

## Role of Different Health Care Professionals in the Management of Asthma Patients: The GEMA-FORUM IV Task Force

Quirce S<sup>1,2,3</sup>, Trigueros JA<sup>4</sup>, Ausín P<sup>5</sup>, Muñoz Cano R<sup>6,7</sup>, Ramírez Hernández M<sup>8</sup>, González-Barcala FJ<sup>9</sup>, Soto Campos JG<sup>10</sup>, Padilla Galo A<sup>11</sup>, Cisneros Serrano C<sup>12,13</sup>, Domínguez-Ortega J<sup>1,2,3</sup>, Pueyo Bastida A<sup>14</sup>, Pascual Erquicia S<sup>15</sup>, Dávila I<sup>16,17,18</sup>, Martínez Moragón E<sup>19</sup>, Plaza Zamora FJ<sup>20,21</sup>, Sánchez Barbero F<sup>22</sup>, Plaza V<sup>23,24,25,26</sup>, and the GEMAFORUM task force

<sup>1</sup>Servicio de Alergología, Hospital Universitario La Paz, Madrid, Spain

<sup>2</sup>Instituto de Investigación, Hospital Universitario La Paz (IdiPAZ), Madrid, Spain

<sup>3</sup>CIBER de Enfermedades Respiratorias (CIBERES), Madrid, Spain

<sup>4</sup>Centro de Salud de Menasalbas, Menasalbas, Toledo, Spain

<sup>5</sup>Servicio de Neumología, Hospital del Mar PSMAR-IMIM, UPF, Barcelona, Spain

<sup>6</sup>Servicio de Alergología, Hospital Clínic, Universidad de Barcelona, Barcelona, Spain

<sup>7</sup>Instituto de Investigación Biomédica August Pi i Sunyer (IDIBAPS), Barcelona, Spain

<sup>8</sup>Servicio de Alergia, Complejo Hospitalario Universitario de Cartagena, Murcia, Spain

<sup>9</sup>Servicio de Neumología, Complejo Hospitalario Universitario de Santiago, Santiago de Compostela, Spain

<sup>10</sup>UGC de Neumología y Alergia del Hospital Universitario de Jerez, Jerez de la Frontera, Spain

<sup>11</sup>Unidad de Neumología, Agencia Sanitaria Costa del Sol, Marbella, Málaga, Spain

<sup>12</sup>Servicio de Neumología, Hospital Universitario de La Princesa, Madrid, Spain

<sup>13</sup>Instituto de Investigación La Princesa, Madrid, Spain

<sup>14</sup>Servicio de Neumología, Hospital Universitario de Burgos, Burgos, Spain

<sup>15</sup>Servicio de Neumología, Hospital Universitario Galdakao, Vizcaya, Spain

<sup>16</sup>Servicio de Alergología, Complejo Universitario de Salamanca, Salamanca, Spain

<sup>17</sup>RETICS ARADyAL

<sup>18</sup>Departamento de Ciencias Biomédicas y del Diagnóstico, Universidad de Salamanca, Salamanca, Spain

<sup>19</sup>Servicio de Neumología, Hospital Universitario Dr. Peset, Valencia, Spain

<sup>20</sup>Junta Directiva Nacional de SEFAC

<sup>21</sup>Community Pharmacist, Mazarrón, Spain

<sup>22</sup>Research Unit, Luzán 5 Health Consulting S.A., Madrid, Spain

<sup>23</sup>Guía Española para el Manejo del Asma (GEMA)

<sup>24</sup>Servei de Pneumologia i Al·lèrgia, Hospital de la Santa Creu i Sant Pau, Barcelona, Spain

<sup>25</sup>Institut d'Investigació Biomèdica Sant Pau (IIB Sant Pau), Barcelona, Spain

<sup>26</sup>Universitat Autònoma de Barcelona, Barcelona, Spain

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Although the prevalence of asthma increased by 12.6% worldwide from 1990 to 2015, the age-standardized mortality rate decreased by almost 59% over the same period [1], probably thanks to advances in therapy. However, studies evaluating the proportion of patients whose disease was well controlled showed suboptimal results, with good control recorded in 13%-28% [2-4]. Education and prevention programs have been developed to improve asthma management in the context of current standards for care. The education of asthma patients is an essential complement to treatment, as it reduces the risk of exacerbations, increases quality of life, and reduces health care costs [5,6]. The goals of these programs are as follows: to raise awareness that asthma is a severe chronic condition; to ensure the recognition of the signs and symptoms of asthma for early diagnosis; to ensure effective control of asthma; to enhance the quality of life of patients with asthma; to reduce disease burden; and to decrease related deaths [7]. Several guidelines have been developed to accomplish these goals, and tools and materials to facilitate implementation of the guidelines have been designed [8,9]. In addition, it is crucial to establish a relationship of trust between health professionals and patients 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 inappropriate use of medications such as antibiotics [5]. Educational programs involving trained nursing staff prevent readmissions due to exacerbations [10]. Finally, because of their proximity to the public, community pharmacists can identify patients whose disease is poorly controlled, especially those who misuse short-acting  $\beta_2$ -agonists or whose adherence to treatment is poor [11-13].

