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ΕΡΕΥΝΗΤΙΚΗ ΕΡΓΑΣΙΑ

Best practices in managing asthma patients in primary health care “Strengthening public health”

OBJECTIVE To highlight the best practices of the implementation of the National Action Plan for Public Health in Greece, by strengthening prevention, health promotion strategies, and social policy in current epidemiological challenges. **METHOD** Asthma patients from the community enrolled in the “Asthma School”, where they were screened, diagnosed and trained. Best practices of the outpatient Pulmonology Unit of the Model Health Center of the urban type of Peristeri were evaluated, highlighting the primary health care (PHC) reorientation policy. The Pulmonology Unit has developed a strategy for preventing respiratory problems and providing health education. This strategy was implemented in collaboration with the Hellenic Center for Disease Control and Prevention, now the Hellenic National Public Health Organization, the Municipality of Peristeri, and the Ministry of Health. **RESULTS** A total of 113 people attended the “Asthma School”, of which 69.03% were women and the mean age was 51.07 ± 14.59 years. The Pulmonology Unit operated to high standards, with the vision of developing a dynamic system, according to National Health Policy. Emphasis was placed on the quality of PHC, as respiratory problems concern a major public health problem for society. The majority of participants reported that their asthma was well controlled in the last four weeks ($p < 0.05$). Improvement was recorded in terms of adopting prevention, with an increase of 30% in patients visiting the Health Center for preventive measures. **CONCLUSIONS** Targeted education of asthma patients is important in PHC, leading to better compliance and treatment effectiveness.

Law 1397/1983¹ “National Health System and other provisions”, is the basic law that established the operation of the National Health System.

The Public Health Policy Dialogue is part of the Greek Government’s broader health care reform agenda, which is supported by the European Commission and the World Health Organization (WHO). Two of the key issues are the creation of a public health package as part of the services offered by the new primary healthcare network.²⁻⁴

Law 4486/2017⁵ “Reform of Primary Health Care, urgent regulations of the Ministry of Health and other provisions” states that the state is responsible for free universal health coverage and the provision of quality services, respecting the rights and needs of the population. In the 61st session

of the World Health Assembly, the General Manager of the WHO stated that asthma is on the rise “everywhere”, and that “any discussion about the development of health should include chronic non-communicable diseases” (including chronic respiratory diseases).⁶

The number of people with asthma is expected to increase by 100 million by 2025.⁷ Realistically it is impossible to completely prevent or cure asthma, and current management guidelines focus on limiting or controlling the manifestations. The management of asthma, especially in the primary health care (PHC) setting can be expected to help control this “epidemic”, especially through reducing visits to secondary health facilities and costs associated with the management of this disease. The present work

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E. Stamatopoulou,^{1,2}
A. Stamatopoulou,¹
E. Papageorgiou,¹
F. Chaniotis,¹
D. Chaniotis¹

¹Department of Biomedical Sciences,
School of Health and Welfare Sciences,
University of West Attica, Athens

²Emergency Department of Internal
Medicine, Infections Disease Office and
Outpatient’s Examination Room, “KAT”
General Hospital of Attica, Athens,
Greece

Βέλτιστες πρακτικές στη διαχείριση
ασθενών με άσθμα
στην πρωτοβάθμια φροντίδα
υγείας: «Ενίσχυση της δημόσιας
υγείας»

Περίληψη στο τέλος του άρθρου

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highlights best practices in asthma patients, in the context of the current strategy of prevention and health promotion, in the face of the modern epidemiological challenges.

MATERIAL AND METHOD

A structured questionnaire was used as the study tool, allowing respondents to report their point of view without restrictions. The specific questionnaires were completed from the users of the Model Health Center of Peristeri, since they participated in free preventive checks, thus strengthening the needs for free universal health coverage of the population and dealing with phenomena related to social exclusion.

One of the successful actions of the Model Health Center of Peristeri was a free and innovative program named "Asthma School", aiming to offer asthma patients organized health prevention. For the purposes of the study, asthma patients were monitored and offered PHC educational courses. Before the present study was conducted, and in cooperation with the municipality, relevant information was posted on websites, a poster was created and disseminated, and related articles were published to communicate its operation to the public.

Asthma patients were enrolled in the asthma school, where they were screened, diagnosed and trained. According to the educational techniques, both passive methods were applied (patients listened to the lectures that were delivered, slides and videos were displayed, posters and leaflets), and active learning methods (taking an active part, and participating in research processes, in questionnaires), as well as experiential methods (development of personal skills in the correct use of inhaled bronchodilators).

Through regular three-hour sessions on a weekly basis over the last five years, the treating physician and the Public Health Officer trained the patients in the pathophysiology of the disease and its results, as well as on the symptoms and how they can manage exacerbations and persistent asthma attacks by using inhalers and medications properly. It was also recommended to use the flow meter at home in order to self-assess the course of the disease, with frequent measurements. On the other hand, potential risk factors related to the exacerbation of asthma were presented, adding new information to the knowledge base of people suffering from asthma, providing solutions to improve their health conditions.

