

Do not do in COPD: consensus statement on overuse

Felipe Villar-Álvarez,¹
Raúl Moreno-Zabaleta,²
Jose Joaquin Mira-Solves,³
Eduardo Calvo-Corbella,⁴
Salvador Díaz-Lobato,⁵
Fernando González-Torralba,⁶
Ascensión Hernando-Sanz,⁷
Sara Núñez-Palomo,⁸ Sergio
Salgado-Aranda,⁹ Beatriz
Simón-Rodríguez,¹⁰ Paz
Vaquero-Lozano,¹¹ Isabel
María Navarro-Soler¹²

On behalf of “Do not do in COPD” Working Group of the Madrid Society of Pulmonology and Thoracic Surgery (Neumomadrid)

¹Department of Pulmonology, IIS–Fundación Jiménez Díaz, CIBERES, UAM, ²Pulmonology, Inpatient and Noninvasive Mechanical Ventilation, Hospital Universitario Infanta Sofía, Madrid, ³Alicante-Sant Joan Health District, Alicante/Universidad Miguel Hernández Elche/REDISEC, ⁴Family and Community Medicine, CSU Pozuelo Estación, School of Medicine, UAM, ⁵Department of Pulmonology, Hospital Ramón y Cajal, Madrid, ⁶Pulmonology Section, Hospital Universitario del Tajo, Aranjuez, ⁷Department of Pulmonology, Hospital Universitario 12 de Octubre, ⁸C.S. Torrelaguna, ⁹Pulmonology Section, Hospital del Sureste, ¹⁰FisioRespiración-Respiratory Physiotherapy Unit, Escuela Universitaria Gimbernat Cantabria, ¹¹S. Pulmonology, CEP Hnos. Sangro HGU Gregorio Marañón, Madrid, ¹²Calitè Research Group, Universidad Miguel Hernández de Elche, Elche, Spain

Correspondence: Felipe Villar-Álvarez
Department of Pulmonology, IIS–Fundación Jiménez Díaz, CIBERES, UAM, Av Reyes Católicos 2, Madrid 28049, Spain
Email fvillarleon@yahoo.es

Background: To identify practices that do not add value, cause harm, or subject patients with chronic obstructive pulmonary disease (COPD) to a level of risk that outweighs possible benefits (overuse).

Methods: A qualitative approach was applied. First, a multidisciplinary group of healthcare professionals used the Metaplan technique to draft and rank a list of overused procedures as well as self-care practices in patients with stable and exacerbated COPD. Second, in successive consensus-building rounds, description files were created for each “do not do” (DND) recommendation, consisting of a definition, description, quality of supporting evidence for the recommendation, and the indicator used to measure the degree of overuse. The consensus group comprised 6 pulmonologists, 2 general practitioners, 1 nurse, and 1 physiotherapist.

Results: In total, 16 DND recommendations were made for patients with COPD: 6 for stable COPD, 6 for exacerbated COPD, and 4 concerning self-care.

Conclusion: Overuse poses a risk for patients and jeopardizes care quality. These 16 DND recommendations for COPD will lower care risks and improve disease management, facilitate communication between physicians and patients, and bolster patient ability to provide self-care.

Keywords: COPD, consensus, patient safety, quality assurance

Introduction

Overuse of resources for diagnosis and therapy puts patients at risk without providing sufficient clinical benefit. Moreover, overuse has cost implications and has been linked to errors in clinical treatment.^{1,2} We must seek to eliminate practices that run contrary to existing evidence; these include carrying out procedures that do not add value for the patient and/or subject patients to unnecessary risk and failing to take actions that have been shown to produce favorable patient outcomes.

Reports in the literature have described this phenomenon using the terms “overuse,” “overdiagnosis,” “overmedicalization,” and “low-value care.”^{2,3} According to the definition of the Institute of Medicine, overuse consists of providing healthcare when there is no evidence in support of such decisions or when the benefit of the treatment fails to outweigh its risk.^{1,2}

Overuse has been linked to unsafe, inappropriate, and/or inefficient care.^{1,2} To counter this trend, the movement called “Less is more medicine” has taken hold in recent years.³ Driven by scientific societies, medical associations and institutions, and healthcare authorities across different countries, in recent years there has been a growing effort to eliminate certain aspects of medical practice that have been broadly shown to be inappropriate.^{4–6} Examples of this include initiatives by scientific institutions and

societies to issue “do not do” (DND) guidelines and informational and educational campaigns urging practitioners to “choose wisely.”⁶

In an attempt to encourage patient participation in these measures, the foundation Advancing Medical Professionalism to Improve Health Care (ABIM)⁶ conducted an awareness-raising campaign among patients and care professionals to prevent improper use of resources within diagnosis and therapy. There is a well-known body of improper health-related beliefs and behaviors among patients, and these habits lead to harmful practices that must be eradicated if health outcomes are to be improved.^{4–6}

