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Bronchial Asthma Control Profile at Primary Healthcare Facilities of Dubai Health Authority for the Period 2010-2015 Dubai, UAE, 2016

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Abstract

The morbidity and mortality from asthma appear to be increasing despite changes in medical practice and many advances in treatment of asthma over the years. Most of the deaths are due to relatively acute attacks, although usually against a background of poorly controlled asthma. This study is designed to investigate the level of asthma control, percentage of using inhaled corticosteroids, percentage of sick off days because of asthma, percentage of Asthma flow charts implementation, percentage of additional forms implementation, and percentage of Smokers among asthmatics. *Methods:* A retrospective records review of registered asthmatic patients was implemented. All registered asthma patients at primary health care facilities of Dubai Health Authority for the period of 2010-2015 were included in the current audit retrieved from SAM IT registry system (Primary Health Care Electronic Medical Record). A convenience sample was chosen. It was composed of 476 in 2010, 341 in 2011, 318 in 2012, 188 in 2013, 450 in 2014, and 440 in 2015. Those patients attended general out patients clinics in PHC. A total number of 59 patients were included in the Bronchial Asthma Miniclinics sample, which involved all attended patients in 2015. *Results:* The level of controlled asthma in 2015 was 53.4% in General Outpatient Department of PHC (OPD) and 64.9% in Bronchial Asthma mini clinics in PHC. The best level was shown in 2014. As for using inhaled corticosteroids, it was shown that it was 82% in OPD clinics while it was 95% in asthma mini clinic cases. The study reflected significant increasing in use of inhaled corticosteroid. Patients with No sick off days became about 32% at general OPD clinics, and 42% at asthma mini clinics. Improvement of bronchial asthma care was noticed at primary health care settings in Dubai Health Authority. There are still many gaps that needs to be bridged in asthma management system at primary health care to raise the level of control to a higher standard level, like implementing asthma management guidelines, health care givers capacity building and developing asthma management care independently. It is recommended to investigate causes of poor adherence to asthma management in 2015 by primary health care physicians. Addressing gaps will strengthen asthma management care. Adhering to international standards, Continuous professional development and capacity building are factors that are in need to be taken into consideration.

Keywords

Bronchial Asthma, Primary Health Care, Dubai

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1. Introduction

It has been evidenced based that bronchial asthma is one of the commonest chronic diseases worldwide. It is also one of the common cause of admission to hospital. There is now ample evidence that prevalence, morbidity and mortality are on the rise. [1-3] Bronchial asthma is considered a "bread and butter issue of clinical practice". Worldwide an estimated 300 million individuals are affected. [4, 5]

The morbidity and mortality from asthma appears to be increasing despite changes in medical practice and many advances in treatment of asthma over the years. Most of the deaths are due to relatively acute attacks, although usually against a background of poorly controlled asthma. Many deaths and much unnecessary morbidity have been associated with overreliance on bronchodilators, underuse of inhaled and oral corticosteroids, failure to make objective measurements of severity and inadequate supervision. [6] Several studies have tried to determine why patients die from asthma. Some have looked at the assessment and management of exacerbations of asthma in general practice and hospital. [6] while others have looked at individual deaths from asthma in an attempt to identify factors related to mortality. [6-10] All have suggested that there are deficiencies in both assessment and treatment.

We carried out this medical audit to assess critically the quality of medical care given to patients with asthma in primary health care settings belonging to Dubai health authority. Our aim was to determine whether our patients evaluation and management measured up to the standard recommended guidelines. [11] In this way, if we do find deficiencies in the management compared to the accepted standard then we could implement changes and suggest recommendations. This would serve to improve the delivery of care to asthma patients.

2. Objectives

This study is designed to investigate the level of asthma control, percentage of using inhaled corticosteroids, percentage of sick off days because of asthma, percentage of Asthma flow charts implementation (Initial Assessment form & Follow up form), percentage of additional forms implementation (Asthma Action plan Form, Asthma Control Test Form & Self-Management Goals & Plan Form), and percentage of Smokers among asthmatics.

3. Methodology

An Audit study has been carried out at primary health care centers at Dubai Health authority for the period 2010-2015. This audit is conducted in the General Outpatient Department (OPD) and Bronchial Asthma mini clinics. A retrospective records review of registered asthmatic patients was conducted. All registered asthma patients at PHC/DHA for the period of 2010-2015 were included in the current audit retrieved from SAM IT registry system applied at DHA facilities. A convenience sample was chosen. It was composed of 476 in 2010, 341 in 2011, 318 in 2012, 188 in 2013, 450 in 2014, and 440 in 2015. 59 patients were included in the Bronchial Asthma Miniclinics sample, which involved all attended patients in 2015. Those who were excluded are: bronchial asthma patients who visit health centers for issues not related to asthma, those with no asthma evaluation at those particular visits, children below 2 years, and patients with Bronchial Asthma receiving asthma care from other health care providers.

Audit Criteria utilized: PHC Bronchial asthma guidelines is used for the comparisons.