To achieve this, a special questionnaire was prepared, in which information was collected on the demographics of incoming users, their personal reminder, the reason for attending the examination, as well as information on the evaluation of the implemented free prevention programs, according to patients' impressions from their visit to the Model Health Center of Peristeri. It also contained specific questions from the asthma control test, which has been designed by medical asthma specialists and has been scientifically tested on hundreds of asthmatics. It provides asthmatic patients, doctors and nurses with a useful score that helps determine the

level of treatment required. It is a questionnaire commonly used as a measure of asthma control in patients diagnosed with asthma. According to the use of the special asthma questionnaire, the Asthma Control Test (ACT) was applied as an important picture was formed for the patients as to whether they control their asthma.

For the collection of primary data, the questionnaire was distributed to a consecutive sample of patients who visited the Model Health Center of Peristeri for diagnosis and asthma management training. The patients self-completed the –adapted to their specific needs– validated questionnaire, and statistical analysis was performed using the Statistical Package for Social Sciences (SPSS), version 20.0, and statistical significance was set at $p < 0.05$.

The first part of the questionnaire includes questions that refer to the demographic and socio-economic characteristics of the respondents, such as occupation, educational level, marital status, smoking habits, family history, etc. In the second part, an assessment was made of how well patients control their asthma and the ACT score was measured. ACT is a validated short and simple tool consisting of five general questions on asthma disease and work duration, school or home disruption due to asthma, frequency of dyspnea, sleep disorders, life-saving medicines consumed and patient-rated asthma. All questions were evaluated based on the criteria from the past four weeks and each question was assigned a score between 1 and 5, with higher scores indicating better asthma control. In the third and final part, patients were asked about the use of health services, how they would evaluate the free asthma program and whether they would recommend it to others.

Descriptive statistics were used for continuous variables. The non-parametric Chi-square test was used for the analysis of statistical hypotheses and possible differences of demographic variables within particular ACT groups.

RESULTS

A total of 113 people attended the "Asthma School", of which 69.03% were women and 30.97% were men of Greek nationality. The mean age was 51.07 ± 14.59 years (fig. 1).

According to body mass index (BMI), 37.17% was overweight (fig. 2), and 39.82% were diagnosed with asthma in the Health Center of Peristeri (fig. 3). Table 1 displays summary statistics on the participants in this study.

According to the ACT, the distribution of respondents was 75.22% having incomplete control, while 22.12% were under partial control of asthma. Only 2.65% had full control of asthma. According to the asthma control score, the proportion of women with inadequate control (score < 20) was higher than in men. A percentage of 36.3% of those examined often had incomplete asthma control (score < 20), which prevented them from responding to their work, school and homework ($p < 0.05$). Those who experienced

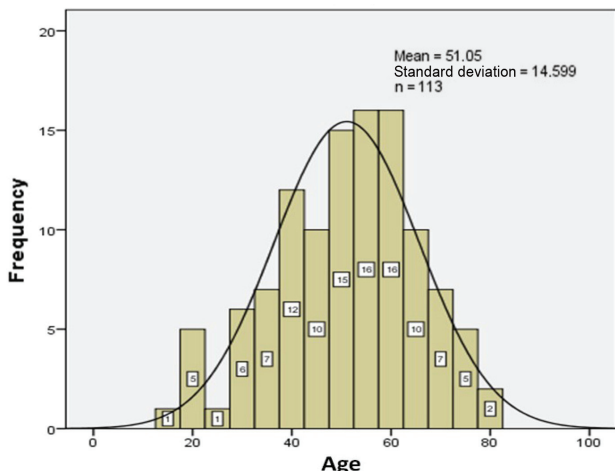


Figure 1. Distribution of the sample according to age.

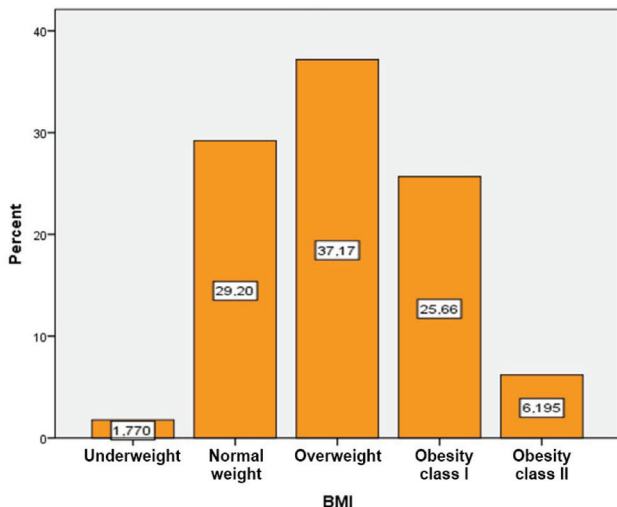


Figure 2. Distribution of the sample according to body mass index (BMI).

dyspnea once or twice a week in the last four weeks had incomplete control of asthma (score <20) ($p < 0.05$). Private employees and pensioners often have incomplete control (score <20) compared to other occupations. Of the 31.9% of those with asthma control score <20, the majority reported that their asthma was well under control in the last four weeks ($p < 0.05$). Over the last four weeks, non-smokers have had adequate control of asthma. Of the 33 (29.2%) people who smoked, three quit only by training, and without receiving drug therapy. 96.67% of the participants found the program very good, while 93.33% would recommend it to a person from their family environment or a friend (figures 4 and 5). Tables 2 and 3 display statistics on the asthma control levels per subgroup and smoking status with asthma control levels by responses to ACT.