Chronic obstructive pulmonary disease (COPD) varies in prevalence from country to country;⁷ in Spain, the prevalence of COPD is 10.2% among adults between the ages of 40 and 80.⁸ Of all the most prevalent illnesses, COPD is the only one that is on the rise.⁹ COPD is currently the third leading cause of death, behind ischemic heart disease and stroke.⁹ One of the main problems with this disease is underdiagnosis.¹⁰ The burden the disease poses for healthcare resources is substantial: the European Union estimates that the direct cost of COPD totals 38.6 billion euros in Europe, whereas the disease burden in the United States is also high, at 29.5 billion dollars.^{11,12}

Major clinical guidelines for management of COPD, such as the Global Initiative for Chronic Obstructive Lung Disease (GOLD), an international standard,¹³ or the Spanish COPD guidelines (GesEPOC),¹⁴ establish a series of recommendations on preventing, diagnosing, and treating this disease, both for stable as well as exacerbated cases, including indications adapted for different care levels.

Clinical guidelines advise healthcare professionals on appropriate procedures for diagnosis, treatment, and follow-up in step with evolving knowledge of the disease.^{13,14} Despite this information, guides are not always applied correctly and a number of inappropriate practices persist with a certain degree of frequency.^{15–17} Overuse continues in practice (defensive medicine or pressure from patients or relatives are common causes).^{18,19} Moreover, the patient’s health beliefs, customs, or misinterpretation could be causes of harm during self-care. These suboptimal measures can be ineffective, inefficient, or even deleterious for patients.¹⁹ Making changes to routine clinical practice is less than simple, and requires sustained effort in the benefit of effective care. For this reason, a DND approach like the one presented here is useful in that it calls attention to certain aspects of clinical practice that were once widespread but are now known to be inappropriate – because there is no proof of their efficacy,

due to scant or doubtful effectiveness, or because they are not cost-effective.¹

This study aims to identify practices in diagnosis, therapy, and self-care of stable and exacerbated COPD that are inappropriate, have doubtful effectiveness, or are scarcely cost-effective, and develop a list of DND recommendations for COPD health professionals and patients.

Materials and methods

A qualitative research approach was applied. Qualitative research methods analyze phenomena from an overall perspective, attempting to describe reality without formulating hypotheses or setting concrete measures, thereby distinguishing them from quantitative approaches.²⁰

This study was carried out in two phases. The first phase comprised an exploratory analysis (using the Metaplan technique), in which we created a list of overused practices, whereas in the second phase we aimed to reach a consensus definition of DND guidelines pertaining to practices that are still relatively common despite the fact that evidence makes a clear case that they have a poor risk–benefit ratio (using a consensus conference technique).

The Spanish health system is mainly a public system in which COPD patients are evaluated, at first, by general practitioners, who initiate the treatment and send the patient to a pulmonologist to complete the evaluation. If there is a problem in the evaluation of the patient, the general practitioner begins the treatment. Some COPD patients are treated by physiotherapists and most of them are evaluated by nurses. Therefore, a panel with several pulmonologists, general practitioners, physiotherapists, and nurses is adequate to make a correct evaluation. Ten healthcare professionals participated in this study, each with >10 years’ experience in treating COPD patients and involved in research and committees in their professional groups and healthcare levels. This group of collaborators was chosen to include a variety of perspectives drawn from different experiences with clinical practice and by balancing primary and in-hospital care. To do this, six pulmonologists (with experience in hospitalization, consultation, emergencies, home care, mechanical ventilation, and healthcare administration), two general practitioners, one nurse, and one physiotherapist were recruited by the Board of Neumomadrid (Madrid Society of Pulmonology and Thoracic Surgery). Two of the expert pulmonologists and a researcher with expertise in qualitative approaches acted as coordinators.

Once the working group had been formed, both the pulmonologist coordinators and the expert in qualitative research

designed an action plan that called for an initial meeting to be attended by all specialists involved, so as to brainstorm care or self-care practices used in COPD having benefits that do not outweigh their risks. Poor risk–benefit ratio was understood as doubtful effectiveness or deleterious patient outcomes, thus indicating that they were not cost-effective. During this first meeting, the group debated the frequency with which these practices are employed and the strength of the evidence used to deter continued use of these practices. The Metaplan technique^{21,22} was used to identify such practices, to elaborate on them, and to rank them based on frequency. All members of the group began the analysis by noting down the practices they considered to be ill-advised. Based on the results of this method, a decision was made to ask three questions to be answered consecutively (Figure 1):

- 1) Indicate which practices you consider to be both widely used in the management of patients with stable COPD and also inappropriate because of their poor risk–benefit ratio.
- 2) Indicate which practices you consider to be both widely used in the management of patients with exacerbated COPD and also inappropriate because of their poor risk–benefit ratio.

- 3) Indicate which self-care practices you believe are widespread among COPD patients and are inappropriate because of their poor risk–benefit ratio.