- Asthma patients attending PHC should have their asthma controlled as per guideline
- Asthma patients attending PHC should use inhaled corticosteroids as per guidelines
- Asthma patients attending PHC should not have sick off days because of asthma
- Asthma flow charts should be implemented in the files of asthma patients in PHC with proper documentation of:
  - Demographic Data: Age, Sex, Nationality, Marital Status, Occupation & Education
  - Clinical Data: Smoking Status, Family History of Bronchial Asthma, Classification, Triggers, Peak Flow Rate (PEFR), Night Symptoms, Use of Inhaled Corticosteroids, sick off day
- Asthma Additional Forms (Asthma action plan/Asthma control Test/ Self-management goals & plan forms) should be implemented in the files of asthma patients in PHC
- Asthma patients attending PHC should be non-smokers

Audit Standards

- 45% of Asthma patients attending PHC should have their asthma controlled as per guidelines by 31st Dec 2015
- 70% of Asthma patients attending PHC should use ICS by 31st Dec 2015
- 50% of Asthma patients attending PHC should not have sick off days because of asthma by 31st Dec 2015
- >95% of the files of asthma patients in PHC should have Asthma flow charts implemented with proper documentation by 31st Dec 2015

- >65% of the files of asthma patients in PHC should have Asthma Additional Forms implemented by 31st Dec 2015 (First year audited 2015)
- >95% of Asthma patients attending PHC should be non-smokers by 31st Dec 2015

Auditing Tool

Structured auditing tool was used and included domains of socio-demographic data, quality of care & asthma control measurements, and implementation of forms.

4. Results

Figures 1, 2 and 3 show the level of control. The level of control in 2015 was 53.4% in OPD and 64.9% in mini clinic. The best level was shown in 2014.

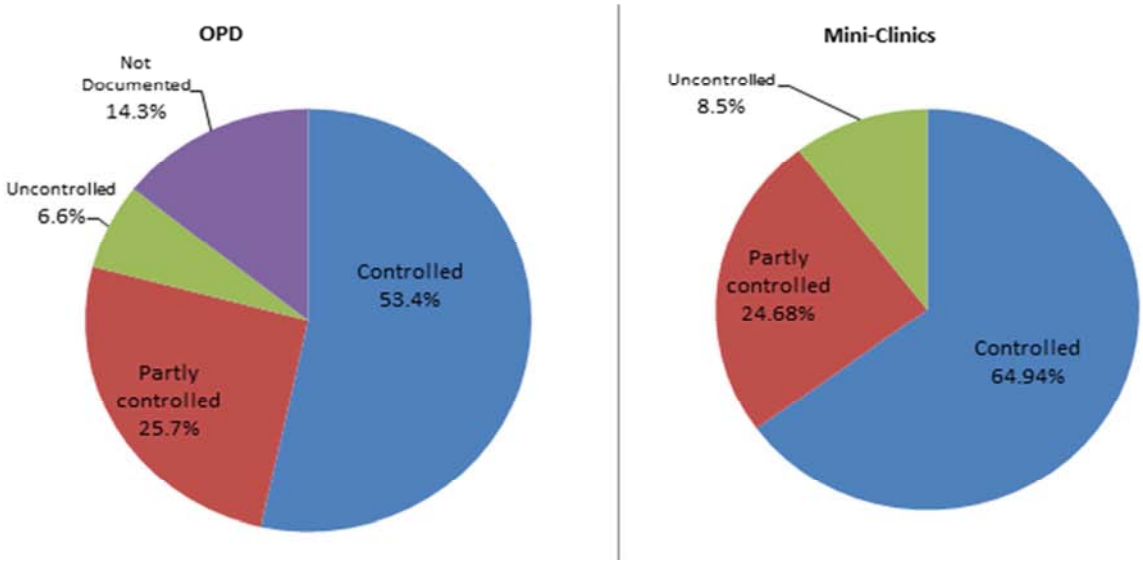

Figure 1. Classification of registerd asthma cases at PHC according to the level of control on 2015.