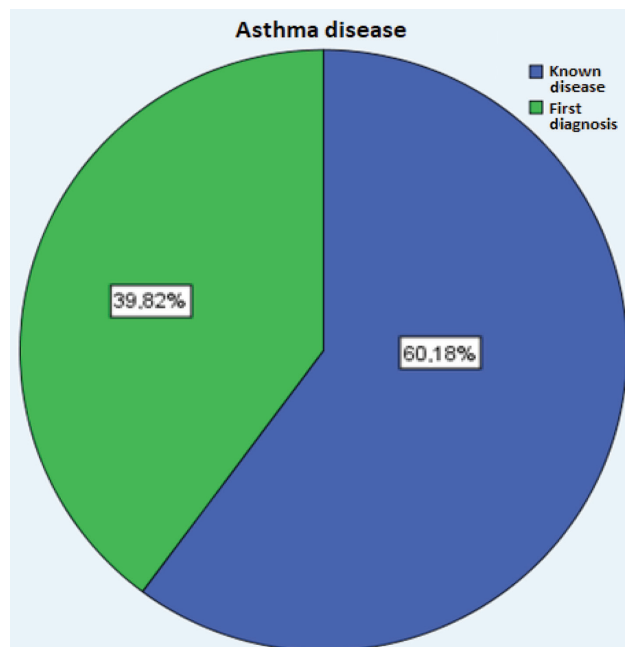


Figure 3. Percentage distribution of the sample by whether they knew if they had a known asthma disease.

Table 1. Characteristics of the sample (n=113).

Demographics	n (%)
Gender (female)	78 (69.0)
Age (mean±SD)	51.05±14.59
12+ years education	73 (64.7)
Married/children	87 (77.0)
Urban/semi-urban residence	113 (100)
Body mass index (kg/m ²)	
Underweight (<18.5)	2 (1.8)
Normal (18.5–24.9)	33 (29.2)
Overweight (25.0–29.9)	42 (37.2)
Obese (30.0–34.9)	29 (25.7)
Morbid obesity (>35.0)	7 (6.2)
Total ACT score	17.51±3.74
Underweight (<18.5)	17.50±2.12
Normal (18.5–24.9)	17.52±4.01
Overweight (25.0–29.9)	17.67±3.46
Obese (30.0–34.9)	17.97±3.49
Morbid obesity (>35.0)	14.71±5.06

ACT: Asthma Control Test

DISCUSSION

Asthma is a major global public health problem affecting all age groups. According to the asthma team of the Hellenic Pulmonary Society, the incidence of asthma

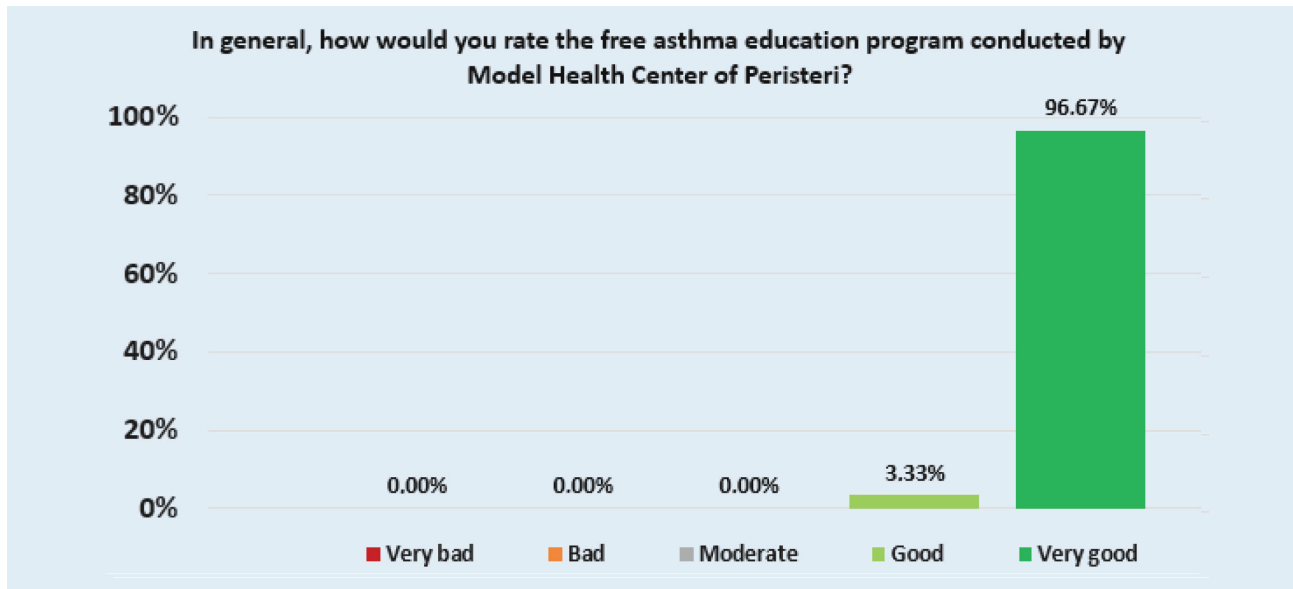


Figure 4. Distribution of respondents according to asthma school evaluation.

