

Experience on the management of patients with asthma or chronic obstructive pulmonary disease during the COVID-19 pandemic: the NEUMOBIAL study

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Table S1: Hospitals participating in the study

Province	Hospital	Participants
A Coruña	Complejo Hospitalario Universitario de A Coruña (CHUAC)	1
A Coruña	Complejo Hospitalario Universitario de Ferrol (CHUF)	1
A Coruña	Complejo Hospitalario Universitario de Santiago de Compostela (CHUS)	2
A Coruña	Hospital HM La Rosaleda	1
A Coruña	Hospital HM Modelo	1
Álava	Hospital Universitario Araba	1
Albacete	Complejo Hospitalario Universitario de Albacete (CHUA)	3
Alicante	Hospital General Universitario de Alicante Doctor Balmis	3
Alicante	Hospital General Universitario de Elche	1
Alicante	Hospital General Universitario de Elda	1
Alicante	Hospital Marina Baixa	1
Alicante	Hospital Público Verge dels Lliris	2
Alicante	Hospital San Vicente del Raspeig	1
Alicante	Hospital Universitario de Torrevieja	1
Alicante	Hospital Universitario Sant Joan d'Alacant	2
Alicante	Hospital Vega Baja	1
Almería	Centro Médico Bayyana	1
Almería	Hospital de Poniente	2
Almería	Hospital Público Comarcal La Inmaculada	2
Almería	Hospital Universitario Torrecárdenas	3
Asturias	Hospital Carmen y Severo Ochoa	1
Asturias	Hospital Universitario Central de Asturias (HUCA)	2
Asturias	Hospital Universitario de Cabueñes	2
Asturias	Hospital Universitario San Agustín	1
Asturias	Instituto Nacional de Silicosis	1
Ávila	Complejo Asistencial de Ávila	1
Badajoz	Complejo Hospitalario Público Don Benito Vva de la Serena	2
Badajoz	Hospital de Mérida	1

Badajoz	Hospital Quirónsalud Clideba	1
Badajoz	Hospital Universitario de Badajoz	1
Barcelona	Centre Mèdic Vila Olímpica	1
Barcelona	Clínica Mèdica d'Especialitats Poblenou	1
Barcelona	Consorci Corporació Sanitària Parc Taulí de Sabadell	3
Barcelona	Consulta Respira	1
Barcelona	Hospital Clínic	6
Barcelona	Hospital Comarcal Sant Jaume de Calella	1
Barcelona	Hospital de Mataró	1
Barcelona	Hospital de Sant Joan Despí Moisès Broggi	3
Barcelona	Hospital de Viladecans	1
Barcelona	Hospital del Mar	1
Barcelona	Hospital Dos de Maig	1
Barcelona	Hospital Municipal de Badalona	1
Barcelona	Hospital Quirónsalud Barcelona	1
Barcelona	Hospital Sanitas CIMA	1
Barcelona	Hospital Sant Joan de Déu de Manresa	2
Barcelona	Hospital Sant Joan de Déu de Martorell	1
Barcelona	Hospital Sant Rafael	1
Barcelona	Hospital Universitari Sagrat Cor	4
Barcelona	Hospital Universitario de Igualada	1
Barcelona	Hospital Universitario Vall d'Hebrón	6
Barcelona	Parc Sanitari Sant Joan de Déu	1
Bizkaia	Hospital de Urduliz Alfredo Espinosa	4
Bizkaia	Hospital Universitario Basurto	2
Bizkaia	Hospital Universitario de Cruces	1
Burgos	Hospital Universitario de Burgos	2
Cáceres	Complejo Hospitalario Universitario de Cáceres	1
Cáceres	Hospital San Pedro de Alcántara	1
Cádiz	Clínica ADI	1
Cádiz	Clínica de Neumología Dr. Arnedillo	1