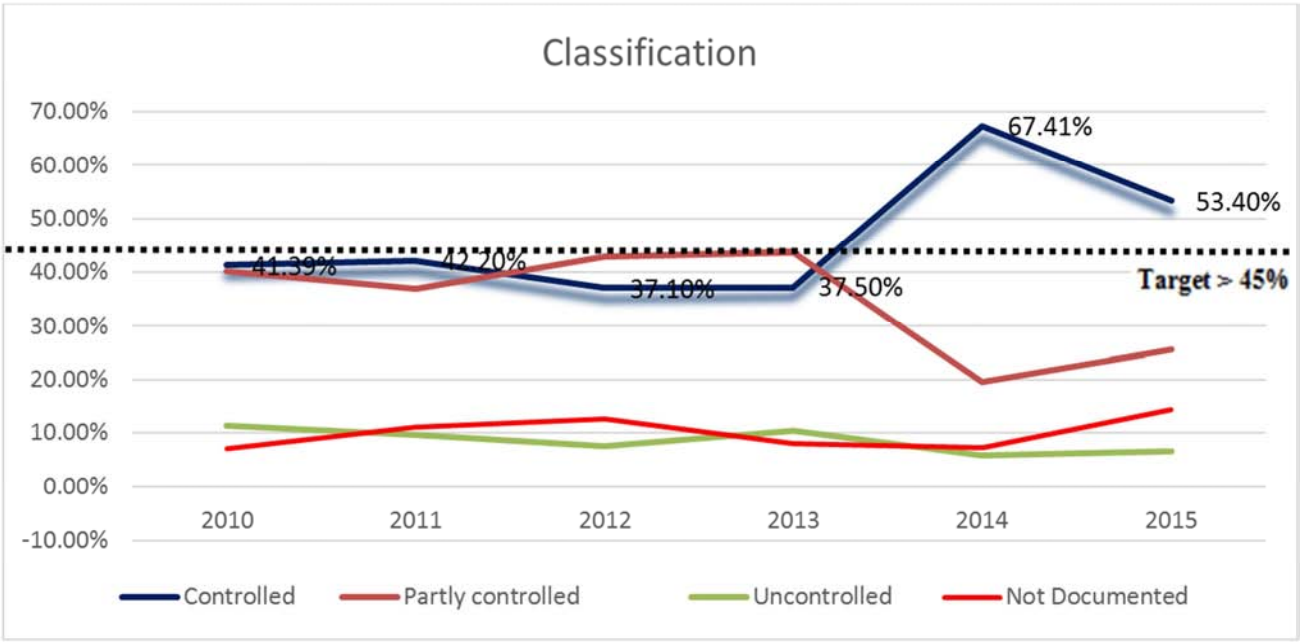

Figure 2. Frequency distribution of PHC registered asthma cases based on Level of Control Classification (2010-2015).

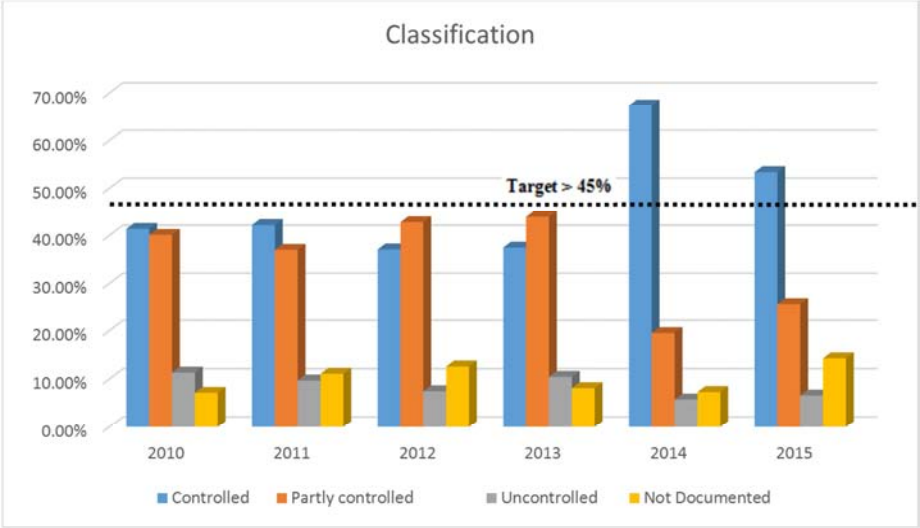

Figure 3. Frequency distribution of PHC registered asthma cases based on Level of Control Classification (2010-2015).

The rate of prescribing Inhaled Corticosteroids was 95% among asthma mini clinic cases, and 82% among general outpatient clinics. The study reflected significant increasing in use of inhaled corticosteroid, figures (4 and 5).

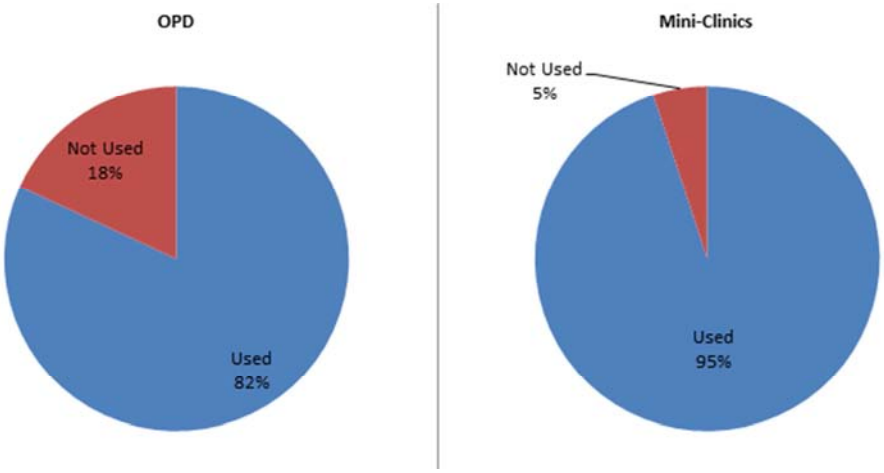

Figure 4. Frequency distribution of asthma cases based on Use of Inhaled Corticosteroids (2015).