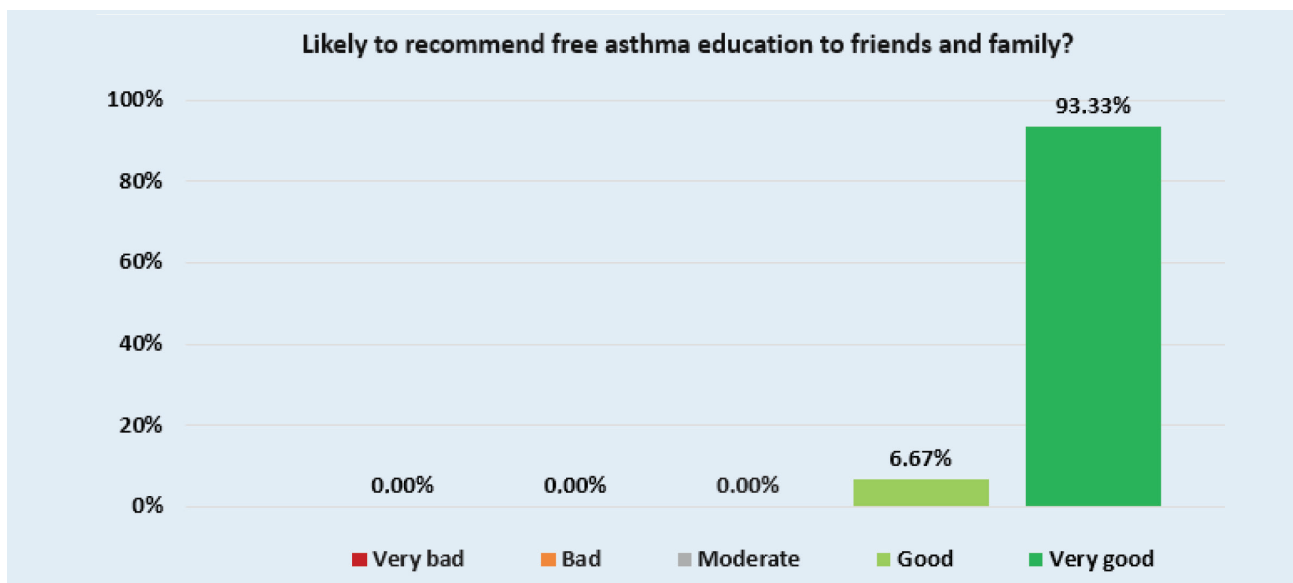


Figure 5. Distribution of respondents according to how likely they are if the asthma school would strongly recommend it to a person from their family environment or a friend.

in different age groups increases with age, where it is probably confused with Chronic Obstructive Pulmonary Disease (COPD).⁷

Asthma is not a public health problem only in high-income countries, as more than 80% of asthma deaths are reported in low- and middle-income countries. Asthma is under-diagnosed and under-treated, while the geographical distribution of asthma in Greece shows that in Attica and Crete the prevalence reaches 10–15%. In a recent first

nationwide epidemiological study by the Hellenic Pulmonary Society, with a sample of 2,632 people, the incidence of asthma in the Greek population was 8.6%.⁸

The level of asthma control is a good measure of how the disease affects people’s lives. The annual survey of asthma care in the United Kingdom (UK) states that 3.24 million people still do not receive even the most basic level of care, and uncontrolled asthma for the years 2014–2018 is 81%.⁹

Recent data from the United States of America (USA)

Table 2. Asthma control levels per subgroup.

Category	Asthma control* [n (%)]				p-sig. ¹
	Total sample	Poorly controlled	Intermediate controlled	Well-controlled	
<i>Total sample</i>		85 (75.2)	25 (22.1)	3 (2.7)	
<i>Gender</i>					
Male	35 (31.0)	26 (74.3)	8 (22.9)	1 (2.9)	
Female	78 (69.0)	59 (75.6)	17 (21.8)	2 (2.6)	
<i>Smoking status</i>					
None smoker	52 (46.0)	34 (65.4)	16 (30.8)	2 (3.8)	
Past smoker	28 (24.8)	26 (92.9)	2 (7.1)	0 (0.0)	
Smoker	33 (29.2)	25 (75.8)	7 (21.2)	1 (3.0)	
<i>Asthma diagnosis</i>					
New	45 (39.8)	33 (73.3)	10 (22.2)	2 (4.4)	
Past	68 (60.2)	52 (76.5)	15 (22.1)	1 (1.5)	
<i>Family history</i>					
None	69 (61.1)	49 (71.0)	20 (29.0)	0 (0.0)	
Father	18 (15.9)	16 (88.9)	1 (5.6)	1 (5.6)	
Mother	15 (13.3)	11 (73.3)	4 (26.7)	0 (0.0)	0.008
Other	9 (8.0)	8 (88.9)	0 (0.0)	1 (11.1)	
Unknown	2 (1.8)	1 (50.0)	0 (0.0)	1 (50.0)	

* According to Asthma Control Test (ACT)

have shown that medical expenses attributed to asthma were higher for people with uncontrollable disease compared to non-asthmatics. In the 28 countries of the European Community, it is estimated that there are more than 30 million asthma patients aged 15 to 64, representing a total medical expenditure of over € 20 billion.¹⁰

Like asthma, COVID-19 also affects people with underlying diseases. Recent reports suggest that asthma is much more common in children and adults with COVID-19 in the USA, than in China and Europe. The patients with COVID-19 develop mild to severe respiratory symptoms and a significant proportion of patients develop acute respiratory disease syndrome. Studies show that there is no clear indication that patients with asthma are at higher risk for SARS-CoV-2 infection, but patients with controlled asthma may be exacerbated by a viral infection.¹¹