Cádiz	Clínica Los Álamos (Jerez de la Frontera)	1
Cádiz	Policlínica Andrea Regina	1
Cantabria	Hospital Universitario Marqués de Valdecilla	2
Castellón	Hospital General Universitario de Castellón	1
Ceuta	Hospital Universitario de Ceuta	3
Ciudad Real	Hospital General La Mancha Centro	3
Ciudad Real	Hospital General Universitario de Ciudad Real	1
Ciudad Real	Hospital Público Santa Bárbara	1
Córdoba	Centro Médico Ciudad Jardín	1
Córdoba	Hospital de Montilla	1
Córdoba	Hospital Infanta Margarita	2
Córdoba	Hospital Quirónsalud Córdoba	1
Córdoba	Hospital Universitario Reina Sofía	2
Gipuzkoa	Hospital de Bidasoa	1
Gipuzkoa	Hospital de Mendaro	1
Granada	Hospital Comarcal Santa Ana de Motril	1
Granada	Hospital de Alta Resolución de Guadix	1
Granada	Hospital Público Comarcal de Baza	1
Granada	Hospital Universitario Clínico San Cecilio	1
Granada	Hospital Universitario Virgen de las Nieves	2
Guadalajara	Hospital Universitario de Guadalajara	1
Huelva	Hospital Universitario Juan Ramón Jiménez	5
Huesca	Hospital General San Jorge	1
La Rioja	Fundación Hospital de Calahorra	1
Las Palmas	Hospital Universitario de Gran Canaria Doctor Negrín	4
León	Complejo Asistencial Universitario de León	2
León	Hospital HM San Francisco	1
León	Hospital Universitario del Bierzo	1
León	Hospital Virgen de Altagracia	1
Lugo	Hospital Público de Monforte de Lemos	1
Lugo	Hospital Universitario Lucus Augusti	1

Madrid	Hospital Central de la Defensa Gómez Ulla	4
Madrid	Hospital Clínico San Carlos	2
Madrid	Hospital de El Escorial	1
Madrid	Hospital General Universitario Gregorio Marañón	4
Madrid	Hospital San Rafael	1
Madrid	Hospital Universitario 12 de Octubre	4
Madrid	Hospital Universitario de Torrejón	2
Madrid	Hospital Universitario Fundación Alcorcón	1
Madrid	Hospital Universitario Fundación Jiménez Díaz	5
Madrid	Hospital Universitario General de Villalba	1
Madrid	Hospital Universitario Infanta Elena	4
Madrid	Hospital Universitario Infanta Leonor	5
Madrid	Hospital Universitario Infanta Sofía	1
Madrid	Hospital Universitario La Paz	3
Madrid	Hospital Universitario Ramón y Cajal	1
Málaga	Hospital de la Axarquía	2
Málaga	Hospital Costa del Sol	1
Málaga	Hospital Quirónsalud Málaga	1
Málaga	Hospital Quirónsalud Marbella	3
Málaga	Hospital Regional Universitario de Málaga	1
Málaga	Hospital Serranía de Ronda	2
Málaga	Hospital Universitario Virgen de la Victoria	4
Murcia	Hospital Clínico Universitario Virgen de la Arrixaca	1
Murcia	Hospital Comarcal del Noroeste	1
Murcia	Hospital General Universitario Morales Meseguer	1
Murcia	Hospital General Universitario Santa Lucía	1
Murcia	Hospital Rafael Méndez	1
Navarra	Complejo Hospitalario de Navarra	2
Navarra	Hospital García Orcoyen	1
Navarra	Hospital Reina Sofía de Tudela	2
Ourense	Complejo Hospitalario Universitario de Ourense (CHUO)	1