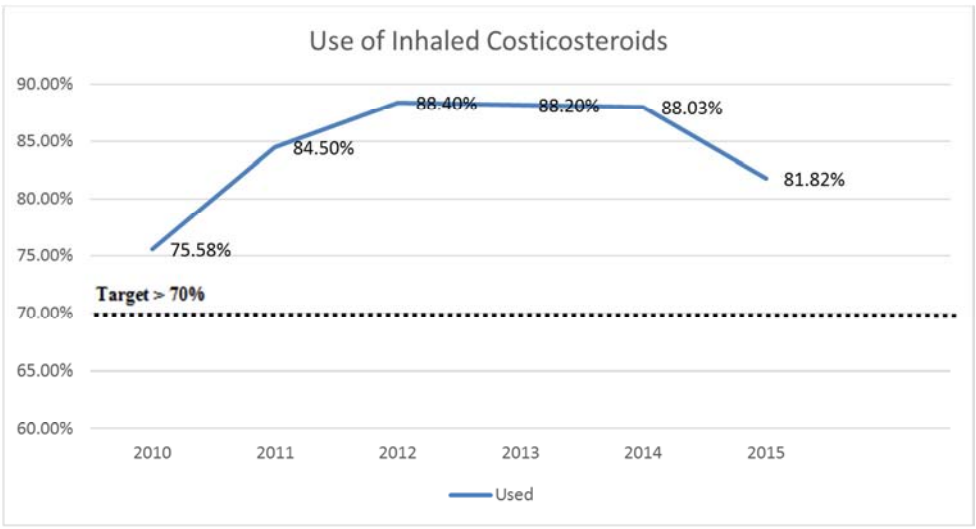

Figure 5. Frequency distribution of PHC registered asthma based on Use of Inhaled Corticosteroids (2010-2015).

Figures 6, 7 and 8 show data about reducing sick off days because of asthma. The study showed that by the end of 2015 the percentage of asthma patients with no asthma sick off days was about 32% in general outpatient clinic Vis 42% in mini clinics. Best results was 85% in 2011.

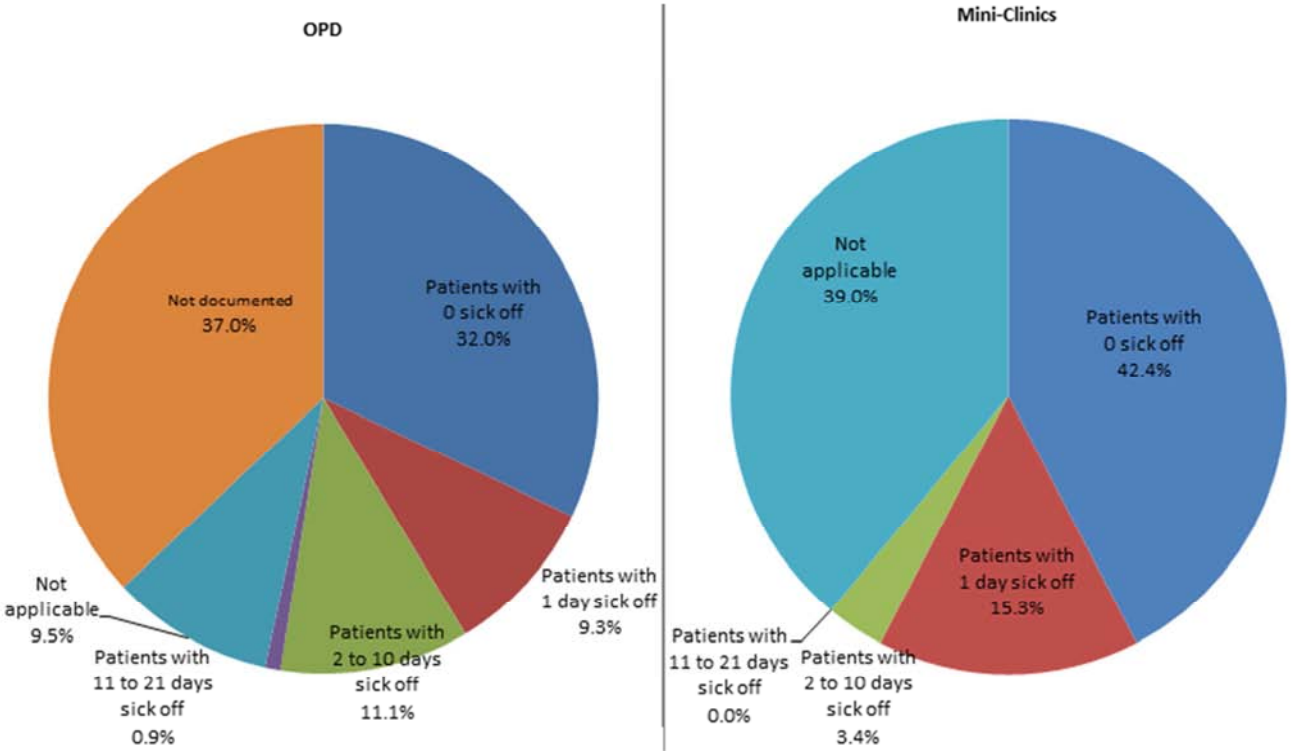

Figure 6. Frequency distribution of PHC registered asthma cases based on Sick off Days 2015.