Asthma is a serious public health challenge and has a major impact on both work and school performance as patients use emergency hospital services.¹² Medical experts agree that asthma control is a key feature in determining the best treatment for asthma, in addition asthma can greatly affect quality of life.¹³ Early diagnosis can improve

quality of life and reduce overall social and financial burden associated with treatment. The diagnosis depends on the patient and the health professional.¹⁴

The Global Asthma Management and Prevention Strategy followed the launch of the Global Asthma Initiative (GINA), which defined a network of individuals, organizations and public health officials to disseminate information on asthma care and improve asthma care with scientific data.¹⁵ A similar strategy was implemented in the Model Health Center of Peristeri, with the creation of the Asthma School. Raising awareness of local and national activities and focusing its efforts on educating families and health professionals on effective methods of managing and controlling asthma states that the availability of effective treatments and international research are what provide the permanent indications for optimal asthma control in many countries.¹⁵

A quarter of all asthma patients have poor symptom control,¹⁶ while asthma exacerbations result in significant social, psychological, and health costs. For example, exacerbations are associated with doubling the cost of health care management for severe asthma in both children and adults.^{17,18} Asthma results in a large, personal health care

Table 3. Smoking status and asthma control levels by responses to ACT.

ACT questions	Smoking status [N (%)]			Asthma control [n (%)]			p-sig. ¹	
	Total sample	Smoker	None smoker	Past smoker	Poorly controlled	Intermediate controlled		Well-controlled
<i>Work done</i>								
All time	2 (1.8)	0 (0.0)	1 (50.0)	1 (50.0)	2 (100)	0 (0.0)	0 (0.0)	<0.001
Most time	6 (5.3)	3 (50.0)	1 (16.7)	2 (33.3)	6 (100)	0 (0.0)	0 (0.0)	
Some time	27 (23.9)	7 (25.9)	12 (44.4)	8 (29.6)	26 (96.3)	1 (3.7)	0 (0.0)	
Little time	50 (44.2)	13 (26.0)	24 (48.0)	13 (26.0)	41 (82.0)	9 (18.0)	0 (0.0)	
None time	28 (24.8)	10 (35.7)	14 (50.0)	4 (14.3)	10 (35.7)	15 (53.6)	3 (10.7)	
<i>Breathlessness</i>								
> Once/day	12 (10.6)	4 (33.3)	5 (41.7)	3 (25.0)	12 (100)	0 (0.0)	0 (0.0)	<0.001
Once/day	9 (8.0)	1 (11.1)	5 (55.6)	3 (33.3)	9 (100)	0 (0.0)	0 (0.0)	
3–6 times/week	15 (13.3)	4 (26.7)	4 (26.7)	7 (46.7)	15 (100)	0 (0.0)	0 (0.0)	
1–2 times/week	49 (43.4)	17 (34.7)	21 (42.9)	11 (22.4)	40 (81.6)	9 (18.4)	0 (0.0)	
Not at all	28 (24.8)	7 (25.0)	17 (60.7)	4 (14.3)	9 (32.1)	16 (57.1)	3 (10.7)	
<i>Wake up*</i>								
4+ nights/week	15 (13.3)	2 (13.3)	6 (40.0)	7 (46.7)	15 (100)	0 (0.0)	0 (0.0)	0.003
2–3 nights/week	9 (8.0)	6 (66.7)	2 (22.2)	1 (11.1)	9 (100)	0 (0.0)	0 (0.0)	
Once per week	15 (13.3)	6 (40.0)	5 (33.3)	4 (26.7)	14 (93.3)	1 (6.7)	0 (0.0)	
Once or twice	29 (25.7)	6 (20.7)	16 (55.2)	7 (24.1)	23 (79.3)	6 (20.7)	0 (0.0)	
Not at all	45 (39.8)	13 (28.9)	23 (51.1)	9 (20.0)	24 (53.3)	18 (40.0)	3 (6.7)	
<i>Inhaler/nebulizer**</i>								
3+ times/day	4 (3.5)	0 (0.0)	1 (25.0)	3 (75.0)	4 (100)	0 (0.0)	0 (0.0)	<0.001
1–2 times/day	73 (64.6)	19 (26.0)	35 (47.9)	19 (26.0)	59 (80.8)	14 (19.2)	0 (0.0)	
2–3 times/week	10 (8.8)	2 (20.0)	4 (40.0)	4 (40.0)	9 (90.0)	1 (10.0)	0 (0.0)	
<1 time/week	13 (11.5)	6 (46.2)	7 (53.8)	0 (0.0)	6 (46.2)	7 (53.8)	0 (0.0)	
Not at all	13 (11.5)	6 (46.2)	5 (38.5)	2 (15.4)	7 (53.8)	3 (23.1)	3 (23.1)	
<i>Asthma control</i>								
Not at all	3 (2.7)	0 (0.0)	2 (66.7)	1 (33.3)	3 (100)	0 (0.0)	0 (0.0)	<0.001
Poor	16 (14.2)	4 (25.0)	4 (25.0)	8 (50.0)	16 (100)	0 (0.0)	0 (0.0)	
Somewhat	21 (18.6)	7 (33.3)	10 (47.6)	4 (19.0)	21 (100)	0 (0.0)	0 (0.0)	
Well	45 (39.8)	16 (35.6)	18 (40.0)	11 (24.4)	36 (80.0)	9 (20.0)	0 (0.0)	
Complete	28 (24.8)	6 (21.4)	18 (64.3)	4 (14.3)	9 (32.1)	16 (57.1)	3 (10.7)	