Responses to these questions were gathered individually, and each collaborator was able to present as many practices as they saw fit. Similar questions were grouped together. Subsequently, an open, unmoderated debate was held to discuss each of the examples of overuse that had been proposed in the previous phase so that the participants could assess the pertinence, degree of consensus, and sources of evidence for each one. Lastly, each individual coauthor evaluated the different proposed inappropriate practices according to the degree of prevalence in routine clinical practice. For this, a scale of 1–5 was employed, with 1 indicating scarce frequency of use and 5 representing practices that are relatively frequent despite being inadvisable or not cost-effective – that is, those practices discouraged by scientific evidence or professional consensus. In addition, the analysis took into account proposals referring to the same practice which were made by more than one study participant (spontaneity) and the level of agreement between participants (coefficient of variation). During this initial phase, scores around the 75th percentile were considered the cutoff; therefore, practices

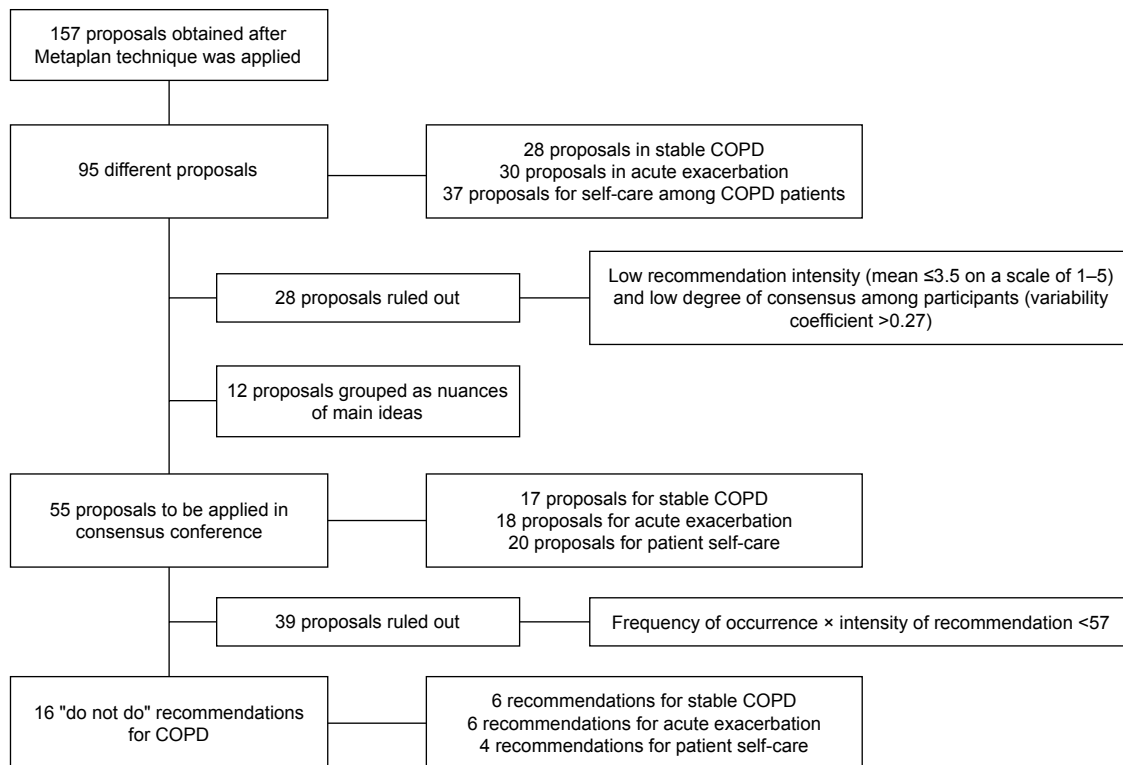


Figure 1 Summary of the methodology used in the study, including the number of ideas identified, selection criteria, and procedure used to screen “do not do” recommendations in COPD.

Abbreviation: COPD, chronic obstructive pulmonary disease.

that had been given an average score of 3.5 points or lower, as it was believed that there was no consensus opinion indicating that these were in widespread use (variability coefficient >0.27 ; Figure 1), were proposed as inappropriate.

The methodology used in the second phase was the consensus conference.²³ For this, a web application was used to select DND recommendations that were most widely chosen. Each inappropriate practice was assigned a DND recommendation.

To assign each DND recommendation, all inappropriate practices were individually assessed (a scale from 1 to 10 was used) again by the group of experts to establish their perceived frequency of use, the degree to which the practice was considered useless, deleterious, or failed to add value, and, lastly, whether the practice was more prevalent among specialists in pulmonology, primary care, or nursing. Moreover, this phase included an opportunity for the collaborators to propose modifications and clarifications to the language used in the originally proposed description of these inappropriate practices. The expert participants had been given information on the degree of consensus reached in the previous phase for each practice perceived to be inappropriate (ie, mean, spontaneity, and coefficient of variation). These recommendations were ranked according to the result obtained by applying the formula frequency \times intensity (range 1–100) once they were grouped according to COPD into stable, exacerbated, or related to self-care. We set a data-driven cutoff point of 57 points, meaning that scores below this value indicated a lower level of consensus (Figure 1).