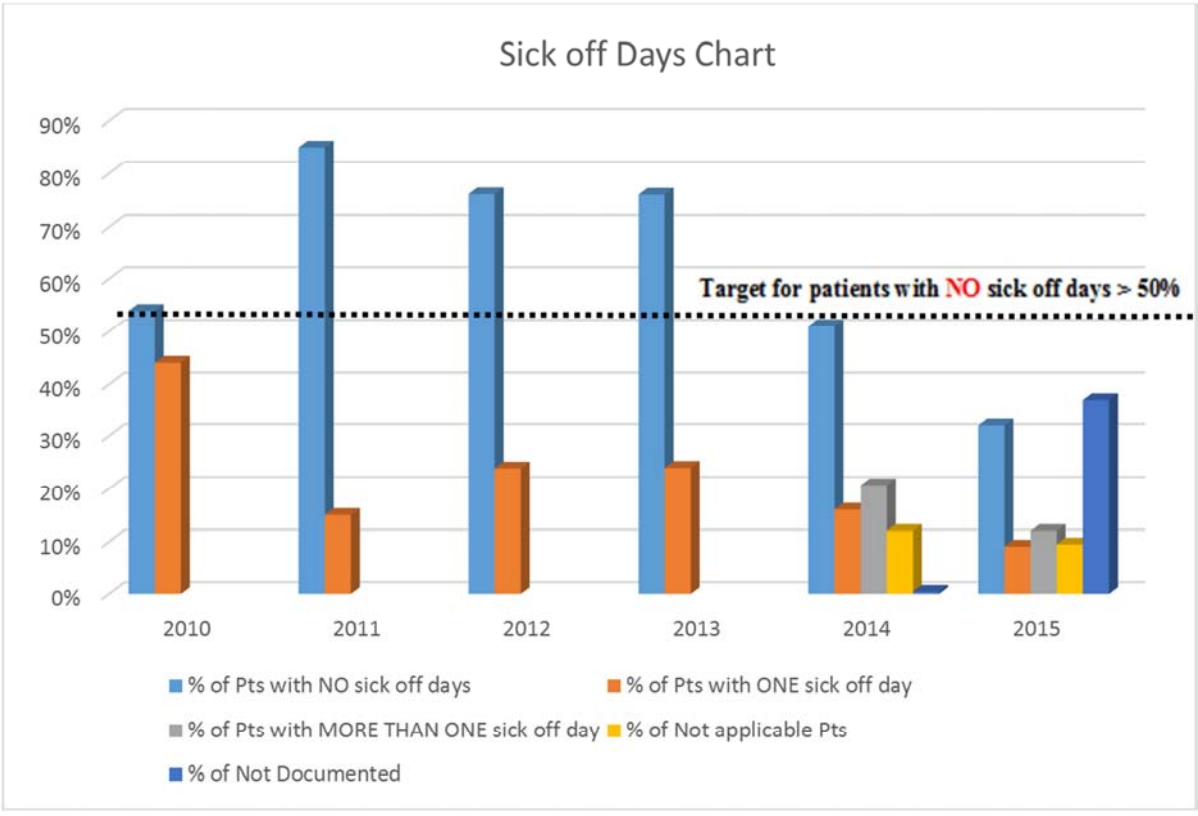

Figure 7. Frequency distribution of PHC registered asthma cases based on Sick off Days (2010-2015).