* p=0.096, ** p=0.085

ACT: Asthma Control Test

and financial burden.¹⁹ In addition, there are a growing number of effective and long-term treatments, based on evidence and guidelines for managing asthma.²⁰ The asthma mortality rate has not decreased in recent years.²¹ It is well-known that the majority of hospital admissions and deaths from asthma are related to the prevention of risk factors.²²

A study showed that lack of access to primary care facilities and poor adherence to preventive medication significantly contributed to a large proportion of patient deaths. Poor access to PHC, as rated by the patients, was associated with asthma exacerbations and emergency hospitalizations. Policymakers should focus on improving access to primary care in order to help prevent emergency

hospital admissions for asthma.²³ In our study, the vast majority of the patients had easy access to the Model Health Center of Peristeri for asthma self-management, and therefore rated the program very good in this aspect. It is worth noting that the Health Center in this study was staffed with a pulmonologist, and other experienced healthcare professional public health officer.

National education and implementation programs are systematic, relying primarily on primary care asthma education, as they are able to reduce morbidity and the impact of asthma exacerbation at reduced costs. Research is urgently needed to identify the best management and strategies by the PHC health team.²⁴

The British Asthma Management Guide notes that valid studies are needed to determine the benefits of asthma care options. These include large scale studies appropriate to clarify the pathways, and their impact, that promote the systematic management of high-risk asthma individuals in primary care in the UK.²⁰

Studies related to the management of patients with asthma have shown that about only 9% of patients use their breathing apparatus properly.^{25–27} The assessment of asthma and the concept of independent risk factors for exacerbations are factors that increase the risk of seizures, even if the patient has few symptoms. The most common problems to be ruled out before being diagnosed with severe asthma are poor inhalation technique, misuse of medication, and misdiagnosis of asthma, with symptoms due to alternative conditions such as upper airway dysfunction, heart failure, or lack of exercise. Diagnosis should be based on the history of the typical pattern of symptoms, and other strategies might be required to confirm it in specific populations, including already treated elderly patients. Symptoms of wheezing, shortness of breath and cough that are worse at exercise or at night as they can also be related to cardiovascular diseases that are common in this age group.¹⁵

From the results of the current research, retirees are more likely to have poor asthma control compared to the groups currently working, but there has been an improvement in asthma care as retirees have rarely reported their asthma preventing them in the last 4 weeks from fulfilling their duties at home. Also, the retirees in the last four weeks never felt short of breath, while the majority of the retirees in the last four weeks reported that they never woke up with asthma symptoms during the night or earlier in the morning. In addition, the majority of retirees in the last four weeks stated that their asthma was completely under control.

Asthma and COPD can be difficult to distinguish in clinical practice, especially in elderly patients and smokers, as well as in ex-smokers where conditions may overlap. The global strategy for diagnosis and management of COPD is determined by chronic respiratory symptoms or exposure to a risk factor such as smoking. Patients with COPD asthma overlays have worse outcomes than those with asthma or COPD alone.¹⁵

In the present study, non-smokers are rarely prevented from fulfilling their duties at work, school, and study or at home compared to smokers and ex-smokers, whereas non-smokers had their asthma well under control over the last four weeks. The cognitive and behavioral interventions were delivered by the research team in a holistic way of dealing with asthma in PHC.

It is no coincidence that out of the 33 people who were smokers, which amount to 29.2%, three of them quit smoking only with education they received from this study, and without receiving any drug treatment. According to studies, asthma is more common in obese people, and the respiratory symptoms associated with obesity may mimic asthma. In obese patients with exercise-related dyspnea, it is important to confirm asthma diagnosis. It has been shown that non-obese patients were just as likely to overestimate asthma, and there is both excessive and under-diagnosis of asthma in obese patients.¹⁵

In this study, overweight people often experienced shortness of breath for the past four weeks, and for the past four weeks, they often used their sedative or nebulizer once or twice a day. Unlike those who had a normal-healthy weight, they considered that their asthma was satisfactorily controlled for the last four weeks.

The goal of asthma treatment is to control the disease and achieve a good quality of life for the patients. However, many asthma patients experience symptoms and limitations. A study by Gaga et al asks if the control of asthma in Greece has been achieved, and the answer is that asthma is incurable, but it can be controlled, aiming at the best possible control. Three hundred and seventy-eight randomly selected patients with mild or moderate asthma (265 female patients, mean age 42.3 years) completed a structured questionnaire. According to the results, patients still have daily symptoms such as shortness of breath 30%, cough 25%, while nocturnal awakenings amount to 50%. At least once a week dyspnea 32% and cough 27% will show. Then their daily physical activities are limited, such as shortness of breath while walking amounts to 24%, shortness of breath on uphill rose to 54% while shortness

of breath while running amounted to 60%. In addition, 22% reported limiting their social activities on a daily basis. For 11% of the sample, asthma was fully controlled, for 46% well-controlled, for 32% not well-controlled, and for 11% totally uncontrolled. Outbreaks appeared to be exacerbated during pregnancy and in children (55%). In general, patients with severe symptoms consider their asthma to be completely satisfactorily controlled. While they consider it expected that asthma will cause them some limitations.²⁸

In the present study only 7.96% experienced shortness of breath once a day in the last four weeks, while 10.60% reported shortness of breath more than once a day. Over the past four weeks, nocturnal awakenings from asthma symptoms such as coughing, shortness of breath, chest tightness and wheezing have occurred in 60.16% of the sample. Over the past four weeks, 43.36% of the participants have been short of breath once or twice a week. Overall, 24.78% believe that asthma has been completely under control for the last four weeks, while 39.2% consider it to be satisfactorily controlled. Only 8.84%, all smokers, reported having asthma exacerbations.