Pontevedra	Complejo Hospitalario Universitario de Pontevedra (CHOP)	1
Pontevedra	Hospital Álvaro Cunqueiro	1
Pontevedra	Hospital Montecelo	1
Pontevedra	Hospital Nuestra Señora de Fátima	1
Pontevedra	Hospital Ribera Povisa	1
Salamanca	Fundación Hospital General de la Santísima Trinidad	1
Salamanca	Hospital Clínico Universitario de Salamanca	2
Salamanca	Hospital de Los Montalvos	1
Santa Cruz de Tenerife	Complejo Hospitalario Universitario de Canarias (HUC)	4
Santa Cruz de Tenerife	Hospital Universitario Hospiten Sur	1
Santa Cruz de Tenerife	Hospital Universitario Ntra. Sra. de la Candelaria	6
Sevilla	Hospital de Alta Resolución de Écija	1
Sevilla	Hospital Quirónsalud Sagrado Corazón	1
Sevilla	Hospital San Juan de Dios del Aljarafe	2
Sevilla	Hospital Universitario Virgen del Rocío	8
Sevilla	Hospital Universitario Virgen Macarena	1
Tarragona	Hospital Universitari Joan XXIII	2
Toledo	Hospital General Universitario de Toledo	1
Toledo	Hospital Virgen de la Salud	3
Valencia	Centro Sanitario Integrado Juan Llorens, Consorci Hospital General Universitari València (CHGUV)	1
Valencia	Consorci Hospital General Universitari de València	2
Valencia	Hospital Arnau de Vilanova	1
Valencia	Hospital Clínic de València	2
Valencia	Hospital Comarcal Francesc de Borja (Gandía)	2
Valencia	Hospital de Manises	3
Valencia	Hospital de Sagunto	1

Valencia	Hospital General de Requena	2
Valencia	Hospital Lluís Alcanyís de Xàtiva	3
Valencia	Hospital Universitari i Politècnic La Fe	4
Valencia	Hospital Universitario de la Ribera	3
Valencia	Hospital Universitario Doctor Peset	1
Valladolid	Hospital Clínico Universitario de Valladolid (HCUV)	2
Valladolid	Hospital Recoletas Campo Grande	1
Zaragoza	Hospital Ernest Lluch	2
Zaragoza	Hospital Universitario Miguel Servet	3

Supplementary file S2

Questionnaire

COPD

To complete this part of the questionnaire, please take into account the aggregated data of the last 10 patients who have come to your consultation for COPD related reasons. We do not ask you to make individual assessments, but to express aggregated data, based on these 10 patients, which will represent your usual clinical practice.

1. Workplace name

2. Time of experience as a pulmonologist

_____ years

3. Average number of COPD patients seen per month

_____ patients

4. What percentage of your COPD visits are remote?

.....%

5. The last 10 COPD patients with whom you have had a face-to-face consultation, how much time on average have you been able to dedicate to each one?

_____ minutes

6. The last 10 COPD patients with whom you have had a remote consultation, how much time on average have you been able to dedicate to each one?

_____ minutes

7. Do you consider that the pandemic situation has negatively impacted the diagnosis and monitoring of asthma and COPD?

- ☐ Yes, it has negatively impacted the diagnosis and follow-up of the COPD patient
- ☐ Yes, it has negatively impacted the diagnosis and follow-up of the patient with asthma
- ☐ Yes, it has negatively impacted the diagnosis and monitoring of both pathologies
- ☐ No, it has not negatively impacted
- ☐ Other, please specify _____

8. In relation to the diagnostic and follow-up tests of COPD, has the frequency of tests varied during the pandemic?

- ☐ Yes, I have reduced the request for tests significantly
- ☐ Yes, the patient has not attended the tests, although we recommend them at the consultation
- ☐ No, I don't think it has significantly affected
- ☐ Other, please specify _____

9. Before the pandemic, how often did you evaluate COPD control in your patients?

- ☐ Every month
- ☐ Every 2 months
- ☐ Every 3 months
- ☐ Every 6 months
- ☐ Every 12 months
- ☐ Other, please specify _____

