



**EVALUATION OF THE IMPACT OF A PHARMACEUTICAL CARE SERVICE  
OFFERED TO PATIENTS SUFFERING ASTHMA WITHIN AN AMBULATORY  
SETTING**

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**ABSTRACT**

The objectives of the study were to evaluate the impact of a newly developed pharmaceutical care services directed to Asthma patients attending an out-patient setting. A total of 186 patients participated in the study and were randomly divided into two equal groups, Group A and Group B. The study was carried out over three phases. In phase 1, Group A patients were assessed and offered a pharmaceutical care session. Group B patients were assessed but no pharmaceutical care session was delivered. At phase 2 (4-6 months), group A patients were re-assessed (first assessment post pharmaceutical care plan). Group B patients were re-assessed a second time (second baseline assessment) and a pharmaceutical care session was offered to Group B patients. At phase 3 (time 10-11 months) both groups were re-assessed a third time. The newly developed individualised pharmaceutical care service provided by the pharmacist led to an improved quality of life as measured by the health-related quality of life questionnaires.

**KEYWORDS:** Pharmaceutical care, quality of life, Asthma, drug therapy problems, pharmacist contribution.

**INTRODUCTION**

The current management of Asthma therefore focuses on early treatment using disease modifying agents and biological agents early on to slow the disease progression if not to stop disease progression and afford remission. Patient safety is a major feature in management decisions. Treatment must be individualized, and patients helped to be actively involved in their own management and monitoring for effectiveness and safety. This could be achieved through a pharmaceutical care service. The context above raises questions about how to achieve optimal care within a multidisciplinary setting in which specialist pharmacists are providing new services requiring networking arrangements to underpin the quality of care as the patient moves between clinical settings, home, hospital, and clinic. The pharmacist input has been developing over the past seven years via inpatient services. The aim of this study was to evaluate the impact of a newly developed pharmaceutical care service within a multidisciplinary outpatients service.

Asthma is a disease of diffuse airway inflammation caused by a variety of triggering stimuli resulting in partially or completely reversible bronchoconstriction. Symptoms and signs include dyspnea, chest tightness, cough, and wheezing. The diagnosis is based on history, physical examination, and pulmonary function tests.

Treatment involves controlling triggering factors and drug therapy, most commonly with inhaled beta-2 agonists and inhaled corticosteroids. Prognosis is good with treatment.<sup>[1,2,3,4]</sup>

More than 100 asthma susceptibility genes have been reported. Many are thought to involve the broad category of T-helper cells type 2 (TH2) and may play a role in inflammation. Examples include the *FCER1B* gene, which encodes the beta chain of the high-affinity IgE receptor; the genes encoding certain interleukins (IL) such as IL-4, IL-13, and the IL-4 receptor; genes responsible for innate immunity (HLA-DRB1, HLA-DQB1, CD14); and genes participating in cellular inflammation (eg, genes encoding granulocyte-macrophage colony-stimulating factor [GM-CSF] and tumor necrosis factor-alpha [TNF- $\alpha$ ]). Also, the *ADAM33* gene may stimulate airway smooth muscle and fibroblast proliferation and remodeling; it was the first asthma risk locus found with whole-genome family linkage studies.

More recently, the most replicated is at the chromosome 17q21 locus. This locus contains the *ORMDL3* gene, which is an allergen and cytokine (IL-4/IL-13)-inducible gene implicated in epithelial cell remodeling and sphingolipid metabolism to affect bronchial hyperreactivity.<sup>[5,6,7,8,9]</sup>

Irritant-induced asthma refers to a similar, persistent asthma-like response following multiple or chronic inhalational exposure to high levels of similar irritants. Manifestations are sometimes more insidious, and thus the connection to the inhalational exposure is clear only in retrospect.<sup>[10,11,12,13]</sup>

## MATERIALS AND METHODS

A pharmaceutical care consultation led to the identification of pharmaceutical care issues. The session focused on determining whether all patient's drug therapy was the most appropriate, safe, effective and conveniently available for the patient. During the pharmaceutical care consultation, the clinical pharmacist identified pharmaceutical care issues. Actual drug therapy problems are problems which are present and hence need to be resolved immediately whereas potential drug therapy problems are problems which are not yet present, but which might arise in future and which could be avoided if the correct action is taken. The category non-drug therapy problems was added to the list to accommodate pharmaceutical care issues which were not directly related to drug therapy but relied on patient's perception, information on treatment or the need of other help from other health care professionals. Actions (checks or changes) needed to resolve each care issue problem were documented in the care plan within the patient's medical file.

## RESULTS AND DISCUSSION

For group A patients the results indicate that there was an improvement in the quality of life of the patients reflected by a decrease in the health assessment questionnaire score which occurred following the pharmacist's intervention during the pharmaceutical intervention at Phase 1. This improvement in the quality of life of the patients increased over time (Phase 3) meaning that the impact of the pharmacist's intervention through individualized pharmaceutical care showed a further improvement in the quality of life of patients on a longer term.

Group B patients registered a statistically significant improvement in their health assessment questionnaire score following a pharmaceutical care session which mirrors the fact that pharmacist intervention improves quality of life. The impact of the pharmacist's contribution after 11 months resulted in an improvement of quality of life. However, for some domains namely physical function and role emotion this impact may take longer to result in an improvement. The results from Group B patients mirrored those of Group A.

## CONCLUSION

Pharmaceutical care services offered within out-patient clinic multidisciplinary team can help to improve the patients' quality of life. This study has confirmed the positive impact of the pharmacist intervention within this multidisciplinary team on the patients' quality attending the out-patient clinic. This has been confirmed in other

studies in other areas such as in the management of cardiovascular patients and diabetes patients<sup>18-23</sup>. Processes to identify patients who would require pharmaceutical care services within the setting may need to be identified in the scenario that the pharmaceutical care services are offered to all patients attending the clinic. Research to standardize the pharmaceutical care services is now being undertaken to ensure a harmonized evidence-based quality service.

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