An operational description was created for each of the recommendations processed according to this method, and we evaluated the level of evidence justifying the proposed inappropriateness of the measure. For proposals made for patient self-care, we based these assessments on literature concerning patient education and clinical experience. The resulting recommendations were distributed among the participants, and a descriptive file was created for each one, including the following fields: recommendation title, operative definition of the practice to be eradicated, description of the practice to be eradicated, justification given for the eradication proposal, level of evidence and recommendation grade according to the Scottish Intercollegiate Guidelines Network (SIGN),²⁴ bibliographical sources, and recommended indices to assess whether a change has taken place in the practice and to enable follow-up of the level of uptake of these DND recommendations (Figure 2).

Practices discouraged for treatment of COPD	
Name:	
Operative definition of the practice that should be discontinued:	
Description:	
Justification/remarks:	
Evidence:	
Level of evidence:	
Strength of recommendation:	
References:	
Indicator proposed for follow-up of changes in the practice:	

Figure 2 Description file for each “do not do” recommendation in COPD. **Abbreviation:** COPD, chronic obstructive pulmonary disease.

Results

When the Metaplan technique was applied, a total of 157 proposals were made concerning overuse practices in the treatment of patients with COPD, and 95 of these were intrinsically different from each other. Practices were eliminated if they received an average score of 3.5 points or lower, as it was believed that there was no consensus opinion surrounding them. This resulted in a total of 28 practices in stable COPD, 30 in exacerbated disease, and 37 self-care practices. Finally, we eliminated 40 examples of inappropriate practices for which there was insufficient consensus among the members of the research group or because they overlapped with others.

During the final phase, which consisted of a consensus conference, 55 proposals were assessed for possible inappropriateness or cost-ineffectiveness, and each one was assigned a DND recommendation: 17 for stable COPD, 18 for exacerbated COPD, and 20 concerning self-care among this population of patients. After the list was reviewed by the group of experts taking part in the study, the number of recommendations was reduced to 16 (after applying the formula frequency \times intensity, and eliminating those recommendations with <57 points): six for stable disease, six for exacerbated COPD, and four for patient self-care (Table 1).

Table I Practices in diagnosis, therapy, and self-care determined to be ill-advised for COPD patients following a consensus conference

Group	“Do not do” recommendations	F		I		F × I
		Mean	Level of agreement	Mean	Level of agreement	Mean
Patients with stable COPD	Do not administer inhaled corticosteroids as routine treatment for patients with FEV ₁ >60% and <2 acute exacerbations in the previous year or in patients without an overlapping COPD–asthma phenotype.	8.6	0.10	8.3	0.10	72.2
	Do not neglect to perform spirometry as part of the diagnostic work-up in patients with a past history of smoking and symptoms of COPD.	8.3	0.21	8.3	0.11	68.9
	Do not assume that patients correctly administer inhaled medication in the absence of proper confirmation.	8.0	0.13	8.5	0.15	68.0
	Do not initiate treatment without previously confirming the diagnosis by spirometry.	8.0	0.24	8.4	0.17	67.2
	Do not change inhaled treatment without first assessing treatment compliance.	7.9	0.26	7.7	0.12	60.8
	Do not perform pulmonary function testing systematically at each follow-up visit if there is no change in symptoms, in the number of previous acute exacerbations, or in treatment.	7.6	0.27	7.7	0.25	58.5
Patients with exacerbated COPD	Do not prescribe antibiotic treatment in all cases of acute exacerbation.	8.8	0.19	8.2	0.15	72.2
	Do not prescribe nebulized medication in all cases of acute exacerbation.	8.1	0.21	7.8	0.19	63.2
	Do not administer high-flow oxygen if oxygen saturation is >90% or if PaO ₂ is ≥60 mmHg.	7.0	0.20	9.0	0.12	63.0
	Do not prescribe home oxygen therapy following an acute exacerbation if PaO ₂ is ≥60 mmHg.	7.5	0.31	8.2	0.19	61.5
	Do not prescribe corticosteroid therapy for periods of >14 days or with progressive reduction in therapy.	8.2	0.16	7.4	0.22	61.2
Self-care in patients with COPD	Do not perform spirometry in patients with known COPD.	6.9	0.38	8.4	0.13	58.0
	Do not discontinue taking inhaled medication because an improvement in clinical symptoms has taken place.	7.7	0.21	9.0	0.07	69.3
	Do not use the inhaler incorrectly.	7.2	0.18	9.0	0.12	64.8
	Do not stop walking due to feelings of dyspnea.	7.9	0.15	7.8	0.22	61.6
	Do not take unprescribed treatments.	7.1	0.10	8.5	0.16	60.3

Notes: F, frequency of occurrence of the discouraged practice; I, degree of inappropriateness of the discouraged practice; F × I, frequency of occurrence of the practice multiplied by its degree of inappropriateness. Mean, average value from 0 to 10. This is estimated using the coefficient of variation obtained when each recommendation is evaluated. Lower coefficients of variation indicate greater degrees of homogeneity of assessments and thus greater degrees of consensus.