10. And currently, how often do you evaluate COPD control in your patients?

- ☐ Every month
- ☐ Every 2 months

- Every 3 months
 - Every 6 months
 - Every 12 months
 - Other, please specify _____
- 11. Your last 10 COPD patients who have used the CAT (COPD Assessment Test) questionnaire or the mMRC (modified British Medical Research Council questionnaire) what percentage have had the following score intervals? (The percentages of the answers must add up to 100)**
- ☐ CAT<10 or mMRC=0-1 (little symptomatic)%
 - ☐ CAT≥10 or mMRC≥2 (very symptomatic)%
- 12. What percentage of your last 10 COPD patients do you think have gained control of the disease with the prescribed treatment since the last visit?**
.....%
- 13. Do you think that the percentage of patients who get control of the disease with treatment has been lower in the pandemic period?**
- Yes, because patients have fewer follow-up visits
 - Yes, because patients avoid screening tests
 - No, it has not changed significantly
 - Other, please specify _____
- 14. What percentage of your last 10 COPD patients showed the following spirometric degrees? (The percentages of the answers must add up to 100)**
- ☐ GOLD Grade 1%
 - ☐ GOLD Grade 2%
 - ☐ GOLD Grade 3%
 - ☐ GOLD Grade 4%
- 15. What percentage of your last 10 COPD patients were in the following groups, according to the ABCD assessment tool? (The percentages of the must add up to 100)**
- ☐ Group A%
 - ☐ Group B%
 - ☐ Group C%
 - ☐ Group D%
- 16. What percentage of your last 10 patients who are on initial COPD treatment are still being treated with the following drugs? (The percentages of the answers must add up to 100)**
- ☐ LAMA.....%
 - ☐ LABA%
 - ☐ LAMA + LABA.....%
 - ☐ ICS + LABA%
 - ☐ Other, please specify _____
- 17. What percentage of your last 10 patients who did not respond adequately to initial COPD treatment are still being treated with the following drugs? (The percentages of the answers you select must add up to 100)**
- ☐ LAMA.....%
 - ☐ LABA%
 - ☐ LAMA + LABA.....%
 - ☐ ICS + LABA%
 - ☐ ICS + LABA + LAMA
 - ☐ ICS + LABA + LAMA + roflumilast
 - ☐ ICS + LABA + LAMA + azithromycin

- ☐ Other, please specify _____ %
- 18. What total percentage of your last 10 COPD patients are treated with ICS + LABA + LAMA?**
%
- 19. Of your COPD patients being treated with ICS + LABA + LAMA, what percentage of patients use different devices?**
%
- 20. What total percentage of your last 10 COPD patients receive maintenance treatment with LAMA (either as monotherapy or in combination)?**
 -----%
- 21. In what percentage of your last 10 newly diagnosed COPD patients did you choose the treatment option based on the following characteristics? (The percentages of the answers must add up to 100)**
- ☐ Its ease of use%
- ☐ Patient preferences%
- ☐ Ease of explanation%
- ☐ Inspiratory flow required%
- ☐ Possibility to check the correct inhalation%
- ☐ Active substance%
- ☐ Type of inhaler%
- ☐ Other, please specify _____ %
- 22. In your last 10 COPD patients who have switched treatment to Gregal® Zonda®, what have been the main reasons for switching to this drug?**
- ☐ Possibility of verifying that the entire dose of the drug has been inhaled
- ☐ Failure of the previous therapeutic option
- ☐ Patient dissatisfaction with the inhaler device they were using
- ☐ Ease of use of the device
- ☐ Other, please specify _____
- 23. How do you assess the clear capsule for the Gregal® Zonda® inhaler, which allows you to check that the entire dose of the drug has been inhaled?**
- ☐ I think this is an important aspect
- ☐ It seems to me an aspect to value
- ☐ I do not think it is an aspect to highlight
- 24. Of your last 10 COPD patients, what percentage do you think have good control of the disease?**
%
- 25. How do you think adherence to treatment has been for your last 10 COPD patients during the pandemic period? (The percentages of the answers must add up to 100)**
- ☐ Less than 50%%
- ☐ Between 50% and 80%%
- ☐ More than 80%%
- 26. What factors do you think are more determinant in the low therapeutic adherence in respiratory pathologies such as asthma and COPD?**
- ☐ The patient's lack of knowledge about the pathology
- ☐ Poor knowledge of the device
- ☐ The inadequacy of use of the inhaler device
- ☐ The need to use various inhaler devices for treatment

- ☐ The low frequency of follow-up consultations of the pathology
- ☐ Other, please specify _____

27. Do you consider that the pandemic situation "delays" the change of treatment - inhaler for COPD?

- ☐ Yes, in a high percentage of patients
- ☐ Yes, in some cases the patient delays the follow-up visit
- ☐ No
- ☐ Other, please specify _____

28. What percentage of your last 10 COPD patients who have required an inhaler change have been trained in person about the new mode of use of the inhaler?

