

Role of the different healthcare professionals in the management of asthma patients. The GEMA-FORUM IV task force

Quirce S¹, Trigueros JA², Ausín P³, Muñoz Cano R⁴, Ramírez Hernández M⁵, González-Barcala FJ⁶, Gregorio Soto J⁷, Padilla Galo A⁸, Cisneros Serrano C⁹, Domínguez-Ortega J¹, Pueyo Bastida A¹⁰, Pascual Erquicia S¹¹, Dávila I¹², Martínez Moragón E¹³, Plaza Zamora FJ¹⁴, Sánchez Barbero F¹⁵, Plaza V¹⁶, and GEMAFORUM task force

¹Servicio de Alergología. Hospital Universitario La Paz. Instituto de Investigación Hospital Universitario La Paz (IdiPAZ) y CIBER de Enfermedades Respiratorias (CIBERES). Madrid, Spain

²Medicina de Familia. Centro de Salud de Menasalbas. Menasalbas, Toledo, Spain

³Servicio de Neumología. Hospital del Mar PSMAR-IMIM. UPF. Barcelona, Spain

⁴Servicio de Alergología. Hospital Clínic. Universidad de Barcelona. Instituto de Investigación Biomédica August Pi i Sunyer (IDIBAPS). Barcelona, Spain

⁵Servicio de Alergia. Complejo Hospitalario Universitario de Cartagena. Murcia, Spain

⁶Servicio de Neumología. Complejo Hospitalario Universitario de Santiago. Santiago de Compostela, Spain

⁷UGC de Neumología y Alergia de Hospital Universitario de Jerez. Jerez de la Frontera, Spain

⁸Unidad de Neumología. Agencia Sanitaria Costa del Sol. Marbella, Málaga, Spain

⁹Servicio de Neumología. Hospital Universitario de La Princesa. Instituto de Investigación La Princesa Madrid, Spain

¹⁰Servicio de Neumología. Hospital Universitario de Burgos. Burgos, Spain

¹¹Servicio de Neumología. Hospital Universitario Galdakao. Vizcaya, Spain

¹²Servicio de Alergología. Complejo Universitario de Salamanca. RETICS ARADyAL. Departamento de Ciencias Biomédicas y del Diagnóstico. Universidad de Salamanca. Salamanca, Spain

¹³Servicio de Neumología. Hospital Universitario Dr. Peset. Valencia, Spain

¹⁴Miembro de la Junta Directiva Nacional de SEFAC. Farmacéutico comunitario en Mazarrón (Murcia), Spain

¹⁵Research Unit. Luzán 5 Health Consulting S.A. Madrid, Spain

¹⁶Director del Comité Ejecutivo de la Guía Española para el Manejo del Asma (GEMA). Servei de Pneumologia i Al·lèrgia. Hospital de la Santa Creu i Sant Pau. Institut d'Investigació Biomèdica Sant Pau (IIB Sant Pau). Universitat Autònoma de Barcelona. Barcelona, Spain

Corresponding author:

Santiago Quirce

Servicio de Alergología

Hospital Universitario La Paz

E-mail: squirce@gmail.com

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Although the prevalence of asthma has increased by 12.6% worldwide from 1990 to 2015, the age-standardized mortality rate has decreased by almost 59% over the same period [1]. This improvement is probably related to the therapeutic advances made in recent years. However, studies that evaluated the proportion of patients who were well controlled showed suboptimal results, with rates of good control of 13-28% [2-4]. In order to improve asthma management in the context of current standards for care, education and prevention programs have been developed. The education of asthma patients is an essential complement to the treatment, as it reduces the risk of exacerbations, increases their quality of life, and reduces healthcare costs [5, 6]. The goals of these programs are: to raise awareness that asthma is a severe chronic condition; ensure the recognition of the signs and symptoms of asthma for early diagnosis; ensure effective control of asthma; and enhance the quality of life for patients with asthma, reduce the burden of the disease, and decrease related deaths [7]. Several guidelines have been developed to accomplish these goals, including tools and materials to put these guidelines into practice [8, 9]. In addition, it is crucial to establish a relationship of trust between health professionals and the patient to ensure that education is effective. Physicians, nurses, and even community pharmacists play a critical role in this context. Educational interventions carried out in Primary Care reduce unscheduled visits and the inappropriate use of medications such as antibiotics [5]. Educational programs assisted by trained nursing staff prevent readmissions due to exacerbations [10]. Finally, community pharmacists, because of their accessibility to the patient, can identify poorly

controlled patients, especially those who abuse short-acting beta₂-agonist or have low adherence to treatment [11-13].