According to another study, in-person training is more efficient in patients with asthma as an educational method. The efficiency of both educational pamphlet and in-person training in controlling symptoms of asthma patients has been shown. It can be inferred that such a simple educational intervention, if appropriately designed with all the necessary patient-level information, might be better for acquiring asthma-related knowledge, for management and even for the attitude towards the disease.²⁹ In contrast, in this study face-to-face training was applied to all the patients with asthma, both passive methods and active learning methods, as well as experiential methods.

It is more effective to combine pharmacologic with non-pharmacologic treatment through management strategies in order to control asthma. Psychotherapeutic interventions aim to reduce patients' complaints, improve quality of life and disease self-management. Approaches/techniques, such as cognitive behavioral and analytic therapy, counseling, psychodynamic psychotherapies, psycho-educational interventions, relaxation, self-management education, hypnosis, music therapies and biofeedback have been studied. Asthma-related morbidity and mortality are constantly on the rise and severe asthma accounts for about half of the asthma-related health service costs. Therefore, it is vital for patients, professionals and health-care systems to manage and reduce patients' symptoms and, by extension, hospital visits and admissions.³⁰

Persistent symptoms and frequent exacerbations result

in patients' activity limitation, which, together with compromised sleep quality and anxiety or depression, adversely and significantly have an impact on health-related quality of life (HRQoL), leading to a considerable psychosocial and economic disease burden. Among asthmatic patients, both anxiety and depression have been linked to a lower perception of asthma control, while poorly controlled disease has been linked to greater healthcare resource utilization, increased direct and indirect healthcare costs, and higher levels of work absenteeism.³¹ Severe asthma is a subject of continuous research because it greatly affects patients' quality of life, and patients with severe asthma experience symptoms, exacerbations, and medication side effects.³²

In this study, the majority of participants mentioned that their asthma was well controlled over the last four weeks ($p < 0.05$), as the vital role of patient education emerges. The Hellenic Center for Disease Control and Prevention provided the Model Health Center of Peristeri with scientific staff aiming to provide high level PHC to all citizens, with a vision of operating a dynamic organized system in accordance with the National Health Policy and based on National Scientific Standards and data.³³

To the best of our knowledge, this is the first study to highlight best practices in Greece from the implementation of the National Action Plan for Public Health, and specifically by strengthening prevention, health promotion strategies, and social policy in current epidemiological challenges. In the urban Model Health Center of Peristeri, which has been characterized as a pilot center, the importance of prevention has been recognized in strengthening PHC. International experience has shown that prevention programs, and their enhancement, are a double benefit to societies as they not only reduce mortality and morbidity but also save money in the long run. Following the policy of reorienting the health system to PHC according to the declaration of the World Health Organization, the Minister of Health implemented the Primary National Health Network (PEDY). The exemplary operation of the Model Health Center of Peristeri states that it is a pioneer in the effort that is currently being made in PHC, as it is the first example of the implementation of this strategy. However, there are some limitations. The sample of this study is not representative of the general population of patients with asthma, implying that the results should be interpreted cautiously. More studies conducted at other health centers, and with more diverse patient samples, could provide the necessary information to generalize the results. Furthermore, the study was conducted within a limited time frame due to time constraints.

In conclusion, PHC is the foundation and focus of the

national health system of the country. The pillars of the system are free universal health coverage for the population, provision of quality health services according to the needs of the population and emphasis on prevention, education and the promotion of community health.

The Model Health Center of Peristeri efficiently provided upgraded services to the citizens in a period of economic crisis. The main purpose of its operation was to provide a high level of PHC and specialized outpatient care services, such as preventive medicine, and applied programs aimed at preventing premature deaths, improving health status, and developing attitudes and behaviors with a positive effect on health. Specialized services such as palliative care, home care, rehabilitation and recovery were offered, as well as the delivery of a free smoking cessation program and the operation of the "Asthma School" to improve the health of each individual in the population, to detect people with asthma, and to self-manage the disease in daily clinical practice.

The application of the ACT questionnaire helped to record and highlight both the symptoms of asthma patients and the degree of control of their disease. Patients' instructions and education were adjusted according to the results of the questionnaire. Targeted patient education seems to play an important role in PHC as it can lead to better compliance and treatment effectiveness by helping to reduce visits to secondary health facilities.

Further research is needed to investigate the interaction

of multiple determinants of asthma, with innovative strategies for targeting those determinants, and for controlling the disease. Local and national activities, in the effort to raise awareness about asthma, should focus their efforts on educating health professionals on effective methods of managing and controlling asthma. Aid for systematic services provided in the management of asthma patients in PHC is important, as well as targeted patient education can play an important role in PHC in terms of better compliance and treatment effectiveness by helping to reduce visits to secondary health facilities, thus strengthening social policy.