.....%

29. What percentage of your last 10 COPD patients who have required an inhaler change have been remotely trained about the new mode of use of the inhaler?

.....%

30. What percentage of your last 10 COPD patients use the following elements of telemedicine?

(The percentages of the answers must add up to 100)

- ☐ Mobile apps%
- ☐ *Web-based* platforms%
- ☐ Online pulmonary rehabilitation programs%
- ☐ Other, please specify _____

ASTHMA

To complete this part of the questionnaire, please take into account the aggregated data of the last 10 patients who have come to your consultation for asthma reasons. We do not ask you to make individual assessments, but to express aggregated data, based on these 10 patients, which will represent your usual clinical practice.

31. Average number of asthma patients seen per month

___ patients

32. What percentage of your asthma control visits are currently remote?

.....%

33. What percentage of your consultations before the COVID-19 pandemic were remote?

.....%

34. What percentage of your remote consultations consist of the following actions? (The percentages of the answers must add up to 100)

- ☐ Phone call%
- ☐ Video call%
- ☐ Phone call or video call plus health technology that allows you to receive complementary information%

35. The last 10 patients with asthma with whom you have had a face-to-face follow-up consultation, how much time on average have you been able to dedicate to each one?

___ minutes

36. The last 10 patients with asthma with whom you have had a follow-up consultation remotely, how much time on average have you been able to dedicate to each one?

___ minutes

37. Of your last 10 asthma patients, what percentage have changed therapeutic step in the last year?

.....%

38. Of your last 10 asthma patients, what percentage have had exacerbations that have required treatment with oral corticosteroids in the last year?

.....%

39. In relation to diagnostic and follow-up tests for asthma, has the frequency changed during the pandemic?

- ☐ Yes, I have reduced the request for evidence significantly
- ☐ Yes, the patient has not attended the tests, although we recommend them at the consultation
- ☐ No, I don't think it has significantly affected
- ☐ Other, please specify _____

40. Before the pandemic, how often did you evaluate asthma control in your patients?

- ☐ Every month
- ☐ Every 3 months
- ☐ Every 6 months
- ☐ Every 12 months
- ☐ Other, please specify _____

41. And now, how often do you evaluate asthma control in your patients?

- ☐ Every month
- ☐ Every 3 months
- ☐ Every 6 months
- ☐ Every 12 months
- ☐ Other, please specify _____

42. Your last 10 asthma patients who have used the ACT (Asthma Control Test) questionnaire, what percentage have had the following scores? (The percentages of the answers must add up to 100)

- ☐ More than 20%
- ☐ Between 16 and 19%
- ☐ Equal or less than 15%

43. Of your last 10 asthma patients, what percentage do you think have good control of the disease?

.....%

44. What total percentage of your last 10 asthma patients receive maintenance treatment with ICS + LABA?

.....%

45. Of your last 10 patients with moderate asthma, what percentage are being treated with the following pharmacological groups of step 3 and 4 of the GEMA 5.0 guideline? (The percentages of the answers must add up to 100)

- ☐ Low dose ICS + LABA%
- ☐ Medium dose ICS%
- ☐ Low dose ICS + LTRA%
- ☐ Medium dose ICS + LABA%
- ☐ Medium dose ICS + LTRA%

- ☐ SABA on demand%
- ☐ ICS + formoterol on demand.....%
- ☐ Other, please specify _____

46. Of your last 10 patients with severe asthma, what percentage are being treated with the following pharmacological groups of step 5 and 6 of the GEMA 5.0 guideline?
(The percentages of the answers you select must add up to 100)

- ☐ High dose ICS + LABA%
- ☐ High dose ICS + LABA + tiotropium.....%
- ☐ High dose ICS + LABA + LTRA.....%
- ☐ High dose ICS + LABA + theophylline%
- ☐ High dose ICS + LABA + azithromycin%
- ☐ Biologics%
- ☐ Glucocorticoid PO%
- ☐ Triamcinolone IM%
- ☐ SABA on demand%
- ☐ ICS + formoterol on demand%
- ☐ Other, please specify _____