The available evidence on the role of these healthcare professionals in the follow-up and control of patients with asthma is scarce and there is still debate about how specifically each of them contributes to this goal. For this reason, the GEMAFORUM task force proposed to debate and reach a consensus among a group of experts in asthma on this topic. The objective of the present study was to know the opinion of a wide number of experts about the contribution of physicians, nurses, and pharmacists would provide to improve control in patients with asthma.

After reviewing the most recent literature and 12 discussion sessions, a scientific committee of 3 coordinators and 12 experts in pulmonology, allergology, and Primary Care, proposed a questionnaire of 60 items grouped into three topics: future patient education programs, physicians' knowledge, nursing involvement, and role of pharmacists. Following the same Delphi methodology described in previous GEMA Forum reports [14, 15] and explained in the supplemental material, the items were sent to a panel of 116 experts (mainly pulmonologists and allergists) involved in the care of asthma patients throughout Spain to express their degree of agreement.

After two rounds, a consensus was reached on 50 items: 45 in agreement (75.0%) and 5 in disagreement (8.3%). The remaining 10 items (16.7%) did not show agreement or disagreement (supplementary material). Table 1 shows the items with the highest degree of consensus achieved by the experts after two rounds. The results of the 60 items are shown in the supplementary material.

There was consensus that the training of health professionals in the education of patients with asthma is deficient. This conclusion is relevant, since it was also agreed that this education has clinical relevance, even in patients with mild asthma. Therefore, it is suggested that the content

of the guidelines on patient education should be reinforced. The effective implementation of these education programs would be achieved within a National Plan that would include asthma patients as chronic patients. New technologies are considered to play an essential role in patient education. Moreover, their implementation in asthma patient education is cost-effective. However, despite being highly customizable technologies, their application is limited by the possible lack of specific knowledge and skills in both patients and healthcare professionals. It is important to remember that new technologies are not a complete alternative to face-to-face education but a complement. Although their effectiveness has not been proven, panelists considered telemedicine does not offer the same educational capabilities as face-to-face education.

Regarding physicians' knowledge, panelists agreed that the contents of knowledge improvement programs should be adapted to each level of care and integrated into a National Strategic Plan for Asthma. Although knowledge of the techniques used in managing patients at different levels of care is specific, diagnosis and monitoring with the peak expiratory flow (PEF) was considered of interest at all levels of care, including emergency departments, not only in specialized care. However, panelists argued that its reliability depends on how it is used. Even so, it is contradictory that the reliability of the PEF is not entirely accepted, and at the same time, the measurements made by the patients themselves employing telemedicine are accepted. Spirometry is another procedure considered of interest among physicians, but it was agreed that both Primary Care physicians and nurses should be adequately trained. Likewise, both asthma control and therapeutic adherence questionnaires were considered very useful in the Primary Care setting.

There was no clear consensus on what type of patients nursing can perform clinical follow-up. However, most panelists argued that regardless of patient type, it should be a qualified asthma nurse under medical supervision. The panelists agreed that nursing tasks should not be limited only to educational tasks, which should be adapted according to the profile and characteristics of each patient and applied especially after an exacerbation. Other tasks include the administration

of asthma control questionnaires and adherence follow-up. However, one of the most significant barriers to the success of asthma education is the lack of specialized nursing professionals.

There was broad consensus that the involvement of the community pharmacist in multidisciplinary teams caring for patients with asthma would improve health outcomes, especially concerning patient education, strengthen therapeutic adherence, and alert for medication misuse.

The high degree of consensus reached by the panel of experts shows the importance of the participation of different professional profiles in the follow-up of asthma patients to achieve optimal control of the disease. Their contribution is especially relevant in patient education. New technologies offer exciting opportunities in this regard, but they must be used in an individualized way according to the characteristics and knowledge of each patient, including the knowledge of healthcare professionals. In this context, Primary Care physicians and nurses, even community pharmacists, should reinforce their knowledge and skills in using procedures and questionnaires related to asthma control.

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CONFLICTS OF INTERESTS

Santiago Quirce has been on advisory boards for and has received speaker's honoraria from AstraZeneca, GlaxoSmithKline, MSD, Novartis, Chiesi, Mundipharma, ALK, and Sanofi.