Evidence on the role of these health professionals in the follow-up and control of patients with asthma is scarce, and there is still debate about the specific contribution of each specialist to this goal. For this reason, the GEMA-FORUM task force proposed to debate and reach a consensus on this topic among a group of experts in asthma. The objective of the present study was to know the opinion of a wide number of experts on how physicians, nurses, and pharmacists can help to improve control of asthma.

After reviewing the most recent literature and holding 12 discussion sessions, a scientific committee comprising 3 coordinators and 12 experts in pulmonology, allergology, and primary care proposed a questionnaire comprising 60 items grouped into 4 topics: future patient education programs, physicians' knowledge, nursing involvement, and the role of pharmacists. Following the same Delphi methodology described in previous GEMA-FORUM reports [14,15] and explained in the Supplementary 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 determine their degree of agreement.

After 2 rounds, a consensus was reached on 50 items: 45 in agreement (75.0%) and 5 in disagreement (8.3%). Neither agreement nor disagreement were recorded for the remaining 10 items (16.7%) (Supplementary Material). The Table shows the items with the highest degree of consensus achieved by the experts after 2 rounds. The results for the 60 items are shown in the Supplementary Material.

**Table.** Items With the Highest Degree of Agreement Achieved After the 2 Rounds.

<b>Topic 1. Future patient education program</b>	<b>Agreement</b>	<b>Disagreement</b>
The educational tools of new technologies should be associated with a common computer system for all levels of care	91.5%	2.6%
<b>Topic 2. Physician knowledge</b>	<b>Agreement</b>	<b>Disagreement</b>
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%
<b>Topic 3. Involvement of nursing professionals</b>	<b>Agreement</b>	<b>Disagreement</b>
The nursing professional 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 provide asthma education in all interactions with patients, adapting it to each clinical situation	94.0%	0.0%
<b>Topic 4. Role of pharmacists</b>	<b>Agreement</b>	<b>Disagreement</b>
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%

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 education has clinical relevance, even in patients with mild asthma. Therefore, it was 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 among chronically ill 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, application is limited by the possible lack of specific knowledge and skills in both patients and health professionals. It is important to remember that new technologies are not a complete alternative to face-to-face education but a complement. While the effectiveness of telemedicine remains unproven, the panelists felt that it did 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 peak expiratory flow was considered of interest at all levels of care, including emergency departments, and not only in specialized care. However, the panelists argued that its reliability depends on how it is used. Even so, it is contradictory that the reliability of peak expiratory flow is not entirely accepted,

while the measurements made by the patients themselves via telemedicine are accepted. Physicians also consider spirometry to be interesting, although it was agreed that both primary care physicians and nurses should be adequately trained. Likewise, both questionnaires on asthma control and adherence were considered very useful in primary care.

There was no clear consensus on which type of nurse can perform clinical follow-up. However, most panelists argued that regardless of patient type, this should be the job of a qualified asthma nurse under medical supervision. The panelists agreed that nursing tasks should not be limited to educational tasks, which should be adapted to the profile and characteristics of the individual patient and applied regularly and, more specifically, after an exacerbation. Other tasks include the administration of asthma control questionnaires and follow-up of adherence. 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 adherence, and alert to medication misuse.

The high degree of consensus reached by the panel shows how the participation of various specialists in the follow-up of asthma can help to ensure optimal disease control. Their contribution is especially relevant in patient education. New technologies offer exciting opportunities in this regard, although they must be individualized, taking into account the patient's characteristics and knowledge and the knowledge of the health professionals involved in care. In this context,

primary care physicians and nurses, and even community pharmacists, should reinforce their knowledge and skills in using procedures and questionnaires related to asthma control.

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#### *Conflicts of Interest*

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

In the last 3 years, Juan Antonio Trigueros has received honoraria for speaking at sponsored meetings from Chiesi, GSK, Novartis, AstraZeneca, Mundipharma, Boehringer Ingelheim, Menarini, and Gebro Pharma.

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

In the last 3 years, Mercedes Ramírez Hernandez has received financial assistance for attendance at congresses, honoraria for participating as a moderator at meetings, and speaker's honoraria from GlaxoSmithKline, Chiesi, TEVA, Menarini, and LETI.