Abbreviations: COPD, chronic obstructive pulmonary disease; FEV₁, forced expiratory volume in 1 second; PaO₂, partial pressure of oxygen.

The definitive list of six DND recommendations for stable COPD was as follows:

- Do not administer inhaled corticosteroids as routine treatment in patients with forced expiratory volume in 1 second (FEV₁) >60% and <2 acute exacerbations in the previous year or in patients without an overlapping COPD–asthma phenotype.
- Do not neglect to perform spirometry as part of the diagnostic work-up in patients with a past history of smoking and symptoms of COPD.
- Do not assume that patients correctly administer inhaled medication in the absence of proper confirmation.
- Do not initiate treatment without previously confirming the diagnosis by spirometry.
- Do not change inhaled treatment without first assessing treatment compliance.

- Do not perform pulmonary function testing systematically at each follow-up visit if there is no change in symptoms, in the number of previous acute exacerbations, or in treatment.
- Six other DND recommendations, which concerned acute exacerbations of COPD, were as follows:

- Do not prescribe antibiotic treatment in all cases of acute exacerbation.
- Do not prescribe nebulized medication in all cases of acute exacerbation.
- Do not administer high-flow oxygen if oxygen saturation is >90% or if partial pressure of oxygen (PaO₂) is ≥60 mmHg.
- Do not prescribe home oxygen therapy following an acute exacerbation if PaO₂ is ≥60 mmHg.
- Do not prescribe corticosteroid therapy for periods of >14 days or with progressive reduction in therapy.

- Do not perform spirometry in patients with known COPD.

Lastly, the four DND recommendations for self-care among patients with COPD were as follows:

- Do not discontinue taking inhaled medication because an improvement in clinical symptoms has taken place.
- Do not use the inhaler incorrectly.
- Do not stop walking due to feelings of dyspnea.
- Do not take unprescribed treatments.

Subsequently, descriptive files containing technical specifications of each recommendation were created (Figure 2). This file included the level of evidence and grade of recommendation – bases that justify DND recommendations – as well as indicators that allow for an assessment of the data collected (Tables 2 and 3). Clinical guidelines, such as GOLD¹³ or GesEPOC,¹⁴ have been evaluated in the level of evidence and in the analysis of data collected.

Discussion

Using a multi-phase methodology we identified a number of practices used in diagnosis, therapy, and other care – including the self-care procedures that are the responsibility of patients – that are inappropriate, have doubtful effectiveness, or are not cost-effective for COPD patients. The results of this study should bring about an increase in care quality by reducing the frequency of practices that add no value or are harmful for patients, as well as by increasing patient safety, improving physician–patient communication, and better enabling patients to undertake self-care.

The National Physicians Alliance, a medical organization operating in the United States, set in motion a project called “Choosing Wisely,” which called on a variety of medical societies – initially, those concerned with primary care, internal medicine, and pediatrics – to propose a list of five recommendations for medical practices with the aim of optimizing healthcare resources used to diagnose and treat different illnesses.⁶ In the United Kingdom, the National Institute for Health and Care Excellence (NICE) has also published a set of DND recommendations, highlighting care practices that do not benefit patients or for which there is insufficient evidence upon which to base suggestions for use.²⁵

Along these same lines, the American Thoracic Society (ATS), in partnership with the American College of Chest Physicians, created a list of five practices that are widely used to treat respiratory diseases in adults but that, nonetheless, should be avoided.²⁶ Although none of these concern COPD, the previous list of ten practices contained two that are relevant to COPD – that is, “Do not perform frequent spirometry in patients with COPD in patients who are clinically stable and

Table 2 Level of evidence and grade of recommendation as indicated in SIGN²⁴ including bases that justify the “do not do” recommendations