With the multifaceted activity of Hellenic Center for Disease Control and Prevention, the most effective and essential achievement of the goals that the Organization and the Ministry of Health had as a vision was realized, providing quality services to the citizens in the Model Health Center of Peristeri and supporting Public Health. The benefits of the proper operation of the Model Health Center with the contribution of Hellenic Center for Disease Control and Prevention and the Ministry of Health played a developmental role in upgrading public health by strengthening local government and contributing to the mobilization of positive developments in PHC policy.

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ΠΕΡΙΛΗΨΗ

Βέλτιστες πρακτικές στη διαχείριση ασθενών με άσθμα στην πρωτοβάθμια φροντίδα υγείας: «Ενίσχυση της δημόσιας υγείας»

Ε. ΣΤΑΜΑΤΟΠΟΥΛΟΥ,^{1,2} Α. ΣΤΑΜΑΤΟΠΟΥΛΟΥ,¹ Ε. ΠΑΠΑΓΕΩΡΓΙΟΥ,¹ Φ. ΧΑΝΙΩΤΗ,¹ Δ. ΧΑΝΙΩΤΗΣ¹

¹Τμήμα Βιοϊατρικών Επιστημών, Σχολή Επιστημών Υγείας και Πρόνοιας, Πανεπιστήμιο Δυτικής Αττικής, Αθήνα, ²Παθολογικό Ιατρείο Εμπύρετων Λοιμώξεων, Τμήμα Επειγόντων Περιστατικών/Τμήμα Εξωτερικών Ιατρείων, Γενικό Νοσοκομείο Αττικής «ΚΑΤ», Αθήνα

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ΣΚΟΠΟΣ Ανάδειξη των βέλτιστων πρακτικών στην Ελλάδα από την εφαρμογή του Εθνικού Σχεδίου Δράσης για τη Δημόσια Υγεία, ενισχύοντας την πρόληψη, τις στρατηγικές προαγωγής της υγείας και την κοινωνική πολιτική στις τρέχουσες επιδημιολογικές προκλήσεις. **ΥΛΙΚΟ- ΜΕΘΟΔΟΣ** Οι ασθενείς με άσθμα από την κοινότητα εγγράφηκαν στο «Σχολείο Άσθματος», όπου υποβλήθηκαν σε έλεγχο, διάγνωση και εκπαίδευση. Αξιολογήθηκαν οι βέλτιστες πρακτικές της Εξωτερικής Πνευμονολογικής Μονάδας του Πρότυπου Κέντρου Υγείας αστικού τύπου Περιστερίου, αναδεικνύοντας την πολιτική επαναπροσανατολισμού της πρωτοβάθμιας φροντίδας υγείας (ΠΦΥ). Η Πνευμονολογική Μονάδα έχει αναπτύξει στρατηγική για την πρόληψη αναπνευστικών προβλημάτων και την παροχή αγωγής υγείας. Η εν λόγω στρατηγική εφαρμόστηκε σε συνεργασία με το Ελληνικό Κέντρο Ελέγχου και Πρόληψης Νοσημάτων, πλέον του Εθνικού Οργανισμού Δημόσιας Υγείας, του Δήμου Περιστερίου και του Υπουργείου Υγείας. **ΑΠΟΤΕΛΕΣΜΑΤΑ** Το

«Σχολείο Άσθματος» παρακολούθησαν συνολικά 113 άτομα, από τα οποία το 69,03% ήταν γυναίκες, και η μέση ηλικία ήταν 51,07±14,59 έτη. Η Πνευμονολογική Μονάδα λειτούργησε με υψηλές προδιαγραφές, με όραμα την ανάπτυξη ενός δυναμικού συστήματος, σύμφωνα με την Εθνική Πολιτική Υγείας. Έμφαση δόθηκε στην ποιότητα της ΠΦΥ, καθώς τα αναπνευστικά προβλήματα συνιστούν μείζον πρόβλημα δημόσιας υγείας για την κοινωνία. Η πλειονότητα των συμμετεχόντων ανέφερε ότι το άσθμα τους ήταν καλά ελεγχόμενο τις τελευταίες 4 εβδομάδες ($p < 0,05$). Βελτίωση καταγράφηκε στην υιοθέτηση της πρόληψης, με αύξηση 30% στους ασθενείς που επισκέπτονται το Κέντρο Υγείας για προληπτικούς λόγους. **ΣΥΜΠΕΡΑΣΜΑΤΑ** Η στοχευμένη εκπαίδευση των ασθενών με άσθμα είναι σημαντική στην ΠΦΥ, οδηγώντας σε καλύτερη συμμόρφωση και αποτελεσματικότητα της θεραπείας.

Λέξεις ευρητήριο: Άσθμα, Επίπτωση και επιπολασμός του άσθματος, Κόστος άσθματος, Πρωτοβάθμια φροντίδα υγείας (ΠΦΥ), Σχολείο άσθματος

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Corresponding author:

E. Stamatopoulou, Department of Biomedical Sciences, University of West Attica, Agiou Spyridonos street, 122 43 Egaleo, Attica, Greece
 e-mail: estamatopoulou@uniwa.gr; elenastamatopoyloy@gmail.com