1 Clinical assessment

Tools and procedure for clinical assessment done by care providers were identified. No proper guideline or structured list of questions available or pre placement training on suspect

identification was present in rural settings. According to the doctors who were interviewed, 73% of them (13 out of 18 practitioners) exclaimed that they suspect and assess patients on the basis of the medical knowledge they gained during their medical school, while rest of them said that they regularly refreshes their knowledge by reading latest updates from world health organization. The lack of facilities in primary health settings restrict them in apply that revised knowledge. Most of the patients are diagnosed as asthmatic or COPD case on the basis of their history, with no available standard guidelines for diagnosis. No proper clinical assessments are performed in health facility. Care providers, on average, spent 2-5 minutes on history taking and physical examination of each patient. In health care facilities, the availability and operational status of medical equipments and furniture were also assessed. Blood pressure apparatus (mercury), stethoscope, weighing machine and measuring tape were available and operational.

### 3.1.2 Diagnosis

When steps and procedure for investigation and diagnosis were assessed, it revealed that there were no standardized guidelines available. Spirometer and peak flow meter for the clinical assessment were not available at health facilities; therefore, there is non-existence of any maneuver and quality assurance mechanism. On asking 67% (12 out 0f 18 practitioners) admit that they don't know how to use spirometer while all of the doctors knew the functioning of peak flow meter. For the assessment of associated conditions, tests like random blood sugar, lipid profile, renal function tests and USG abdomen were done in general routine. The clinical setups do not have a functional laboratory facility that is why tests are done from private labs. However, according to most of the practitioners, who were interviewed, patients show interest in getting their tests (diagnostic and for identifying associated conditions) done at the baseline, when they are more vigilant in respect to their new diagnosis.

### 3.1.3 Prescription

No proper guidelines for prescribing medicines were available or used. Medical knowledge gained during medical education is used for prescription writing. Generally in case of asthma, care providers prescribe Salbutamol, as first line therapy and corticosteroids which are available in tablets and injectable form. For COPD patients with signs of chest infection, in addition to salbutamol, antibiotics (amoxicillin, levofloxacin and ciprofloxacin) are prescribed which are available in tablets form. Medicines in inhaler form are not available in health facilities and patients have to buy those by themselves. Patient compliance was best with low cost drugs. Side effects are not generally reported. No formal social welfare arrangements were in place in rural setting.

### 3.1.4 Life style counseling

There is no proper mechanism for life style counseling of asthma/COPD patients in any of the primary health care facility. Paramedics and doctors are not trained in delivering proper counseling sessions. Usually patients remain uninformed about what measures to be taken in order to avoid acute exacerbations; and also what steps to take if suffer from exacerbation. Informal verbal messages are given to smokers and obese patients regarding smoking cessation and weight reduction respectively, but no formal guidelines are available. Acute exacerbation of asthma or COPD is treated with salbutamol via inhalation or nebulization, and steroids in injectable form are used.

### 3.1.5 Referral

Referrals are generally made to tehsil and district hospitals for uncontrolled asthma and COPD and for the management of complications, however, no referral slips are used. Also no formal feedback mechanism exist in the system. Patients are referred without following proper referral protocols. It is observed that some patients are directly referred to tertiary care hospitals without being advised to visit District Head Quarter Hospital (DHQ). The comparison of number of patients referred for the expert consultation cannot be assessed, due to lack of data for referrals. Although when doctors were interviewed they said that on average the referral is rate is quite low for asthma and COPD patients as they try to manage them at the facility initially. Which results in delayed assessment of disease progress, leading to complications. A proper facilitation for the patient to get to the referring facility (i.e. a phone call or referral form describing patient's full medical and clinical history and reasons for referral) is missing.

### 3.1.6 Follow up

There is no proper or formal follow up protocol currently practiced in health care delivery system. Patient is asked to revisit when his medicines are finished, thus, the main purpose of follow up visit is to replenish medicine. No specified regular intervals for follow up are practiced. Consultation time last for about 2-3 minutes unless patient reports some complaints. No emphasis is made on the disease progress and early recognition of complications, as there is no proper patient retrieval system currently in practice. There is no on-record differentiation between a regular follow up visit and a visit for drug collection, neither any information about the requirements of both visits.

### 3.1.7 Recording and reporting system

Outpatient department (OPD) slip is used for writing investigation results as well as drug prescription. It stays with the patient and he brings it back for follow-up and medicine collection. No formal patient card is available. OPD register is used for record keeping; paramedics will note down the desired information on the register. However, no separate Chronic Disease Register is available at health care facilities. Standard Health Management Information System (HMIS) mechanism for recording and reporting is being practiced.