Group	Name of the practice with level of evidence and grade of recommendation	Bases that justify the recommendation (References)
Patients with stable COPD	Do not administer inhaled corticosteroids as routine treatment in patients with FEV ₁ >60% and <2 acute exacerbations in the previous year or in patients without an overlapping COPD-asthma phenotype. Level of evidence: I++ Grade of Recommendation: A	GOLD ¹³ Miravitlles et al ³² Vogelmeier et al ³³ Zhong et al ³⁴ Price et al ³⁵ Vestbo et al ³⁶ Suissa et al ³⁷ Wedzicha et al ³⁸
	Do not neglect to perform spirometry as part of the diagnostic work-up in patients with a past history of smoking and symptoms of COPD. Level of evidence: 2++ Grade of Recommendation: B	Zwar et al ³⁹ Dirven et al ⁴⁰ GOLD ¹³ EPOC ⁴¹
	Do not assume that patients correctly administer inhaled medication in the absence of proper confirmation. Level of evidence: 2+ Grade of Recommendation: C	Sriram and Percival ⁴² Ingebrigtsen et al ⁴³ Plaza et al ⁴⁴ Vestbo et al ⁴⁵ Alexopoulos et al ⁴⁶ Wei et al ⁴⁷ Tommelein et al ⁴⁸ Leiva-Fernández et al ⁴⁹ Bryant et al ⁵⁰
Patients with exacerbated COPD	Do not initiate treatment without previously confirming the diagnosis by spirometry. Level of evidence: 2++ Grade of Recommendation: B	Fernández Villar et al ⁵¹ Buffels et al ⁵² Hardie et al ⁵³ Jones et al ⁵⁴ Miravitlles et al ⁵⁵ Miller and Levy ⁵⁶
	Do not change inhaled treatment without first assessing treatment compliance. Level of evidence: 2+ Grade of Recommendation: C	Sriram and Percival ⁴² Ingebrigtsen et al ⁴³ Melani and Paleari ⁵⁷ Braido et al ⁵⁸ Plaza et al ⁴⁴
	Do not perform pulmonary function testing systematically at each follow-up visit if there is no change in symptoms, in the number of previous acute exacerbations, or in treatment. Level of evidence: 4 Grade of Recommendation: D	Kohansal et al ⁵⁹ Donaldson et al ⁶⁰ GOLD ¹³ Miravitlles et al ³² EPOC ⁶¹ Peces-Barba et al ⁶²
Patients with exacerbated COPD	Do not prescribe antibiotic treatment in all cases of acute exacerbation. Level of evidence: I+ Grade of Recommendation: A	Sapey and Stockley ⁶³ Vollenweider et al ⁶⁴ Soler et al ⁶⁵ Miravitlles et al ⁶⁶ Boixeda et al ⁶⁷

(Continued)

Table 2 (Continued)

Name of the practice with level of evidence and grade of recommendation	Bases that justify the recommendation (References)
Do not prescribe nebulized medication in all cases of acute exacerbation. Level of evidence: I++ Grade of Recommendation: A	Turner et al ⁶⁸ Brocklebank et al ⁶⁹ Dolovich et al ⁷⁰ Tashkin et al ⁷¹
Do not administer high-flow oxygen if oxygen saturation is >90% or if PaO ₂ is ≥60 mmHg. Level of evidence: I++ Grade of Recommendation: A	Royal United Hospital Bath ⁷² Driscoll et al ⁷³ Rachmale et al ⁷⁴ Miravittles et al ⁷⁵ American Thoracic Society ⁷⁶ BTS ⁷⁷ Barberá et al ⁷⁸ Siafakas et al ⁷⁹ Pauwels et al ⁸⁰
Do not prescribe home oxygen therapy following an acute exacerbation if PaO ₂ is ≥60 mmHg. Level of evidence: I++ Grade of Recommendation: A	Cranston et al ⁸¹ Nocturnal Oxygen Therapy Trial ⁸² Medical Research Council Working Party ⁸³ Croxtton and Bailey ⁸⁴ Güell Rous ⁸⁵ Peces-Barba et al ⁶² Task Force of GesEPOC ⁸⁶ GOLD ¹³ Qaseem et al ⁸⁷ Stoller et al ⁸⁸
Do not prescribe corticosteroid therapy for periods of >14 days or with progressive reduction in therapy. Level of evidence: I++ Grade of Recommendation: A	Leuppi et al ⁸⁹ McCrorry et al ⁹⁰ Singh et al ⁹¹ Walters et al ⁹² Albert et al ⁹³ Task Force of GesEPOC ⁸⁶ Miravittles et al ³² GOLD ¹³
Do not perform spirometry in patients with known COPD. Level of evidence: 4 Grade of Recommendation: D	GOLD ¹³ Task Force of GesEPOC ⁸⁶ COPD ⁹⁴
Self-care in patients with COPD Do not discontinue taking inhaled medication because an improvement in clinical symptoms has taken place. Level of evidence: I++ Grade of Recommendation: A	Ingebrigtsen et al ⁴³ Restrepo et al ⁹⁵ Ágh et al ⁹⁶ Van Boven et al ⁹⁷ Vestbo et al ⁴⁵
Do not use the inhaler incorrectly.	Cecere et al ⁹⁸ Vestbo et al ⁴⁵

(Continued)

Table 2 (Continued)