47. In the last 10 asthma patients treated with ICS + LABA, what was their previous treatment?
(The percentages of the answers must add up to 100)

- ☐ Patient of recent diagnosis, without previous treatment%
- ☐ Previous treatment with SABA%
- ☐ Previous treatment with ICS%
- ☐ Previous treatment with ICS + LABA%
- ☐ Other%

48. Of your last 10 patients in second consultation after prescribing new asthma treatment, what percentage do you think needs a reinforcement of the information about the inhalation technique of the device?

.....%

49. Of your last 10 patients in third and successive consultations after prescribing new asthma treatment, what percentage do you think need a reinforcement of the information about the inhalation technique of the device?

.....%

50. In what percentage of patients have you found it difficult to explain the inhalation technique?

.....%

51. What percentage of your last 10 asthma patients have the following therapeutic adherence intervals to maintenance therapy (when performing inhaler adherence test (IAT))? (The percentages of the answers must add up to 100)

- ☐ 50 points (good adherence)%
- ☐ 49-46 points (intermediate adherence)%
- ☐ 45 points (poor adherence)%

52. What factors do you think are most determinant in low therapeutic adherence?

- ☐ The patient's lack of knowledge about the pathology
- ☐ Poor knowledge of the device
- ☐ The inadequacy of use of the inhaler device
- ☐ Using various inhaler devices for asthma

- ☐ The low frequency of follow-up consultations of the pathology
- ☐ Other, please specify _____

53. Do you consider that the pandemic situation "delays" the change of treatment-inhaler for asthma?

- ☐ Yes, in a high percentage of patients
- ☐ Yes, in some cases
- ☐ No
- ☐ Other, please specify _____

54. What percentage of your last 10 asthma patients who have required an inhaler change have been trained in person about the new mode of use of the inhaler?

.....%

55. What percentage of your last 10 asthma patients who have required an inhaler change have been remotely trained about the new mode of use of the inhaler?

.....%

56. In the last 10 asthma patients who have required a change of treatment, what are the main reasons for the change in treatment? (The percentages of the answers you select must add up to 100)

- ☐ Poor control of the disease%
- ☐ Change of therapeutic strategy from conventional to maintenance and relief (MART)%
- ☐ Misuse of the device%
- ☐ Low adherence to treatment%

57. In what percentage of your last 10 newly diagnosed asthma patients did you choose the device opinion based on the following characteristics? (The percentages of the answers must add up to 100)

- ☐ Its ease of use%
- ☐ Patient preferences%
- ☐ Ease of explanation%
- ☐ Inspiratory flow required%
- ☐ No need for coordination in inhalation technique%
- ☐ Maintenance and rescue in the same inhaler%
- ☐ Other%

58. In your last 10 asthma patients who have switched treatments to Biresp® Spiromax®, what have been the main reasons for switching to this drug?

- ☐ Maintenance and rescue treatment in the same inhaler device
- ☐ Failure of the previous therapeutic option
- ☐ Patient dissatisfaction with the inhaler device they were using
- ☐ Ease of use of the device
- ☐ Switching to MART therapy
- ☐ Other, please specify _____

59. What do you primarily recommend to your asthma patients when they are concerned about the current pandemic situation?

- ☐ That they take extreme precautions to avoid infection because they are patients at risk
- ☐ Avoid, as far as possible, lung function and sputum tests
- ☐ Be especially rigorous in using maintenance medication to maintain control of your asthma
- ☐ Continue with their usual maintenance treatment
- ☐ Trust specialists in case of COVID-19 infection on the need for treatment modification
- ☐ Other, please specify _____

60. What percentage of your last 10 asthma patients use the following elements of telemedicine?

(The percentages of the answers must add up to 100)

- ☐ Mobile applications specific to asthma%
- ☐ *Web-based* platforms%
- ☐ Environmental allergen measuring devices%
- ☐ Other, please specify _____%