In the last 3 years, Francisco-Javier González-Barcala has received honoraria for speaking at sponsored meetings and assistance for travel to meetings from and has acted as a consultant or been involved in research projects for ALK, AstraZeneca, Bial, Chiesi, Gebro Pharma, GlaxoSmithKline, Menarini, Novartis, Rovi, Roxall, Sanofi, Stallergenes-Greer, and Teva.

In the last 3 years, José Gregorio Soto declares having received 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 has 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.

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In the last 2 years, Carolina Cisneros Serrano has received assistance for attending congresses, and honoraria

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#### **References**

1. GBD Chronic Respiratory Disease Collaborators. Global, regional, and national deaths, prevalence, disability-adjusted life years, and years lived with disability for chronic obstructive pulmonary disease and asthma, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. *Lancet Respir Med.* 2017;5:691-706.
2. Partridge MR, van der Molen T, Myrseth SE, Busse WW. Attitudes and actions of asthma patients on regular maintenance therapy: the INSPIRE study. *BMC Pulm Med.* 2006;6:13.
3. Price D, Fletcher M, van der Molen T. Asthma control and management in 8,000 European patients: the REcognise Asthma and Link to Symptoms and Experience (REALISE) survey. *NPJ Prim Care Respir Med.* 2014;24:14009.

4. Olaguibel JM, Quirce S, Julia B, Fernández C, Fortuna AM, Molina J, et al. Measurement of asthma control according to Global Initiative for Asthma guidelines: a comparison with the Asthma Control Questionnaire. *Respir Res.* 2012;13:50.
5. Boulet LP, Boulay ME, Gauthier G, Battisti L, Chabot V, Beauchesne MF, et al. Benefits of an asthma education program provided at primary care sites on asthma outcomes. *Respir Med.* 2015;109:991-1000.
6. Mishra R, Kashif M, Venkatram S, George T, Luo K, Díaz-Fuentes G. Role of adult asthma education in improving asthma control and reducing emergency room utilization and hospital admissions in an inner city hospital. *Can Respir J.* 2017;2017:5681962.
7. National Heart, Lung, and Blood Institute. National Asthma Education and Prevention Program (NAEPP) [Accessed 2022 March 14]. Available from: <https://www.nhlbi.nih.gov/science/national-asthma-education-and-prevention-program-naepp>.
8. Guía Española para el Manejo del Asma (GEMA) v5.1 [Accessed 2022 March 14]. Available from: <https://www.gemasma.com/>.
9. Global Initiative for Asthma. 2021 GINA Report. Global Strategy for Asthma Management and Prevention [Accessed 2022 February 18]. Available from: <https://ginasthma.org/>.
10. Hall KK, Petsky HL, Chang AB, O'Grady KF. Caseworker-assigned discharge plans to prevent hospital readmission for acute exacerbations in children with chronic respiratory illness. *Cochrane Database Syst Rev.* 2018;11:CD012315.
11. van Boven JF, Hiddink EG, Stuurman-Bieze AG, Schuiling-Veninga CC, Postma MJ, Vegter S. The pharmacists' potential to provide targets for interventions to optimize pharmacotherapy in patients with asthma. *Int J Clin Pharm.* 2013;35:1075-82.
12. Wong LY, Chua SS, Husin AR, Arshad H. A pharmacy management service for adults with asthma: a cluster randomised controlled trial. *Fam Pract.* 2017;34:564-73.
13. Dokbua S, Dilokthornsakul P, Chaiyakunapruk N, Saini B, Krass I, Dhippayom T. Effects of an asthma self-management support service provided by community pharmacists: A systematic review and meta-analysis. *J Manag Care Spec Pharm.* 2018;24:1184-96.
14. Trigueros JA, Plaza V, Domínguez-Ortega J, Serrano J, Cisneros C, Padilla A, et al. Asthma, comorbidities, and aggravating circumstances: The GEMA-FORUM II Task Force. *J Investig Allergol Clin Immunol.* 2020;30:140-3.
15. Plaza V, Trigueros JA, Cisneros C, Domínguez-Ortega J, Cimbollek S, Fernández S, et al. The importance of small airway dysfunction in asthma. The GEMA-FORUM III Task Force. *J Investig Allergol Clin Immunol.* 2021;31:433-6.

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**Santiago Quirce**

Servicio de Alergología  
Hospital Universitario La Paz  
Paseo de la Castellana, 261  
28046 Madrid, Spain  
E-mail: [squirce@gmail.com](mailto:squirce@gmail.com)