Name of the practice with level of evidence and grade of recommendation	Bases that justify the recommendation (References)
Level of evidence: 4 Grade of Recommendation: D	SEPAR ⁹⁹ Plaza et al ¹⁰⁰ Calle Rubio et al ¹⁰¹ Giner et al ¹⁰² Sánchez ¹⁰³ Plaza et al ⁴⁴
Do not stop walking due to feelings of dyspnea. Level of evidence: 2++ Grade of Recommendation: B	Álvarez-Gutiérrez et al ¹⁰⁴ García-Río ¹⁰⁵ GOLD ¹³ Miravittles et al ³² Watz et al ¹⁰⁶
Do not take unprescribed treatments. Level of evidence: I++ Grade of Recommendation: A	GOLD ¹³ Miravittles et al ³² Tashkin et al ¹⁰⁷ Vogelmeier et al ¹⁰⁸ Wise et al ¹⁰⁹ Decramer et al ¹¹⁰ Celli et al ¹¹¹ Vestbo et al ⁴⁵

Abbreviations: COPD, chronic obstructive pulmonary disease; FEV₁, forced expiratory volume in 1 second; GOLD, Global Initiative for Chronic Obstructive Lung Disease; PaO₂, partial pressure of oxygen.

have an established diagnosis” and “Do not routinely administer intravenous steroids for patients hospitalized for acute exacerbations of asthma and COPD.”

In Spain, the Ministry of Health, Social Services, and Equality launched the project titled “Commitment to Quality in Scientific Societies”²⁷ in order to reduce unnecessary interventions. As in the present study, the initiative took unnecessary interventions to mean those for which there was no proven efficacy, practices with scant or doubtful effectiveness, or procedures that are not cost-effective. A multitude of scientific societies took part in the initiative, each represented by a panel of experts charged with producing a list of five DND recommendations. The Spanish Society of Pulmonology and Thoracic Surgery (SEPAR) established five recommendations, two of which are linked to COPD:

Do not prescribe ambulatory oxygen therapy in COPD patients where PaO₂ in arterial blood is over 55 mmHg and in the absence of exercise-related desaturation

and

Do not systematically use antibiotic therapy to treat patients with acute COPD exacerbations when there are no data on severity and when the patient only meets one Anthonisen criterion (other than sputum purulence).²⁷

Table 3 Indicators used for assessment of “do not do” recommendations

Group	“Do not do” recommendations	Indicators
Patients with stable COPD	Do not administer inhaled corticosteroids as routine treatment for patients with FEV ₁ >60% and <2 acute exacerbations in the previous year or in patients without an overlapping COPD-asthma phenotype.	Number of patients with FEV ₁ >60% and with 0–1 acute exacerbations in the previous year and who receive inhaled corticosteroids as routine treatment (exclusive of patients with an overlapping COPD-asthma phenotype)/number of patients diagnosed with COPD who receive inhaled corticosteroids as routine treatment.
	Do not neglect to perform spirometry as part of the diagnostic work-up in patients with a past history of smoking and symptoms of COPD.	Number of patients who are smokers (at least 10 pack-years) over age 35 presenting respiratory symptoms and who have not received spirometry/number of patients who are smokers and have a diagnosis of COPD.
	Do not assume that patients correctly administer inhaled medication in the absence of proper confirmation.	Number of patients for whom the patient chart contains references to inhaled therapy (direct observation or as obtained through compliance questionnaires such as Test of Adherence to Inhalers [TAI])/total number of patients with COPD and inhaled treatment.
	Do not initiate treatment without previously confirming the diagnosis by spirometry.	Number of COPD patients undergoing treatment with inhalants/number of patients with spirometry-confirmed COPD diagnosis.
	Do not change inhaled treatment without first assessing treatment compliance.	Number of patients with a justified change in inhaled treatment appearing in their patient chart/number of patients in whom treatment has changed over the previous year.
Patients with exacerbated COPD	Do not perform pulmonary function testing systematically at each follow-up visit if there is no change in symptoms, in the number of previous acute exacerbations, or in treatment.	Number of spirometry studies performed in a given period of time/number of follow-up consultations undertaken in the same period.
	Do not prescribe antibiotic treatment in all cases of acute exacerbation.	Number of COPD patients with acute exacerbations treated with antibiotic therapy/number of COPD patients with acute exacerbations.
	Do not prescribe nebulized medication in all cases of acute exacerbation.	Number of COPD patients with acute exacerbations treated with nebulized medication/number of COPD patients with acute exacerbations.
	Do not administer high-flow oxygen if oxygen saturation is >90% or if PaO ₂ is ≥60 mmHg.	Number of patients receiving high-flow oxygen therapy who have oxygen saturation >90% or PaO ₂ ≥60 mmHg/number of patients undergoing this therapy throughout a given period of time.
	Do not prescribe home oxygen therapy following an acute exacerbation if PaO ₂ is ≥60 mmHg.	Number of patients prescribed home oxygen therapy following an acute exacerbation with PaO ₂ ≥60 mmHg/total number of cases prescribed home oxygen therapy following an acute exacerbation.
	Do not prescribe corticosteroid therapy for periods of >14 days or with progressive reduction in therapy.	Number of patients prescribed with long-term (>14 days) treatment with corticosteroids/total number of patients undergoing corticosteroid therapy.
	Do not perform spirometry in patients with known COPD.	Number of patients prescribed to receive progressive reduction of corticosteroid therapy/total number of patients undergoing corticosteroid therapy.
Self-care in patients with COPD	Do not perform spirometry in patients with known COPD.	Number of spirometry studies performed during acute exacerbations in patients with previously known COPD/number of COPD patients with acute exacerbations.
	Do not discontinue taking inhaled medication because an improvement in clinical symptoms has taken place.	Number of consultations assessing degree of compliance and proper therapy administration/total number of consultations.
	Do not use the inhaler incorrectly.	Number of consultations assessing errors in dosage or inhaler use/total number of consultations.
	Do not stop walking due to feelings of dyspnea.	Daily/weekly/monthly log of distance walked compared to the results of the individual 6-minute walking test.
	Do not take unprescribed treatments.	Improved score on surveys and rating scales for physical activity or activities of daily living. Total number of COPD patients receiving unprescribed therapy/total number of patients with COPD.