## 3.2 Discussion

As in many developing countries, programs for the management of respiratory disorders are poorly developed or very limited, and thus the quality of care offered is often of a low standard in those countries [10]. Pakistan being an developing country follow the same trait. Despite the fact that government in Pakistan is seriously trying to improve the health care service delivery, the burden of chronic diseases like asthma and COPD is increasing at alarming rate. The managerial and clinical draw backs are worsening the situation. In resource constraint settings particularly at the primary health care facilities, focused and cost effective strategies should be implemented. Collaboration of government and private sector, in the form public private mix approach, can help in eliminating the gaps in service delivery. Efforts should be put at all levels, from suspect identification to diagnosis and effective management.

In the developing countries lack of essential resources and facilities for diagnosis and physicians who work in community level constitute a huge obstacle in teh establishment of early diagnosis [11]. In Pakistan, the case detection rates for NCDs are quite low as compared to the estimated prevalence. The increase in asthma incidence can be related to both underdiagnosis and consequently undertreatment which results in increase morbidity and mortality rate due to exacerbated lung disorders like asthma/COPD [11]. Proper identification of patients of asthma and COPD can only be ensured by making essential diagnosing tests/instruments available. Peak flow meters and spirometers should be made available in the health facility in fully operative condition. It not only increase case detection of asthma and COPD but also helps in keeping track of the disease progress and early identification of complications.

Accessibility to health care and the availability of essential drugs for asthma and COPD serves as important obstacles to improve the care provision in many countries [10]. Pakistan is thus not a new case in this regard but point of consideration these days is to initiate proper interventions to overcome this problem and improve efficiency of delivering the respiratory services as the lung health sufferings are increasing in alarming rate. Although medicines are available free of cost at primary health care facilities, but due to budget constraints interrupted supply of drugs is a routine. Thus, patients are forced to buy drugs from local market. This results in poor compliance on patients' part and also forces doctors to write prescriptions in accordance with socio-economic status of the patient. The government thus, should ensure the availability and continuous supply of anti asthmatics and COPD drugs. Anti asthmatics and drugs for COPD in inhaler form helps in prompt and sustained relief of symptoms. Unavailability of inhalers should be addressed to the authorities so that every individual patient receives standardized treatment. Although the anti asthmatics and drugs for COPD as inhalers are present in essential drug list of Pakistan, which means that they should always be present in ample amount and in suggested form at every PHC. National drug regulatory authorities in hand with the EDOs(H) of every district must make it sure that contents in EDL follows in all the health facilities.

Life style counseling is the back bone of chronic disease management. Almost all of the NCDs results from unhealthy life style such as lack of exercise, smoking, and unhealthy diet. In case of asthma and COPD, smoking is the main risk factor. Both of these diseases are developed and triggered by smoking. Smoking specially tobacco smoking is the most important risk factor for the development of COPD and smoking cessation is the most effective intervention at every stage of the COPD [11]. However, no proper smoking cessation counseling exists at primary health care levels. The higher health authorities should seriously consider this issue and designate a trained paramedic or nurse for structured counseling of all NCDs patients. At district level, educational programs for quit smoking and passive smoking can be a potential effort for sensitizing common population and also targeting particularly the asthmatic and COPD sufferers by contacting the PHC. In order to perform this educational counseling and awareness PHC should keep the record (demographic data) of the labeled asthmatics and COPD patients.

This context analysis explains the barriers in proper management of asthma and COPD yet more extensive research is required to develop protocol for lung health (asthma/COPD/pneumonia) management in low resource health system. The effective disease management strategies including initializing programs aiming to prevent, as well as managing the targeted unhealthy life style related chronic diseases, should be promoted at the primary health care level. PAL (Practical approach to lung health) is a very fine initiative taken by WHO which helps in strengthening the health system by focusing on improvement

in identifying and managing major respiratory disorders [10]. Making PAL a potential source for formulating the Asthma/COPD management guidelines and also by increasing the clinical efficiency and quality of services provided by primary health facilities, can help in making patient more receptive towards their treatment and suffer less.

## 4. LIMITATION

The small convenience sample precludes generalization since study includes only rural primary health care facilities excluding urban facilities, potentially biasing our findings. The findings can be regarded only as identifying service delivery gaps for the proper management of asthma and COPD at primary health care setup.

## 5. CONCLUSION

Government in Pakistan in collaboration with multiple community based organizations has been trying to limit the spread of non-communicable diseases like asthma and COPD in the country. The National task force against non-communicable diseases and different other strategies provide good example of those efforts, however, a joint effort in collaboration with the stakeholders and health professionals is required to develop and implement policies that further help in minimizing the asthma and COPD prevalence rates. The policies should be based upon the principles of equity and social justice. A broad understanding of the multiple determinants, affecting the issue is required. Efforts and co-operation at all levels of health care are needed to successfully achieve the goals. There is a strong need for extensive research to develop the structured guidelines and protocols according to the local context for asthma/COPD management in low resource health system like in Pakistan

## ETHICAL APPROVAL

The authors have obtained all necessary ethical approval from national bioethical committee Pakistan.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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