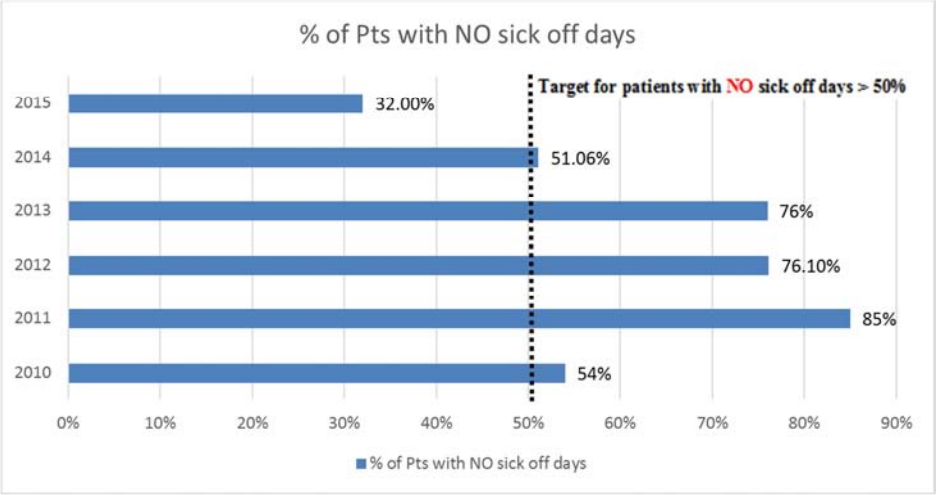

Figure 8. Frequency distribution of PHC registered asthma cases based on percentage of patients with no sick off days (2010-2015).

Concerning initial assessment and follow-up forms implementation, the current study revealed that implementation is 100% in asthma mini clinic and about 91% in general outpatient clinics by the end of 2015. Regarding additional forms implementation which started in 2014, the study showed that they were implemented in 46% of patients in general outpatient's clinics and in 97% in asthma mini clinics by the end of 2015 (figures 9, 10 and 11).

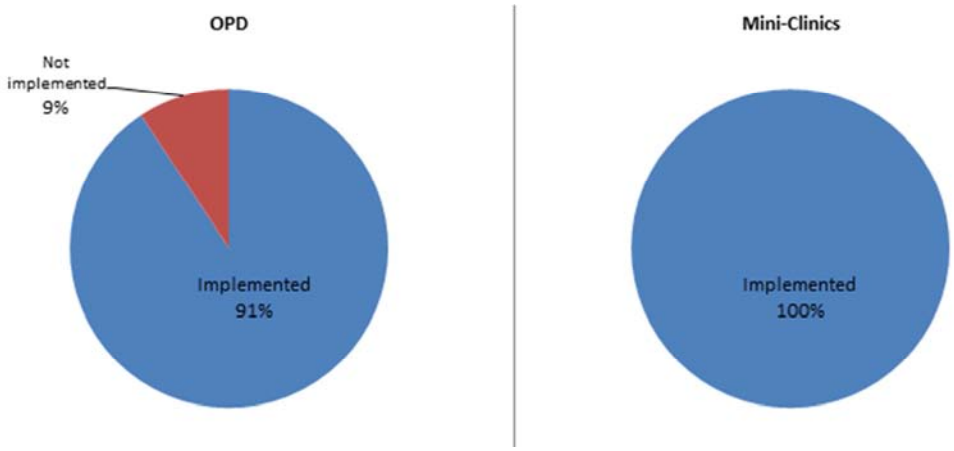

Figure 9. Frequency distribution of PHC registered Asthma cases based on Initial Assessment & Follow-up Forms Implementation 2015.

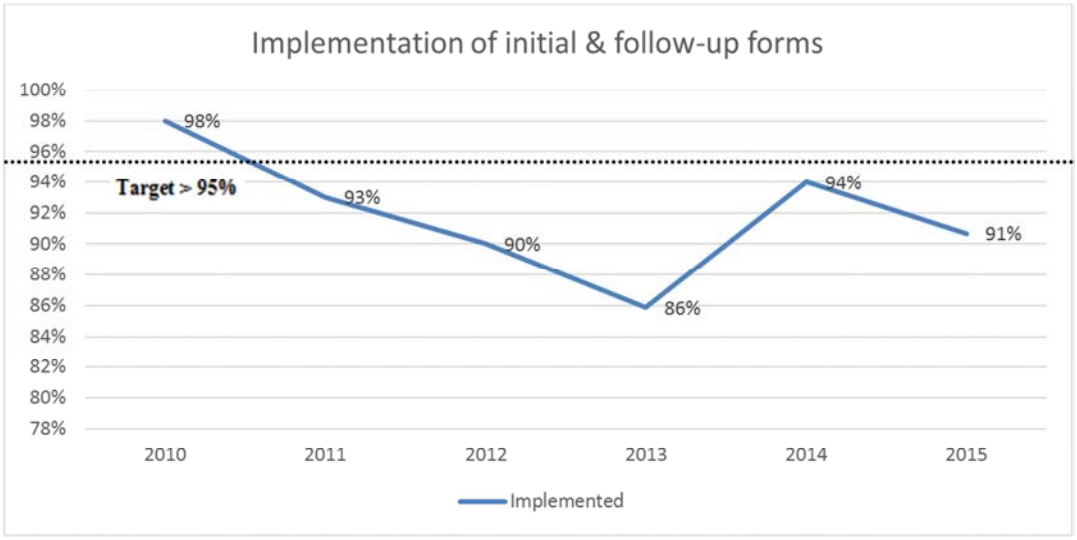

Figure 10. Initial Assessment and Follow-up Forms Implementation (2010-2015).