Abbreviations: COPD, chronic obstructive pulmonary disease; FEV₁, forced expiratory volume in 1 second; PaO₂, partial pressure of oxygen.

These working groups base their recommendations on the views of a group of subject-matter experts, selecting those practices that should not be subjected to assessment using qualitative methods. Each group works with a preliminary list of possible recommendations appearing in clinical practice guidelines, using these guidelines as a primary source. Use of this method allows for high levels of consensus on DND recommendations, although this method is limited in that, sometimes, discouraged practices are seldom used. We have taken measures to adjust for this by including recommendations that are commonly made in the context of routine practice.

In addition to the study's focus on a single disease such as COPD, one novel aspect of our article is the inclusion of DND recommendations concerning patient self-care. Specifically, we identified practices that are prevalent in COPD patient self-care despite their lack of effectiveness or even deleteriousness for these patients. Self-care in patients with COPD can improve health-related quality of life and reduce hospital admissions.^{28,29} Clari et al has provided evidence on the self-care behaviors and strategies that people with COPD undertake to prevent, control, and manage the physical, psychological, and social consequences of this pathology.³⁰ Our four recommendations for self-care in patients with COPD and the proposed indicators for their evaluation could enable COPD patients to reduce the physical, psychological, and social effects of COPD, and help healthcare professionals to tailor self-care educational programs to the experiences and priorities of these patients.^{30,31}

Another strength of this study is its use of level of evidence and grade of recommendation in accordance with SIGN²⁴ and citations from the literature that support these recommendations.

Our study, furthermore, includes a series of proposals for follow-up of the frequency with which the cases of overuse included in the DND guidelines continue to be employed. These are COPD-related care-quality indicators that could be used by health authorities to assess outcomes. Additionally, these could be incorporated into the balanced scorecards used in care units or form part of the yearly targets set by management agreements. Proper deployment of recommendations enables appropriate oversight of the degree to which targets are being met and aids in target setting. These aspects have been scarcely used in other studies,^{26,27} although we believe them to be necessary to address the problem of overuse.

Due to its local setting in Spain and the implications that this setting had for the design of the study, one limitation of this research is this local nature, as results may vary in

other locations. Moreover, we did not include an analysis of the frequency with which the practices selected as inadvisable are employed in current clinical practice or in patient home care. Despite this, the study focuses on clinical and self-care practices that become evident in the clinical context due to their prolonged time of use.

In addition, the study is limited by the fact that, to date, no DND indicators have been included in quality assessments and, as a result, data concerning the efficacy of these recommendations are scarce. We do, however, make a proposal which would allow for a follow-up to be conducted on the degree of uptake of these recommendations. The DND included in this study as examples of overuse were chosen because of their cost-ineffectiveness, but they are not based on empirical evidence. Moreover, the list of inappropriate practices is not supported by any investigation of real prevalence, and is based on level of agreement for opinion and experience of a small panel of experts. No quantitative study has been undertaken to measure the degree of agreement with these DND recommendations among professional groups or patient representatives, and further research should examine data on the implementation of these recommendations as well as continuous follow-up.

We can conclude from this study that DND recommendations in COPD are likely to improve management of patients with the disease by reducing the rate with which improper or scarcely cost-effective practices are used in clinical care and patient self-care. Furthermore, the use of these recommendations will lower care risks, improve physician-patient communication, and empower patients to undertake in-home self-care.

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S Núñez-Palomo declares that she has written monographs or participated in courses and conferences sponsored by Boehringer, Pfizer, Astra Zéneca, GSK, and Rovi, and has no other conflicts of interest in this work.

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