Juan Antonio Trigueros in the last three years received honoraria for speaking at sponsored meetings from Chiesi, GSK, Novartis, AstraZeneca, Mundipharma, Boehringer Ingelheim, Menarini y Gebro Pharma

Pilar Ausín has been on advisory boards for and has received speaker's honoraria from AstraZeneca, GlaxoSmithKline, Menarini, and Sanofi.

Rosa Muñoz Cano has no conflict of interest.

Mercedes Ramírez Hernandez in the last three years has received financial assistance for the attendance at congresses, honoraria for participating as a moderator at meetings and has received speaker's honoraria from GlaxoSmithKline, Chiesi, TEVA, Menarini, and LETI.

Francisco-Javier González-Barcala in the last three years received honoraria for speaking at sponsored meetings, help assistance to meeting travel, act as a consultant or research projects from ALK, AstraZeneca, Bial, Chiesi, Gebro Pharma, GlaxoSmithKline, Menarini, Novartis, Rovi, Roxall, Sanofi, Stallergenes-Greer, and Teva.

José Gregorio Soto declares having received in the last three years fees for participating as a speaker in meetings sponsored by AstraZeneca, Boehringer, Sanofi, TEVA, and Novartis and as a consultant for Sanofi, AstraZeneca, GlaxoSmithKline, Chiesi, Novartis, TEVA, and Bial. He received financial support for attending conferences from TEVA, Boehringer, and Novartis and received grants for research projects from Novartis, GlaxoSmithKline, and Boehringer Ingelheim. He declares that he has not received, directly or indirectly, financing from the tobacco industry or its affiliates.

Alicia Padilla Galo in the last three years has received fees for participating as a speaker in meetings sponsored by ALK-Abelló, Astrazeneca, GlaxoSmithKline, TEVA, Zambon, Boehringer Ingelheim, Chiesi, Mundipharma, and Novartis; received honoraria as a consultant for AstraZeneca, TEVA, Orion, and GlaxoSmithKline; and received financial assistance for the attendance at congresses by ALK-Abelló, Chiesi, Menarini, Zambon, and Novartis.

Carolina Cisneros Serrano in the last two years has received help assistance to attend congresses, and honoraria for participating as a speaker at meetings or to participate in advisory boards from AstraZeneca, GlaxoSmithKline, Novartis, Chiesi, Mundipharma, Menarini, Sanofi, and Pfizer.

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Ana Pueyo Bastida in the last three years has received help assistance to attend congresses and honoraria for participating as a speaker at meetings or to participate in advisory boards from AstraZeneca, GlaxoSmithKline, Novartis, Chiesi, Mundipharma, Menarini, Gebro, and TEVA.

Silvia Pascual Erquicia has received speaker's honoraria from AstraZeneca, GlaxoSmithKline, TEVA, and Sanofi.

Ignacio Dávila in the last three years has received payment for lectures, including service on speaker's bureaus from Allergy Therapeutics, AstraZeneca, Chiesi, Diater, GlaxoSmithKline, Leti, MSD, Novartis, Roche, and Sanofi; for a consultancy from Allergy Therapeutics, ALK-Abelló, AstraZeneca, GlaxoSmithKline, Immunotek, Merck, MSD, Novartis, Sanofi, and grants for Thermofisher Diagnostics.

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Table. Items with the highest degree of agreement achieved after the two rounds

Topic 1. Future patient education program	agreement	disagreement
The educational tools of new technologies should be associated with a common computer system for all levels of care	91.5%	2.6%
Topic 2. Physician knowledge	agreement	disagreement
Access to brief clinical guidelines should be improved using new technologies	90.6%	0.0%
It is necessary to check that the patient has understood the questions of the asthma control questionnaires to validate their results	94.9%	0.9%
Asthma control questionnaires should be included in the follow-up of patients with asthma	93.2%	0.0%
Regular and frequent training of nursing professionals in spirometry in the Primary Care setting is necessary	95.7%	0.9%
Primary Care should have a nursing professional specialized in spirometry	91.5%	0.9%
Topic 3. Nursing involvement	agreement	disagreement
Nursing should be in charge of checking therapeutic adherence including inhalation technique in patient follow-up	94.9%	0.0%
The nursing professional should adapt asthma education to each patient according to individual patient characteristics	96.6%	0.0%
The nursing professional should perform asthma education in all interactions with patients, adapting it to each clinical situation	94.0%	0.0%
Topic 4. Role of pharmacists	agreement	disagreement
A system of alerts should be set up so that the pharmacist can alert nurses or physicians about the improper use of medication	94.0	0.9%