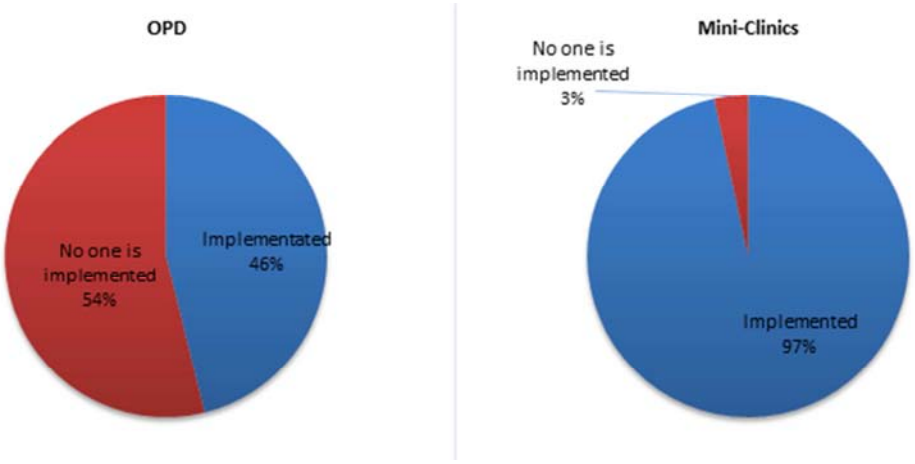

Figure 11. Additional Forms Implementation 2015.

The study revealed that smoking was totally reduced to 6.36% by the end of 2015. Although target is not generally reached, which is to reduce smokers to less than 5%, The percentage of smokers was reduced to 2% in the mini-clinics and to 6% in the general outpatient clinics figures (12 and 13).

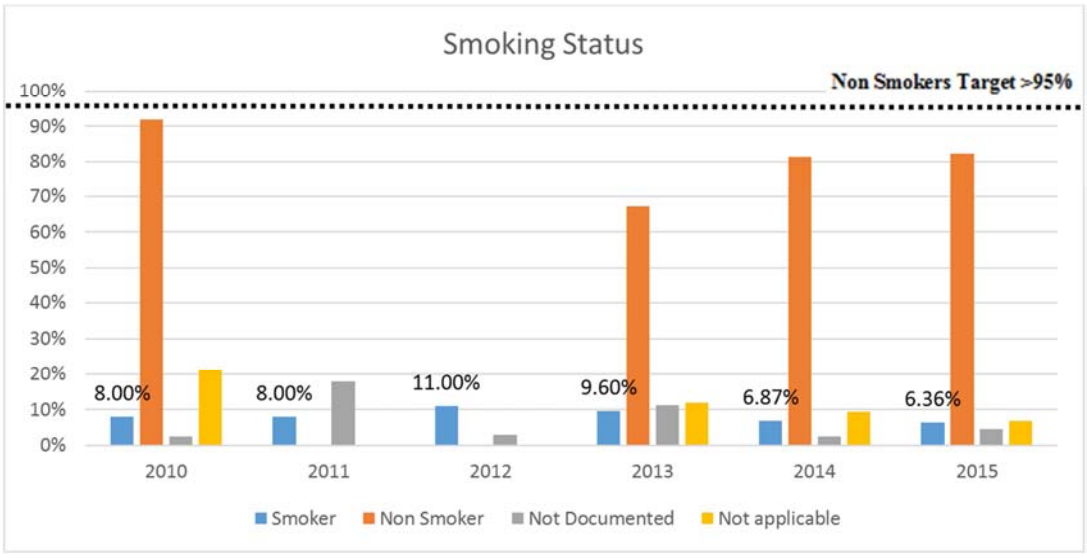

Figure 12. Frequency distribution of PHC registered asthma cases based on Smoking Status for the period (2010-2015).

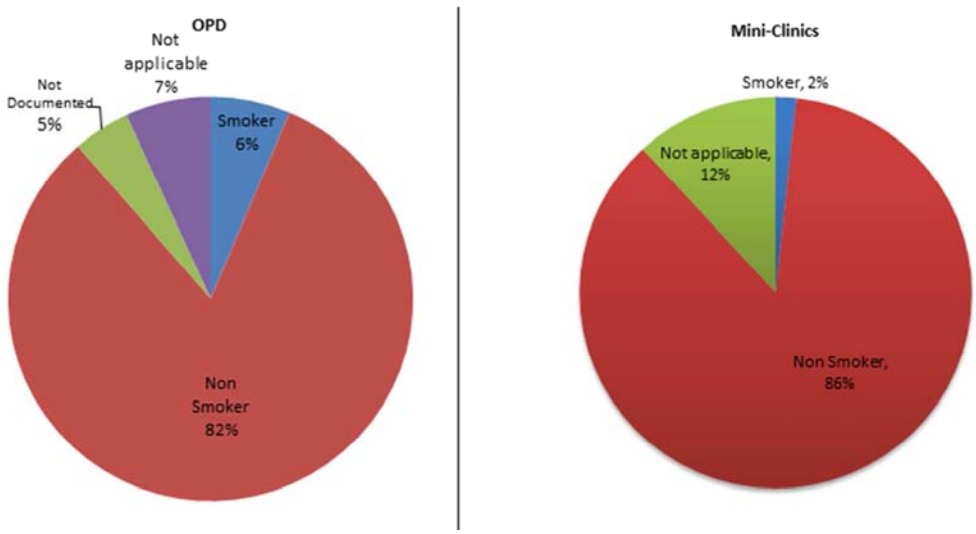

Figure 13. Frequency distribution of asthma cases based on Smoking Status (2015).

The study showed that asthma management in asthma mini-clinics was significantly effective compared to asthma management in general outpatient clinic:

- In level of control (64.94% Vis 53.4%)
- In prescribing ICS (82% Vis 95%)
- In reducing sick off days (32% Vis 42% with no sick off days)
- In initial assessment and follow up forms implementation (100% Vis 91%)
- In additional forms implementation (46% Vis 97%).
- In reducing smoking (2% Vis 6% non-smokers)

As per comparing 2014 and 2015 asthma control results, the study revealed the following results:

- Decrease in level of control from 67.41 to 53.40
- Decrease in use of ICS form 88% to 81%
- Decease of zero sick off days from 51% to 32%
- Decrease of initial assessment and follow up forms implementation from 94% to 91%
- Decrease of additional forms implementation from 65% to 45%

5. Discussion

The current study showed that in 2014 almost 67% of total asthmatic patients were classified controlled as per levels of asthma control criteria in GINA guidelines 2015. [5] This is significantly higher than results of other studies. One study conducted in USA in 2007 showed that only 50% of adults and 62.6% of children have controlled asthma all over USA. Another one conducted in Malaysia in 2011 showed that only 39.2% of the patients were classified as having controlled asthma, 34.3% had asthma that was partly controlled and 26.5% of the patients had uncontrolled asthma. [12-14]

Current study showed that patients attending asthma management clinic (mini-clinics) revealed better control results regarding asthma management outcomes compared to patients attending general outpatient clinics. These results were similar to other studies that concluded the level of control of bronchial asthma was significantly better among patients attending asthma clinics than those attending general clinics, and females were found to have significantly better control compared to males. [15-18]

Current study showed that medical records or asthma management and follow up documentation was significantly improved along years of implementing standardized asthma management care at Primary health care services. Percentage of documentation in OPD clinics versus mini-clinics in 2015 was as the following: 90% and 100% for occupation; 91% in both for education level; 95% and 100% for smoking status; 90% and 100% for family history of bronchial asthma; 87% and 100% for trigger factors; 88% and 100% for night symptom; 88% and 98% for peak flow readings; 86% and 100% for diagnostic classification; 100% in both for medicine prescription; and 63% and 100% for sick off days. This was contradicted with similar studies [19-22] which stated low documentation levels, for example, documentation of clinical assessment in other studies was low for previous admissions (2%), rescue nebulization (25%), duration of symptoms (57%), trigger factors (19%), compliance (9%), clinical signs (48%), peak flow rate (3%), and inhaler technique (5%). The diagnosis of asthma exacerbation was documented in 77% of the episodes. Documentation of therapy was also low (3% for oxygen therapy and 24% for systemic steroids). Documentation of post-nebulization assessment, follow-up appointment, and referral to asthma clinic were found in 37%, 23% and 11% of cases respectively. No documented evidence was found for referral to chest specialist or spirometry.

The current study managed to identify a gap of poor adherence to asthma management guidelines by primary health care physicians in 2014 which led to a decrease in asthma control level in 2015 compared to 2014. Other similar studies showed that 8% of primary health care physicians had good theoretical knowledge of bronchial asthma, and 41% had poor knowledge. The knowledge of the residents was better than that of the PHC physicians in the same study. The mean knowledge score was significantly better among those using guidelines compared to the rest. About 23% had good knowledge of inhaler techniques. Knowledge of PHC physicians and FM residents about dry powder inhalers was deficient, and PHC physicians had little knowledge of metered dose inhalers with spacers. [23,24] Limitations of conducting such a study come from the possibility of having some other factors that may affect the quality of care provided to control asthma.

6. Conclusion

Improvement of bronchial asthma care was noticed at primary health care settings in Dubai Health Authority. It was clear that managing asthma in mini-clinics setting produced more positive outcomes in terms of control compared to asthma management in general outpatient clinics, based on different outcomes indicators. There are still many gaps that needs to be bridged in asthma management system at primary health care to raise the level of control to a

higher standard level, like sticking to asthma management guidelines, health care givers capacity building and developing asthma management care independently.

It is recommenced to investigate causes of poor adherence to asthma management in 2015 by primary health care physicians. Addressing gaps will strengthen asthma management care. Adhering to international standards, Continuous professional development and capacity building are factors that are in need to be taken into consideration.

Conflict of Interest

The authors declare that they do not have any conflict of interest.

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